SPECIFICATIONS AND OTHER BIDDING AND CONTRACT DOCUMENTS

ALAMEDA COUNTY PROJECT # 2043-02
Highland ATR Make Ready Work Project

Fairmont Hospital Campus – Buildings C and E

ALAMEDA COUNTY
GENERAL SERVICES AGENCY
TECHNICAL SERVICES DEPARTMENT
1401 LAKESIDE DRIVE
OAKLAND, CALIFORNIA

ARCHITECTS/ENGINEERS

KPA Group
One Kaiser Plaza, Suite 445
Oakland, CA 94612
PHONE: (510) 271-6701 FAX: (510) 271-6707

MANDATORY PRE-BID SITE VISIT AND MEETING

10:00 a.m. (strictly enforced) on December 2, 2008
Fairmont Hospital Cafeteria
15400 Foothill Blvd.
San Leandro, Ca 94578
**DOCUMENT 00 01 09**

**SUMMARY BIDDING CALENDAR**

NOTICE – THIS SUMMARY IS FOR INFORMATIONAL PURPOSES ONLY. The dates and times listed may not be relied upon or enforced. This summary does not form a part of the contract documents and does not establish contractual obligations.

NOTICE – THIS IS A SUMMARY ONLY AND DOES NOT LIST ALL DATES, TIMES OR TIME PERIODS CONTAINED IN THE BIDDING AND CONTRACT DOCUMENTS. All bidders and contractors must refer to the actual documents for all applicable dates, times and time periods.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Documents Available</td>
<td>11-06-08</td>
<td>00 11 16 Notice to Bidders</td>
</tr>
<tr>
<td>Pre-Bid Conference &amp; Site Visit</td>
<td>11-21-08</td>
<td>00 11 16 Notice to Bidders</td>
</tr>
<tr>
<td>Last Day for Receipt of Requests for Substitutions before Receipt of Bids</td>
<td>10 days before date for Receipt of Bids</td>
<td>00 21 13 Instructions to Bidders</td>
</tr>
<tr>
<td>Last Day for Receipt of Questions</td>
<td>7 days before date for Receipt of Bids</td>
<td>00 21 13 Instructions to Bidders</td>
</tr>
<tr>
<td>Receipt of Bids and Bid Opening</td>
<td>12-18-08</td>
<td>00 11 16 Notice to Bidders</td>
</tr>
<tr>
<td>Last Day for two lowest bidders to submit COP Forms 101A, 101B and 102</td>
<td>By 2:00 p.m. 2 days following the Bid Opening</td>
<td>00 22 19 Supplementary Instructions to Bidders - Construction Outreach Program</td>
</tr>
<tr>
<td>Last Day to Submit Bid Protest</td>
<td>3rd Business Day from Date of Receipt of Bids</td>
<td>00 21 13 Instructions to Bidders</td>
</tr>
<tr>
<td>Estimated Date of Notice of Award</td>
<td>01-06-09</td>
<td>TBD by County</td>
</tr>
<tr>
<td>Signing of Contract</td>
<td>7 Calendar days after Notice of Award</td>
<td>00 11 16 Notice to Bidders</td>
</tr>
<tr>
<td>Submit Post-Award Documents</td>
<td>7 Calendar days after Notice of Award</td>
<td>00 51 00 Notice of Award</td>
</tr>
<tr>
<td>Last Day to Submit Escrow Bid Documentation</td>
<td>7 Calendar days after Notice of Award</td>
<td>00 21 13 Instructions to Bidders</td>
</tr>
<tr>
<td>Contract Duration</td>
<td><strong>163 Days</strong></td>
<td>00 56 00 Escrow Bid Documentation</td>
</tr>
<tr>
<td>Contract Duration Begins</td>
<td>01-14-09</td>
<td>00 55 00 Notice to Proceed</td>
</tr>
<tr>
<td>Contract Duration Ends</td>
<td>06-26-09</td>
<td>00 55 00 Notice to Proceed</td>
</tr>
<tr>
<td>Last Day to Submit Preliminary Schedule, etc. per Notice to Proceed</td>
<td>10th Calendar Day following Notice to Proceed</td>
<td>00 55 00 Notice to Proceed</td>
</tr>
</tbody>
</table>
END OF DOCUMENT
# TABLE OF CONTENTS

## INTRODUCTORY INFORMATION
- 00 01 01 Project Title Page
- 00 01 09 Summary Bidding Calendar
- 00 01 10 Table of Contents
- 00 01 15 List of Drawings
- 00 01 20 List of Schedules

## PROCUREMENT REQUIREMENTS

### SORCITATION
- 00 11 16 Notice to Bidders

### INSTRUCTIONS FOR PROCUREMENT
- 00 21 13 Instructions to Bidders
- 00 22 19 Supplementary Instructions to Bidders – Construction Outreach Program

### AVAILABLE INFORMATION
- 00 31 19 Existing Conditions Information
- 00 31 32 Geotechnical Data

### PROCUREMENT FORMS AND SUPPLEMENTS
- 00 41 13 Bid Form – Stipulated Sum (Single-Prime Contact)
- 00 43 13 Bid Security Form
- 00 43 36 Designated Subcontractors List
- 00 45 01 Site-Visit Certification
- 00 45 13 Non-Collusion Affidavit
- 00 45 26 Worker’s Compensation Certification
- 00 45 46.01 Prevailing Wage and Related Labor Requirements Certification
- 00 45 46.04 Hazardous Materials Certification
- 00 45 46.06 Imported Materials Certification

## CONTRACTING REQUIREMENTS

### CONTRACTING FORMS AND SUPPLEMENTS
- 00 51 00 Notice of Award
- 00 52 13 Agreement Form – Stipulated Sum (Single-Prime Contact)
- 00 55 00 Notice to Proceed
- 00 56 00 Escrow of Bid Documentation
- 00 57 00 Escrow Agreement for Security Deposits in Lieu of Retention

### PROJECT FORMS
- 00 61 13.13 Performance Bond Form
- 00 61 13.16 Payment Bond Form
00 65 19.26 Final Settlement Certificate Form
00 65 36 Warranty Form

00 70 00 CONDITIONS OF THE CONTRACT
00 72 13 General Conditions – Stipulated Sum (Single-Prime Contact)
00 73 13 Special Conditions
00 73 56 Hazardous Materials Procedures and Requirements

DIVISION 01 — GENERAL REQUIREMENTS

01 00 00 GENERAL REQUIREMENTS
01 10 00 Summary of Work
01 14 00 Work Restrictions (Optional. Required for Highland Project)

01 20 00 PRICE AND PAYMENT PROCEDURES
01 22 00 Unit Prices and Alternates

01 30 00 ADMINISTRATIVE REQUIREMENTS
01 31 00 Project Management and Coordination
01 31 19 Project Meetings
01 31 26 Schedules and Reports (Optional. Required for Larger Projects)
01 33 00 Submittal Procedures

01 35 00 SPECIAL PROCEDURES
01 35 13.23 LEED™ Requirements
01 35 13.26 Construction Waste Management

01 40 00 QUALITY REQUIREMENTS
01 41 00 Regulatory Requirements
01 42 13 Abbreviations and Acronyms
01 42 16 Definitions and Reference Standards
01 43 00 Quality Assurance – materials and equipment
01 45 00 Quality Control

01 50 00 TEMPORARY FACILITIES AND CONTROLS
01 50 00 Temporary Facilities and Controls

01 60 00 PRODUCT REQUIREMENTS
01 62 00 Product Options and Substitutions
01 65 00 Delivery, Storage and Handling

01 70 00 EXECUTION AND CLOSEOUT REQUIREMENTS
01 71 10 Record Documents
01 71 23 Field Engineering
01 73 29 Cutting and Patching
01 76 00 Protecting Installed Construction
01 77 00 Closeout Procedures
01 78 23  Operation and Maintenance Instructions
01 78 36  Warranties
01 78 39  Project Record Documents

01 90 00  LIFE CYCLE ACTIVITIES
01 91 13  General Commissioning Requirements
LIST OF DRAWINGS

<table>
<thead>
<tr>
<th>Sheet number</th>
<th>File number</th>
<th>Description</th>
</tr>
</thead>
</table>

END OF DOCUMENT
**List of Schedules**

**Project Duration:** 163 Calendar Days

**Milestones:**

<table>
<thead>
<tr>
<th>Event</th>
<th>Start</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notice to Bid</td>
<td>11-06-08</td>
<td>11-06-08</td>
</tr>
<tr>
<td>Site Walk</td>
<td>11-21-08</td>
<td>11-21-08</td>
</tr>
<tr>
<td>Last RFI</td>
<td>11-25-08</td>
<td>11-25-08</td>
</tr>
<tr>
<td>Last Addendum</td>
<td>12-02-08</td>
<td>12-02-08</td>
</tr>
<tr>
<td>Bid Date</td>
<td>12-18-08</td>
<td>12-18-08</td>
</tr>
<tr>
<td>Board Approval for Award</td>
<td>01-06-09</td>
<td>01-06-09</td>
</tr>
<tr>
<td>Phase I Records Construction</td>
<td>01-14-09</td>
<td>04-14-09</td>
</tr>
<tr>
<td>Phase I Owner Move In</td>
<td>04-15-09</td>
<td>04-21-09</td>
</tr>
<tr>
<td>Phase II Library Construction</td>
<td>04-22-09</td>
<td>06-26-09</td>
</tr>
<tr>
<td>Phase II Owner Move In</td>
<td>06-29-09</td>
<td>07-03-09</td>
</tr>
</tbody>
</table>
END OF DOCUMENT
NOTICE TO BIDDERS

1. Notice is hereby given that The County of Alameda General Services Agency (“GSA”) Purchasing Department (“County” or “Owner”) will receive sealed bids for the following project, Project No. 2043-02:

   Fairmont Campus (San Leandro) Make Ready Work at Buildings C & E

2. Sealed Bids will be received until 2:00 p.m., January 8, 2009 at 1401 Lakeside Drive, 8th Floor, Suite 800, Oakland, California, at or after which time the bids will be opened and publicly read aloud. Any claim by a bidder of error in its bid must be made in compliance with section 5100 et seq. of the Public Contract Code. Any bid that is submitted after this time shall be non-responsive and returned to the bidder.

3. The Project consists of:

   General construction including abatement, demolition and improvements per plans and specs.

4. All bids shall be on the Bid Form Document 00 41 13 provided by the County. Each bid must conform to and be responsive to all pertinent Contract Documents, including, but not limited to, the Instructions to Bidders Document 00 21 13 and the Supplementary Instructions to Bidders - Construction Outreach Program Document 00 22 19.

5. Bidders are strongly encouraged to review the Supplementary Instructions to Bidders - Construction Outreach Program Document 00 22 19 and to begin their outreach efforts prior to the initial mandatory project job walk. The list of bidders solicited for this project include but are not limited to all those construction contractors listed in the GSA Small, Local & Emerging Program Vendor Query database located at http://www.acgov.org/jsp_app/gsa/sleb/query/slebmenu.jsp.

6. To bid on this Project, the Bidder is required to possess one or more of the following State of California Contractor Licenses:

   B - General Contractor

   The Bidder's license(s) must remain active and in good standing throughout the term of the Contract.

7. A bid bond by an admitted surety insurer on the form provided by the County, cash, or a cashier's check or a certified check, drawn to the order of the County of Alameda, in the amount of ten percent (10%) of the total bid price, shall accompany the Bid Form, as a guarantee that the Bidder will, within seven (7) calendar days after the date of the Notice.
8. The successful Bidder shall be required to furnish a 100% Performance Bond and a 100% Payment Bond if it is awarded the contract for the Work.

9. The successful Bidder may substitute securities for any monies withheld by the County to ensure performance under the Contract, in accordance with the provisions of section 22300 of the Public Contract Code.

10. The Contractor and all Subcontractors under the Contractor shall pay all workers on all work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the County, pursuant to sections 1770 et seq. of the California Labor Code. Prevailing wage rates are also available from the County or on the Internet at: <http://www.dir.ca.gov>.

11. A MANDATORY pre-bid conference and site visit will be held on December 2, 2008, at 10:00 a.m. in the Cafeteria – Guest Dining Room at the Fairmont Hospital Campus, 15400 Foothill Blvd., San Leandro, CA 94578. All participants are required to sign in at the site. The site visit is expected to take approximately two hours. Failure to attend or tardiness will render bid ineligible.

12. Contract Documents are available on November 17, 2008, for purchase from East Bay Print & Supply, 1745 14th Avenue, Oakland, CA 94606-3918, Phone: 510-261-2990. In addition, Contract Documents are available for bidders’ review at the locations shown on Attachment 1 to this Document.

13. NOT USED.

14. It is County policy to minimize the expenditure of County funds on goods and services produced by any entity which buys, sell, leases or distributes commodities and/or professional services to (1) the government of Burma; or (2) any entity organized under the laws of Burma; or (3) any entity which does business with any private or public entity located in Burma, or conducts operations in Burma. Contractors are urged to comply with the policy in making purchases and subcontracts. (ref. Alameda County, Cal., Adm. Code tit.4, §4.32.050(B),(F))

15. Contractors must comply with County Administrative Code’s CONSTRUCTION DEBRIS MANAGEMENT AND GREEN BUILDING PRACTICES. This Project is not designed to meet a minimum LEED™ “Silver” rating under the LEED rating system. However, County-approved Green Building Ordinance (GBO) shall be complied with, and Contractors are required to perform all work in a manner that will not hinder GBO principals for the Project.
16. The County reserves the right to reject any and all bids and/or waive any irregularity in any bid received. If the County awards the Contract, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

17. The County shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on:

A. The base bid amount only.

Determination of the lowest responsible responsive bidder will also be subject to the terms of the Supplementary Instructions to Bidders - Construction Outreach Program Document 00 22 19.

END OF DOCUMENT
# A. PLAN ROOM ADVERTISING LIST

(BOCO: Fax Notice to Bidders / Project Managers: Send Plans & Specification Packages)

<table>
<thead>
<tr>
<th></th>
<th>Company Name</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Email Address</th>
<th>BOCO TSD Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BPS Reprographics I/C Sub-Hub</td>
<td>1700 Jefferson Street, Oakland, CA 94612</td>
<td>(408) 916-7604, (510) 444-1262</td>
<td><a href="mailto:joannab@sub-hub.com">joannab@sub-hub.com</a></td>
<td>BOCO: Fax Notice to Bidders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td>2</td>
<td>Builders Exchange of Alameda County**</td>
<td>3055 Alvarado Street, San Leandro, CA 94577</td>
<td>(510) 483-8880, (510) 352-1509</td>
<td><a href="mailto:beac@beac.com">beac@beac.com</a></td>
<td>BOCO: Fax Notice to Bidders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td>3</td>
<td>Builders Exchange</td>
<td>850 South Van Ness Avenue, San Francisco, CA 94110</td>
<td>(415) 282-8220, (415) 821-0363</td>
<td><a href="mailto:Deanna@bxofsf.com">Deanna@bxofsf.com</a></td>
<td>BOCO: Fax Notice to Bidders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td>4</td>
<td>Contra Costa Builders Exchange</td>
<td>2440 Stanwell Drive, Suite B, Concord, CA 94520</td>
<td>(925) 685-8630, (925) 685-3424</td>
<td><a href="mailto:claudiap@ccbx.com">claudiap@ccbx.com</a></td>
<td>BOCO: Fax Notice to Bidders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td>5</td>
<td>Mecca Management &amp; Ins. Agency</td>
<td>1924 Franklin Street, Suite 315, Oakland, CA 94612</td>
<td>(510) 272-0736, (510) 272-9229</td>
<td><a href="mailto:mmia2@sbcglobal.net">mmia2@sbcglobal.net</a></td>
<td>BOCO: Fax Notice to Bidders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td>7</td>
<td>Small Business Exchange</td>
<td>703 Market Street, Suite 1000, San Francisco, CA 94103</td>
<td>(415) 778-6250, (415) 778-6255</td>
<td><a href="mailto:sbe@sbeinc.com">sbe@sbeinc.com</a></td>
<td>BOCO: Email Notice to Bidder</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSD: Do Not Send Plans/Specs</td>
</tr>
<tr>
<td>8</td>
<td>County of Alameda Current Contracting Opportunities Website located at</td>
<td><a href="http://www.acgov.org/jsp_app/gsa/purchasing/bid_content/contractopportunities.jsp">http://www.acgov.org/jsp_app/gsa/purchasing/bid_content/contractopportunities.jsp</a></td>
<td></td>
<td></td>
<td>BOCO: Post project plans and specs</td>
</tr>
<tr>
<td>9</td>
<td>Reed Construction Data**</td>
<td>30 Technology Parkway South, Suite 500, Norcross, GA 30092-2912</td>
<td>(510) 324-8738 (Local Address: 80 Swan Way, #130, Oakland, CA 94621</td>
<td><a href="mailto:jeannie.kwan@reedbusiness.com">jeannie.kwan@reedbusiness.com</a></td>
<td>BOCO: Email Notice</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(800) 303-8629, (800) 642-2437</td>
<td>redditbusiness.com</td>
<td>TSD: Send CD Plans/Specs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:docprocessing@reedbusiness.com">docprocessing@reedbusiness.com</a></td>
<td></td>
</tr>
</tbody>
</table>

**Construction trade journals specified for alternate bidding procedures for projects between $25,000 and $100,000 minimum advertising requirements. County policy is to post all construction projects over $25,000 in all listed Plan Rooms, Press/Newspaper Publications and Local Chambers of Commerce/Trade Organizations.
Bidders shall follow the instructions in this document, and shall submit all documents, forms, and information required for consideration of a Bid.

County will evaluate information submitted by the apparent low Bidder and, if incomplete or unsatisfactory to County, Bidder's bid may be rejected at the sole discretion of County.

1. Bids are requested for a general construction contract, or work described in general, for the following project (“Project” or “Contract”):

HIGHLAND HOSPITAL MEDICAL RECORDS AND LIBRARY RENOVATION

2. County will receive sealed Bids from Bidders as stipulated in the Notice to Bidders Document 00 11 16.

3. Bidders must submit Bids on Bid Form 00 41 13 and all other required County forms. Bids not submitted on the County’s required forms shall be deemed non-responsive and shall not be considered. Additional sheets required to fully respond to requested information are permissible.

4. Bidders must supply all information required by each Bid Document. Bids must be full and complete. County reserves the right in its sole discretion to reject any Bid as non-responsive as a result of any error or omission in the Bid. Bidders must complete and submit all of the following documents with Bid Form Document 00 41 13:

   a. Bid Bond on Bid Security Form Document 00 43 13 or other security
   b. Designated Subcontractors List Document 00 43 36
   c. Site-Visit Certification Document 00 45 01, if a site visit was required
   d. Non-Collusion Affidavit Document 00 45 13
   e. Construction Outreach Program Certifications as required by Supplementary Instructions to Bidders - Construction Outreach Program Document 00 22 19.

5. Bidders must submit with their Bids cash, a cashier's check or a certified check payable to County, or a Bid Bond of not less than ten percent (10%) of amount of base Bid, plus all additive alternates. Required form of corporate surety, Bid Security Form, is provided by County and must be used and fully completed by Bidders choosing to provide a Bid Bond as security. The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without necessary bid security will be deemed non-responsive and will not be considered.
6. If Bidder to whom Contract is awarded shall for **SEVEN (7)** calendar days after the date of the Notice of Award, fail or neglect to enter into Contract and submit required bonds, insurance certificates, and all other required documents, County may deposit Bid Bond, cash, cashier's check, or certified check for collection, and proceeds thereof may be retained by County as liquidated damages for failure of Bidder to enter into Contract, in the sole discretion of County. It is agreed that calculation of damages County may suffer as a result of Bidder's failure to enter into the Contract would be extremely difficult and impractical to determine and that the amount of the Bidder's required bid security shall be the agreed and conclusively presumed amount of damages.

7. Bidders must submit with the Bid the Designated Subcontractors List for those subcontractors who will perform any portion of Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of total Bid. Failure to submit this list when required by law shall result in Bid being deemed non-responsive and the Bid will not be considered.

8. If a mandatory pre-bid conference and site visit ("Site Visit") is requested as referenced in the Instructions to Bidders, then Bidders must submit the Site-Visit Certification with their Bid. County will transmit to all prospective Bidders of record such Addenda as County in its discretion considers necessary in response to questions arising at the Site Visit. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda issued by the County as a result of the Site Visit, if any shall constitute the sole and exclusive record and statement of the results of the Site Visit.

9. Bidders shall submit the Non-Collusion Affidavit with their Bids. Bids submitted without the Non-Collusion Affidavit shall be deemed non-responsive and will not be considered.

10. Bids shall be clearly written without erasure or deletions. County reserves the right to reject any Bid containing erasures or deletions.

11. Bidders shall not modify Bid Form 00 41 13 or qualify their Bids. Bidders shall not submit to the County a scanned, re-typed, word-processed, or otherwise recreated version of Bid Form 00 41 13 or other County-provided document.

12. The successful Bidder and all its subcontractors shall pay all workers on all work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the County, pursuant to sections 1770 et seq. of the California Labor Code.
13. Submission of Bid signifies careful examination of Contract Documents and complete understanding of the nature, extent, and location of Work to be performed. Bidders must complete the tasks listed below as a condition to bidding, and submission of Bid shall constitute the Bidder's express representation to County that Bidder has fully completed the following:

   a. Bidder has visited the Site and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;

   b. Bidder has conducted or obtained and has understood all examinations, investigations, explorations, tests, reports, and studies that pertain to the subsurface conditions, as-built conditions, underground facilities, and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance, or furnishing of Work, as Bidder considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time, and in accordance with the other terms and conditions of Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies, or similar information or data are or will be required by Bidder for such purposes;

   c. Bidder has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents;

   d. Bidder has given County prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the actual conditions, and the written resolution thereof by County is acceptable to Bidder;

   e. Bidder has made a complete disclosure in writing to County of all facts bearing upon any possible interest, direct or indirect, that Bidder believes any representative of County or other officer or employee of County presently has or will have in this Contract or in the performance thereof or in any portion of the profits thereof;

   f. Bidder must, prior to bidding, perform the work, investigations, research, and analysis required by this document and that Bidder represents in its Bid Form 00
41 13 and the Agreement that it performed prior to bidding. Bidders are charged with all information and knowledge that a reasonable bidder would ascertain from having performed this required work, investigation, research, and analysis. Bid prices must include entire cost of all work "incidental" to completion of the Work.

**g. Conditions Shown on the Contract Documents:** Information as to underground conditions, as-built conditions, or other conditions or obstructions, indicated in the Contract Documents, e.g., on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. However, County only warrants, and Bidder may only rely, on the accuracy of limited types of information.

1. As to above-ground conditions or as-built conditions shown or indicated in the Contract Documents, there is no warranty, express or implied, or any representation express or implied, that such information is correctly shown or indicated. This information is verifiable by independent investigation and Bidder is required to make such verification as a condition to bidding. In submitting its Bid, Bidder shall rely on the results of its own independent investigation. In submitting its Bid, Bidder shall not rely on County-supplied information regarding above-ground conditions or as-built conditions.

2. As to any subsurface condition shown or indicated in the Contract Documents, Bidder may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated. County is not responsible for the completeness of such information for bidding or construction; nor is County responsible in any way for any conclusions or opinions of Bidder drawn from such information; nor is County responsible for subsurface conditions that are not specifically shown (for example, County is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown).

**h. Conditions Shown in Reports and Drawings Supplied for Informational Purposes:** Reference is made to the document entitled Geotechnical Data, and the document entitled Existing Conditions Information, for identification of:

1. Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by Architect in preparing the Contract Documents; and
(2) Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that has been utilized by Architect in preparing the Contract Documents.

(3) These reports and drawings are not Contract Documents and, except for any "technical" data regarding subsurface conditions specifically identified in Geotechnical Data and Existing Conditions Information, and underground facilities data, Bidder may not in any manner rely on the information in these reports and drawings. Subject to the foregoing, Bidder must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by County.

14. Bidders may examine any available "as-built" drawings of previous work by giving County reasonable advance notice. County will not be responsible for accuracy of "as-built" drawings. The document entitled Existing Conditions Information applies to all supplied "as-built" drawings.

15. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are on file at the County’s principal office. Prevailing wage rates are also available from the County or on the internet at (http://www.dir.ca.gov)

16. All questions about the meaning or intent of the Contract Documents are to be directed in writing, including by e-mail, to County. Interpretations or clarifications considered necessary by County in response to such questions will be issued in writing by Addenda faxed, mailed, or delivered to all parties recorded by County as having received the Contract Documents. Questions received less than SEVEN (7) calendar days prior to the date for opening Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

17. Addenda may also be issued to modify other parts of the Contract Documents as deemed advisable by County.

18. Each Bidder must acknowledge each Addendum in its Bid Form 00 41 13 by number or its Bid shall be considered non-responsive. Addenda shall be part of the Contract Documents. A complete listing of Addenda may be secured from County.

19. Bids shall be based on products and systems specified in Contract Documents or listed by name in Addenda. County is not responsible and/or liable in any way for a Bidder’s damages and/or claims related, in any way, to that Bidder’s basing its bid on any requested substitution that County has not approved. Bidders and materials suppliers
who submit requests for substitutions prior to the award of the Contract must do so in writing and in compliance with Public Contract Code section 3400. All requests must comply with the following:

a. County must receive any request for substitution a minimum of **TEN (10)** calendar days prior to bid opening.

b. Requests for substitutions shall contain sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the Specifications. Insufficient information shall be grounds for rejection of substitution.

c. Approved substitutions shall be listed in Addenda. County reserves the right not to act upon submittals of substitutions until after bid opening.

d. Substitutions may be requested after Contract has been awarded only if indicated in and in accordance with requirements specified in the Special Conditions and the Specifications.

20. All Bids must be sealed, and marked with name and address of the Bidder and the Project Number, Bid number, Bid package, and time of bid opening. Bids will be received as indicated in the Notice to Bidders.

a. Mark envelopes with the name of the Project.

b. Bids must be submitted at the place and by date and time shown in the Instructions to Bidders.

c. Bids must contain all documents as required herein.

21. Bids will be opened at or after the time indicated for receipt of bids.

22. This Contract may include alternates. Alternates are defined as alternate products, materials, equipment, systems, methods, or major elements of the construction, that may, at the County's option and under terms established in the Contract and pursuant to section 20103.8 of the Public Contract Code, be selected for the Work. County shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on the criteria as indicated in the Notice to Bidders Document 00 11 16.

23. Time for Completion: County may issue a Notice to Proceed within **THREE (3) months** from the date of the Notice of Award. Once Contractor has received the Notice to
Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

a. In the event that County desires to postpone issuing the Notice to Proceed beyond this 3-month period, it is expressly understood that with reasonable notice to the Contractor, County may postpone issuing the Notice to Proceed.

b. It is further expressly understood by Bidder that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed beyond a 3-month period. If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to the Contractor, the Contractor may terminate the Contract. Contractor’s termination due to a postponement beyond this 3-month period shall be by written notice to County within TEN (10) calendar days after receipt by Contractor of County’s notice of postponement.

c. It is further understood by Bidder that in the event that Contractor terminates the Contract as a result of postponement by County, County shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement and which County had in writing authorized Contractor to perform prior to issuing a Notice to Proceed.

d. Should the Contractor terminate the Contract as a result of a notice of postponement, County shall have the authority to award the Contract to the next lowest responsive responsible bidder.

24. The Bidder to whom Contract is awarded shall execute and submit the following documents by 5:00 p.m. of the SEVENTH (7TH) calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles County to reject the bid as non-responsive.

a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.

b. Escrow of Bid Documentation: This must include all required documentation. See the document Escrow of Bid Documentation for more information.

c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

d. Payment Bond (100%) (Contractor's Labor and Material Bond): On the form provided in the Contract Documents and fully executed as indicated on the form.
e. Insurance Certificates and Endorsements as required.

f. Workers' Compensation Certification.

g. Prevailing Wage and Related Labor Requirements Certification.

h. Hazardous Materials Certification.

i. Contractor’s Safety Plan specifically adapted for the Project.

25. Any bid protest by any Bidder regarding any other bid must be submitted in writing to County, before 5:00 p.m. of the **THIRD (3rd)** business day following bid opening.

   a. The protest must contain a complete statement of any and all bases for the protest.
   
   b. The protest must refer to the specific portions of all documents that form the bases for the protest.
   
   c. The protest must include the name, address and telephone number of the person representing the protesting party.
   
   d. The party filing the protest must concurrently transmit a copy of the protest and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.
   
   e. The procedure and time limits set forth in this paragraph are mandatory and are each bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.

26. County reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, non-responsive, unbalanced, or conditional bids, to re-bid, and to reject the bid of any bidder if County believes that it would not be in the best interest of County to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established County. County also reserves the right to waive inconsequential deviations not involving price, time, or changes in the Work. For purposes of this paragraph, an "unbalanced bid" is one having nominal prices for some work items and/or enhanced prices for other work items.
27. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of the figures or numerals.

28. Prior to the award of Contract, County reserves the right to consider the responsibility of the Bidder. County may conduct investigations as County deems necessary to assist in the evaluation of any bid and to establish the responsibility, including, without limitation, qualifications and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to County’s satisfaction within the prescribed time.

END OF DOCUMENT
DOCUMENT 00 22 19
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS - CONSTRUCTION OUTREACH PROGRAM

SECTION I

1 PURPOSE

It is the express purpose of the Construction Outreach Program (COP) is to encourage the participation in the County of Alameda, General Services Agency (GSA) capital projects of
- Minority-Owned Business Enterprise (MBE),
- Woman-Owned Business Enterprise (WBE),
- Local Business Enterprise (LBE) and
- Small Local Business Enterprise (SLBE)
to ensure that all contracting firms receive an equal opportunity to bid and receive work for this project. The COP encourages the inclusion of small businesses in this construction contract in accordance with Public Contract Code Section 2002.

It is also the purpose of this program to encourage businesses to locate and remain in Alameda County, to employ residents of Alameda County, and to spend County funds for County construction projects within the County.

In addition, for this project, the County of Alameda, General Services Agency (GSA) is interested in contracting with those businesses that can demonstrate the ability and willingness to provide jobs required to complete this project to local youth and to unemployed and under-employed County residents.

In the event of conflict between the terms of this Document 00 22 19 and any other sections of the bid documents for this project, the terms of this Document 00 22 19 shall take priority.

By responding to this request for bids, bidders acknowledge and agree to all Document 00 22 19 COP provisions contained herein.

2 APPLICATION

The provisions outlined in this Document 00 22 19 apply to this contract for construction of the above-referenced project. This project is funded solely with local dollars and these provisions shall apply to all work performed under any contract awarded as a result of this competitive process.
To be considered for a contract award, any Bidder who fails to meet the Construction Outreach Program (COP) goals identified herein shall be required to demonstrate to the satisfaction of the County that a good faith effort (GFE) was made in accordance with the GFE requirements criteria listed in Section 7.3, a-j. A contract, if awarded, will be awarded to the lowest responsible responsive bidder.

3  DEFINITIONS

3.1 LOCAL BUSINESS ENTERPRISE (LBE)

For the purposes of this program, a Local Business Enterprise means a business that is a firm or dealer with fixed offices located in, and having a street address within, the County for at least 6 months prior to the date upon which a request for sealed bids or proposals is issued and which holds a valid business license issued by the County or a city within the County.

3.2 MINORITY OR WOMEN BUSINESS ENTERPRISE (MWBE)

A MWBE, for the purposes of this program is a Small Business Enterprise (SBE) as defined by the State of California that meets both of the following criteria:
- At least 51 percent of the small business concern is owned by one or more minority persons or women or, in the case of a publicly owned business, at least 51 percent of all issued stock is owned by one or more minority persons or women; and
- Whose management and daily business operations are controlled by one or more such individuals.

A MWBE must be certified as such or recognized as such by organizations whose certification is accepted by the State Department of Transportation or by local agencies identified by the County of Alameda to have effective certification programs. Validation of the current certification by one of the following local agencies must be provided with the bid response:

- Bay Area Rapid Transit (BART) City of Oakland
- City of Richmond City of San Jose
- Contra Costa County Transit Authority Port of Oakland
- San Francisco Human Rights Commission San Francisco Redevelopment Agency
- Santa Clara Transit Authority Small Business Administration
- Department of Transportation (CALTRANS)

3.3 MINORITY PERSON
Minority person, for purposes of this section, means African Americans, Hispanic Americans, Native Americans (including American Indians, Eskimos, Aleuts and Native Hawaiians), Asian-Pacific Americans (including persons whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia and Taiwan), and or any other group of natural persons identified as minorities by the State Department of Transportation.

3.4 RESPONSIBLE BIDDER

A responsible bidder is one that meets all of the requirements and provisions of the bid specifications and related documents including those contained in Document 00 22 19 that require bidders to meet COP goals or make a good faith effort to do so.

3.5 SMALL BUSINESS ENTERPRISE (SBE)

For the purposes of this program a SBE meets the current State of California definition of a small business which is one that

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California;
- Must have its owners (or officers in the case of a corporation) domiciled in California; and
- Together with its affiliates, be either:
  - A business with 100 or fewer employees, and an average annual gross receipts of $10 million or less over the previous three tax years, or
  - A manufacturer with 100 or fewer employees.

A SBE must be certified as such or recognized as such by organizations whose certification is accepted by the State Department of Transportation or by local agencies identified by the County of Alameda to have effective certification programs. Validation of the current certification by one of the following local agencies must be provided with the bid response:

- Bay Area Rapid Transit (BART) City of Oakland
- City of Richmond City of San Jose
- Contra Costa County Transit Authority Port of Oakland
3.6 SMALL LOCAL BUSINESS ENTERPRISE (SLBE)

For the purposes of this program, a Small Local Business Enterprise is defined by the County of Alameda and means a business that meets the SBE definition above and is a firm or dealer with fixed offices located in and having a street address within the County and which holds a valid business license issued by the County or a city within the County.

4 CONSTRUCTION OUTREACH PROGRAM GOALS

4.1 MBE PARTICIPATION SUBCONTRACTING – 15% GOAL

This program shall include subcontractors, suppliers and truckers. Any contractor who fails to meet the MBE goals described herein must demonstrate to the satisfaction of the County of Alameda that a good faith effort was made to meet these goals in order to be considered for a contract award.

a. The County shall award construction contracts to the lowest responsible responsive bidder as required by law. The County shall further require that in order to be awarded a contract, a prime contractor must show that a substantial good faith effort was made to provide at least 15% of the total contract amount to MBE sub-contractor firms.

b. The MBE goals must be achieved by the use of MBE subcontractors, suppliers and/or truckers. If the Contractor plans to perform all the work with his/her own forces, the goal will still apply and will be made up by the use of suppliers and/or truckers. Suppliers that are not manufacturers will count as 60% of their value furnished toward MBE goal. Suppliers that are manufacturers (substantially modify the product), e.g. concrete, will count as 100% of their value toward the MBE goal.

A certified MBE prime contractor may not apply the percentage of his/her work toward meeting the goals as set forth above. An MBE subcontractor meeting the definition of both an MBE and a WBE may not be applied to both required goals. The percentage of MBE firms utilized for the project described herein can only be applied to either MBE or WBE required goals. For purposes of meeting the MBE goals for this project, each participating MBE must be identified as a MBE.
c. Prime contractors are strongly encouraged to sub-contract with LBE certified MBE’s to meet the goals.

4.2 WBE PARTICIPATION SUBCONTRACTING – 5% GOAL

This program shall include subcontractors, suppliers and truckers. Any contractor who fails to meet the WBE goals described herein must demonstrate to the satisfaction of the County of Alameda that a good faith effort was made to meet these goals in order to be considered for a contract award.

a. The County shall award construction contracts to the lowest responsible responsive bidder as required by law. The County shall further require that in order to be awarded a contract, a prime contractor must show that a substantial good faith effort was made to provide at least 5% of the total contract amount to WBE sub-contractor firms.

b. The WBE goals must be achieved by the use of WBE subcontractors, suppliers and/or truckers. If the Contractor plans to perform all the work with his/her own forces, the goal will still apply and will be made up by the use of suppliers and/or truckers. Suppliers that are not manufacturers will count as 60% of their value furnished toward WBE goal. Suppliers that are manufacturers (substantially modify the product), e.g. concrete, will count as 100% of their value toward the WBE goal.

A certified WBE prime contractor may not apply the percentage of his/her work toward meeting the goals as set forth above. A WBE subcontractor meeting the definition of both an MBE and a WBE may not be applied to both required goals. The percentage of WBE firms utilized for the project described herein can only be applied to either MBE or WBE required goals. For purposes of meeting the WBE goals for this project, each participating WBE must be identified as a WBE.

c. Prime contractors are strongly encouraged to sub-contract with LBE certified WBE’s to meet the goals.

4.3 LOCAL BUSINESS ENTERPRISE PARTICIPATION GOALS – 60% GOAL

This program shall include subcontractors, suppliers and truckers. Any contractor who fails to meet the LBE goals described herein must demonstrate to the satisfaction of the County of Alameda that a good faith effort was made to meet these goals in order to be considered for a contract award.

a. The County shall award construction contracts to the lowest responsible responsive bidder as required by law. The County shall further require that in order to be awarded a
contract, a prime contractor must show that a substantial good faith effort was made to provide at least 60% of the total contract amount to LBE.

b. The prime contractor may count a portion or all of its work towards meeting the goal and/or the LBE goal may be achieved by the use of sub-contractors.

4.4 SMALL LOCAL BUSINESS ENTERPRISE PARTICIPATION - 20% GOAL

This program shall include subcontractors, suppliers and truckers. Any contractor who fails to meet the SLBE goals described herein must demonstrate to the satisfaction of the County of Alameda that a good faith effort was made to meet these goals in order to be considered for a contract award.

a. The County shall award construction contracts to the lowest responsible responsive bidder as required by law. The County shall further require that in order to be awarded a contract, a prime contractor must show that a substantial good faith effort was made to provide at least 20% of the total contract amount to SLBE.

b. The prime contractor may count a portion or all of its work towards meeting the goal and/or the SLBE goal may be achieved by the use of sub-contractors. For purposes of meeting this goal the 20% may be a part of the 60% LBE participation goal and/or a part of the prime contractor participation.

5 SMALL BUSINESS ENTERPRISE 5% BID PREFERENCE

Bidders who submit a response with a minimum 40 percent SLBE business participation will receive a 5 percent bid preference. The bid preference will be applied to the submitted bid price upon receipt of bids for evaluation purposes.

The 40 percent certified small participation may be made up of any combination of the prime contractor and sub-contractors.

6. HIRING OF LOCAL APPRENTICES, YOUTH, UNEMPLOYED AND UNDEREMPLOYED RESIDENTS

PURPOSE

The County of Alameda, General Services Agency (GSA), Technical Services Department (TSD) strongly encourages the hiring of local apprentices, youth, unemployed and underemployed County residents to complete the work required for this project. Those firms that can demonstrate the ability and willingness to provide jobs required to complete this project to
local apprentices, youth, unemployed and under-employed County residents should include such evidence in their bid response.

7. **BID EVALUATION PROCEDURES**

Bid Evaluation will initiate following GSA’s determination of the two (2) lowest responsible responsive bidders and their submission of COP Form 101A, 101B and 102, which are to be submitted no later than 2:00 p.m. two days following the bid opening. These forms are provided at the end of this section.

The overall bid process shall guarantee contractors the freedom to choose subcontractors and suppliers regardless of their bid amounts. Bid evaluations will be subject to the following:

7.1 It is required that ALL bidders, exercise a substantial good faith effort to secure the participation, as set forth in the specifications, of M/W/S/L/BE subcontractors, suppliers and/or truckers on the project. Achievement of the goals set forth herein shall constitute prima facie evidence of a substantial good faith effort. The failure of any bidder to make a substantial good faith effort to achieve the specified participation of M/W/S/LBE subcontractors, suppliers and/or truckers shall be grounds for bid rejection.

7.2 Bid Preference: A bidder who exceeds the certified SBE COP goals identified herein and attains a minimum 40 percent SLBE participation shall receive a 5 percent Bid Preference. This bid preference shall be applied by multiplying the total Base Bid amount by .95 to determine the bid amount for comparison purposes.

7.3 **GOOD FAITH EFFORT REQUIRED**

If the bidder fails to achieve the M/W/S/L/BE participation goals set forth above such bidder shall be judged to have made a substantial good faith effort if the bidder met the following criteria:

a. The bidder attended any pre-solicitation or pre-bid meetings that were scheduled by the local agency to inform all bidders of the M/W/S/LBE requirements that comprise the Construction Outreach Program for the project identified above for which the contract will be awarded.

b. The bidder identified and selected specific items of the project for which the contract will be awarded to be performed by M/W/S/LBE’s, in order to increase the likelihood of meeting the M/W/S/LBE goals, including breaking out contract work items into economically feasible units to facilitate M/W/S/LBE participation in order to provide an opportunity for participation by those enterprises.
c. The bidder advertised, not less than ten (10) calendar days before the date the
bids are opened, in one or more local daily or weekly newspapers, trade
association publications, minority or trade oriented publications, trade journals,
or other media acceptable to GSA for M/W/S/LBE’s that are interested in
participating in the project.

d. The bidder provided written notice of his or her interest in bidding on the
contract to M/W/S/LBE’s three (3) calendar days prior to the opening of bids.
The bidder may utilize the list of certified minority or women business
enterprises prepared by the Department of Transportation pursuant to Section
14030.5 of the Government Code and the list of local business enterprise in the
on-line GSA Small Local Emerging Business (SLEB) Vendor Query System
located at http://www.acgov.org/gsa/sleb/query/SLEBMenu.jsp. The number
of M/W/S/LBE firms required to be notified is three for each item of the
project selected to be performed by a M/W/S/LBE (see (b) above), where a
M/W/S/LBE subcontractor has not been secured for that item.

e. The bidder followed up initial solicitations of interest by contacting the
enterprises to determine with certainty whether the enterprises were interested
in performing specific items of the project.

f. The bidder provided interested M/W/S/LBE’s with information about the plans,
specifications, and requirements for the selected subcontracting or material
supply work.

g. The bidder requested assistance from local and small business and minority and
women business community organizations; local and small, minority and
women contractor groups, local, state, or federal minority and women business
assistance offices, or other organizations that provide assistance in recruitment
and placement of minority or women business enterprises.

h. The bidder negotiated in good faith with the M/W/S/LBE’s and did not
unjustifiably reject as unsatisfactory bids prepared by any M/W/S/LBE’s as
determined by the GSA.

i. Where applicable, the bidder advised and made efforts to assist interested
M/W/S/LBE’s in obtaining bonds, lines of credit, or insurance required by either
the GSA or the contractor.

j. The bidder's efforts to obtain M/W/S/LBE participation could reasonably be
expected by the General Services Agency to produce a level of participation
sufficient to meet the goals and requirements of the local agency.

7.4 The performance by a bidder of all the criteria specified in subdivision 7.1 shall create a
rebuttable presumption, affecting the burden of producing evidence, that a bidder has
made a good faith effort to comply with the goals and requirements relating to
participation by M/W/S/LBE’s established pursuant to Section 4 above.
7.5 Within two days after the bids are opened, the two apparent low bidders will provide the General Services Agency with the total dollar amount to be subcontracted, including trucking and suppliers on COP Form 102. The Contractor will also provide individual dollar amounts going to the M/W/S/LBE listed in their proposal on the M/WBE Subcontractor Participation Information COP Form 101A and S/LBE Participation Information COP Form 101B. The information supplied by the bidders shall be certified by a principal of the firm. Dollar amounts will be treated as proprietary, and will be solely for the use of County staff. COP Forms 101A, 101B and 102 and supporting documentation shall be delivered to the assigned Project Manager.

7.6 After the bids are opened, the M/W/S/LBE subcontractors, suppliers and/or trucking firms who bid to the two apparent low bidders may be required to provide the amounts of their bids to the County for the purposes of verification. This information shall be certified by a principal of the firm. The information, if required, will be treated as proprietary, and will be solely for the use of County staff or its agents.

7.7 When either of the two apparent low bidders has not achieved the participation goals specified in Section 4, such apparent low bidder shall be required to indicate in writing exactly what good faith efforts were undertaken to solicit, secure, consider and use bids from M/W/S/LBE firms. This shall be accomplished within the time frame designated by the General Services Agency Director or the designated County representative, and prior to award of the contract. The apparent low bidders may also be required to attend a conference with County representatives to discuss the written explanations.

7.8 When the apparent low bidder has not achieved the goals specified above, and has listed a non-M/W/S/LBE firm for a portion of the job for which the bid of a M/W/S/LBE has been rejected, said bidder may be required to submit a written explanation of the reasons for rejection of the bid of that firm. The explanations must include the dates, times, and amounts of all bids from the firm to whom the job was awarded and from the firm which was rejected. If the reason for rejection is based solely upon bondability, there must be an additional detailed explanation of what efforts were undertaken to assist the subcontractor in obtaining a bond including, but not limited to, introduction and/or recommendation to the bidder's bonding organization.

7.9 Acceptance or rejection of a bidder's explanations or justifications under the procedures of Section 7 shall be made by the General Services Agency Director or the designated County representative. In the event the explanations or justifications of the bidder are rejected, and the General Services Agency Director recommends rejection of the bid, the bidder shall have the right to contest the decision before the Board of Supervisors. If a recommendation of bid rejection by the General Services Agency Director is upheld by
the Board of Supervisors, the contract may be awarded to the next lowest responsible bidder.

8 JOINT VENTURES

Whenever a joint venture occurs involving either a prime or non-prime (i.e., subcontractors and suppliers) M/W/S/LBE firm at any level of contracting, trucking or supplying, the prime contractor shall provide the County with a full account of the nature of ownership interests, the basis for creation of the joint venture, and the particular financial participation and administrative responsibilities of the interested parties. In evaluating the prime contractor's effort, the M/W/S/LBE percentage which is to be attributed to a joint venture shall be determined by multiplying the percentage of the total contract amount which is to be performed by the joint venture times the percentage of actual financial participation in the joint venture which the M/W/S/LBE business represents.

9 NONDISCRIMINATION

9.1 Purpose

The Contractor shall comply with the Americans with Disabilities Act and Title VII of the Civil Rights Act of 1964 and shall not, in regard to any position for which an employee or applicant for employment is qualified, discriminate against any employee or applicant for employment because of race, creed, color, disability, sex, sexual orientation, political affiliation, or by any other non-merit factors be otherwise subjected to discrimination. The Contractor shall apply COP to ensure that applicants are employed, and that employees are treated during employment without regard to their race, age, religion, Vietnam Era Veteran’s status, political affiliation, or any other non-merit factors. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruiting advertising; layoff or termination; rates of pay or other terms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

Contractor shall, in all solicitations or advertisements for employees placed on behalf of the County, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, disability, sex, sexual orientation or national origin, age, religion, Vietnam Era Veteran’s status, political affiliation, or any other non-merit factors.

SECTION II
LABOR COMPLIANCE REQUIREMENTS

1 APPLICATION

The following provisions shall apply to all contracts subject to the provisions of Section I and/or Section IV.

2 MEETINGS

After awarding of the contract and prior to beginning work, the General Services Agency may hold a pre-construction conference at which a representative of the Contractor and of each subcontractor must attend. As it becomes necessary during the course of the contract, the General Services Agency may call meetings of the Contractor and pertinent subcontractors.

3 INFORMATION AND RECORDS

For the purposes of determining compliance with this program, the Contractor shall provide the County with access to all records and documents that relate to M/W/S/LBE participation, and to all records of employment advertisements, application forms, tests and other selection techniques used to hire, transfer, promote, train or retain personnel, and other pertinent records and data pertaining to the project under consideration. Proprietary information will be safeguarded.

The Contractor must submit the following information on Alameda County approved forms. All subcontractor submittals must be through the prime contractor.

1. M/WBE Subcontractor Participation Information and S/LBE Participation Information, (COP Forms 101A and 101B) submitted 2 days after bid submission.

2. Subcontractor Information (COP Form 102) submitted 2 days after bid submission.

3. Certified weekly payroll records (AAP Form 103 and 103A) showing the wages paid to each employee, the employee's job classification, gender and ethnic code. Payrolls will be submitted by the Contractor and each subcontractor via the Contractor. **This provision applies to all classifications, including truckers.** A Fringe Benefits Statement (AAP Form 105A) must be submitted by each contractor/subcontractor with the first certified payroll.

4. Prevailing Wage Information Sheet (AAP Form 104) for prevailing wage rates for both Contractor and Subcontractors.

6. Equal Employment Policy (AAP Form 107). To be completed by both Contractor and Subcontractor.

4 NONDISCRIMINATION POLICY FORM

The Contractor must post a Nondiscrimination Policy in a conspicuous place at each construction site.

5 SUBSTITUTION OF M/W/S/LBE FIRMS

Substitution of other firms (subcontractors at any level, suppliers and/or truckers) for those listed in the proposal on the sheet entitled M/WBE Subcontractor Participation Information or S/LBE Participation Information shall not be made without prior approval of the County, and shall be in accordance with State or Federal law where applicable.

SECTION III

NON-COMPLIANCE WITH CONSTRUCTION OUTREACH PROGRAM

1 APPLICATION

The following provisions shall apply to all contracts subject to the provisions of Section I and/or Section IV.

2 DETERMINATION OF NONCOMPLIANCE

If the General Services Agency finds that the Contractor has not met the COP requirements in the contract, the Director, General Services Agency (or designee) shall hold a meeting with the Contractor for the purpose of determining whether the Contractor is out of compliance. If after the meeting the Contractor is found to be still out of compliance, the Contractor will be notified of a public hearing. The public hearing will be held before the Board of Supervisors with a minimum five calendar-day notice to the Contractor. If the Board of Supervisors finds that there has been a violation, the County will notify the Contractor in writing of the sanctions to be imposed.

In addition, the County shall deem a finding by the Fair Employment Practice Commission that there was willful violation of the California Fair Employment Act also to be a violation by the Contractor of the COP requirements of the contract, and such violation shall be subject to the sanctions provided herein.

3 SANCTIONS
3.1 A finding at the public hearing that there has been a violation of the COP requirements of the contract shall be cause for the Board of Supervisors to impose any or all of the following sanctions:

3.1.1 Withhold an additional ten percent (10%) of all further contract progress payments until the Contractor provides evidence satisfactory to the Board of Supervisors that the condition of noncompliance has been corrected.

3.1.2 Suspend the contract until such time as the Contractor provides evidence satisfactory to the Board of Supervisors that the condition of noncompliance has been corrected.

3.1.3 Terminate the contract and collect appropriate damages from the Contractor.

3.1.4 Declare that the Contractor is a non-responsive bidder, and is ineligible to make bids on future County contracts for a stated period of time or until the Contractor can demonstrate to the satisfaction of the Board of Supervisors that the violation has been corrected.

SECTION IV

To promote the COP goals and assist contractors and sub-contractors in their efforts to develop the relationships they may require to meet the COP goals for this project, the County will

a. E-mail the Notice to Bidders to the appropriate vendors in the GSA Local Vendor Database and other sources and include the list of vendors e-mailed.

b. Advertise the project in 32 local newspapers, trade organizations and chambers of commerce, and plan rooms. This project will also be posted on the GSA Current Contracting Opportunities and Calendar of Events websites (see website URL addresses below).

c. Incorporate a networking and informational component into the mandatory bid walk/site visit and hold a second non-mandatory bid conference/networking meeting on a different day in a different location

d. Provide information about the project, the COP, and other current and upcoming projects at the bid conference/networking meetings

e. E-mail the list of attendees from both the mandatory bid walk and non-mandatory bid conference/networking meetings to each attendee when issuing the Addendum and post the list and Addendum on the Current Contracting Opportunities website

SOURCES FOR M/W/S/LBE CONTRACTORS AND LOCAL HIRING ASSISTANCE
The following sources may be contacted for assistance in soliciting M/W/S/LBE participation.

**Asian American Contractors Association**
c/o Asian, Inc.
1670 Pine Street
San Francisco, CA 94109
(415) 928-5910

**Minority Contractor’s Association of Northern California**
825 8th Avenue
Oakland, CA 94606
(510) 763-2330

**MECCA Management & Insurance Agency, Inc.**
23 Grand Avenue
Oakland, CA 94612
Contact: Kaye Stevens
(510) 272-0736

**CALTRANS**
[http://www.dot.ca.gov/](http://www.dot.ca.gov/) OR
[http://troe.dot.ca.gov/FMPro?-db=Sbe.fp5-&-lay=all%20fields-&-format=/civilrights/swbe_smbe.htm-&-view](http://troe.dot.ca.gov/FMPro?-db=Sbe.fp5-&-lay=all%20fields-&-format=/civilrights/swbe_smbe.htm-&-view)

Visit the following County of Alameda GSA websites for

**CERTIFIED SMALL LOCAL VENDORS**

**CURRENT CONTRACT OPPORTUNITIES**

**UPCOMING CONTRACT OPPORTUNITIES**

**CALENDAR OF EVENTS**
[http://www.acgov.org/gsa/Calendar.jsp](http://www.acgov.org/gsa/Calendar.jsp).

**COUNTY OF ALAMEDA HOME PAGE**

The following sources may be contacted for assistance in hiring local apprentices, youth, unemployed and under-employed County residents to complete the work required for this project:

**Cypress/Mandela WISF Training Center**
Contact: Art Shanks
E-Mail: artshanks@yahoo.com
(510) 208-7355

**Youth Employment Partnership Program**
Contact: Michele Clark-Clau
E-Mail: mcc@yep.org
(510) 533-3447, x309

**County of Alameda**
Contact: Robert Benson, EDAB Workforce Development Director
E-Mail: rbenson@edab.org
Phone: (510) 272-3876
Apprenticeship Committee List Below for Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, San Francisco, Solano, and Sonoma Counties
from the Division of Apprenticeship Standards, San Francisco Office

A. **455 Golden Gate Avenue, 8th Floor, San Francisco, CA 94120**
Phone: 415/703-1128 FAX 415/703-5427
*Updated 9/9/03*

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Committee/Chapter</th>
<th>Address</th>
<th>Contact Person</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boilermaker</td>
<td>Boilermakers Western States Area JAC</td>
<td>2191 Piedmont Way, Pittsburg, CA 94565</td>
<td>Otis Edwards, Coordinator</td>
<td>(925) 427-0826</td>
<td>(925) 427-5980</td>
</tr>
<tr>
<td>Bricklayer</td>
<td>Alameda &amp; Contra Costa Bricklayers JAC</td>
<td>8400 Enterprise Way, Rm 103, Oakland, CA 94621</td>
<td>Michael Height, Coordinator</td>
<td>(510) 553-0991</td>
<td>(510) 553-0998</td>
</tr>
<tr>
<td>Bricklayer</td>
<td>Northern California Coast Counties Bricklayers JAC</td>
<td>8400 Enterprise Way, Rm 103, Oakland, CA 94621</td>
<td>Dave Jackson, Secretary</td>
<td>(510) 553-0991</td>
<td>(510) 553-0998</td>
</tr>
<tr>
<td>Carpenter</td>
<td>Alameda County Carpenters JATC</td>
<td>2350 Santa Rita Road, Pleasanton, CA 94566</td>
<td>Mary Lieser, Coordinator</td>
<td>(925) 462-9644</td>
<td>(925) 462-4293</td>
</tr>
<tr>
<td>Carpenter</td>
<td>Contra Costa County Carpenters JATC</td>
<td>2350 Santa Rita Road, Pleasanton, CA 94566</td>
<td>Neil Whitlock, Coordinator</td>
<td>(925) 462-9644</td>
<td>(925) 462-4293</td>
</tr>
<tr>
<td>Carpenter</td>
<td>ABC Golden Gate Chapter Carpenters UAC</td>
<td>11875 Dublin Blvd, Suite C-258, Dublin, CA 94568</td>
<td>Sagit Woodbury, Coordinator</td>
<td>(925) 829-9230</td>
<td>(925) 829-5877</td>
</tr>
<tr>
<td>Carpenter</td>
<td>Humboldt &amp; Del Norte Counties Carpenters JATC</td>
<td>840 &quot;E&quot; Street, Suite 12, Eureka, CA 95501</td>
<td></td>
<td>(707) 442-4286</td>
<td>(707) 442-5456</td>
</tr>
<tr>
<td>Trade</td>
<td>Local Union and Local Address</td>
<td>Chair/Coordinator</td>
<td>Phone #</td>
<td>FAX #</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Carpenter</td>
<td>Marin County Carpenters JATC 800 Chadbourne Road Fairfield, CA 95435 Mike White, Coordinator</td>
<td>(707) 399-2880 FAX(707) 399-8379</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpenter</td>
<td>Napa &amp; Solano Carpenters JATC 800 Chadbourne Road Fairfield, CA 95435 Randy Gourley, Coordinator</td>
<td>(707) 399-2880 FAX(707) 399-8379</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpenter</td>
<td>San Francisco Carpenters JATC 2350 Santa Rita Road Pleasanton, CA 94566 Neil Whitbeck, Coordinator</td>
<td>(925) 462-9644 FAX(925) 462-4293</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpenter</td>
<td>Sonoma and Lake Counties Carpenters JATC 800 Chadbourne Road Fairfield, CA 95435 Mike White, Coordinator</td>
<td>(707) 399-2880 FAX(707) 399-8379</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpet &amp; Linoleum</td>
<td>Northern California Floor Covering JATC 2463 Tripaldi Way Hayward, CA 94545 Jack Oyhancabal, Coordinator</td>
<td>(510) 259-1102 FAX(510) 259-1103</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drywall Finisher (Taper)</td>
<td>Bay Area Tapers JAC 600 Roble Avenue Pinole, CA 94564 Paul Nahm, Coordinator</td>
<td>(510) 724-3200 FAX(510) 724-9253</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drywall Lather</td>
<td>Alameda &amp; Contra Costa Drywall/Lathers JATC 23217 Kidder Street Hayward, CA 94545 Dan Burchfield, Coordinator</td>
<td>(510) 785-5885 FAX(510) 785-4434</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drywall Lather</td>
<td>North Coast Drywall/Lathers JATC 23217 Kidder Street Hayward, CA 94545 Dan Burchfield, Coordinator</td>
<td>(510) 785-5885 FAX(510) 785-4434</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drywall Lather</td>
<td>ABC Golden Gate Chapter Drywall Lather UAC 11875 Dublin Blvd, Suite C-258 Dublin, CA 94568 Sagit Woodbury, Coordinator</td>
<td>(925) 829-9230 FAX(925) 829-5877</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>Alameda County Electrical JATC 3033 Alvarado</td>
<td>(510) 351-5282 FAX(510) 351-2949</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>Organization</td>
<td>Address</td>
<td>Contact Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>---------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>Contra Costa Electricians JATC</td>
<td>1255 Muir Road, Martinez, CA 94553</td>
<td>(925) 372-7083 FAX(925) 372-7948</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>ABC Golden Gate Chapter Electricians UAC</td>
<td>11875 Dublin Blvd, Suite C-258, Dublin, CA 94568</td>
<td>925) 829-9230 FAX(925) 829-5877</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>Napa &amp; Solano Counties Electricians JATC</td>
<td>720-A Technology Way, Napa, CA 94558</td>
<td>(707) 251-0315 FAX(707) 251-0316</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>Redwood Empire Electricians JATC</td>
<td>1700 Corby Avenue, Santa Rosa, CA 95407</td>
<td>(707) 523-3837 FAX(707) 523-3829</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
<td>San Francisco Electricians JATC</td>
<td>4056 Mission Street, San Francisco, CA 94112</td>
<td>(415) 431-5853 FAX(415) 585-4117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Sprinkler Fitter</td>
<td>California American Fire Sprinkler Assoc. UAC</td>
<td>3478 Buskirk Ave, Suite 245, Pleasant Hill, CA 94523</td>
<td>(925) 944-9421 FAX(925) 930-7704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glazier</td>
<td>East Bay Flat Glass Workers JATC</td>
<td>20936 Chabot Blvd, Hayward, CA 94545</td>
<td>(510) 782-4232 FAX(510) 728-4134</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat &amp; Frost Insulator &amp; Asbestos Worker</td>
<td>Heat &amp; Frost Insulators &amp; Asbestos Worker JAC</td>
<td>1320 Harbor Bay Parkway, Alameda, CA 94502</td>
<td>(510) 769-4200 FAX(510) 769-4201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Duty Coach Mechanic</td>
<td>A.C. Transit District JAC</td>
<td>20234 Mack Street, Hayward, CA 94547</td>
<td>(510) 891-2552 FAX(510) 891-2516</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hod Carrier</td>
<td>Alameda &amp; Contra Costa Counties Hod Carriers JAC</td>
<td></td>
<td>(510) 568-0141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role</td>
<td>Address</td>
<td>Contact Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (Brick Tender) (Plaster Tender) | 8400 Enterprise Way, Rm 109
Oakland, CA 94621
Sam Robinson, Chairman | FAX(510) 568-4537 |
| Ironworker (Field)          | Oakland Field Ironworkers JATC
3130 Bayshore Road
Benicia, CA 94510
Dick Zampa Jr., Coordinator | (707) 746-7666
FAX(707) 746-0145 |
| Ironworker (Field)          | San Francisco Field Ironworkers JATC
3591 Thomas Road
Santa Clara, CA 95050
Dana Fairchild, Coordinator | (408) 988-5511
FAX(408) 988-5532 |
| Ironworker (Shop)           | Northern California Shop Ironworkers JAC
8130 Baldwin Street
Oakland, CA 94621
Jim Hood, Coordinator | (510) 639-7338
FAX(510) 639-7225 |
| Laborer (Construction Craft) | Laborers Northern California District Council's JAC
1001 Westside Dr
San Ramon, CA 94583
Lynn Sanguitti, Coordinator | (925) 556-0858
FAX(925) 556-0652 |
| Laborer (Construction Craft) | ABC Golden Gate Chapter Laborers UAC
11875 Dublin Blvd, Suite C-258
Dublin, CA 94568
Sagit Woodbury, Coordinator | (925) 829-9230
FAX(925) 829-5877 |
| Landscape & Irrigation Fitter | Northern California Landscape & Irrigation Fitters JATC
13 Tennessee Street
Vallejo, CA 94590
Dennis Soares, Coordinator | (707) 644-0355
FAX(707) 644-0360 |
| Lineman & Various Trades    | Pacific Gas & Electric Company JAC
2850 Shadelands Drive, Suite 100
Walnut Creek, CA 94598
Frances Wilder Davis, Chairman | (925) 974-4119
FAX(925) 974-4289 |
| Lithographer & Bookbinder   | Lithographers & Bookbinders JAC
2301 Ocean Ave.
San Francisco, CA 94127
Lennie Kuhls, Secretary | (415) 239-7700
FAX(415) 239-6434 |
| Machinist                   | Sonoma, Marin, Mendocino & Humboldt
Machinist JAC
4210 Petaluma Blvd. North
Petaluma CA 94952 | (707) 795-0086
FAX(707) 769-8440 |
<table>
<thead>
<tr>
<th>Labor</th>
<th>Association</th>
<th>Address</th>
<th>Contact Person</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mill Cabinet</td>
<td>Five Bay Counties Mill &amp; Cabinet JATC</td>
<td>115 Broadway, Oakland, CA 94607</td>
<td>Ruben Lopez, Coordinator</td>
<td>(510) 446-2236</td>
<td>(510) 451-2236</td>
</tr>
<tr>
<td>Millwright</td>
<td>Northern California Millwright JAC</td>
<td>2350 Santa Rita Rd, Pleasanton, CA 94566</td>
<td>Terry Callan, Coordinator</td>
<td>(925) 462-9644</td>
<td>(925) 462-4293</td>
</tr>
<tr>
<td>Molder/Coremaker</td>
<td>Glass Molders, Pottery, Plastics &amp; Allied Workers JAC</td>
<td>8140 Baldwin Street, Oakland, CA 94521</td>
<td>Carlos Costa Jr, Chairman</td>
<td>(510) 632-4774</td>
<td>(510) 632-0117</td>
</tr>
<tr>
<td>Operating Engineer Heavy Duty Repairperson</td>
<td>Northern California Operating Engineers JAC</td>
<td>7388 Murieta Drive, Rancho Murieta, CA 95683</td>
<td>Curtis Brooks, Administrator</td>
<td>(916) 354-2029</td>
<td>(916) 354-1126</td>
</tr>
<tr>
<td>Painter</td>
<td>East Bay Painters &amp; Decorators JAC</td>
<td>600 Roble Avenue, Pinole, CA 94564</td>
<td>Paul Nahm, Coordinator</td>
<td>(510) 724-3200</td>
<td>(510) 724-9253</td>
</tr>
<tr>
<td>Painter/Taper</td>
<td>Regional Painters &amp; Decorators JAC</td>
<td>6676 Mission St 3rd Floor, Daly City, CA 94014</td>
<td>Peter Germenis, Coordinator</td>
<td>(650) 301-1600</td>
<td>(650) 301-1601</td>
</tr>
<tr>
<td>Painter</td>
<td>ABC Golden Gate Chapter Painters UAC</td>
<td>11875 Dublin Blvd, Suite C-258, Dublin, CA 94568</td>
<td>Sagit Woodbury, Coordinator</td>
<td>(925) 829-9230</td>
<td>(925) 829-5877</td>
</tr>
<tr>
<td>Painter</td>
<td>Humboldt &amp; Del Norte Painters &amp; Allied Trades JAC</td>
<td>840 &quot;E&quot; Street, Eureka, CA 95501</td>
<td>Peter Germenis, Coordinator</td>
<td>(707) 442-5284</td>
<td>(707) 442-3511</td>
</tr>
<tr>
<td>Painter</td>
<td>Northern California Chapter PDCA UAC</td>
<td>1270 Missouri Street, San Francisco, CA 94107</td>
<td></td>
<td>(415) 643-8616</td>
<td>(415) 457-0344</td>
</tr>
<tr>
<td>Trade</td>
<td>Company Name</td>
<td>Address</td>
<td>Phone</td>
<td>Fax</td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Plasterer</td>
<td>Bay Area Plastering JATC</td>
<td>132 Starlite, So. San Francisco, CA 94080</td>
<td>(650) 827-1451</td>
<td>(650) 827-1454</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Robert Noto, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piledriver</td>
<td>Northern California Pile Drivers JAC</td>
<td>2350 Santa Rita Rd, Pleasanton, CA 94566</td>
<td>(925) 462-9644</td>
<td>(925) 462-4293</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Terry Callan, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumber, Pipefitter</td>
<td>United Association Local Union 342 JATC</td>
<td>935 Detroit Avenue, Concord, CA 94518</td>
<td>(925) 686-0730</td>
<td>(925) 685-7708</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ken Pastega, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumber, Pipefitter,</td>
<td>Contra Costa Plumbers &amp; Pipefitters JATC</td>
<td>1308 Roman Way, Martinez, CA 94553</td>
<td>(925) 229-0883</td>
<td>(925) 229-4361</td>
<td></td>
</tr>
<tr>
<td>Refrigeration Mechanic</td>
<td></td>
<td>Vince Radosevich, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumber, Pipefitter,</td>
<td>Napa &amp; Solano Plumbers JATC</td>
<td>401 Nebraska Street, Vallejo, CA 94950</td>
<td>(707) 644-4071</td>
<td>(707) 644-0314</td>
<td></td>
</tr>
<tr>
<td>Refrigeration</td>
<td></td>
<td>Paul Schulz, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumber, Pipefitter</td>
<td>Plumbing &amp; Pipefitting Industry JAC</td>
<td>1623 Market St. Rm 103, San Francisco, CA 94103</td>
<td>(415) 626-2000</td>
<td>(415) 626-2090</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steve Mazzola, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumber, Steamfitter</td>
<td>Humboldt &amp; Del Norte Plumbers Sub-JAC</td>
<td>832 &quot;E&quot; Street, Eureka, CA 95501</td>
<td>(707) 442-4680</td>
<td>(707) 443-9238</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sid Berg, Business Representative</td>
<td></td>
<td>C/o H&amp;DN Plumbers Attn: Sid Berg</td>
<td></td>
</tr>
<tr>
<td>Plumber</td>
<td>ABC Golden Gate Chapter Painters UAC</td>
<td>11875 Dublin Blvd, Suite C-258, Dublin, CA 94568</td>
<td>(925) 829-9230</td>
<td>(925) 829-5877</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sagit Woodbury, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roofer</td>
<td>Bay Area Roofing Industry JATC</td>
<td>900 Murmansk St, Bldg. 640, Suite 37, Oakland, CA 94607</td>
<td>(510) 628-3650</td>
<td>(510) 628-3655</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duane Mongerson, Coordinator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roofer</td>
<td>Independent Roofing Contractors UAC</td>
<td>P.O Box 27935, Concord, CA 94527</td>
<td>(925) 939-3715</td>
<td>(925) 930-7704</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>Organization</td>
<td>Coordinator</td>
<td>Phone Number</td>
<td>Fax Number</td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------------------------------</td>
<td>----------------------</td>
<td>-------------------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Sheetmetal Worker</td>
<td>Alameda &amp; Contra Costa Sheetmetal JATC</td>
<td>John Upshaw</td>
<td>(510)748-9035</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1700 Marina</td>
<td></td>
<td></td>
<td>(510) 483-1415</td>
<td></td>
</tr>
<tr>
<td></td>
<td>San Leandro, CA 94577</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mike Longeuay, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheetmetal Worker</td>
<td>San Francisco Sheetmetal Workers JAC</td>
<td>Mike Longeuay</td>
<td>(415) 431-1676</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1939 Market Street</td>
<td></td>
<td></td>
<td>(415) 235-8727</td>
<td></td>
</tr>
<tr>
<td></td>
<td>San Francisco, CA 94103</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frank Cuneo, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheetmetal Worker</td>
<td>North Bay Sheetmetal Workers JAC</td>
<td>Frank Cuneo</td>
<td>(707) 762-0181</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1250 Petaluma Blvd. North</td>
<td></td>
<td></td>
<td>(707) 762-7104</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Petaluma CA 94954</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frank Cuneo, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheetmetal Worker</td>
<td>Humbolt Sheetmetal Workers JAC</td>
<td>Frank Cuneo</td>
<td>(707) 762-0181</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1250 Petaluma Blvd. North</td>
<td></td>
<td></td>
<td>(707) 762-7104</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Petaluma CA 94954</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frank Cuneo, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprinkler Fitter</td>
<td>Sprinkler Fitters U.A., Local 483 JAC</td>
<td>Robert Loeffler</td>
<td>(510) 782-9483</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>23312 Cabot Blvd.</td>
<td></td>
<td></td>
<td>(510) 782-9506</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hayward, CA 94545</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Linda Loeffler, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationary Engineer</td>
<td>Northern California Stationary Engineers JAC</td>
<td>Jim Maple</td>
<td>(415) 285-3939</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>560 Barneveld Ave.</td>
<td></td>
<td></td>
<td>(415) 286-6916</td>
<td></td>
</tr>
<tr>
<td></td>
<td>San Francisco, CA 94124</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steamfitter</td>
<td>United Association Local Union 342 JATC</td>
<td>Bill Blalock</td>
<td>(925) 686-0730</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>935 Detroit Avenue</td>
<td></td>
<td></td>
<td>(925) 685-7708</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concord, CA 94518</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveyor</td>
<td>Northern California Surveyors JAC</td>
<td>Floyd Harley</td>
<td>(510) 748-7413</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1620 South Loop Rd.</td>
<td></td>
<td></td>
<td>(510) 748-0200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alameda, CA 94502</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tile Finisher, Tile Layer,</td>
<td>California North Coast Counties Tile JATC</td>
<td>Floyd Harley</td>
<td>(510) 553-0991</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrazzo Worker, Terrazzo Finisher</td>
<td>8400 Enterprise Way, Rm 103</td>
<td></td>
<td></td>
<td>(510) 553-0998</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oakland, CA 94621</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mark Sylvester, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utility Pipeline Installer</td>
<td>Northern California Utility Pipeline Installs</td>
<td>Floyd Harley</td>
<td>(707) 644-0355</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>JATC</td>
<td></td>
<td></td>
<td>(707) 644-0360</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice &amp; Data Communications Installer &amp; Repair Technician</td>
<td>Communication Workers of America, American Communication Contractors Association</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Tennessee Street, Vallejo, CA 94590, Dennis Soares, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46716 Fremont Blvd, Fremont, CA 94538, Karin Hart, Coordinator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(510) 657-5822, FAX (510) 657-5822</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COP FORM 101A

COUNTY OF ALAMEDA
CONSTRUCTION OUTREACH PROGRAM
M/WBE SUBCONTRACTOR PARTICIPATION INFORMATION

Bid Opening Date __________________________ Project # __________________________

Bidder __________________________ Project Name __________________________
Address __________________________

Completed by __________________________ (Telephone) __________________________

<table>
<thead>
<tr>
<th>Name of M/WBE Subcontractor</th>
<th>M/WBE Location (City)</th>
<th>Certified By*</th>
<th>Certification File Number</th>
<th>Description of Work</th>
<th>MBE (X)</th>
<th>WBE (X)</th>
<th>Dollar Value of Contract**</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL MBE PARTICIPATION

TOTAL WBE PARTICIPATION

ALAMEDA COUNTY GSA-TSD

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
CONSTRUCTION OUTREACH PROGRAM

DOCUMENT 00 22 19
This form is required to provide M/WBE information for the project specified above. Copy this form as needed to list additional M/WBEs.

* M/WBE must have current and valid certification from CALTRANS or other local agencies identified in Section 4.1 and 4.2 on the date bids are opened. M/WBEs not found on the certification list of the certifying agency cannot be considered. Attach copy of all certifications.

** Suppliers that are not manufacturers will count as 60% of their value furnished toward the M/WBE goal. Suppliers that are manufacturers (substantially modify the product: e.g., concrete) will count as 100% of their value furnished toward the M/WBE goal.

UPON REQUEST FROM COUNTY, THIS FORM MUST BE SUBMITTED BY 2:00 P.M., TWO DAYS FOLLOWING THE BID OPENING TO THE
GENERAL SERVICES AGENCY, 1401 LAKESIDE DRIVE, SUITE 907, OAKLAND, CALIFORNIA 94612.

Prime Contractor Signature: Date:
COP FORM 101B

COUNTY OF ALAMEDA
CONSTRUCTION OUTREACH PROGRAM
S/LBE PARTICIPATION INFORMATION

Bid Opening Date ____________________________________________ Project # ____________________________

Bidder __________________________________________________ Project Name _____________________________

Address ________________________________________________

Completed by ____________________________________________ (Telephone) ____________________________

<table>
<thead>
<tr>
<th>Name of S/LBE Prime or Subcontractor</th>
<th>S/LBE Location (City)</th>
<th>Certified By* Certification File Number</th>
<th>Description of Work</th>
<th>SBE (X)</th>
<th>LBE (X)</th>
<th>Dollar Value of Contract</th>
<th>Percent</th>
</tr>
</thead>
</table>

20% GOAL - TOTAL SBE PARTICIPATION

60% GOAL - TOTAL LBE PARTICIPATION

This form is required to provide S/LBE information for the project specified above. Copy this form as needed to list additional S/LBEs.
* SBE must have current and valid certification from CALTRANS or other local agencies identified in Section 4.1 and 4.2 on the date bids are opened. SBEs not found on the certification list of the certifying agency cannot be considered. LBEs must meet the Local definition in Section 3.2. Attach copy of all certifications and current and valid business license issued by the County or a city within the County.

UPON REQUEST FROM COUNTY, THIS FORM MUST BE SUBMITTED BY 2:00 P.M., TWO DAYS FOLLOWING THE BID OPENING TO THE GENERAL SERVICES AGENCY, 1401 LAKESIDE DRIVE, SUITE 907, OAKLAND, CALIFORNIA 94612.

Prime Contractor Signature: ___________________________ Date: ________________
### COUNTY OF ALAMEDA CONSTRUCTION OUTREACH PROGRAM

**SUBCONTRACTOR INFORMATION**

Project Name: ________________________________

Contract Number: ________________________________

Contractor: ________________________________

Estimated Start Date: ________________________________

Address: ________________________________

Estimated Completion Date: ________________________________

Contractor’s License: ________________________________

Number: ________________________________

Payroll Clerk/Office: ________________________________

Telephone: ________________________________

Manager: ________________________________

**LIST BELOW ALL SUBCONTRACTORS FOR THE ABOVE-NAMED PROJECT**

<table>
<thead>
<tr>
<th>SUBCONTRACTOR</th>
<th>SBE</th>
<th>LBE</th>
<th>STREET ADDRESS</th>
<th>DESCRIPTION OF WORK</th>
<th>LICENS E #</th>
<th>FED. TAX ID</th>
<th>PHONE</th>
<th>MBE</th>
<th>WBE</th>
<th>EMAIL ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ALAMEDA COUNTY GSA-TSD**

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS CONSTRUCTION OUTREACH PROGRAM**

DOCUMENT 00 22 19
<table>
<thead>
<tr>
<th>SUBCONTRACTOR</th>
<th>SBE</th>
<th>LBE</th>
<th>STREET ADDRESS</th>
<th>DESCRIPTION OF WORK</th>
<th>LICENSE #</th>
<th>FED. TAX ID</th>
<th>PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBE</td>
<td>WBE</td>
<td></td>
<td>EMAIL ADDRESS</td>
<td></td>
<td></td>
<td></td>
<td>FAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBCONTRACTOR</td>
<td>SBE</td>
<td>LBE</td>
<td>STREET ADDRESS</td>
<td>DESCRIPTION OF WORK</td>
<td>LICENSE #</td>
<td>FED. TAX ID</td>
<td>PHONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBE</td>
<td>WBE</td>
<td></td>
<td>EMAIL ADDRESS</td>
<td></td>
<td></td>
<td></td>
<td>FAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AAP FORM 102
Page 2 of 2

Sheet ______ of ______

ALAMEDA COUNTY GSA-TSD
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
CONSTRUCTION OUTREACH PROGRAM

DOCUMENT 00 22 19
<table>
<thead>
<tr>
<th>MBE</th>
<th>WBE</th>
<th>EMAIL ADDRESS</th>
<th>FAX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBCONTRACTOR</td>
<td>SBE</td>
<td>LBE</td>
<td>STREET ADDRESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBCONTRACTOR</td>
<td>SBE</td>
<td>LBE</td>
<td>STREET ADDRESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBCONTRACTOR</td>
<td>SBE</td>
<td>LBE</td>
<td>STREET ADDRESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALAMEDA COUNTY GSA-TSD

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
CONSTRUCTION OUTREACH PROGRAM

DOCUMENT 00 22 19
Alameda County, General Services Agency

<table>
<thead>
<tr>
<th>MBE</th>
<th>WBE</th>
<th>EMAIL ADDRESS</th>
<th>FAX</th>
</tr>
</thead>
</table>

Form Completed by ____________________________________________
Date ___________________________
Signature and Title __________________________________________

END OF SECTION
1. **Summary**

   This document describes geotechnical data at or near the Project that is in the County’s possession available for Contractor’s review, and use of data resulting from various investigations. This document is not part of the Contract Documents. **See General Conditions for definition(s) of terms used herein.**

2. **Geotechnical Reports**

   a. Geotechnical reports may have been prepared for and around the Site by soil investigation engineers hired by County, and its consultants, contractors, and tenants.

   b. Geotechnical reports may be inspected at the County offices or the Construction Manager’s offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports are not part of the Contract Documents.

   c. The reports and drawings of physical conditions that may relate to the Project are the following:

   [LIST ALL GEOTECHNICAL REPORTS HERE]

3. **Use of Data**

   a. Geotechnical data were obtained only for use of County and its consultants, contractors, and tenants for planning and design and are not a part of Contract Documents.

   b. Except as expressly set forth below, County does not warrant, and makes no representation regarding, the accuracy or thoroughness of any geotechnical data. Bidder represents and agrees that in submitting a Bid it is not relying on any geotechnical data supplied by County, except as specifically allowed below.

   c. Under no circumstances shall County be deemed to make a warranty or representation of existing above ground conditions, as-built conditions, or other actual conditions verifiable by independent investigation. These conditions are verifiable by Contractor by the performance of its own independent investigation that Contractor should perform as a condition to bidding and Contractor must not and shall not rely on information supplied by County.
4. Limited Reliance Permitted on Certain Information

a. Reference is made herein for identification of:

- Reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by County in preparation of the Contract Documents.

- Drawings of physical conditions in or relating to existing subsurface structures (except underground facilities) that are at or contiguous to the Site and have been utilized by County in preparation of the Contract Documents.

b. Bidder may rely upon the general accuracy of the "technical data" contained in the reports and drawings identified above, but only insofar as it relates to subsurface conditions, provided Bidder has conducted the independent investigation required pursuant to Instructions to Bidders, and discrepancies are not apparent. The term "technical data" in the referenced reports and drawings shall be limited as follows:

1. The term "technical data" shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment or structures that were encountered during subsurface exploration. The term "technical data" does not include, and Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures.

2. The term "technical data" shall not include the location of underground facilities.

3. Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.

4. Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions, or information provided in the identified reports and drawings.

5. Investigations/Site Examinations

a. Before submitting a Bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems...
necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.

b. On request, County will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a Bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work.

END OF DOCUMENT
EXISTING CONDITIONS INFORMATION

1. Summary

This document describes existing conditions at or near the Project, and use of information available regarding existing conditions. This document is part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

2. Reports and Information on Existing Conditions

   a. Documents providing a general description of the Site and conditions of the Work may have been collected by County its consultants, contractors, and tenants. These documents may include previous contracts, contract specifications, tenant improvement contracts, as-built drawings, utility drawings, and information regarding underground facilities.

   b. Information regarding existing conditions may be inspected at the County offices or the Construction Manager’s offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder’s agreement to pay for such copies. These reports, documents, and other information are part of the Contract Documents.

   c. Information regarding existing conditions may also be included in the Project Manual, but shall be considered part of the Contract Documents.

   d. The reports and other data or information regarding existing conditions and underground facilities at or contiguous to the Project are the following:

      (1) Hazardous Material Reports

3. Use of Information

   a. Information regarding existing conditions was obtained only for use of County and its consultants, contractors, and tenants for planning and design and is part of the Contract Documents.

   b. County does not warrant, and makes no representation regarding, the accuracy or thoroughness of any information regarding existing conditions. Bidder represents and agrees that in submitting a bid it is not relying on any information regarding existing conditions supplied by County.
c. Under no circumstances shall County be deemed to warrant or represent existing above-ground conditions, as-built conditions, or other actual conditions, verifiable by independent investigation. These conditions are verifiable by Contractor by the performance of its own independent investigation, which Contractor must perform as a condition to bidding, and Contractor should not and shall not rely on this information or any other information supplied by County regarding existing conditions.

d. Any information shown or indicated in the reports and other data supplied herein with respect to existing underground facilities at or contiguous to the Project may be based upon information and data furnished to County by the County’s employees and/or consultants or builders of such underground facilities or others. County does not assume responsibility for the completeness of this information, and Bidder is solely responsible for any interpretation or conclusion drawn from this information.

e. County shall be responsible only for the general accuracy of information regarding underground facilities, and only for those underground facilities that are owned by County, and only where Bidder has conducted the independent investigation required of it pursuant to the Instructions to Bidders, and discrepancies are not apparent.

4. Investigations/Site Examinations

a. Before submitting a Bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.

b. On request, County will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a Bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of
insurance and obligation to indemnify against claims arising from such work, and County’s prior approval.

END OF DOCUMENT
To: The County of Alameda

From: (Proper Name of Bidder)

The undersigned declares that the Contract Documents including, without limitation, the Notice to Bidders Document 00 11 16, the Instructions to Bidders Document 00 21 13 and the Supplementary Instructions to Bidders – Construction Outreach Program Document 00 22 19 have been read and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of:

PROJECT: #2043-01 – HIGHLAND HOSPITAL MEDICAL RECORDS AND LIBRARY RENOVATION

(“Project” or “Contract”) and will accept in full payment for that Work the following total lump sum amount, all taxes included:

None

Alternates:

None

1. **Unit Prices.** The Bidder’s Base Bid includes the following unit prices, which the Bidder must provide and County may, at its discretion, utilize in valuing additive and/or deductive change orders;

   **Unit Prices:**

   1 1/2” pipe/pipe fitting insulation $ /linear foot
   3” pipe/pipe fitting insulation $ /linear foot
   4” pipe/pipe fitting insulation $ /linear foot
   Removal of Asbestos Containing VAT $ /square foot
   Removal of Asbestos Containing Ceramic Tile $ /square foot

   * Unit prices for asbestos-containing materials will be used to adjust the contract amount as specified in Document 13 10 20.

2. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Bid, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to County, and agrees that its Bid, if accepted by County, will be the basis for the Bidder to enter into a contract with County in accordance with the intent of the Contract Documents.
3. The undersigned has notified County in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.

4. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.

5. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.

6. It is understood that County reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.

7. The following documents are attached hereto:
   a. Bid Bond on Bid Security Form Document 00 43 13 or other security
   b. Designated Subcontractors List Document 00 43 36
   c. Site-Visit Certification Document 00 45 01, if a site visit was required
   d. Non-Collusion Affidavit Document 00 45 13
   e. Construction Outreach Program Certifications as required by Supplementary Instructions to Bidders - Construction Outreach Program Document 00 22 19.

Receipt and acceptance of the following addenda is hereby acknowledged:

<table>
<thead>
<tr>
<th>No.</th>
<th>Dated</th>
<th>No.</th>
<th>Dated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Bidder acknowledges that the licenses required for performance of the Work are an A and C-21 (Demolition), and asbestos licenses.

9. The undersigned hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

10. The Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.
11. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.

12. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms “claim” and “knowingly” are defined in the California False Claims Act, Cal. Gov. Code, §12650 et seq.), County will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.

13. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

Furthermore, Bidder hereby certifies to County that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury pursuant to the laws of California.

Dated this __________________ day of ___________________________ 20__

Name of Bidder ________________________________________________

Type of Organization ____________________________________________

Signed by ______________________________________________________

Title of Signer __________________________________________________

Address of Bidder ________________________________________________

Taxpayer's Identification No. of Bidder ________________________________

Telephone Number _______________________________________________

Fax Number ______________________________________________________

E-mail ___________________________ Web page _________________________

Contractor's License No(s): No.: _______ Class: _______ Expiration Date: _______

No.: _______ Class: _______ Expiration Date: _______

No.: _______ Class: _______ Expiration Date: _______

If Bidder is a corporation, affix corporate seal.

Name of Corporation: ____________________________________________

President: _____________________________________________________

Secretary: _____________________________________________________

ALAMEDA COUNTY GSA-TSD

BID FORM – STIPULATED SUM
(SINGLE-PRIME CONTRACT)

Page 3 of 4
Treasurer: ____________________________________________________________

Manager: ____________________________________________________________

END OF DOCUMENT
BID SECURITY FORM

(Bid Bond)

(Note: If Bidder is providing a bid bond as its bid security, Bidder must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

That the undersigned, as ________________________________ as Principal (“Principal”),

and ________________________________ as Surety (“Surety”),

a corporation organized and existing under and by virtue of the laws of the State of __________

and authorized to do business as a surety in the State of California, are held and firmly bound

unto the County of Alameda, State of California as Obligee, in the sum of

_______________________________ ($ __________)

lawful money of the United States of America, for the payment of which sum well and truly to

be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors, and

assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted

a bid to County for all Work specifically described in the accompanying bid;

Now, therefore, if the Principal is awarded the Contract and, within the time and manner required

under the Contract Documents, after the prescribed forms are presented to Principal for

signature, enters into a written contract, in the prescribed form in accordance with the bid, and

files two bonds, one guaranteeing faithful performance and the other guaranteeing payment for

labor and materials as required by law, and meets all other conditions to the contract between the

Principal and the Obligee becoming effective, or if the Principal shall fully reimburse and save

harmless the Obligee from any damage sustained by the Obligee through failure of the Principal

to enter into the written contract and to file the required performance and labor and material

bonds, and to meet all other conditions to the Contract between the Principal and the Obligee

becoming effective, then this obligation shall be null and void; otherwise, it shall be and remain

in full force and effect. The full payment of the sum stated above shall be due immediately if

Principal fails to execute the Contract within seven (7) days of the date of the County's Notice of

Award to Principal.

Surety, for value received, hereby stipulates and agrees that no change, extension of time,

alteration or addition to the terms of the Contract or the call for bids, or to the work to be

performed thereunder, or the specifications accompanying the same, shall in any way affect its

obligation under this bond, and it does hereby waive notice of any such change, extension of
Highland ATR Make Ready Work

Fairmont Campus – Building C & E  Project # 2043-02

time, alteration or addition to the terms of the Contract or the call for bids, or to the work, or to the specifications.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorneys' fee to be fixed by the Court.

If the County awards the bid, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

IN WITNESS WHEREOF, this instrument has been duty executed by the Principal and Surety above named, on the _______ day of ________________________, 20___.

(Affix Corporate Seal)

Principal

By

(Affix Corporate Seal)

Surety

By

Name of California Agent of Surety

Address of California Agent of Surety

Telephone Number of California Agent of Surety

Bidder must attach Power of Attorney and Certificate of Authority for Surety and a Notarial Acknowledgment for all Surety's signatures. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

END OF DOCUMENT
DOCUMENT 00 43 36

DESIGNATED SUBCONTRACTORS LIST

PROJECT:  HIGHLAND HOSPITAL MEDICAL RECORDS AND LIBRARY

Bidder must list hereinafter the name and location of each subcontractor who will be employed, and the kind of Work that each will perform if the Contract is awarded to the Bidder. Bidder acknowledges and agrees that under Public Contract Code section 4100, et seq., it must clearly set forth below the name and location of each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the Work in an amount in excess of one-half of one percent (1/2 of 1%) of Bidder’s total Bid, and that as to any Work that Bidder fails to list, Bidder agrees to perform that portion itself or be subjected to penalty under applicable law.

In case more than one subcontractor is named for the same kind of Work, state the portion that each will perform. Vendors or suppliers of materials only do not need to be listed.

If further space is required for the list of proposed subcontractors, additional sheets showing the required information, as indicated below, shall be attached hereto and made a part of this document.

Subcontractor Name: ___________________________ Location: ______________

  Portion of Work: ___________________________________________________________________

Subcontractor Name: ___________________________ Location: ______________

  Portion of Work: ___________________________________________________________________

Subcontractor Name: ___________________________ Location: ______________

  Portion of Work: ___________________________________________________________________

Subcontractor Name: ___________________________ Location: ______________

  Portion of Work: ___________________________________________________________________

Subcontractor Name: ___________________________ Location: ______________

  Portion of Work: ___________________________________________________________________

Subcontractor Name: ___________________________ Location: ______________

  Portion of Work: ___________________________________________________________________
SITE-VISIT CERTIFICATION

For Projects Where A Site Visit Was Mandatory

PROJECT: _____________________________________________(Project Name)

Check whichever option applies:

____ I certify that I visited the Site of the proposed Work and became fully acquainted with the conditions relating to construction and labor. I fully understand the facilities, difficulties, and restrictions attending the execution of the Work under contract.

____ I certify that ______________________ (Bidder's representative) visited the Site of the proposed Work and became fully acquainted with the conditions relating to construction and labor. The Bidder's representative fully understood the facilities, difficulties, and restrictions attending the execution of the Work under contract.

Bidder fully indemnifies the County of Alameda, its Architect, its Engineer, its Construction Manager, and all of their respective officers, agents, employees, and consultants from any damage, or omissions, related to conditions that could have been identified during my visit and/or the Bidder's representative’s visit to the Site.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____________________________________________

Proper Name of Bidder: ______________________________________

Signature: _____________________________________________

Print Name: _____________________________________________

Title: _____________________________________________

END OF DOCUMENT
DOCUMENT 00 45 13

NON-COLLUSION AFFIDAVIT
Public Contract Code Section 7106

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

STATE OF CALIFORNIA )
) ss.

COUNTY OF ________________ )

_________________________________________________________________________ being first
duly sworn deposes and says that he or she is
of ____________________________, the Bidder making the foregoing Bid that the Bid is not
made in the interest of, or on behalf of, any undisclosed person, partnership, company,
association, organization, or corporation; that the Bid is genuine and not collusive or sham; that
the Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or
sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any
bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the
Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or
conference with anyone to fix the Bid price of the Bidder or any other bidder, or to fix any
overhead, profit, or cost element of the Bid price, or of that of any other bidder, or to secure any
advantage against the County of anyone interested in the proposed Contract; that all statements
contained in the bid are true; and, further, that the Bidder has not, directly or indirectly,
submitted his or her Bid price or any breakdown thereof, or the contents thereof, or divulged
information or data relative thereto, or paid, and will not pay, any fee to any corporation,
partnership, company association, organization, bid depository, or to any member or agent
thereof to effectuate a collusive or sham bid.

I certify and declare under penalty of perjury under the laws of the State of California that
all the foregoing information in this Non-Collusion Affidavit is true and correct.

Date: __________________________________________

Proper Name of Bidder: ______________________________________

Signature: ________________________________________________

Print Name: ______________________________________________

Title: ____________________________________________________

(ATTACH NOTARIAL ACKNOWLEDGMENT FOR THE ABOVE SIGNATURE)
END OF DOCUMENT
WORKERS’ COMPENSATION CERTIFICATION

PROJECT/CONTRACT NO.: ________________________________ between County of Alameda (the “County” or the “Owner”) and ________________________________ (the “Contractor” or the “Bidder”) (the “Contract” or the “Project”).

Labor Code section 3700 in relevant part provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

a. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state.

b. By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Date: ________________________________

Proper Name of Contractor: ________________________________

Signature: ________________________________

Print Name: ________________________________

Title: ________________________________

(In accordance with Article 5 - commencing at section 1860, chapter 1, part 7, division 2 of the Labor Code, the above certificate must be signed and filed with the awarding body prior to performing any Work under this Contract.)

END OF DOCUMENT
DOCUMENT 00 45 46.01

PREVAILING WAGE AND
RELATED LABOR REQUIREMENTS CERTIFICATION

PROJECT/CONTRACT NO.: __________________________ between County of Alameda (the “County” or the “Owner”) and __________________________ (the “Contractor” or the “Bidder”) (the “Contract” or the “Project”).

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hours notice, payroll records, and apprentice and trainee employment requirements, for all Work on the above Project.

I hereby acknowledge that County will use the Alameda County Contract Compliance System, including the Elation Systems, Inc. program, to monitor contract and labor compliance. Contractor shall use the Compliance System to meet County’s requirements, and shall participate in training as directed by County in order to become and remain competent in the use of the Compliance System.

Date: __________________________

Proper Name of Contractor: __________________________

Signature: __________________________

Print Name: __________________________

Title: __________________________

END OF DOCUMENT
HAZARDOUS MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: ____________________________ (“Contract” or “Project”) between the County of Alameda (“County”) and ____________________________ (“Contractor”)

1. Contractor hereby certifies that no Asbestos, or Asbestos-Containing Materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations (“New Hazardous Material”), shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for County.

2. Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

3. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (.1%) asbestos shall be defined as asbestos-containing material.

4. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the County’s determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.

5. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing “New Hazardous Material” will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the County.

6. Contractor has read and understood the document Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein.

Date: ____________________________________________

Proper Name of Contractor: ________________________________

Signature: ____________________________________________

Print Name: ___________________________________________

Title: ________________________________________________
DOCUMENT 00 45 46.06

IMPORTED MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: ___________________________ between County of Alameda ("County" or "Owner") and ___________________________ ("Contractor") ("Contract" or "Project").

This form shall be executed by the Contractor and by all entities that, in any way, provide or deliver and/or supply any soils, aggregate, or related materials ("Fill") to the Project Site. All Fill shall satisfy all requirements of any environmental review of the Project performed pursuant to the statutes and guidelines of the California Environmental Quality Act, and section 21000 et seq. of the Public Resources Code ("CEQA").

To the furthest extent permitted by California law, Contractor shall defend, indemnify, and hold harmless the County, its agents, representatives, officers, consultants, employees, trustees, and volunteers pursuant to the indemnification provisions in the Contract Documents for, without limitation, any claim(s) connected with providing, delivering, and/or supplying Fill.

Certification of: □ Delivery Firm/Transporter □ Supplier □ Manufacturer
                □ Wholesaler    □ Broker    □ Retailer
                □ Distributor   □ Other ________________

Type of Entity □ Corporation   □ General Partnership
                □ Limited Partnership □ Limited Liability Company
                □ Sole Proprietorship □ Other ________________

Name of firm ("Firm"): ______________________________________

Mailing address: ________________________________________________

Addresses of branch office used for this Project: ______________________

If subsidiary, name and address of parent company: ______________________

______________________________

By my signature below, I hereby certify that I am aware of section 25260 of the Health and Safety Code and the sections referenced therein regarding the definition of hazardous material. I
further certify on behalf of the Firm that all soils, aggregates, or related materials provided, delivered, and/or supplied or that will be provided, delivered, and/or supplied by this Firm to the Project Site are free of any and all hazardous material as defined in section 25360 of the Health and Safety Code. I further certify that I am authorized to make this certification on behalf of the Firm.

Date: 

Proper Name of Contractor: 

Signature: 

Print Name: 

Title: 
NOTICE OF AWARD

Dated: ____________________________ 20___

To: __________________________________________________________

(Contractor)

To: __________________________________________________________

(Address)

From: The County of Alameda

PROJECT: ______________________________________________________ (Project Name)

(“Project” or “Contract”).

Contractor has been awarded the referenced Contract on _____________, 20___, [CHOOSE ONE: by action of the County's Board of Supervisors[OR] by action of the _________________ pursuant to a delegation of authority by the County’s Board of Supervisors.

The Contract Price is ____________________________ Dollars ($_________), and includes alternates ___________________________________________________________.

Three (3) copies of each of the Contract Documents (except Drawings) accompany this Notice of Award. Three (3) sets of the Drawings will be delivered separately or otherwise made available. Additional copies are available at cost of reproduction.

You must comply with the following conditions precedent within SEVEN (7) calendar days of the date of this Notice of Award.

The Bidder to whom Contract is awarded shall execute and submit the following documents by 5:00 p.m. of the SEVENTH (7TH) calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles County to reject the bid as non-responsive.

a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.

b. Escrow of Bid Documentation: This must include all required documentation. See the document Escrow of Bid Documentation for more information.

c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
d. Payment Bond (100%) (Contractor's Labor and Material Payment Bond): On the form provided in the Contract Documents and fully executed as indicated on the form.

e. Insurance Certificates and Endorsements as required.

f. Workers' Compensation Certification.

g. Prevailing Wage and Related Labor Requirements Certification.

h. Hazardous Materials Certification.

i. Imported Materials Certification.

j. Contractor’s Safety Plan specifically adapted for the Project.

Failure to comply with these conditions within the time specified will entitle County to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited, as well as any other rights the County may have against the Contractor.

After you comply with those conditions, County will return to you one fully signed counterpart of the Agreement.

The County of Alameda

BY: ____________________________

NAME: __________________________

TITLE: __________________________

END OF DOCUMENT
THIS AGREEMENT IS MADE AND ENTERED INTO THIS _______ DAY OF ________, 20___, by and between the County of Alameda ("County") and ____________________________________________ ("Contractor") ("Agreement").

WITNESSETH: That the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree with each other, as follows:

1. **The Work:** Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, and material necessary to perform and complete in a good and workmanlike manner, the work of

   PROJECT: **HIGHLAND HOSPITAL MEDICAL RECORDS AND LIBRARY**

   ("Project" or "Contract" or "Work")

   for which the Drawings and Specifications are identified by the signature of the parties to this Agreement. It is understood and agreed that the Work shall be performed and completed as required in the Contract Documents including, without limitation, the Drawings and Specifications, under the direction and supervision of, and subject to, the approval of County or its authorized representative.

2. **The Contract Documents:** The complete Contract consists of all Contract Documents as defined in the General Conditions and incorporated herein by this reference. Any and all obligations of the County and Contractor are fully set forth and described in the Contract Documents. All Contract Documents are intended to cooperate so that any Work called for in one and not mentioned in the other or vice versa is to be executed the same as if mentioned in all Contract Documents.

3. **Interpretation of Contract Documents:** Should any question arise concerning the intent or meaning of Contract Documents, including the Drawings or Specifications, the question shall be submitted to the County for interpretation. If a conflict exists in the Contract Documents, modifications, beginning with the most recent, shall control over this Agreement, which shall control over the Special Conditions, which shall control over the General Conditions, which shall control over the remaining Division 00 documents, which shall control over Division 01 Documents, which shall control over Division 02 through Division 49 documents, which shall control over figured dimensions, which shall control over large-scale drawings, which shall control over small-scale drawings. In no
case shall a document calling for lower quality and/or quantity material or workmanship control. The decision of County in the matter shall be final.

4. **Time For Completion**: It is hereby understood and agreed that the work under this contract shall be completed within **ONE HUNDRED SIXTY-THREE (163)** consecutive calendar days (“Contract Time”) from the date specified in the County's Notice to Proceed.

5. **Completion-Extension Of Time**: Should the Contractor fail to complete this Contract, and the Work provided herein, within the time fixed for completion, due allowance being made for the contingencies provided for herein, the Contractor shall become liable to the County for all loss and damage that the County may suffer on account thereof. The Contractor shall coordinate its work with the Work of all other contractors. County shall not be liable for delays resulting from Contractor's failure to coordinate its Work with other contractors in a manner that will allow timely completion of Contractor's Work. Contractor shall be liable for delays to other contractors caused by Contractor's failure to coordinate its Work with the work of other contractors.

6. **Liquidated Damages**: Time is of the essence for all work under this Agreement. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that County will sustain in the event of and by reason of Contractor's delay; therefore, Contractor agrees that it shall pay to the County the sum of **ONE THOUSAND FIVE HUNDRED ($ 1,500)** dollars per day as liquidated damages for each and every day's delay beyond the time herein prescribed in finishing the Work. It is hereby understood and agreed that this amount is not a penalty.

In the event any portion of the liquidated damages is not paid to County, County may deduct that amount from any money due or that may become due the Contractor under this Agreement. County's right to assess liquidated damages is as indicated herein and in the General Conditions.

The time during which the Contract is delayed for cause as hereinafter specified may extend the time of completion for a reasonable time as County may grant. This provision does not exclude the recovery of damages for delay by either party under other provisions in the Contract Documents.

7. **Loss Or Damage**: County and its authorized representatives shall not in any way or manner be answerable or suffer loss, damage, expense, or liability for any loss or damage that may happen to the Work, or any part thereof, or in or about the same during its construction and before acceptance, and the Contractor shall assume all liabilities of every kind or nature arising from the Work, either by accident, negligence, theft,
vandalism, or any cause whatever; and shall hold County and its authorized representatives harmless from all liability of every kind and nature arising from accident, negligence, or any cause whatever.

8. **Insurance and Bonds**: Contractor shall provide all required certificates of insurance, and payment and performance bonds as evidence thereof.

9. **Prosecution of Work**: If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this contract, County, may, pursuant to the General Conditions and without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

10. **Authority of Architect**: Contractor hereby acknowledges that the Architect has authority to approve and/or stop Work if the Contractor’s Work does not comply with the requirements of the Contract Documents and all applicable laws. The Contractor shall be liable for any delay caused by its non-compliant Work.

11. **Assignment of Contract**: Neither the Contract, nor any part thereof, nor any moneys due or to become due thereunder, may be assigned by the Contractor without the written approval of the County, nor without the written consent of the Surety on the Contractor's Performance Bond (the "Surety"), unless the Surety has waived in writing its right to notice of assignment.

12. **Classification Of Contractor’s License**: Contractor hereby acknowledges that it currently holds valid Type A and B Contractor's license(s) issued by the State of California, Contractor's State Licensing Board, in accordance with division 3, chapter 9, of the Business and Professions Code and in the classification called for in the Contract Documents.

13. It is County policy to minimize the expenditure of County funds on goods and services produced by any entity which buys, sell, leases or distributes commodities and/or professional services to (1) the government of Burma; or (2) any entity organized under the laws of Burma; or (3) any entity which does business with any private or public entity located in Burma, or conducts operations in Burma. Contractors are urged to comply with the policy in making purchases and subcontracts. (ref. Alameda County, Cal., Adm. Code Title.4, §4.32.050(B),(F) )

14. **Payment of Prevailing Wages**: The Contractor and all Subcontractors under the Contractor shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial
Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of County, pursuant to sections 1770 et seq. of the California Labor Code.

15. **Contract Price:** In consideration of the foregoing covenants, promises, and agreements on the part of the Contractor, and the strict and literal fulfillment of each and every covenant, promise, and agreement, and as compensation agreed upon for the Work and construction, erection, and completion as aforesaid, County covenants, promises, and agrees that it will well and truly pay and cause to be paid to the Contractor in full, and as the full Contract Price and compensation for construction, erection, and completion of the Work hereinafore agreed to be performed by the Contractor, the following price:

\[
\text{Dollars} (\$ \text{____________________}),
\]
in lawful money of the United States, which sum is to be paid according to the schedule provided by the Contractor and accepted by County and subject to additions and deductions as provided in the Contract. This amount supersedes any previously stated and/or agreed to amount(s).

16. **Severability:** If any term, covenant, condition, or provision in any of the Contract Documents is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions in the Contract Documents shall remain in full force and effect and shall in no way be affected, impaired, or invalidated thereby.

IN WITNESS WHEREOF, accepted and agreed on the date indicated above:

.

**CONTRACTOR**

By: __________________________

Title: __________________________

**COUNTY OF ALAMEDA**

By: __________________________

Title: __________________________

NOTE: If the party executing this Contract is a corporation, a certified copy of the by-laws, or of the resolution of the Board of Directors, authorizing the officers of said corporation to execute the Contract and the bonds required thereby must be attached hereto.
NOTICE TO PROCEED

Dated: ________________, 20__

TO: __________________________

(Contractor)

ADDRESS: __________________________

________________________________________________________________________

________________________________________________________________________

PROJECT: ____________________________ (Project Name)

PROJECT/CONTRACT NO.: ____________________________ between County of Alameda and Contractor (“Contract”).

You are notified that the Contract Time under the above Contract will commence to run on ________________, 20__. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement executed by Contractor, the date of completion is ____________, 20__. [ENSURE THIS PARAGRAPH IS CONSISTENT WITH §4 OF DOCUMENT 00 52 13 (AGREEMENT FORM)]

You must submit the following documents by 5:00 p.m. of the TENTH (10TH) calendar day following the date of this Notice to Proceed:

a. Contractor’s preliminary schedule of construction.

b. Contractor’s preliminary schedule of values for all of the Work.

c. Contractor’s preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals

d. Contractor’s Safety Plan specifically adapted for the Project.

e. A complete subcontractors list, including the name, address, telephone number, facsimile number, California State Contractors License number, classification, and monetary value of all Subcontracts.
Thank you. We look forward to a very successful Project.

COUNTY OF ALAMEDA

BY: __________________________

NAME: ________________________

TITLE: ________________________

END OF DOCUMENT
1. Requirement to Escrow Bid Documentation
   a. Contractor shall submit, within SEVEN (7) calendar days after the date of the Notice of Award, one copy of all documentary information received or generated by Contractor in preparation of bid prices for this Contract, as specified herein. This material is referred to herein as "Escrow Bid Documentation." The Escrow Bid Documentation of the Contractor will be held in escrow for the duration of the Contract.

   b. Contractor agrees, as a condition of award of the Contract, that the Escrow Bid Documentation constitutes all written information used in the preparation of its bid, and that no other written bid preparation information shall be considered in resolving disputes or claims. Contractor also agrees that nothing in the Escrow Bid Documentation shall change or modify the terms or conditions of the Contract Documents.

   c. The Escrow Bid Documentation will not be opened by County except as indicated herein. The Escrow Bid Documentation will be used only for the resolution of change orders and claims disputes.

   d. Contractor's submission of the Escrow Bid Documentation, as with the bonds and insurance documents required, is considered an essential part of the Contract award. Should the Contractor fail to make the submission within the allowed time specified above, County may deem the Contractor to have failed to enter into the Contract, and the Contractor shall forfeit the amount of its bid security, accompanying the Contractor's bid, and County may award the Contract to the next lowest responsive responsible bidder.

   e. NO PAYMENTS WILL BE MADE, NOR WILL COUNTY ACCEPT PROPOSED CHANGE ORDERS UNTIL THE ABOVE REQUIRED INFORMATION IS SUBMITTED AND APPROVED.

   f. The Escrow Bid Documentation shall be submitted in person by an authorized representative of the Contractor to County.

2. Ownership of Escrow Bid Documentation
   a. The Escrow Bid Documentation is, and shall always remain, the property of Contractor, subject to review by County, as provided herein.
b. Escrow Bid Documentation constitute trade secrets, not known outside Contractor's business, known only to a limited extent and only by a limited number of employees of Contractor, safeguarded while in Contractor's possession, extremely valuable to Contractor, and could be extremely valuable to Contractor's competitors by virtue of it reflecting Contractor's contemplated techniques of construction. Subject to the provisions herein, County agrees to safeguard the Escrow Bid Documentation, and all information contained therein, against disclosure to the fullest extent permitted by law.

3. Format and Contents of Escrow Bid Documentation

   a. Contractor may submit Escrow Bid Documentation in its usual cost-estimating format; a standard format is not required. The Escrow Bid Documentation shall be submitted in the English language.

   b. Escrow Bid Documentation must clearly itemize the estimated costs of performing the work of each bid item contained in the bid schedule, separating bid items into sub-items as required to present a detailed cost estimate and allow a detailed cost review. The Escrow Bid Documentation shall include all subcontractor bids or quotes, supplier bids or quotes, quantity takeoffs, crews, equipment, calculations of rates of production and progress, copies of quotes from subcontractors and suppliers, and memoranda, narratives, add/deduct sheets, and all other information used by the Contractor to arrive at the prices contained in the bid proposal. Estimated costs should be broken down into Contractor's usual estimate categories such as direct labor, repair labor, equipment ownership and operation, expendable materials, permanent materials, and subcontract costs as appropriate. Plant and equipment and indirect costs should be detailed in the Contractor's usual format. The Contractor's allocation of indirect costs, contingencies, markup, and other items to each bid item shall be identified.

   c. All costs shall be identified. For bid items amounting to less than $10,000, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials, and subcontracts, as applicable, are included and provided that indirect costs, contingencies, and markup, as applicable, are allocated.

   d. Bid Documentation provided by County should not be included in the Escrow Bid Documentation unless needed to comply with the following requirements.

4. Submittal of Escrow Bid Documentation

   a. The Escrow Bid Documentation shall be submitted by the Contractor in a sealed container within SEVEN (7) calendar days after the date of the Notice of Award. The container shall be clearly marked on the outside with the Contractor's name, date of submittal, project name and the words "Escrow Bid Documentation –
Intended to be opened in the presence of Authorized Representatives of Both County and Contractor”.

b. By submitting Escrow Bid Documentation, Contractor represents that the material in the Escrow Bid Documentation constitutes all the documentary information used in preparation of the bid and that the Contractor has personally examined the contents of the Escrow Bid Documentation container and has found that the documents in the container are complete.

c. If Contractor's proposal is based upon subcontracting any part of the work, each subcontractor whose total subcontract price exceeds 5 percent of the total contract price proposed by Contractor, shall provide separate Escrow Documents to be included with those of Contractor. Those documents shall be opened and examined in the same manner and at the same time as the examination described above for Contractor.

d. If Contractor wishes to subcontract any portion of the Work after award, County retains the right to require Contractor to submit Escrow Documents for the Subcontractor before the subcontract is approved.

5. Storage, Examination and Final Disposition of Escrow Bid Documentation

a. The Escrow Bid Documentation will be placed in escrow, for the life of the Contract, in a mutually agreeable institution. The cost of storage will be paid by Contractor for the duration of the project until final Contract payment. The storage facilities shall be the appropriate size for all the Escrow Bid Documentation and located conveniently to both County's and Contractor's offices.

b. The Escrow Bid Documentation shall be examined by both County and Contractor, at any time deemed necessary by either County or Contractor, to assist in the negotiation of price adjustments and change orders or the settlement of disputes and claims. In the case of legal proceedings, Escrow Bid Documentation shall be used subject to the terms of an appropriate protective order if requested by Contractor and ordered by a court of competent jurisdiction. Examination of the Escrow Bid Documentation is subject to the following conditions:

(1) As trade secrets, the Escrow Bid Documentation is proprietary and confidential to the extent allowed by law.

(2) County and Contractor shall each designate, in writing to the other party SEVEN (7) calendar days prior to any examination, the names of representatives who are authorized to examine the Escrow Bid Documentation. No other person shall have access to the Escrow Bid Documentation.
(3) Access to the documents may take place only in the presence of duly designated representatives of the County and Contractor. If Contractor fails to designate a representative or appear for joint examination on SEVEN (7) calendar days notice, then the County representative may examine the Escrow Bid Documents alone upon an additional THREE (3) calendar days notice if a representative of the Contractor does not appear at the time set.

(4) If a subcontractor has submitted sealed information to be included in the Escrow Bid Documents, access to those documents may take place only in the presence of a duly designated representative of the County, Contractor and that subcontractor. If that subcontractor fails to designate a representative or appear for joint examination on SEVEN (7) calendar days notice, then the County representative and/or the Contractor may examine the Escrow Bid Documentation without that subcontractor present upon an additional THREE (3) calendar days notice if a representative of that subcontractor does not appear at the time set.

c. The Escrow Bid Documentation will be returned to Contractor at such time as the Contract has been completed and final settlement has been achieved.

END OF DOCUMENT
This Escrow Agreement ("Escrow Agreement") is made and entered into this ___ day of
____________, 20___, by and between County of Alameda, whose address is
________________________________________, _____________, California ("County"); and
___________________________________________________, whose place of
business is located at __________________________________, ("Contractor"); and
___________________________________________________, a state or federally
chartered bank in the state of California, whose place of business is located at ______________
__________________________, ("Escrow Agent").

For the consideration hereinafter set forth, County, Contractor, and Escrow Agent agree as
follows:

1. Pursuant to section 22300 of Public Contract Code of the State of California, which is
hereby incorporated by reference, Contractor has the option to deposit securities with
Escrow Agent as a substitute for retention earnings required to be withheld by County
pursuant to the Construction Contract No. ______________ entered into between County
and Contractor for the ____________________________ [Name of Project], in the
amount of ________________________________ dated, __________, 20___, (the "Contract"). Alternatively, on written request of
Contractor, County shall make payments of the retention earnings directly to Escrow
Agent. When Contractor deposits the securities as a substitute for Contract earnings,
Escrow Agent shall notify County within ten (10) calendar days of the deposit. The
market value of the securities at the time of substitution and at all times from substitution
until the termination of the Escrow Agreement shall be at least equal to the cash amount
then required to be withheld as retention under terms of Contract between County and
Contractor.

Securities shall be held in name of County of Alameda, and shall designate Contractor as
beneficial owner.

2. County shall make progress payments to Contractor for those funds which otherwise
would be withheld from progress payments pursuant to Contract provisions, provided that
Escrow Agent holds securities in form and amount specified above.

3. When County makes payment of retention earned directly to Escrow Agent, Escrow
Agent shall hold them for the benefit of Contractor until the time that the escrow created...
under this Escrow Agreement is terminated. Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the Parties shall be equally applicable and binding when County pays Escrow Agent directly.

4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of County. These expenses and payment terms shall be determined by County, Contractor, and Escrow Agent.

5. Interest earned on securities or money market accounts held in escrow and all interest earned on that interest shall be for sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to County.

6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from County to Escrow Agent that County consents to withdrawal of amount sought to be withdrawn by Contractor.

7. County shall have the right to draw upon the securities and/or withdraw amounts from the Escrow Account in event of default by Contractor. Upon seven (7) days written notice to Escrow Agent from County of the default, if applicable, Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by County.

8. Upon receipt of written notification from County certifying that the Contract is final and complete, and that Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all monies and securities on deposit and payments of fees and charges.

9. Escrow Agent shall rely on written notifications from County and Contractor pursuant to Paragraphs 5 through 8, inclusive, of this Escrow Agreement and County and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of securities and interest as set forth above.

10. Names of persons who are authorized to give written notice or to receive written notice on behalf of County and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of County: On behalf of Contractor:

<table>
<thead>
<tr>
<th>Title</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name</td>
</tr>
<tr>
<td>ALAMEDA COUNTY GSA-TSD</td>
<td>ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION</td>
</tr>
<tr>
<td>Page 2 of 4</td>
<td>DOCUMENT 00 57 00</td>
</tr>
</tbody>
</table>
Highland ATR Make Ready Work
Fairmont Campus – Building C & E  Project # 2043-02

At the time of Escrow Account is opened, County and Contractor shall deliver to Escrow Agent a fully executed of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

On behalf of Escrow Agent:

Title
Name
Signature
Address

On behalf of County:

Title
Name
Signature
Address

On behalf of Contractor:

Title
Name
Signature
Address

On behalf of Escrow Agent:

Title
Name
Signature
Address
DOCUMENT 00 61 13.13

PERFORMANCE BOND FORM
(100% of Contract Price)

(Note: Bidders must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

That WHEREAS, the Board of Supervisors of the County of Alameda ("County") and ____________________________ ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

______________________________ (Project Name)

(“Project” or “Contract”)

which Contract dated ________________, 20___, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

And WHEREAS, said Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract;

NOW, THEREFORE, the Principal and ____________________________ ("Surety") are held and firmly bound unto the Board of County in the penal sum of ____________________________ DOLLARS ($___), lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents, to perform all the work required to complete the Project and to pay to County all damages County incurs as a result of the Principal’s failure to perform all the Work required to complete the Project.

The condition of the obligation is such that, if the above bounden Principal, his or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract and any alteration thereof made as therein provided, on his or their part to be kept and performed at the time and in the intent and meaning, and shall indemnify and save harmless County, its trustees, officers and agents, as therein stipulated, then this obligation shall become null and void, otherwise it shall be and remain in full force and virtue.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its
obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the ___ day of _____________, 20___.

(Affix Corporate Seal)

____________________________________________________________________
Principal

____________________________________________________________________
By

____________________________________________________________________
Surety

____________________________________________________________________
By

____________________________________________________________________
Name of California Agent of Surety

____________________________________________________________________
Address of California Agent of Surety

____________________________________________________________________
Telephone Number of California Agent of Surety

Surety

Bidder must attach a Notarial Acknowledgment for all Surety’s signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT
DOCUMENT 00 61 13.16

PAYMENT BOND
Contractor's Labor & Material Payment Bond
(100% of Contract Price)

(Note: Bidders must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

That WHEREAS, the Board of Supervisors of the County of Alameda ("County") and ________________ , ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to ________________ (Project Name)

("Project")

which Contract dated ________________, 20__, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof, and

WHEREAS, pursuant to law and the Contract, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by which the Contract is awarded in an amount equal to 100 percent (100%) of the Contract price, to secure the claims to which reference is made in sections 3179 through 3214 and 3247 through 3252 of the Civil Code of California, and division 2, part 7, of the Labor Code of California.

NOW, THEREFORE, WE, the Principal and ________________, ("Surety") are held and firmly bound unto all laborers, material men, and other persons referred to in said statutes in the sum of ________________________ Dollars ($_____________), lawful money of the United States, being a sum not less than the total amount payable by the terms of Contract, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the Principal or any of his or its subcontractors, of the heirs, executors, administrators, successors, or assigns of any, all, or either of them shall fail to pay for any labor, materials, provisions, provender, or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, that the Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay a reasonable attorney's fee to be awarded
and fixed by the Court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under sections 3179 through 3214 and 3247 through 3252 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and affect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of Contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _______ day of _________________, 20__.

(Affix Corporate Seal)

__________________________________________
Principal

__________________________________________
By

__________________________________________
Surety

__________________________________________
By

__________________________________________
Name of California Agent of Surety

__________________________________________
Address of California Agent of Surety

__________________________________________
Telephone Number of California Agent of Surety
Bidder must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT
THIS FINAL SETTLEMENT AGREEMENT AND RELEASE OF CLAIMS
(“Agreement and Release”) IS MADE AND ENTERED INTO THIS _____________ DAY
OF ______________, 20___ by and between the County of Alameda (“County”) and ___
__________________________ (“Contractor”), whose place of business is ________________________________.

RECITALS:

1. County and Contractor entered into PROJECT/CONTRACT NO.: ______
(“Contract” or “Project”) in the County of Alameda, California.

2. The Work under the Contract has been completed.

NOW, THEREFORE, it is mutually agreed between County and Contractor as follows:

AGREEMENT

3. Contractor will only be assessed liquidated damages as detailed below:

   Original Contract Sum   $____________________
   Modified Contract Sum   $____________________
   Payment to Date         $____________________
   Liquidated Damages      $____________________
   Payment Due Contractor  $____________________

4. Subject to the provisions hereof, County shall forthwith pay to Contractor the undisputed sum of $_______ (______________________ Dollars and ____ Cents) under the Contract, less any amounts represented by any notice to withhold funds on file with County as of the date of such payment.

5. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against County arising from the performance of work under the Contract, except for the claims described in Paragraph 6 and continuing obligations described in Paragraph 8. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against County, all its respective agents, employees, inspectors,
assignees and transferees except for the Disputed Claim is set forth in Paragraph 6 and continuing obligations described in Paragraph 8 hereof.

6. The following claims are disputed (hereinafter, the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

<table>
<thead>
<tr>
<th>Claim No.</th>
<th>Description of Claim</th>
<th>Amount of Claim</th>
<th>Date Claim Submitted</th>
</tr>
</thead>
</table>

[Insert information, including attachment if necessary]

7. Consistent with California Public Contract Code section 7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 4 hereof, Contractor hereby releases and forever discharges County, all its agents, employees, inspectors, assignees, and transferees from any and all liability, claims, demands, actions, or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.

8. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, shall remain in full force and effect as specified in the Contract Documents.

9. To the furthest extent permitted by California law, Contractor shall defend, indemnify, and hold harmless the County, its agents, representatives, officers, consultants, employees, trustees, and volunteers (the "indemnified parties") from any and all losses, liabilities, claims, suits, and actions of any kind, nature, and description, including, but not limited to, attorneys' fees and costs, directly or indirectly arising out of, connected with, or resulting from the performance of the Contract unless caused wholly by the sole negligence or willful misconduct of the indemnified parties.

10. Contractor hereby waives the provisions of California Civil Code section 1542 which provides as follows:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

11. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable. If any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal, or other law, ruling, or regulations, then such provision, or part thereof, shall remain in force and effect to the extent
permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

12. All rights of County shall survive completion of the Work or termination of Contract, and execution of this Release.

*** CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING ***

COUNTY OF ALAMEDA

TITLE: ______________________________

NAME: _____________________________

SIGNATURE: ________________________

CONTRACTOR

TITLE: ______________________________

NAME: _____________________________

SIGNATURE: ________________________

END OF DOCUMENT
WARRANTY FORM

______________________________________ ("Contractor") hereby agrees that the
______________________________________ ("Work" of Contractor) which Contractor has installed for
County of Alameda ("County") for the following project:

PROJECT: ________________________________ (Project Name)

("Project" or "Contract")

has been performed in accordance with the requirements of the Contract Documents and that the
Work as installed will fulfill the requirements of the Contract Documents.

The undersigned agrees to repair or replace any or all of such Work that may prove to be
defective in workmanship or material together with any other adjacent Work that may be
displaced in connection with such replacement within a period of __________ year(s) from
the date of completion as defined in Public Contract Code section 7107, subdivision (c), ordinary
wear and tear and unusual abuse or neglect excepted. The date of completion is
_______________, 20___.

In the event of the undersigned’s failure to comply with the above-mentioned conditions within a
reasonable period of time, as determined by County, but not later than seven (7) days after being
notified in writing by County, the undersigned authorizes the County to proceed to have said
defects repaired and made good at the expense of the undersigned. The undersigned shall pay
the costs and charges therefor upon demand.

Date: __________________________________________________________________

Proper Name of Contractor: __________________________________________________________________

Signature: __________________________________________________________________

Print Name: __________________________________________________________________

Title: __________________________________________________________________
Highland ATR Make Ready Work

Fairmont Campus – Building C & E

Representatives to be contacted for service subject to terms of Contract:

NAME: __________________________________________

ADDRESS: _______________________________________

PHONE NO.: ______________________________________

END OF DOCUMENT
1. **Mitigation Measures**

Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act. (Public Resources Code section 21000 et. seq.)

2. **Substitution for Specified Items**

   A. Requests for substitutions after award of the Contract shall be within **TEN (10)** days of the date of the Notice of Award.

   B. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words “or equal.” Contractor may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified.

      (1) If the material, process, or article offered by Contractor is not, in the opinion of the County, substantially equal or better in every respect to that specified, then Contractor shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

      (2) This provision shall not be applicable with respect to any material, product, thing or service for which County made findings and gave notice in accordance with Public Contract Code section 3400(b); therefore, Contractor shall not be entitled to request a substitution with respect to those materials, products or services.

   C. A request for a substitution shall be in writing and shall include:

      (1) All variations of the proposed substitute from the material specified including, but not limited to, principles of operation, materials, or construction finish, thickness or gauge of materials, dimensions, weight, and tolerances;
D. No substitutions shall be made until approved, in writing, by the County. The burden of proof as to equality of any material, process, or article shall rest with Contractor. The Contractor warrants that if substitutes are approved:

1. The proposed substitute is equal or superior in all respects to that specified, and that such proposed substitute is suitable and fit for the intended purpose and will perform adequately the function and achieve the results called for by the general design and the Contract Documents;

2. The Contractor provides the same warranties and guarantees for the substitute that would be provided for that specified;

3. The Contractor shall be fully responsible for the installation of the substitute and any changes in the Work required, either directly or indirectly, because of the acceptance of such substitute, with no increase in Contract Price or Contract Time. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time;

4. The Contractor shall be responsible for any re-design costs occasioned by County's acceptance and/or approval of any substitute; and

5. The Contractor shall, in the event that a substitute is less costly than that specified, credit the County with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit.
E. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

F. In no event shall the County be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

3. **Weather Days**

Delays due to adverse weather conditions will only be permitted in compliance with the provisions in the General Conditions and only if the number of days of adverse weather exceeds the following parameters and only if Contractor can verify that adverse weather caused delays exceeded the following number of days:

<table>
<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>11</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

4. **Insurance Policy Limits.** All of Contractor’s insurance shall be with insurance companies with an A.M. Best rating of no less than A: XI.

The limits of insurance shall not be less than:

<table>
<thead>
<tr>
<th>Insurance Category</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial General Liability Each Occurrence</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>General Aggregate</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Product Liability and Completed Operations</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Automobile Liability – Any Auto Combined Single Limit</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Excess Liability</td>
<td>$4,000,000</td>
</tr>
<tr>
<td>Workers Compensation (Workers’ Compensation) Statutory</td>
<td>Statutory limits pursuant to state law</td>
</tr>
<tr>
<td>Employers’ Liability</td>
<td>$1,000,000</td>
</tr>
</tbody>
</table>
5. **Permits, Certificates, Licenses, Fees, Approval**

   A. **Payment for Permits, Certificates, Licenses, and Fees.** As required in the General Conditions, the Contractor shall secure and pay for all permits, licenses and certificates necessary for the prosecution of the Work with the exception of the following:

   (1)  E.g. (water connection fees)

   (2)  E.g. (sewer connection fees)

   With respect to the above listed items, Contractor shall be responsible for securing such items, however, County will be responsible for payment of these charges or fees. Contractor shall notify the County of the amount due with respect to such items and to whom the amount is payable. Contractor shall provide the County with an invoice and receipt with respect to such charges or fees.

6. **Work Restrictions**

   A.  Hours of Work:  7:00 a.m. to 5:00 p.m.

   B.  Access to Site:  Refer to 00 72 13 General Conditions

   C.  Phasing:  01 00 10 Summary of Work

END OF DOCUMENT
1. **Summary**

This document includes information applicable to hazardous materials and hazard waste abatement.

2. **Notice of Hazardous Waste or Materials Conditions**

   a. Contractor shall give notice in writing, including by e-mail, to the County, the Construction Manager, and the Architect promptly, before any of the following conditions are disturbed, and in no event later than twenty-four (24) hours after first observance, of any:

      (1) Material that Contractor believes may be material that is hazardous waste or hazardous material, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;

      (2) Other material that may present a substantial danger to persons or property exposed thereto in connection with Work at the site.

   b. Contractor's written notice shall indicate whether the hazardous waste or material was shown or indicated in the Contract Documents to be within the scope of Work, and whether the materials were brought to the site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible. As used in this section the term "hazardous materials" shall include, without limitation, asbestos, lead, Polychlorinated biphenyl (PCB), petroleum and related hydrocarbons, and radioactive material.

   c. In response to Contractor's written notice, the County shall investigate the identified conditions.

   d. If the County determines that conditions do not involve hazardous materials or that no change in terms of Contract is justified, the County shall so notify Contractor in writing, stating reasons. If the County and Contractor cannot agree on whether conditions justify an adjustment in Contract Price or Contract Times, or on the extent of any adjustment, Contractor shall proceed with the Work as directed by the County.

   e. If after receipt of notice from the County, Contractor does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume Work
under special conditions, then County may order such portion of Work that is in connection with such hazardous condition or such affected area to be deleted from the Work, or performed by others, or County may invoke its rights to terminate the Contract in whole or in part. County will determine entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of Work, or performing the Work by others.

f. If Contractor stops Work in connection with any hazardous condition and in any area affected thereby, Contractor shall immediately redeploy its workers, equipment, and materials, as necessary, to other portions of the Work to minimize delay and disruption.

3. Additional Warranties and Representations

a. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have the required levels of familiarity with the Site and the Work, training, and ability to comply fully with all applicable law and contract requirements for safe and expeditious performance of the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to address adequately the actual or potential dangers of Contract performance).

b. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state, and other governmental and quasi-governmental requirements applicable to the Work.

c. Contractor represents and warrants that it has studied carefully all requirements of the Specifications regarding procedures for demolition, hazardous waste abatement, or safety practices, specified in the Contract, and prior to submitting its bid, has either (a) verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by the Contract Documents, or (b) by way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by the Contract Documents. Contractor accepts the risk that any specified procedure will result in a completed Project in full compliance with the Contract Documents.

4. Monitoring and Testing

a. County reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, Work monitoring, and any other tests (in addition to testing required under the agreement or applicable law), to monitor Contract requirements of safe and statutorily compliant work methods and (where applicable) safe re-entry level air standards under state and federal law upon completion of the job, and
compliance of the work with periodic and final inspection by public and quasi-
public entities having jurisdiction.

b. Contractor acknowledges that County has the right to perform, or cause to be
performed, various activities and tests including, but not limited to, pre-
abatement, during abatement, and post-abatement air monitoring, that County
shall have no obligation to perform said activities and tests, and that a portion of
said activities and tests may take place prior to the completion of the Work by
Contractor. In the event County elects to perform these activities and tests,
Contractor shall afford County ample access to the Site and all areas of the Work
as may be necessary for the performance of these activities and tests. Contractor
will include the potential impact of these activities or tests by County in the
Contract Price and the Scheduled Completion Date.

c. Notwithstanding County's rights granted by this paragraph, Contractor may retain
its own industrial hygiene consultant at Contractor’s own expense and may collect
samples and may perform tests including, but not limited to, pre-abatement,
during abatement, and post-abatement personal air monitoring, and County
reserves the right to request documentation of all such activities and tests
performed by Contractor relating to the Work and Contractor shall immediately
provide that documentation upon request.

5. Compliance with Laws

a. Contractor shall perform safe, expeditious, and orderly work in accordance with
the best practices and the highest standards in the hazardous waste abatement,
removal, and disposal industry, the applicable law, and the Contract Documents,
including, but not limited to, all responsibilities relating to the preparation and
return of waste shipment records, all requirements of the law, delivering of all
requisite notices, and obtaining all necessary governmental and quasi-
governmental approvals.

b. Contractor represents that it is familiar with and shall comply with all laws
applicable to the Work or completed Work including, but not limited to, all
federal, state, and local laws, statutes, standards, rules, regulations, and
ordinances applicable to the Work relating to:

(1) The protection of the public health, welfare and environment;

(2) Storage, handling, or use of asbestos, PCB, lead, petroleum based products
or other hazardous materials;

(3) The generation, processing, treatment, storage, transport, disposal,
destruction, or other management of asbestos, PCB, lead, petroleum, or
hazardous waste materials or other waste materials of any kind; and
6. **Disposal**

a. Contractor has the sole responsibility for determining current waste storage, handling, transportation, and disposal regulations for the job Site and for each waste disposal facility. Contractor must comply fully at its sole cost and expense with these regulations and any applicable law. County may, but is not obligated to, require submittals with this information for it to review consistent with the Contract Documents.

b. Contractor shall develop and implement a system acceptable to County to track hazardous waste from the Site to disposal, including appropriate "Hazardous Waste Manifests" on the EPA form, so that County may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.

c. Contractor shall provide County with the name and address of each waste disposal facility prior to any disposal, and County shall have the express right to reject any proposed disposal facility. Contractor shall not use any disposal facility to which County has objected. Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction forwarding the original to the County.

7. **Permits**

a. Before performing any of the Work, and at such other times as may be required by applicable law, Contractor shall deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. Contractor shall submit evidence satisfactory to County that it and any disposal facility

(1) have obtained all required permits, approvals, and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable law, and

(2) are in compliance with all such permits, approvals and the regulations.

For example, before commencing any work in connection with the Work involving asbestos-containing materials, or PCBs, or other hazardous materials subject to regulation, Contractor agrees to provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt requested, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that...
notice to County. Contractor shall not conduct any Work involving asbestos-containing materials or PCBs unless Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, and bonds that are required by governmental or quasi-governmental authorities, and all fees, deposits, tap fees, offsite easements, and asbestos and PCB disposal facilities expenses necessary for the prosecution of the Work, shall be procured and paid for by Contractor. Contractor shall give all notices and comply with the all applicable laws bearing on the conduct of the Work as drawn and specified. If Contractor observes or reasonably should have observed that Plans and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying County in writing, including by e-mail, of such fact. If Contractor performs any Work contrary to applicable laws, it shall bear all costs arising therefrom.

b. In the case of any permits or notices held in County's name or of necessity to be made in County's name, County shall cooperate with Contractor in securing the permit or giving the notice, but the Contractor shall prepare for County review and execution upon approval, all necessary applications, notices, and other materials.

8. Indemnification

a. To the extent permitted by law, the indemnities and limitations of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement, and disposal of hazardous waste. This includes, but is not limited to, liabilities connected to the selection and use of a waste disposal facility, personal injury, property damage, loss of use of property, damage to the environment or natural resources, or “disposal” and “release” of materials associated with the Work (as defined in 42 U.S.C. § 960l et seq.).

9. Termination

a. County shall have an absolute right to terminate for default immediately without notice and without an opportunity to cure should Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents, or any applicable law, on any matter involving the exposure of persons or property to hazardous waste. However, if the breach of contract exposing persons or property to hazardous waste is due solely to an ordinary, unintentional, and non-reckless failure to exercise reasonable care, then the procedures for termination for cause shall apply without modification.

END OF DOCUMENT
GENERAL CONDITIONS

1. CONTRACT TERMS AND DEFINITIONS

1.1 Definitions

Wherever used in the Contract Documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof:

1.1.1 Adverse Weather: Shall be only weather that satisfies all of the following conditions: (1) unusually severe precipitation, sleet, snow, hail, heat, or cold conditions in excess of the norm for the location and time of year it occurred, (2) unanticipated, and (3) at the Project.

1.1.2 Approval, Approved, and/or Accepted: Refer to written authorization, unless stated otherwise.

1.1.3 Architect: The individual, partnership, corporation, joint venture, or any combination thereof, named as Architect, who will have the rights and authority assigned to the Architect in the Contract Documents. The term Architect means the County's Architect on this Project or the Architect’s authorized representative.

1.1.4 Architect’s Supplemental Instruction: A document prepared by the Architect to provide supplemental instructions or interpretations or to order minor changes in the work not involving adjustment in the Contract Amount or Contract Time.

1.1.5 Bidder: A contractor who intends to provide a bid to the County to perform the Work of this Contract.

1.1.6 Change Order: A written order to the Contractor authorizing an addition to, deletion from, or revision in the Work, and/or authorizing an adjustment in the Contract Price or Contract Time.

1.1.7 Construction Change Directive: A written order prepared and issued by the County, the Construction Manager, and/or the Architect and signed by the County and the Architect, directing a change in the Work.

1.1.8 Construction Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the County. If no Construction Manager is used on the Project that is the subject of this Contract, then all references to Construction Manager herein shall be read to refer to County.

1.1.9 Construction Schedule: The progress schedule of construction of the Project as provided by Contractor and approved by County.
1.1.10 Contract, Contract Documents: The Contract consists exclusively of the documents evidencing the agreement of the County and Contractor, identified as the Contract Documents. The Contract Documents consist of the following documents:

1.1.10.1 Notice to Bidders
1.1.10.2 Instructions to Bidders
1.1.10.3 Supplementary Instructions to Bidders – Construction Outreach Program
1.1.10.4 Bid Form
1.1.10.5 Bid Security Form
1.1.10.6 Designated Subcontractors List
1.1.10.7 Site-Visit Certification, if a site visit was required.
1.1.10.8 Non-Collusion Affidavit
1.1.10.9 Workers’ Compensation Certification
1.1.10.10 Prevailing Wage and Related Labor Requirements Certification
1.1.10.11 Construction Outreach Program Certifications
1.1.10.12 Hazardous Materials Certification
1.1.10.13 Imported Materials Certification
1.1.10.14 Notice of Award
1.1.10.15 Agreement
1.1.10.16 Notice to Proceed
1.1.10.17 Escrow of Bid Documentation
1.1.10.18 Escrow Agreement for Security Deposits in Lieu of Retention
1.1.10.19 Performance Bond
1.1.10.20 Payment Bond (Contractor’s Labor & Material Payment Bond)
1.1.10.21 General Conditions
1.1.10.22 Special Conditions
1.1.10.23 Hazardous Materials Procedures and Requirements
1.1.10.24 Divisions 01 through 49
1.1.10.25 All Plans, Technical Specifications, and Drawings
1.1.10.26 Any and all addenda to any of the above documents
1.1.10.27 Any and all change orders or written modifications to the above documents if approved in writing by the County.

1.1.11 Contract Price: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.1.12 Contract Time: The time period stated in the Agreement for the completion of the Work.

1.1.13 Contractor: The person or persons identified in the Agreement as contracting to perform the Work to be done under this Contract, or the legal representative of such a person or persons.

1.1.14 County: County of Alameda, acting through its Board of Supervisors or any of its authorized agents. The County may, at any time:
   1.1.14.1 Direct the Contractor to communicate with or provide notice to the Construction Manager or the Architect on matters for which the Contract Documents indicate the Contractor will communicate with or provide notice to the County; and/or
   1.1.14.2 Direct the Construction Manager or the Architect to communicate with or direct the Contractor on matters for which the Contract Documents indicate the County will communicate with or direct the Contractor.

1.1.15 Daily Job Report(s): Daily Project reports prepared by the Contractor's employee(s) who are present on Site, which shall include the information required herein.

1.1.16 Day(s): Unless otherwise designated, day(s) means calendar day(s).

1.1.17 Drawings: (or “Plans”) The graphic and pictorial portions of the Contract Documents showing the design, location, scope and dimensions of the work.
generally including plans, elevations, sections, details, schedules, sequence of operation, and diagrams.

1.1.18 Force Account Directive: A process that may be used when the County and the Contractor cannot agree on a price for a specific portion of work or before the Contractor prepares a prices for a specific portion of work and whereby the Contractor performs the work as indicated herein on a time and materials basis.

1.1.19 Premises: The real property owned by the County on which the Site is located.

1.1.20 Product(s): New material, machinery, components, equipment, fixtures and systems forming the Work, including existing materials or components required and approved by the County for reuse.

1.1.21 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

1.1.22 Project: The planned undertaking as provided for in the Contract Documents.

1.1.23 Program Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the County. If no Program Manager is designated for Project that is the subject of this Contract, then all references to Project Manager herein shall be read to refer to County.

1.1.24 Provide: Shall include “provide complete in place,” that is, “furnish and install,” and “provide complete and functioning as intended in place” unless specifically stated otherwise.

1.1.25 Request for Information: A written request prepared by the Contractor requesting that the Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that the Contractor believes is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address problems that have arisen under field conditions.

1.1.26 Request for Substitution: A request by Contractor to substitute an equal or superior material, product, thing, or service for a specific material, product, thing, or service that has been designated in the Contract Documents by a specific brand or trade name.
1.1.27 Safety Orders: Written and/or verbal orders for construction issued by the California Division of Industrial Safety (“CalOSHA”) or by the United States Occupational Safety and Health Administration (“OSHA”).

1.1.28 Safety Plan: Contractor’s safety plan specifically adapted for the Project. Contractor's Safety Plan shall comply with all provisions regarding Project safety, including all applicable provisions in these General Conditions.

1.1.29 Samples: Physical examples that illustrate materials, products, equipment, finishes, colors, or workmanship and that, when approved in accordance with the Contract Documents, establish standards by which portions of the Work will be judged.

1.1.30 Shop Drawings: All drawings, prints, diagrams, illustrations, brochures, schedules, and other data that are prepared by the Contractor, a subcontractor, manufacturer, supplier, or distributor, that illustrate how specific portions of the Work shall be fabricated or installed.

1.1.31 Site: The Project site as shown on the Drawings.

1.1.32 Specifications: That portion of the Contract Documents, Division 01 through Division 49, and all technical sections, and addenda to all of these, if any, consisting of written descriptions and requirements of a technical nature of materials, equipment, construction methods and systems, standards, and workmanship.

1.1.33 Subcontractor: A contractor and/or supplier who is under contract with the Contractor or with any other subcontractor, regardless of tier, to perform a portion of the Work of the Project.

1.1.34 Submittal Schedule: The schedule of submittals as provided by Contractor and approved by County.

1.1.35 Surety: The person, firm, or corporation that executes as surety the Contractor’s Performance Bond and Payment Bond, and must be a California admitted surety insurer as defined in the Code of Civil Procedure section 995.120.

1.1.36 Work: All labor, materials, equipment, components, appliances, supervision, coordination, and services required by, or reasonably inferred from, the Contract Documents, that are necessary for the construction and completion of the Project.

1.2 Laws Concerning The Contract

Contract is subject to all provisions of the Constitution and laws of California governing, controlling, or affecting County, or the property, funds, operations, or
powers of County, and such provisions are by this reference made a part hereof. Any provision required by law to be included in this Contract shall be deemed to be inserted.

1.3  **No Oral Agreements**

No oral agreement or conversation with any officer, agent, or employee of County, either before or after execution of Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

1.4  **No Assignment**

Contractor shall not assign this Contract or any part thereof including, without limitation, any services or money to become due hereunder without the prior written consent of the County. Assignment without County’s prior written consent shall be null and void. Any assignment of money due or to be come due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of work called for under this Contract in favor of all persons, firms, or corporations rendering services or supplying material to the extent that claims are filed pursuant to the Civil Code, Code of Civil Procedure, Government Code, Labor Code, and/or Public Contract Code, and shall also be subject to deductions for liquidated damages or withholding of payments as determined by County in accordance with this Contract. Contractor shall not assign or transfer in any manner to a Subcontractor or supplier the right to prosecute or maintain an action against the County.

1.5  **Notice And Service Thereof**

1.5.1  Any notice from one party to the other or otherwise under Contract shall be in writing and shall be dated and signed by the party giving notice or by a duly authorized representative of that party. Any notice shall not be effective for any purpose whatsoever unless served in one of the following manners:

1.5.1.1  If notice is given by personal delivery thereof, it shall be considered delivered on the day of delivery.

1.5.1.2  If notice is given by overnight delivery service, it shall be considered delivered on (1) day after date deposited, as indicated by the delivery service.

1.5.1.3  If notice is given by depositing same in United States mail, enclosed in a sealed envelope, it shall be considered delivered three (3) days after date deposited, as indicated by the postmarked date.
1.5.1.4 If notice is given by registered or certified mail with postage prepaid, return receipt requested, it shall be considered delivered on the day the notice is signed for.

1.6 No Waiver

The failure of County in any one or more instances to insist upon strict performance of any of the terms of this Contract or to exercise any option herein conferred shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion. No action or failure to act by the County, Architect, or Construction Manager shall constitute a waiver of any right or duty afforded the County under the Contract, nor shall any action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

1.7 Substitutions For Specified Items

See Special Conditions.

1.8 Materials and Work

1.8.1 Except as otherwise specifically stated in this Contract, Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to execute and complete this Contract within the Contract Time.

1.8.2 Unless otherwise specified, all materials shall be new and the best of their respective kinds and grades as noted or specified, and workmanship shall be of good quality.

1.8.3 Materials shall be furnished in ample quantities and at such times as to insure uninterrupted progress of Work and shall be stored properly and protected as required.

1.8.4 For all materials and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems, functioning as intended. Incidental items not indicated on Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized here in every detail. In all instances, material and
equipment shall be installed in strict accordance with each manufacturer’s most recent published recommendations and specifications.

1.8.5 Contractor shall, after award of Contract by County and after relevant submittals have been approved, place orders for materials and/or equipment as specified so that delivery of same may be made without delays to the Work. Contractor shall, upon demand from County, present documentary evidence showing that orders have been placed.

1.8.6 County reserves the right but has no obligation, for any neglect in complying with the above instructions, to place orders for such materials and/or equipment as it may deem advisable in order that the Work may be completed at the date specified in the Agreement, and all expenses incidental to the procuring of said materials and/or equipment shall be paid for by Contractor or withheld from payment(s) to Contractor.

1.8.7 Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver the Site to County, together with all improvements and appurtenances constructed or placed thereon by it, and free from any claims, liens, or charges. Contractor further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any work covered by the Contract shall have any right to lien any portion of the Premises or any improvement or appurtenance thereon, except that Contractor may install metering devices or other equipment of utility companies or of political subdivision, title to which is commonly retained by utility company or political subdivision. In the event of installation of any such metering device or equipment, Contractor shall advise County as to owner thereof.

1.8.8 Nothing contained in this Article, however, shall defeat or impair the rights of persons furnishing materials or labor under any bond given by Contractor for their protection or any rights under any law permitting such protection or any rights under any law permitting such persons to look to funds due Contractor in hands of County (e.g., Stop Notices), and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

1.8.9 Title to new materials and/or equipment for the Work of this Contract and attendant liability for its protection and safety shall remain with Contractor until incorporated in the Work of this Contract and accepted by County. No part of any materials and/or equipment shall be removed from its place of storage except for immediate installation in the Work of this Contract. Contractor shall keep an accurate
inventory of all materials and/or equipment in a manner satisfactory to County or its authorized representative and shall, at the County’s request, forward it to the County.

2. COUNTY

2.1 Occupancy

County reserves the right to occupy portions of the Project at any time before completion. Neither the County's Final Acceptance, the making of Final Payment, any provision in Contract Documents, nor the use or occupancy of the Work, in whole or in part, by County shall constitute acceptance of Work not in accordance with the Contract Documents nor relieve the Contractor or the Contractor's Performance Bond Surety from liability with respect to any warranties or responsibility for faulty or defective Work or materials, equipment and workmanship incorporated therein.

3. ARCHITECT

3.1 Role and Authority

The Architect shall represent County during the Project and will observe the progress and quality of the Work on behalf of County. Architect shall have the authority to act on behalf of County to the extent expressly provided in the Contract Documents and to the extent determined by County. Architect shall have authority to reject materials, workmanship, and/or the Work whenever rejection may be necessary, in Architect’s reasonable opinion, to insure the proper execution of the Contract.

3.2 Interpretations

Architect shall, with County and on behalf of County, determine the amount, quality, acceptability, and fitness of all parts of the Work, and interpret the Specifications, Drawings, and shall, with County, interpret all other Contract Documents.

3.3 Laws

Architect shall have all authority and responsibility established by law, including Title 24 of the California Code of Regulations.

3.4 Communications

Contractor shall provide County and the Construction Manager with a copy of all written communication between Contractor and Architect at the same time as that
communication is made to Architect, including, without limitation, all RFIs, correspondence, submittals, claims, and proposed change orders.

4. CONSTRUCTION MANAGER

4.1 Role and Authority
If a construction manager is used on this Project (“Construction Manager” or “CM”), the Construction Manager will provide administration of the Contract on the County's behalf. After execution of the Contract and Notice to Proceed, all correspondence and/or instructions from Contractor and/or County shall be forwarded through the Construction Manager. The Construction Manager will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures or for safety precautions in connection with the Work, which shall all remain the Contractor’s responsibility.

4.2 Authority to Reject
The Construction Manager, however, will have authority to reject materials and/or workmanship not conforming to the Contract Documents, as determined by the County and/or the Architect. The Construction Manager shall also have the authority to require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Any decision made by the Construction Manager, in good faith, shall not give rise to any duty or responsibility of the Construction Manager to the Contractor, any Subcontractor, their agents, employees, or other persons performing any of the Work. The Construction Manager shall have free access to any or all parts of Work at any time.

4.3 If No Construction Manager
If the County does not use a Construction Manager on this Project all references to Construction Manager or CM shall be read as County.

5. INSPECTIONS AND TESTS

5.1 Tests and Inspections

5.1.1 The County will select an independent testing laboratory to conduct tests. Selection of the materials required to be tested shall be by the laboratory
or the County's representative and not by the Contractor. The Contractor shall notify the County's representative a sufficient time in advance of its readiness for required observation or inspection.

5.1.2 The Contractor shall notify the County's representative a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents, that must by terms of the Contract Documents be tested, in order that the County may arrange for the testing of same at the source of supply. This notice shall be, at a minimum, seventy-two (72) hours prior to the manufacture of the material that needs to be tested.

5.1.3 Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated into and/or onto the Project.

5.1.4 The County will select and pay testing laboratory costs for all tests and inspections. Costs of tests of any materials found to be not in compliance with the Contract Documents shall be paid for by the County and reimbursed by the Contractor or deducted from the Contract Price.

5.2 Costs for After Hours and/or Off Site Inspections
If the Contractor performs Work outside the County’s regular working hours or requests the County to perform inspections off Site, costs of any inspections required outside regular working hours or off Site shall be borne by the Contractor and may be invoiced to the Contractor by the County or the County may deduct those expenses from the next Progress Payment.

6. CONTRACTOR
Contractor shall construct the Work for the Contract price including any adjustment(s) to the Contract Price pursuant to provisions herein regarding changes to the Contract Price. Except as otherwise noted, Contractor shall provide and pay for all labor, materials, equipment, permits, fees, licenses, facilities, transportation, taxes, and services necessary for the proper execution and completion of the Work, except as indicated herein.

6.1 Status of Contractor
6.1.1 Contractor is and shall at all times be deemed to be an independent contractor and shall be wholly responsible for the manner in which it and its Subcontractors perform the services required of it by the Contract Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the County, or any of the County's employees or agents, and Contractor or any of Contractor’s Subcontractors, agents or employees. Contractor assumes exclusively the responsibility for the acts of its employees as they relate to the services to be provided during the course and scope of their employment. Contractor, its agents, its employees and its Subcontractors shall not be entitled to any rights or privileges of County employees. County shall be permitted to monitor the Contractor’s activities to determine compliance with the terms of this Contract.

6.1.2 As required by law, Contractor and all Subcontractors shall be properly licensed and regulated by the Contractor’s State License Board, 3132 Bradshaw Road, Post Office Box 2600, Sacramento, California 98826, http://www.cslb.ca.gov.

6.2 Contractor’s Supervision

6.2.1 At all times during progress of the Work, while any work is being performed, Contractor shall keep on the Premises, and at all other locations where any Work related to the Contract is being performed, a competent project manager and construction superintendent who are employees of the Contractor, to whom the County does not object and at least one of whom shall be fluent in English, written and verbal.

6.2.2 The project manager and construction superintendent shall both speak fluently the predominant language of the Contractor’s employees. All workers shall be sufficiently competent in English to respond to inquiries and instructions and give directions concerning matters of safety and concerning the identification and location of site foremen, the Contractor’s construction superintendent and the Contractor’s project manager.

6.2.3 Before commencing the Work herein, Contractor shall give written notice to County of the name and relevant credentials of its project manager and construction superintendent. Neither the Contractor’s project manager nor construction superintendent shall be changed except with prior written notice to County and County’s approval, unless the Contractor’s project manager and/or construction superintendent proves to be unsatisfactory to Contractor, County, any of the County's employees, agents, the Construction Manager, or the Architect, in which case, Contractor shall notify County in writing. The Contractor’s project manager and construction superintendent shall each represent Contractor, and all directions given to
Contractor’s project manager and/or construction superintendent shall be as binding as if given to Contractor.

6.2.4 Contractor shall give efficient supervision to Work, using its best skill and attention. Contractor shall carefully study and compare all Contract Documents, Drawings, Specifications, and other instructions and shall at once report to County, Construction Manager, and Architect any error, inconsistency, or omission that Contractor or its employees and Subcontractors may discover, in writing. The Contractor shall have responsibility for discovery of errors, inconsistencies, or omissions.

6.3 Duty to Provide Fit Workers

6.3.1 Contractor and Subcontractor(s) shall at all times enforce strict discipline and good order among their employees and shall not employ or work any unfit person or anyone not skilled in work assigned to that person. It shall be the responsibility of Contractor to ensure compliance with this requirement. County may require Contractor to permanently remove unfit persons from Project Site.

6.3.2 Any person in the employ of Contractor or Subcontractor(s) whom County may deem incompetent or unfit shall be excluded from working on the Project and shall not again be employed on the Project except with the prior written consent of County.

6.3.3 The Contractor shall furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work.

6.3.4 If Contractor intends to make any change in the name or legal nature of the Contractor’s entity, Contractor must first notify the County. The County shall determine if Contractor’s intended change is permissible while performing this Contract.

6.4 Purchase of Materials and Equipment

The Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from County to assure that there will be no delays.

6.5 Documents On Work Site

6.5.1 Contractor shall at all times keep on the Work Site, or such other location as County may authorize in writing one legible copy of all Contract Documents, including Addenda and Change Orders, and titles 19 and 24 of the California Code of Regulations, the specified edition(s) of the Uniform Building Code,
all approved Drawings, Plans, Schedules, and Specifications, and all codes and documents referred to in the Specifications, and made part thereof. These documents shall be kept in good order and available to County, Construction Manager, Architect, Architect’s representatives, and all authorities having jurisdiction. Contractor shall be acquainted with and comply with the provisions of these titles as they relate to this Project. Contractor shall also be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project. Contractor shall coordinate with Architect and Construction Manager.

6.5.2 Daily Job Reports. Contractor shall maintain, at a minimum, at least one (1) set of Daily Job Reports on the Project. These must be prepared by the Contractor's employee(s) who are present on Site, and must include, at a minimum, the following information:

6.5.2.1 A brief description of all Work performed on that day.
6.5.2.2 A summary of all other pertinent events and/or occurrences on that day.
6.5.2.3 The weather conditions on that day.
6.5.2.4 A list of all Subcontractor(s) working on that day,
6.5.2.5 A list of each Contractor employee working on that day and the total hours worked for each employee.
6.5.2.6 A complete list of all equipment on Site that day, whether in use or not.
6.5.2.7 All complete list of all materials, supplies, and equipment delivered on that day.
6.5.2.8 A complete list of all inspections and tests performed on that day.
6.5.2.9 Each day Contractor shall provide a copy of the previous day’s Daily Job Report to the County or the County’s Construction Manager.

6.6 Preservation of Records
The County shall have the right to examine and audit all Daily Job Reports or other Project records of Contractor’s project manager(s), project superintendent(s), and/or project foreperson(s), all certified payroll records and/or related documents including, without limitation, payroll, payment, timekeeping and tracking documents; all books,
estimates, records, contracts, documents, bid documents, bid cost data, subcontract job
cost reports, and other data of the Contractor, any Subcontractor, and/or supplier,
including computations and projections related to bidding, negotiating, pricing, or
performing the Work or Contract modification, in order to evaluate the accuracy,
completeness, and currency of the cost, manpower, coordination, supervision, or pricing
data at no additional cost to the County. These documents may be duplicative and/or be
in addition to any Bid Documents held in escrow by the County. The Contractor shall
make available at its office at all reasonable times the materials described in this
paragraph for the examination, audit, or reproduction until three (3) years after final
payment under this Contract. Notwithstanding the provisions above, Contractor shall
provide any records requested by any governmental agency, if available, after the time
set forth above.

6.7 Integration of Work

6.7.1 Contractor shall do all cutting, fitting, patching, and preparation
of Work as required to make its several parts come together properly, to fit it to receive
or be received by work of other contractors, and to coordinate tolerances to various
pieces of work, showing upon, or reasonably implied by, the Drawings and
Specifications for the completed structure, and shall conform them as County and/or
Architect may direct.

6.7.2 All cost caused by defective or ill-timed Work shall be borne by
Contractor, inclusive of repair work.

6.7.3 Contractor shall not endanger any work performed by it or
anyone else by cutting, excavating, or otherwise altering work and shall not cut or alter
work of any other contractor except with consent of County.

6.8 Obtaining of Permits and Licenses

Contractor shall secure and pay for all permits, licenses, and certificates necessary for
prosecution of Work before the date of the commencement of the Work or before the
permits, licenses, and certificates are legally required to continue the Work without
interruption. The Contractor shall obtain and pay, only when legally required, for all
licenses, permits, inspections, and inspection certificates required to be obtained from or
issued by any authority having jurisdiction over any part of the Work included in the
Contract. All final permits, licenses, and certificates shall be delivered to County before
demand is made for final payment.

6.9 Work to Comply With Applicable Laws and Regulations
6.9.1 Contractor shall give all notices and comply with the following specific laws, ordinances, rules, and regulations and all other applicable laws, ordinances, rules, and regulations bearing on conduct of Work as indicated and specified, including but not limited to the appropriate statutes and administrative code sections. If Contractor observes that Drawings and Specifications are at variance therewith, or should Contractor become aware of the development of conditions not covered by Contract Documents that will result in finished Work being at variance therewith, Contractor shall promptly notify County in writing, including by e-mail, and any changes deemed necessary by County shall be made as provided in Contract for changes in Work.

6.9.1.1 National Electrical Safety Code, U. S. Department of Commerce
6.9.1.2 National Board of Fire Underwriters’ Regulations
6.9.1.3 Uniform Building Code, latest addition, and the California Code of Regulations, title 24, including amendments
6.9.1.5 Industrial Accident Commission’s Safety Orders, State of California
6.9.1.6 Regulations of the State Fire Marshall (title 19, California Code of Regulations) and Pertinent Local Fire Safety Codes
6.9.1.7 Americans with Disabilities Act
6.9.1.8 Government Code of the State of California
6.9.1.9 Labor Code of the State of California, division 2, part 7, Public Works and Public Agencies
6.9.1.10 Public Contract Code of the State of California
6.9.1.11 California Art Preservation Act
6.9.1.12 U. S. Copyright Act
6.9.1.13 U. S. Visual Artists Rights Act
6.9.2 Contractor shall comply will all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et. Seq.)

6.9.3 If Contractor performs any Work that it knew, or through exercise of reasonable care should have known, to be contrary to any applicable laws, ordinance, rules, or regulations, Contractor shall bear all costs arising therefrom.

6.9.4 Where Specifications or Drawings state that materials, processes, or procedures must be approved by the State Fire Marshall, or other body or agency, Contractor shall be responsible for satisfying requirements of such bodies or agencies.

6.10 Safety/Protection of Persons and Property

6.10.1 The Contractor will be solely and completely responsible for conditions of the Work Site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours.

6.10.2 The wearing of hard hats will be mandatory at all times for all personnel on Site. Contractor shall supply sufficient hard hats to properly equip all employees and visitors.

6.10.3 Any construction review of the Contractor’s performance is not intended to include review of the adequacy of the Contractor’s safety measures in, on, or near the Work Site.

6.10.4 Implementation and maintenance of safety programs shall be the sole responsibility of the Contractor.

6.10.5 The Contractor shall furnish to the County a copy of the Contractor's safety plan within the time frame indicated in the Contract Documents and specifically adapted for the Project.

6.10.6 Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and completion and final acceptance by County. All Work shall be solely at Contractor’s risk with the exception of damage to the Work caused by “acts of God” as defined in Public Contract Code section 7105.

6.10.7 Contractor shall take, and require Subcontractors to take, all necessary precautions for safety of workers on the Project and shall comply with all applicable federal, state, local, and other safety laws, standards, orders, rules,
regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful place of employment. Contractor shall furnish, erect, and properly maintain at all times, all necessary safety devices, safeguards, construction canopies, signs, nets, barriers, lights, and watchmen for protection of workers and the public and shall post danger signs warning against hazards created by such features in the course of construction.

6.10.8 Hazards Control – Contractor shall store volatile wastes in covered metal containers and remove them from the Site daily. Contractor shall prevent accumulation of wastes that create hazardous conditions. Contractor shall provide adequate ventilation during use of volatile or noxious substances.

6.10.9 Contractor shall designate a responsible member of its organization on the Project, whose duty shall be to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety, and health of workers. Name and position of person so designated shall be reported to County by Contractor.

6.10.10 Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, Contractor shall correct such violation promptly.

6.10.11 Contractor shall comply with any County storm water requirements that are approved by the County and applicable to the Project, at no additional cost to the County.

6.10.12 In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization, shall act, at its discretion, to prevent such threatened loss or injury. Any compensation claimed by Contractor on account of emergency work shall be determined by agreement.

6.10.13 All connections to public utilities and/or existing on-site services shall be made and maintained in such a manner as to not interfere with the continuing use of same by the County during the entire progress of the Work.

6.10.14 Contractor shall provide such heat, covering, and enclosures as are necessary to protect all Work, materials, equipment, appliances, and tools against damage by weather conditions, such as extreme heat, cold, rain, snow, dry winds, flooding, or dampness.
6.10.15 The Contractor shall protect and preserve the Work from all damage or accident, providing any temporary roofs, window and door coverings, boxing, or other construction. The Contractor shall be responsible for existing structures, walks, roads, trees, landscaping, and/or improvements in working areas; and shall provide adequate protection therefor. If temporary removal is necessary of any of the above items, or damage occurs due to the Work, the Contractor shall replace same at his expense with same kind, quality, and size of Work or item damaged. This shall include any adjoining property of the County and others.

6.10.16 Contractor shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property, and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations.

6.10.17 Contractor shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of Architect, and shall not interfere with the Work or unreasonably encumber Premises or overload any structure with materials. Contractor shall enforce all instructions of County and Architect regarding signs, advertising, fires, and smoking, and require that all workers comply with all regulations while on Project Site.

6.10.18 Contractor, Contractor’s employees, Subcontractors, Subcontractors’ employees, or any person associated with the Work shall conduct themselves in a manner appropriate for a public site. No verbal or physical contact with the public, neighbors, or tenants, or profanity, or inappropriate attire or behavior will be permitted. County may require Contractor to permanently remove non-complying persons from Project Site.

6.10.19 Contractor shall take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed, Contractor shall have a civil engineer, registered as a professional engineer in California, replace them at no cost to County.

6.10.20 In the event that the Contractor enters into any agreement with owners of any adjacent property to enter upon the adjacent property for the purpose of performing the Work, Contractor shall fully indemnify, defend, and hold harmless each person, entity, firm, or agency that owns or has any interest in adjacent property. The form and content of the agreement of indemnification shall be approved by the County prior to the commencement of any Work on or about the adjacent property. The Contractor shall also indemnify the County as provided in the indemnification provision.
herein. These provisions shall be in addition to any other requirements of the owners of the adjacent property.

6.11 Working Evenings and Weekends
Contractor may be required to work evenings and/or weekends at no additional cost to the County. Contractor shall give the County seventy-two (72) hours notice prior to performing any evening and/or weekend work. Contractor shall perform all evening and/or weekend work only upon County’s approval and in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations. Contractor shall reimburse the County for any expenses necessitated by the Contractor’s evening and/or weekend work.

6.12 Badge Policy For Contractors
All Contractors doing work for Alameda County will provide their workers with identification badges. These badges will be worn by all members of the Contractor's staff who are working in a County facility.

6.12.1 Badges must be filled out in full and contain the following information:

6.12.1.1 Name of Contractor and Contractor’s Company logo, if any
6.12.1.2 Name and front facial photograph of Employee
6.12.1.3 Contractor's address and phone number
6.12.1.4 Name and phone number of Project Manager (County)

6.12.2 Badges are to be worn when the Contractor or his/her employees are on site and must be visible at all times. Contractors must inform their employees that they are required to allow County employees to review the information on the badges upon request.

6.12.3 Failure to display identification badges as required by this policy may result in the assessment of fines against the Contractor.

6.13 County Drug Policy - Drug Free Work Place

6.13.1 Contractor, Contractor's employees, and Contractor's Subcontractors and their employee's shall comply with the County's policy of maintaining a drug-free work place. Neither Contractor/Subcontractor nor Contractor's/Subcontractor's employees shall unlawfully manufacture, distribute,
dispense, possess or use controlled substances, as defined in 21 U.S. Code Section 812, including marijuana, heroin, cocaine and amphetamines, at any County facility or work site. If Contractor or any employee of contractor is convicted or pleads nolo contendere to a criminal drug statute violation occurring at a County facility or work site, the Contractor within five (5) calendar days thereafter shall notify the head of the County department/agency for which the contract services are performed. Violation of this provision shall constitute a material breach of this contract.

6.14 Cleaning Up

6.14.1 The Contractor shall provide all services, labor, materials, and equipment necessary for protecting the Work, all Project occupants, furnishings, equipment, and building structure from damage until its completion and final acceptance by County. Dust barriers shall be provided to isolate dust and dirt from construction operations. At completion of the Work and portions thereof, Contractor shall clean to the original state any areas beyond the Work area that become dust laden as a result of the Work. The Contractor must erect the necessary warning signs and barricades to ensure the safety of all Project occupants. The Contractor at all times must maintain good housekeeping practices to reduce the risk of fire damage and must make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed and locations where there is an increased risk of fire.

6.14.2 Contractor at all times shall keep Premises free from debris such as waste, rubbish, and excess materials and equipment caused by the Work. Contractor shall not leave debris under, in, or about the Premises, but shall promptly remove same from the Premises on a daily basis. If Contractor fails to clean up, County may do so and the cost thereof shall be charged to Contractor. If Contract is for work on an existing facility, Contractor shall also perform specific clean-up on or about the Premises upon request by the County as it deems necessary for the continuing use of the facility. Contractor shall comply with all related provisions of the Specifications.

6.14.3 If the Construction Manager, Architect, or County observes the accumulation of trash and debris, the County will give the Contractor a 24-hour written notice to mitigate the condition.

6.14.4 Should the Contractor fail to perform the required clean-up, or should the clean-up be deemed unsatisfactory by the County, the County will then perform the clean-up. All cost associated with the clean-up work (including all travel, payroll burden, and costs for supervision) will be deducted from the Contract Price, or County may withhold those amounts from payment(s) to Contractor.
7. **SUBCONTRACTORS**

7.1 **Contractor Shall Provide Subcontractor Information**
Contractor shall provide the County with information for all Subcontracts as indicated in the Contractor’s Submittals and Schedules Section herein.

7.2 **No Contractual Relationship Between County and Subcontractors**
No contractual relationship exists between the County and any Subcontractor, supplier, or sub-subcontractor supplier, or sub-subcontractor by reason of this Contract.

7.3 **Contractor Binds Every Subcontractor by Terms of Contract**
Contractor agrees to bind every Subcontractor by terms of Contract as far as those terms are applicable to Subcontractor’s work. If Contractor shall subcontract any part of this Contract, Contractor shall be as fully responsible to County for acts and omissions of any Subcontractor and of persons either directly or indirectly employed by any Subcontractor, as it is for acts and omissions of persons directly employed by Contractor. The divisions or sections of the Specifications are not intended to control the Contractor in dividing the Work among Subcontractors or limit the work performed by any trade.

7.4 **No Waiver of Obligations**
County's consent to, or approval of, or failure to object to, any Subcontractor under this Contract shall not in any way relieve Contractor of any obligations under this Contract and no such consent shall be deemed to waive any provisions of this Contract.

7.5 **Contractor to Familiarize Itself with Laws**
Contractor is directed to familiarize itself with sections 4100 through 4114 of the Public Contract Code of the State of California, as regards subletting and subcontracting, and to comply with all applicable requirements therein. In addition, Contractor is directed to familiarize itself with sections 1720 through 1861 of the Labor Code of the State of California, as regards the payment of prevailing wages and related issues, and to comply with all applicable requirements therein all including, without limitation, section 1775 and the Contractor’s and Subcontractors’ obligations and liability for violations of prevailing wage law and other applicable laws.

7.6 **Subcontractor Substitutions**
No Contractor whose Bid is accepted shall, without consent of the awarding authority and in full compliance with section 4100, et seq, of the Public Contract Code, including, without limitation, sections 4107, 4107.5, and 4109 of the Public Contract Code, either:

7.6.1 Substitute any person as a Subcontractor in place of the Subcontractor designated in the original Bid; or

7.6.2 Permit any Subcontract to be assigned or transferred, or allow any portion of the Work to be performed by anyone other than the original Subcontractor listed in the Bid; or

7.6.3 Sublet or subcontract any portion of the Work in excess of one-half of one percent (1/2 of 1%) of the Contractor’s total bid as to which his original bid did not designate a Subcontractor.

7.7 Subcontractor Coordination
The Contractor shall be responsible for the coordination of the trades, Subcontractors, sub-subcontractors, and material or equipment suppliers working on the Project.

7.8 Subcontractor Relations
Contractor is solely responsible for settling any differences between the Contractor and its Subcontractor(s) or between Subcontractors.

7.9 Assignment or Termination
Contractor must include in all of its subcontracts the assignment provisions as indicated in the Termination section of these General Conditions.

8. OTHER CONTRACTS/CONTRACTORS

8.1 County Right to Perform
County reserves the right to let other contracts, and/or to perform work with its own forces, in connection with the Project. Contractor shall afford other County and other contractors’ reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate and connect Contractor’s Work with the work of County and other contractors.

8.2 Protection of Work
In addition to Contractor’s obligation to protect its own Work, Contractor shall protect the work of County and any other contractor that Contractor encounters while working on the Project.
8.3 Coordination with Other Work

If any part of Contractor’s Work depends for proper execution or results upon work of County or any other contractor, the Contractor shall inspect and promptly report to the County in writing, including by e-mail, before proceeding with its Work any defects in County’s or any other contractor’s work that render Contractor’s Work unsuitable for proper execution and results. Contractor shall be held accountable for damages to County for County’s or any other contractor’s work that Contractor failed to inspect or should have inspected. Contractor’s failure to inspect and report shall constitute Contractor’s acceptance of all County’s or other contractor’s work as fit and proper for reception of Contractor’s Work, except as to defects that may develop in County’s or other contractor’s work after execution of Contractor’s Work.

8.4 Measurement of Work Performed

To ensure proper execution of its subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the County in writing, including by e-mail, any discrepancy between that executed work and the Contract Documents.

8.5 Knowledge of Other Work

Contractor shall ascertain to its own satisfaction the scope of the Project and nature of any County-performed work or other contracts that have been or may be awarded by County in prosecution of the Project to the end that Contractor may perform this Contract in light of the other contracts, if any.

8.6 No Exclusive Occupancy of Site

Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy of the Site, the Premises, or of the Project. Contractor shall not cause any unnecessary hindrance or delay to the use and/or operation(s) of the Premises and/or to County or any other contractor working on the Project. If simultaneous execution of any contract or operation is likely to cause interference with performance of Contractor’s Contract, Contractor shall coordinate with those contractor(s), person(s), and/or entity(s) and shall notify the County of the resolution.

9. DRAWINGS AND SPECIFICATIONS

9.1 List of all Drawings
A complete list of all Drawings that form a part of the Contract is to be found as an index on the Drawings themselves, and/or may be provided to the Contractor and/or in the Table of Contents.

9.2 Technical and Trade Words
Materials or Work described in words that so applied have a well known technical or trade meaning shall be deemed to refer to recognized standards, unless noted otherwise.

9.3 Trade Name or Trade Term
It is not the intention of this Contract to go into detailed descriptions of any materials and/or methods commonly known to the trade under “trade name” or “trade term.” The mere mention or notation of “trade name” or “trade term” shall be considered a sufficient notice to Contractor that it will be required to complete the work so named, complete, finished, and operable, with all its appurtenances, according to the best practices of the trade.

9.4 The Naming of any Material and/or Equipment Shall Mean Furnishing
The naming of any material and/or equipment shall mean furnishing and installing of same, including all incidental and accessory items thereto and/or labor therefore, as per best practices of the trade(s) involved, unless specifically noted otherwise.

9.5 Contract Documents are Complementary
Contract Documents are complementary, and what is called for by one shall be binding as if called for by all. As such, Drawings and Specifications are intended to be fully cooperative and to agree. However, if Contractor observes that Drawings and Specifications are in conflict, Contractor shall promptly notify County and Architect in writing, including by e-mail, and any necessary changes shall be made as provided in the Contract Documents.

9.6 Drawings and Specifications are Intended to Comply With All Laws
Drawings and Specifications are intended to comply with all laws ordinances, rules, and regulations of constituted authorities having jurisdiction, and where referred to in the Contract Documents, the laws, ordinances, rules, and regulations shall be considered as
a part of the Contract within the limits specified. Contractor shall bear all expense of correcting work done contrary to said laws, ordinances, rules, and regulations.

9.7 Plans, Drawings, Designs, Specifications are County Property
All copies of Plans, Drawings, Designs, Specifications and copies of other incidental architectural and engineering work, or copies of other Contract Documents furnished by County, are the property of County. They are not to be used by Contractor in other work and, with the exception of signed sets of Contract Documents, are to be returned to County on request at completion of Work, or may be used by County as it may require without any additional costs to County. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. County hereby grants the Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings prepared for the Project in the execution of their Work under the Contract Documents.

9.8 Order of Precedence
In the case of discrepancy or ambiguity in the Contract Documents the order of precedence in the Agreement shall prevail.

9.9 Resolution of Discrepancy or Ambiguity
However, in the case of discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide County with the functionally complete and operable Project described in the Drawings and Specifications.

9.10 County Clarification
In case of ambiguity, conflict, or lack of information, County will furnish clarifications with reasonable promptness. Should any clarification, in the opinion of Contractor, cause an increase in the Contract Price, Contractor may request a change in the Contract Price and/or Contract. Within seven (7) days after receipt of the interpretation or request, Contractor to submit to the Construction Manager a detailed description of the contract requirements that were exceeded and the resulting change in cost.

10. CONTRACTOR’S SUBMITTALS AND SCHEDULES
Refer to Section ______ “Schedules and Reports.” Contractor’s submittals shall comply with the provisions and requirements of the Specifications.
10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values

Within TEN (10) calendar days after the date of the Notice to Proceed (unless otherwise specified in the Specifications), the Contractor shall prepare and submit to the County for review, in a form supported by sufficient data to substantiate its accuracy as the County may require:

10.1.1 Preliminary Schedule

A preliminary schedule of construction indicating the starting and completion dates of the various stages of the Work, including any information and following any form as may be specified in the Specifications. Once approved by County, this shall become the Construction Schedule. This schedule shall include and identify all tasks that are on the Project’s critical path with a specific determination of the start and completion of each critical path task as well as all contract milestones and each milestone’s completion date(s) as may be required by the County.

10.1.2 Preliminary Schedule of Values

A preliminary schedule of values for all of the Work, which must include quantities and prices of items aggregating the Contract Price and must subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. This preliminary schedule of values shall include, at a minimum, the following information and the following structure:

10.1.2.1 Divided into at least the following categories:

10.1.2.1.1 Overhead and profit;
10.1.2.1.2 Supervision;
10.1.2.1.3 General conditions;
10.1.2.1.4 Layout;
10.1.2.1.5 Mobilization;
10.1.2.1.6 Submittals;
10.1.2.1.7 Bonds and insurance;
10.1.2.1.8 Close-out documentation;
10.1.2.1.9 Demolition;
10.1.2.1.10 Installation;
10.1.2.1.11 Rough-in;
10.1.2.12 Finishes;
10.1.2.13 Testing;
10.1.2.14 Punchlist and acceptance.

10.1.2.2 Divided by each of the following areas:
10.1.2.2.1 Site work;
10.1.2.2.2 By each building;
10.1.2.2.3 By each floor.

10.1.3 The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

10.1.3.1 Mobilization and layout combined to equal not more than 1%;
10.1.3.2 Submittals, samples and shop drawings combined to equal not more than 3%, bonds and insurance combined to equal not more than 2%.
10.1.3.3 Closeout documentation shall have a value in the preliminary schedule of not less than 5%.

10.1.4 Notwithstanding any provision of the Contract Documents to the contrary, payment of the Contractor's overhead, supervision, general conditions costs, and profit, as reflected in the Cost Breakdown, shall be paid by the County in equal installments, based on percentage complete, with the disbursement of Progress Payments and the Final Payment.

10.1.5 Contractor shall certify that the preliminary schedule of values as submitted to the County is accurate and reflects the costs as developed in preparing Contractor’s bid. The preliminary schedule of values shall be subject to the County's review and approval of the form and content thereof. In the event that the County objects to any portion of the preliminary schedule of values, the County shall notify the Contractor, in writing, including by e-mail, of the County's objection(s) to the preliminary schedule of values. Within five (5) calendar days of the date of the County's written objection(s), Contractor shall submit a revised preliminary schedule of values to the County for review and approval. The foregoing procedure for the preparation, review and approval of the preliminary schedule of values shall continue until the County has approved the entirety of the preliminary schedule of values.
10.1.6 Once the preliminary schedule of values is approved by the County, this shall become the Schedule of Values. The Schedule of Values shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the County, which may be granted or withheld in the sole discretion of the County.

10.1.7 Preliminary Schedule of Submittals
A preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals. Once approved by County, this shall become the Submittal Schedule. All submittals shall be forwarded to the County by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those submittals shall be forwarded to the County so as not to delay the Construction Schedule.

10.1.8 Safety Plan
Contractor’s Safety Plan specifically adapted for the Project. Contractor's Safety Plan shall comply with the following requirements:

10.1.8.1 All applicable requirements of California Division of Industrial Safety (“CalOSHA”) and/or of the United States Occupational Safety and Health Administration (“OSHA”).

10.1.8.2 All provisions regarding Project safety, including all applicable provisions in these General Conditions.

10.1.8.3 Contractor’s Safety Plan shall be in English and in the language(s) of the Contractor’s and its Subcontractors’ employees.

10.1.9 Complete Subcontractor List
The name, address, telephone number, facsimile number, California State Contractors License number, classification, and monetary value of all Subcontracts for parties furnishing labor, material, or equipment for completion of the Project.

10.1.10 General Requirements

10.1.10.1 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the County.
10.1.10.2 The County will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the County and resubmit the schedules until approved by the County.

10.1.10.3 The County shall have the right at any time to revise the schedule of values if, in the County's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.1.10.4 All submittals and schedules must be approved by the County before Contractor can rely on them as a basis for payment.

10.2 Monthly Progress Schedule(s)

10.2.1 Upon request by the County, Contractor shall provide Monthly Progress Schedule(s) to the County. A Monthly Progress Schedule shall update the approved Construction Schedule or the last Monthly Progress Schedule, showing all work completed and to be completed. The monthly Progress Schedule shall be sent within the timeframe requested by the County and shall be in a format acceptable to the County and contain a written narrative of the progress of work that month and any changes, delays, or events that may affect the work. The process for County approval of the Monthly Progress Schedule shall be the same as the process for approval of the Construction Schedule.

10.2.2 Contractor shall also submit Monthly Progress Schedule(s) with all payment applications.

10.3 Material Safety Data Sheets (MSDS)

Contractor is required to ensure Material Safety Data Sheets are available in a readily accessible place at the Work Site for any material requiring a Material Safety Data Sheet per the Federal “Hazard Communication” standard, or employees right to know law. The Contractor is also required to ensure proper labeling on substance brought onto the job site and that any person working with the material or within the general area of the material is informed of the hazards of the substance and follows proper handling and protection procedures. Two additional copies of the Material Safety Data Sheets shall also be submitted directly to the County.

11. SITE ACCESS, CONDITIONS, AND REQUIREMENTS

11.1 Site Investigation
Before bidding on this Work, Contractor shall make a careful investigation of the Site and thoroughly familiarize itself with the requirements of the Contract. By the act of submitting a bid for the Work included in this Contract, Contractor shall be deemed to have made a complete study and investigation, and to be familiar with and accepted the existing conditions of the Site.

11.2 Soils Investigation Report

11.2.1 When a soils investigation report obtained from test holes at Site is available, that report shall be available to the Contractor but shall not be a part of this Contract. Any information obtained from that report or any information given on Drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only, is not guaranteed, does not form a part of this Contract, and Contractor may not rely thereon. By submitting its bid, Contractor acknowledges that it has made visual examination of Site and has made whatever tests Contractor deems appropriate to determine underground condition of soil.

11.2.2 Contractor agrees that no claim against County will be made by Contractor for damages and hereby waives any rights to damages if, during progress of Work, Contractor encounters subsurface or latent conditions at Site materially differing from those shown on Drawings or indicated in Specifications, or for unknown conditions of an unusual nature that differ materially from those ordinarily encountered in the work of the character provided for in Plans and Specifications, except as indicated in the provisions of these General Conditions regarding trenches, trenching, and/or existing utility lines.

11.3 Access to Work

County and its representatives shall at all times have access to Work wherever it is in preparation or progress, including storage and fabrication. Contractor shall provide safe and proper facilities for such access so that County's representatives may perform their functions.

11.4 Layout and Field Engineering

11.4.1 All field engineering required for layout of this Work and establishing grades for earthwork operations shall be furnished by Contractor at its expense. This Work shall be done by a qualified, California-registered civil engineer...
approved in writing by County and Architect. Any required “Record” drawings of Site
development shall be prepared by the approved civil engineer.

11.4.2 The Contractor shall be responsible for having ascertained
pertinent local conditions such as location, accessibility, and general character of the
Site and for having satisfied itself as to the conditions under which the Work is to be
performed. County shall not be liable for any claim for allowances because of
Contractor’s error or negligence in acquainting itself with the conditions at the Site.

11.4.3 Contractor shall protect and preserve established benchmarks and
monuments and shall make no changes in locations without the prior written approval
of County. Contractor shall replace any benchmarks or monuments that are lost or
destroyed subsequent to proper notification of County and with County's approval.

11.5 Utilities
Utilities shall be provided as indicated in the Specifications.

11.6 Sanitary Facilities
Sanitary facilities shall be provided as indicated in the Specifications.

11.7 Surveys
Contractor shall provide surveys done by a California-licensed civil engineer surveyor
to determine locations of construction, grading, and site work as required to perform the
Work.

11.8 Regional Notification Center
The Contractor, except in an emergency, shall contact the appropriate regional
notification center at least two (2) days prior to commencing any excavation if the
excavation will be conducted in an area or in a private easement that is known, or
reasonably should be known, to contain subsurface installations other than the
underground facilities owned or operated by the County, and obtain an inquiry
identification number from that notification center. No excavation shall be commenced
and/or carried out by the Contractor unless an inquiry identification number has been
assigned to the Contractor or any Subcontractor and the Contractor has given the
County the identification number. Any damages arising from Contractor's failure to
make appropriate notification shall be at the sole risk and expense of the Contractor.
Any delays caused by failure to make appropriate notification shall be at the sole risk of
the Contractor and shall not be considered for an extension of the Contract time.
11.9 Existing Utility Lines

11.9.1 Pursuant to Government Code section 4215, County assumes the responsibility for removal, relocation, and protection of main or trunk utility lines and facilities located on the construction Site at the time of commencement of construction under this Contract with respect to any such utility facilities that are not identified in the Plans and Specifications. Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of County or the owner of a utility to provide for removal or relocation of such utility facilities.

11.9.2 Locations of existing utilities provided by County shall not be considered exact, but approximate within reasonable margin and shall not relieve Contractor of responsibilities to exercise reasonable care nor costs of repair due to Contractor’s failure to do so. County shall compensate Contractor for the costs of locating, repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment necessarily idle during such work.

11.9.3 No provision herein shall be construed to preclude assessment against Contractor for any other delays in completion of the Work. Nothing in this Article shall be deemed to require County to indicate the presence of existing service laterals, appurtenances, or other utility lines, within the exception of main or trunk utility lines. Whenever the presence of these utilities on the Site of the construction Project can be inferred from the presence of other visible facilities, such as buildings, meter junction boxes, on or adjacent to the Site of the construction.

11.9.4 If Contractor, while performing Work under this Contract, discovers utility facilities not identified by County in Contract Plans and Specifications, Contractor shall immediately notify the County and the utility in writing. The cost of repair for damage to above-mentioned visible facilities without prior written notification to the County shall be borne by the Contractor.

11.10 Notification

Contractor understands, acknowledges and agrees that the purpose for prompt notification to the County pursuant to these provisions is to allow the County to investigate the condition(s) so that the County shall have the opportunity to decide how the County desires to proceed as a result of the condition(s). Accordingly, failure of Contractor to promptly notify the County in writing, including by e-mail, pursuant to these provisions, shall constitute Contractor's waiver of any claim for damages or delay incurred as a result of the condition(s).
11.11 Hazardous Materials
Contractor shall comply with all provisions and requirements of the Contract Documents related to hazardous materials including, without limitation, Hazardous Materials Procedures and Requirements.

11.12 No Signs
Neither the Contractor nor any other person or entity shall display any signs not required by law or the Contract Documents at the Site, fences trailers, offices, or elsewhere on the Site without specific prior written approval of the County.

12. TRENCHES

12.1 Trenches Greater Than Five Feet
Pursuant to Labor Code section 6705, if the Contract Price exceeds $25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, promptly submit to the County and/or a registered civil or structural engineer employed by the County or Architect, a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

12.2 Excavation Safety
If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the County or by the person to whom authority to accept has been delegated by the County.

12.3 No Tort Liability of County
Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the County or any of its employees.

12.4 No Excavation Without Permits
The Contractor shall not commence any excavation Work until it has secured all necessary permits including the required CalOSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.
12.5 Discovery of Hazardous Waste and/or Unusual Conditions

12.5.1 Pursuant to Public Contract Code section 7104, if the Work involves digging trenches or other excavations that extend deeper than four feet below the Surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the County, in writing, including by e-mail, of any:

12.5.1.1 Material that the Contractor believes may be material that is hazardous waste, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

12.5.1.2 Subsurface or latent physical conditions at the Site differing from those indicated.

12.5.1.3 Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

12.5.2 The County shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor’s cost of, or the time required for, performance of any part of the Work, shall issue a Change Order under the procedures described herein.

12.5.3 In the event that a dispute arises between County and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor’s cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law that pertain to the resolution of disputes and protests.

13. INSURANCE AND BONDS

13.1 Insurance

All insurance required of Contractor and/or its Subcontractor(s) shall be in amounts set forth in the Special Conditions, and include the provisions as set forth herein.
13.1.1 Commercial General Liability and Automobile Liability Insurance

13.1.1.1 Contractor shall procure and maintain, during the life of this Contract, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect Contractor, County, Construction Manager(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from operations under this Contract. Contractor shall ensure that Products Liability and Completed Operations coverage and Fire Damage Liability is included within the above policies and at the required limits, or Contractor shall procure and maintain these coverages separately.

13.1.1.2 Subcontractor: Contractor shall require its Subcontractors, if any, to procure and maintain similar Commercial General Liability Insurance and Automobile Liability Insurance with minimum limits equal to the amount required of the Contractor.

13.1.2 Excess Liability Insurance

13.1.2.1 Contractor shall procure and maintain, during the life of this Contract, Excess Liability Insurance that shall protect Contractor, County, Construction Manager(s), and Architect(s) in amounts and including the provisions as set forth in the Special Conditions, and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers’ Liability Insurance.

13.1.2.2 Subcontractor: Contractor shall require its Subcontractor(s), if any, to procure and maintain similar Excess Liability Insurance with minimum limits equal to the amount required of the Contractor.

13.1.3 Workers’ Compensation and Employers’ Liability Insurance

13.1.3.1 In accordance with provisions of section 3700 of the California Labor Code, the Contractor and every Subcontractor shall be required to secure the payment of compensation to its employees.
13.1.3.2 Contractor shall procure and maintain, during the life of this Contract, Workers’ Compensation Insurance and Employers’ Liability Insurance for all of its employees engaged in work under this Contract, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. Contractor shall require its Subcontractor(s), if any, to procure and maintain Workers’ Compensation Insurance and Employers’ Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor’s insurance shall be covered by Contractor’s insurance. If any class of employee or employees engaged in Work under this Contract, on or at the Site of the Project, is not protected under the Workers’ Compensation Statute, Contractor shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.


Contractor shall procure and maintain, during the life of this Contract, Builder’s Risk (Course of Construction), or similar first party property coverage acceptable to the County, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, sonic disturbance, earthquake, flood, collapse, wind, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect’s and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.
13.1.5 Proof of Carriage of Insurance and Other Requirements: Endorsements and Certificates.

13.1.5.1 Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract, until Contractor and its Subcontractor(s) have procured all required insurance and Contractor has delivered in duplicate to the County complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the County has approved these documents.

13.1.5.2 Endorsements, certificates and insurance policies shall include the following:

13.1.5.2.1 A clause stating:

“This policy shall not be amended, canceled or modified and the coverage amounts shall not be reduced until notice has been mailed to County, Architect, and Construction Manager stating date of amendment, modification, cancellation or reduction. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.”

13.1.5.2.2 Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation and reduction notice will be sent, and length of notice period.

13.1.5.3 All endorsements, certificates and insurance policies shall state that County, its Supervisors, employees and agents, Construction Manager(s), and Architect(s) are named additional insureds under all policies except Workers’ Compensation Insurance and Employers’ Liability Insurance. Contractor’s and Subcontractors’ insurance policy(s) shall be primary and non-contribution to any insurance or self-insurance maintained by County, its Supervisors, employees and/or agents, Construction Manager(s), and/or Architect(s). All endorsements shall
waive any right to subrogation against any of the named additional insureds.

13.1.5.4 All policies shall be written on an occurrence form.

13.2 Contract Security - Bonds

13.2.1 Contractor shall furnish two surety bonds issued by a California admitted surety insurer as follows:

13.2.1.1 Performance Bond: A bond in an amount at least equal to one hundred percent (100%) of Contract Price as security for faithful performance of this Contract.

13.2.1.2 Payment Bond: A bond in an amount at least equal to one hundred percent (100%) of the Contract Price as security for payment of persons performing labor and/or furnishing materials in connection with this Contract.

13.2.2 Cost of bonds shall be included in the Bid and Contract Price.

13.2.3 All bonds related to this Project shall be in the forms set forth in these Contract Documents and shall comply with all requirements of the Contract Documents, including, without limitation, the bond forms.

14. WARRANTY/GUARANTEE/INDEMNITY

14.1 Warranty/Guarantee

14.1.1 The Contractor shall obtain and preserve for the benefit of the County, manufacturer’s warranties on materials, fixtures, and equipment incorporated into the Work.

14.1.2 In addition to guarantees required elsewhere, Contractor shall, and hereby does guarantee and warrant all Work furnished on the job against all defects for a period of TWO (2) years after the later of the following dates:

14.1.2.1 The date of completion as defined in Public Contract Code section 7107, subdivision (c),

14.1.2.2 The commissioning date for the Project, if any.

14.1.3 At the County’s sole option, Contractor shall repair or replace any and all of that Work, together with any other Work that may be displaced in so doing, that may prove defective in workmanship and/or materials within a TWO (2)
years period from date of completion as defined above without expense whatsoever to County. In the event of failure of Contractor and/or Surety to commence and pursue with diligence said replacements or repairs within ten (10) days after being notified in writing, including by e-mail, Contractor and Surety hereby acknowledge and agree that County is authorized to proceed to have defects repaired and made good at expense of Contractor and/or Surety who hereby agree to pay costs and charges therefore immediately on demand. Said notice period shall be forty-eight (48) hours for components essential to operation of the facility, including without limitation fire alarms, water, heat, security systems, and electrical systems.

14.1.4 If, in the opinion of County, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to County or to prevent interruption of operations of County, County will attempt to give the notice required above. If Contractor or Surety cannot be contacted or does not comply with County's request for correction within a reasonable time as determined by County, County may, notwithstanding the above provision, proceed to make any and all corrections and/or provide attentions the County believes are necessary. The costs of correction or attention shall be charged against Contractor and Surety of the guarantees provided in this Article or elsewhere in this Contract.

14.1.5 The above provisions do not in any way limit the guarantees on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish to County all appropriate guarantee or warranty certificates as indicated in the Specifications or upon request by County.

14.1.6 Nothing herein shall limit any other rights or remedies available to County.

14.2 Indemnity

14.2.1 To the furthest extent permitted by California law, the Contractor shall indemnify, defend with legal counsel reasonably acceptable to the County, keep and hold harmless the County and its consultants, the Architect and its consultants, the Construction Manager and its consultants, separate contractors, and their respective board members, officers, representatives, contractors, agents, and employees, in both individual and official capacities (“Indemnitees”), against all suits, claims, liabilities, damages, losses, and expenses caused by, arising out of, resulting from, or incidental to, the performance of the Work under this Contract by the Contractor or its Subcontractors to the full extent allowed by the laws of the State of California, and not to any extent that would render these provisions void or unenforceable, including, without limitation, any such suit, claim, damage, loss, or expense attributable to, without limitation, bodily
injury, sickness, disease, death, alleged patent violation or copyright infringement, or to injury to or destruction of tangible property (including damage to the Work itself) including the loss of use resulting therefrom, except to the extent caused by the sole negligence, active negligence or willful misconduct of the Indemnitees. This agreement and obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist as to any party or person described herein. This indemnification, defense, and hold harmless obligation includes any failure or alleged failure by Contractor to comply with any provision of law or the Contract Documents, including, without limitation, any stop notice actions, or liens by the California Department of Labor Standards Enforcement.

14.2.2 The Contractor shall give prompt notice to the County in the event of any injury (including death), loss, or damage included herein. Without limitation of the provisions herein, if the Contractor’s agreement to indemnify, defend, and hold harmless the Indemnitees as provided herein against liability for damage arising out of bodily injury to persons or damage to property caused by or resulting from the negligence of any of the Indemnitees shall to any extent be or be determined to be void or unenforceable, it is the intention of the parties that these circumstances shall not otherwise affect the validity or enforceability of the Contractor’s agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein, and in the case of any such suits, claims, damages, losses, or expenses caused in part by the default, negligence, or act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, and in part by any of the Indemnitees, the Contractor shall be and remain fully liable on its agreements and obligations herein to the full extent permitted by law.

14.2.3 In any and all claims against any of the Indemnitees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the Contractor’s indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor under workers’ compensation acts, disability benefit acts, or other employee benefit acts.

15. TIME

15.1 Notice to Proceed

15.1.1 County may issue a Notice to Proceed within three (3) months from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.
15.1.2 In the event that the County desires to postpone issuing the Notice to Proceed beyond this 3-month period, it is expressly understood that with reasonable notice to the Contractor, the County may postpone issuing the Notice to Proceed. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed.

15.1.3 If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to Contractor, Contractor may terminate the Contract. Contractor’s termination due to a postponement shall be by written notice to County within ten (10) days after receipt by Contractor of County's notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the County, the County shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the Contract as a result of a notice of postponement, County shall have the authority to award the Contract to the next lowest responsive responsible bidder.

15.2 Computation of Time / Adverse Weather

15.2.1 The Contractor will only be allowed a time extension for Adverse Weather conditions if requested by Contractor and only if all of the following conditions are met:

15.2.1.1 The weather conditions constitute Adverse Weather, as defined herein and further specified in the Special Conditions;

15.2.1.2 Contractor can verify that the Adverse Weather caused delays in excess of seventy-five percent (75%) for at least five hours, of the normal labor and equipment force toward completion of the day’s current controlling item(s) on the latest accepted schedule;

15.2.1.3 The Contractor’s crew is dismissed as a result of the Adverse Weather; and

15.2.1.4 The number of days of delay for the month exceeds those indicated in the Special Conditions.

15.2.2 A day-for-day extension will only be allowed for those days in excess of those indicated in the Special Conditions. Weather delay time extensions to the contract period will be noncompensable.
15.2.3 The Contractor shall work seven (7) days per week, if necessary, irrespective of inclement weather, to maintain access and the Construction Schedule, and to protect the Work under construction from the effects of Adverse Weather, all at no further cost to the County.

15.2.4 The Contract Time has been determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located.

15.3 Hours of Work

15.3.1 Sufficient Forces
Contractor and Subcontractors shall continuously furnish sufficient forces to ensure the prosecution of the Work in accordance with the Construction Schedule.

15.3.2 Performance During Working Hours
Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the County and approval of any required governmental agencies.

15.4 Progress and Completion

15.4.1 Time of the Essence
Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

15.4.2 No Commencement Without Insurance
The Contractor shall not commence operations on the Project or elsewhere prior to the effective date of insurance and bonds. The date of commencement of the Work shall not be changed by the effective date of such insurance. If Contractor commences Work without insurance and bonds, all Work is performed at Contractor’s peril and shall not
be compensable until and unless Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to County claim for damages.

15.5 Expeditious Completion
The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time.

16. EXTENSIONS OF TIME – LIQUIDATED DAMAGES

16.1 Liquidated Damages
Contractor and County hereby agree that the exact amount of damages for failure to complete the Work within the time specified is extremely difficult or impossible to determine. If the Work is not completed within the time specified in the Contract Documents, it is understood that the County will suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed the Contractor shall pay to County as fixed and liquidated damages, and not as a penalty, the amount set forth in the Agreement for each calendar day of delay in completion. Contractor and its Surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

16.2 Excusable Delay

16.2.1 Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault of Contractor or its Subcontractors, including acts of God as defined in Public Contract Code section 7105, acts of enemy, epidemics, and quarantine restrictions. Contractor shall, within five (5) calendar days of beginning of any delay, notify County in writing of causes of delay including documentation and facts explaining the delay. County shall review the facts and extent of any delay and shall grant extension(s) of time for completing Work when, in its judgment, the findings of fact justify an extension. Extension(s) of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted if Contractor has timely submitted the Construction Schedule as required herein.

16.2.2 Contractor shall notify the County pursuant to the claims provisions in these General Conditions of any anticipated delay and its cause. Following submission of a claim, the County may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.
16.2.3 In the event the Contractor requests an extension of Contract Time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in Work. When requesting time, requests must be submitted with full justification and documentation. If the Contractor fails to submit justification, it waives its right to a time extension at a later date. Such justification must be based on the official Construction Schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the Scope of Work. Any claim for delay must include the following information as support, without limitation:

16.2.3.1 The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform the activities within the stated duration.

16.2.3.2 Specific logical ties to the Contract Schedule for the proposed changes and/or delay showing the activity/activities in the Construction Schedule that are affected by the change and/or delay. Delay requests must be submitted in accordance with Section _____.

16.2.3.3 A recovery schedule must be submitted.

16.3 No Additional Compensation for Delays Within Contractor’s Control

16.3.1 Contractor is aware that governmental agencies, including, without limitation, the Department of General Services, gas companies, electrical utility companies, water companies, and other agencies may have to approve Contractor-prepared drawings or approve a proposed installation. Accordingly, Contractor shall include in its bid, time for possible review of its drawings and for reasonable delays and damages that may be caused by such agencies. Thus, Contractor is not entitled to make a claim for damages or delays arising from the review of Contractor’s drawings.

16.3.2 Contractor shall only be entitled to compensation for delay when all of the following conditions are met:

16.3.2.1 The County is responsible for the delay;

16.3.2.2 The delay is unreasonable under the circumstances involved;

16.3.2.3 The delay was not within the contemplation of County and Contractor; and
16.3.2.4 Contractor complies with the claims procedure of the Contract Documents.

16.4 Float or Slack in the Schedule

Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not for the exclusive use of or benefit of either the County or the Contractor, but its use shall be determined solely by the County.

17. CHANGES IN THE WORK

17.1 No Changes Without Authorization

17.1.1 There shall be no change whatsoever in the Drawings, Specifications, or in the Work without an executed Change Order or a written Construction Change Directive authorized by the County as herein provided. County shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the County's governing board has authorized the same and the cost thereof has been approved in writing by Change Order or Construction Change Directive. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted in writing in the Change Order or Construction Change Directive. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

17.1.2 Contractor shall perform immediately all work that has been authorized by a fully executed Change Order or Construction Change Directive. Contractor shall be fully responsible for any and all delays and/or expenses caused by Contractor's failure to expeditiously perform this Work.

17.1.3 Should any Change Order result in an increase in the Contract Price, the cost of that Change Order shall be agreed to, in writing, in advance by Contractor and County and be subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that Contractor proceeds with any change in Work without a Change Order executed by the County or Construction Change Directive, Contractor waives any claim of additional compensation or time for that additional work.

17.1.4 Contractor understands, acknowledges, and agrees that the reason for County authorization is so that County may have an opportunity to analyze the
Work and decide whether the County shall proceed with the Change Order or alter the Project so that a change in Work becomes unnecessary.

17.2 **Architect Authority to Order Minor Changes**

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Price, or an extension of the Contract Time, or a change that is inconsistent with the intent of the Contract Documents. These changes shall be effected by written Change Order, Construction Change Directive, or by Architect’s response(s) to RFI(s).

17.3 **Change Orders**

17.3.1 A Change Order is a written instrument prepared and issued by the County and/or the Architect and signed by the County (as authorized by the County's Board of Supervisors), the Contractor, and the Architect, stating their agreement regarding all of the following:

17.3.1.1 A description of a change in the Work;

17.3.1.2 The amount of the adjustment in the Contract Price, if any; and

17.3.1.3 The extent of the adjustment in the Contract Time, if any.

17.4 **Construction Change Directives**

17.4.1 A Construction Change Directive is a written order prepared and issued by the County, the Construction Manager, and/or the Architect and signed by the County and the Architect, directing a change in the Work. The County may as provided by law, by Construction Change Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions. Any dispute as to the sum of the Construction Change Directive or timing of payment shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

17.4.2 The County may issue a Construction Change Directive in the absence of agreement on the terms of a Change Order.

17.5 **Force Account Directives**

17.5.1 When work, for which a definite price has not been agreed upon in advance, is to be paid for on a force account basis, all direct costs necessarily incurred and paid by the Contractor for labor, material, and equipment used in the performance of that Work, shall be subject to the approval of the County and compensation will be determined as set forth herein.
17.5.2 The County will issue a Force Account Directive to proceed with the Work on a force account basis, and a not-to-exceed budget will be established by the County.

17.5.3 All requirements regarding direct cost for labor, labor burden, material, equipment, and markups on direct costs for overhead and profit described in this section shall apply to Force Account Directives. However, the County will only pay for actual costs verified in the field by the County or its authorized representative(s) on a daily basis.

17.5.4 The Contractor shall be responsible for all cost related to the administration of Force Account Directive. The markup for overhead and profit for Contractor modifications shall be full compensation to the Contractor to administer Force Account Directive.

17.5.5 The Contractor shall notify the County or its authorized representative(s) at least twenty-four (24) hours prior to proceeding with any of the force account work. Furthermore, the Contractor shall notify the County when it has consumed eighty percent (80%) of the budget, and shall not exceed the budget unless specifically authorized in writing by the County. The Contractor will not be compensated for force account work in the event that the Contractor fails to timely notify the County regarding the commencement of force account work, or exceeding the force account budget.

17.5.6 The Contractor shall diligently proceed with the work, and on a daily basis, submit a daily force account report on a form supplied by the County no later than 5:00 p.m. each day. The report shall contain a detailed itemization of the daily labor, material, and equipment used on the force account work only. The names of the individuals performing the force account work shall be included on the daily force account reports. The type and model of equipment shall be identified and listed. The County will review the information contained in the reports, and sign the reports no later than the next work day, and return a copy of the report to the Contractor for their records. The County will not sign, nor will the Contractor receive compensation for work the County cannot verify. The Contractor will provide a weekly force account summary indicating the status of each Force Account Directive in terms of percent complete of the not-to-exceed budget and the estimated percent complete of the work.

17.5.7 In the event the Contractor and the County reach a written agreement on a set cost for the work while the work is proceeding based on a Force Account Directive, the Contractor’s signed daily force account reports shall be discontinued and all previously signed reports shall be invalid.
17.6 Price Request

17.6.1 Definition of Price Request

A Price Request (“PR”) is a written request prepared by the Architect requesting the Contractor to submit to the County and the Architect an estimate of the effect of a proposed change in the Work on the Contract Price and the Contract Time.

17.6.2 Scope of Price Request

A Price Request shall contain adequate information, including any necessary Drawings and Specifications, to enable Contractor to provide the cost breakdowns required herein. The Contractor shall not be entitled to any additional compensation for preparing a response to a Price Request, whether ultimately accepted or not.

17.7 Proposed Change Order

17.7.1 Definition of Proposed Change Order

A Proposed Change Order (“PCO”) is a written request prepared by the Contractor requesting that the County and the Architect issue a Change Order based upon a proposed change to the Work.

17.7.2 Changes in Contract Price

A PCO shall include breakdowns pursuant to the revisions herein to validate any change in Contract Price.

17.7.3 Changes in Time

A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Construction Schedule as defined in the Contract Documents. If Contractor fails to request a time extension in a PCO, then the Contractor is thereafter precluded from requesting time and/or claiming a delay.

17.7.4 Unknown and/or Unforeseen Conditions

If Contractor submits a PCO requesting an increase in Contract Price and/or Contract Time that is based at least partially on Contractor’s assertion that Contractor has encountered unknown and/or unforeseen condition(s) on the Project, then Contractor shall base the PCO on provable information that, beyond a reasonable doubt and to the County’s satisfaction, demonstrates that the unknown and/or unforeseen condition(s) were actually unknown and/or unforeseen and that the condition(s) were reasonably
unknown and/or unforeseen. If not, the County shall deny the PCO and the Contractor shall complete the Project without any increase in Contract Price and/or Contract Time based on that PCO.

17.8 Format for Proposed Change

17.8.1 The following format shall be used as applicable by the County and the Contractor (e.g. Change Orders, PCO’s) to communicate proposed additions and deductions to the Contract, supported by attached documentation. In no case shall the Contractor’s total markup exceed 26.5%.

<table>
<thead>
<tr>
<th>SUBCONTRACTOR PERFORMED WORK</th>
<th>ADD</th>
<th>DEDUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) <strong>Material</strong> (attach itemized quantity and unit cost plus sales tax)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) <strong>Add Labor</strong> (attach itemized hours and rates, fully encumbered)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) <strong>Add Equipment</strong> (attach suppliers’ invoice)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) <strong>Subtotal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) <strong>Add Subcontractor’s overhead and profit</strong>, not to exceed ten percent (10%) of item (d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f) <strong>Subtotal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g) <strong>Add Contractor’s overhead and profit</strong>, not to exceed ten percent (10%) of Item (f)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h) <strong>Subtotal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) <strong>Add Bond and Insurance</strong>, not to exceed one percent (1%) of Item (h)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(j) <strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALAMEDA COUNTY GSA-TSD

GENERAL CONDITIONS – STIPULATED SUM (SINGLE-PRIME CONTRACT)

Page 50 of 83

DOCUMENT 00 72 13
### Change Order Certification

#### 17.9.1 All Change Orders and PCOs must include the following certification by the Contractor:

17.9.1.1 The undersigned Contractor approves the foregoing as to the changes, if any, and the Contract Price specified for each item and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work.
work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the Board of Supervisors.

17.9.1.2 It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor’s costs and expenses, both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Any costs, expenses, damages, or time extensions not included are deemed waived.

17.10 Determination of Change Order Cost

The amount of the increase or decrease in the Contract Price from a Change Order, if any, shall be determined in one or more of the following ways as applicable to a specific situation and at the County's discretion:

17.10.1 County acceptance of a PCO;
17.10.2 By unit prices contained in Contractor’s original bid;
17.10.3 By agreement between County and Contractor.

17.11 Allowable Costs

Allowable costs for any change order shall be limited to the following:

17.11.1 Costs of labor, including social security, Medicare and unemployment insurance, fringe benefits required, workers’ compensation insurance.

17.11.2 Costs of first line supervision labor, including labor burden as described in paragraph 1. “First Line Supervision” shall mean a working foreman or lead craft worker other than the project superintendent;

17.11.3 Actual costs of the project superintendent associated with any period of compensable delay caused by issuance of the change order. In the absence of a compensable delay, all of the project superintendent’s time is considered to have been paid for as part of the overhead;
17.11.4 Actual costs of materials, including sales tax and delivery;

17.11.5 Rental costs of machinery and equipment, exclusive of small tools, whether rented from the Contractor or others. For Contractor and Subcontractor-owned equipment, payment will be made at rental rates listed for equipment in California Department of Transportation official equipment rental rate schedule. For rental equipment, payment will be made based on actual rental invoices. Rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance and all incidentals;

17.11.6 Overhead and Profit as specified below. “Overhead” shall include the following:

17.11.6.1 Preparation of all paperwork related to changes in the Work, including field review, estimating and cost breakdown; coordination and supervision, both office and field, including the project superintendent; vehicles including has and maintenance; small tools, incidentals and consumables; engineering, detailing, and revisions to shop drawings and as-built drawings; general office expense; extended and unabsorbed home office overhead; warranty, all taxes; and all other expenses not specifically described in items one through five.

17.11.6.2 The actual costs of insurance premiums required by this contract and associated with the change order work will be reimbursed by the County.

17.11.7 Upon receipt of a PCO/Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager within seven (7) calendar days of the Contractor’s agreement or disagreement with the method, if any, provided in the PCO/Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

17.11.8 Failure to respond to and return a PCO/Change Directive to the County within (7) days indicates the Contractor’s agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

17.12 Deductive Change Orders
All deductive Change Order(s) must be prepared pursuant to the provisions herein. If Contractor offers a proposed amount for a deductive Change Order(s), Contractor shall include a minimum of five percent (5%) total profit and overhead to be deducted with the amount of the work of the Change Order(s). If Subcontractor work is involved, Subcontractors shall also include a minimum of five percent (5%) profit and overhead to be deducted with the amount of its deducted work. Any deviation from this provision shall not be allowed.

17.13 Discounts, Rebates, and Refunds

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor’s cost in determining the actual cost of construction for purposes of any change, addition, or omission in the Work as provided herein.

17.14 Accounting Records

With respect to portions of the Work performed by Change Orders and Construction Change Directives, the Contractor shall keep and maintain cost-accounting records satisfactory to the County, which shall be available to the County on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents.

17.15 Notice Required

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the County pursuant to the provisions herein. No claim shall be considered unless made in accordance with this subparagraph. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a Change Order.

17.16 Applicability to Subcontractors

Any requirements under this Article shall be equally applicable to Change Orders or Construction Change Directives issued to Subcontractors by the Contractor to the extent as required by the Contract Documents.
17.17 Alteration to Change Order Language
Contractor shall not alter Change Orders or reserve time in Change Orders. Contractor shall execute finalized Change Orders and proceed under the provisions herein with proper notice.

17.18 Failure of Contractor to Execute Change Order
Contractor shall be in default of the Contract if Contractor fails to execute a Change Order when the Contractor agrees with the addition and/or deletion of the Work in that Change Order.

18. REQUEST FOR INFORMATION

18.1 The Contractor shall coordinate the Work so that dimensions are verified and clarifications that may affect the work are identified to allow for resolution without delaying the Work. The Contractor is responsible to submit a Request for Information as soon as the issue requiring clarification is identified. The Contractor shall be responsible for any delay in the construction progress due to any untimely submission of a Request for Information for A/E’s review. Non-receipt of a Request for Information, or proceeding with Work pertaining to the Request for Information shall be construed as relieving the County of any Claim for added cost or extension of time.

18.2 Reference Contract Documents
Any Request for Information shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. The Contractor shall make suggestions and interpretations of the issue raised by each Request for Information. A Request for Information cannot modify the Contract Price, Contract Time, or the Contract Documents.

18.3 Contractor Responsible For Costs
Contractor shall be responsible for any costs incurred for professional services which County may deduct from any amounts owing to the Contractor, if a Request for Information requests an interpretation or decision of a matter where the information sought is equally available to the party making the request. County, at its sole discretion, shall deduct from and/or invoice Contractor for all the professional services arising herein.

19. PAYMENTS

19.1 Contract Price
The Contract Price is stated in the Agreement and, including authorized adjustments, is the total amount payable by the County to the Contractor for performance of the Work under the Contract Documents.

19.2 Applications for Progress Payments

19.2.1 Procedures for Applications for Progress Payments

19.2.1.1 Not before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the County and the Architect an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or each portion thereof unless waived by the County in writing:

19.2.1.1.1 The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;

19.2.1.1.2 The amount being requested under the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;

19.2.1.1.3 The balance that will be due to each of such entities after said payment is made;

19.2.1.1.4 A certification that the Record Drawings and annotated Specifications are current;

19.2.1.1.5 Itemized breakdown of work done for the purpose of requesting partial payment;

19.2.1.1.6 An updated and acceptable construction schedule in conformance with Section ____;

19.2.1.1.7 The additions to and subtractions from the Contract Price and Contract Time;
19.2.1.1.8 A total of the retentions held;

19.2.1.1.9 Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the County may require from time to time;

19.2.1.1.10 The percentage of completion of the Contractor’s Work by line item;

19.2.1.1.11 Schedule of Values updated from the preceding Application for Payment;

19.2.1.1.12 A duly completed and executed conditional waiver and release upon progress payment compliant with Civil Code section 3262 from the Contractor and each subcontractor of any tier and supplier to be paid from the current progress payment;

19.2.1.1.13 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 3262 from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payment; and

19.2.1.1.14 A certification by the Contractor of the following:

   The Contractor warrants title to all Work performed as of the date of this payment application. The Contractor further warrants that all Work performed as of the date of this payment application is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, workers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work, except those of which the County has been informed.

19.2.2 The Contractor shall be subject to the False Claims Act set forth under Government Code section 12650 et seq., for information provided with any Application for Progress Payment.
19.2.3 Prerequisites for Progress Payments

19.2.3.1 First Payment Request: The following items, if applicable, must be completed before the County will accept and/or process the Contractor's first payment request:

19.2.3.1.1 Installation of the Project sign;
19.2.3.1.2 Installation of field office;
19.2.3.1.3 Installation of temporary facilities and fencing;
19.2.3.1.4 Schedule of Values;
19.2.3.1.5 Contractor’s Construction Schedule in conformance with Document ______ and Section 10.1.1.1 above;
19.2.3.1.6 Schedule of unit prices, if applicable;
19.2.3.1.7 Submittal Schedule;
19.2.3.1.8 Receipt by Architect of all submittals due as of the date of the payment application;
19.2.3.1.9 Copies of necessary permits;
19.2.3.1.10 Copies of authorizations and licenses from governing authorities;
19.2.3.1.11 Initial progress report;
19.2.3.1.12 Surveyor qualifications;
19.2.3.1.13 Written acceptance of County's survey of rough grading, if applicable;
19.2.3.1.14 List of all Subcontractors, with names, license numbers, telephone numbers, and Scope of Work;
19.2.3.1.15 All bonds and insurance endorsements;
19.2.3.1.16 Resumes of Contractor’s project manager, and if applicable, job site secretary, record documents recorder, and job site superintendent; and
19.2.3.1.17 Safety plan.
19.2.3.2 Second Payment Request. The County will not process the second payment request until and unless all submittals and Shop Drawings have been accepted for review by the Architect, and Contractor’s Schedule has been accepted as in compliance with Document _____ and Section 10.1.1.1 above.

19.2.3.3 No Waiver of Criteria. Any payments made to Contractor where criteria set forth herein have not been met shall not constitute a waiver of said criteria by County. Instead, such payment shall be construed as a good faith effort by County to resolve differences so Contractor may pay its Subcontractors and suppliers. Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

19.3 Progress Payments

19.3.1 County’s Approval of Application for Payment

19.3.1.1 Upon receipt of a Application for Payment, the County shall act in accordance with both of the following:

19.3.1.1.1 Each Application for Payment shall be reviewed by the County as soon as practicable after receipt for the purpose of determining that the Application for Payment is a proper Application for Payment.

19.3.1.1.2 Any Application for Payment determined not to be a proper Application for Payment suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) calendar days, after receipt. An Application for Payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing, including by e-mail, the reasons why the Application for Payment is not proper. The number of days available to the County to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the County exceeds this seven-day return requirement.
19.3.1.1.3 An Application for Payment shall be considered properly executed if funds are available for payment of the Application for Payment, and payment is not delayed due to an audit inquiry by the financial officer of the County.

19.3.1.2 The County’s review of the Contractor’s Application for Payment will be based on the County’s and the Architect’s observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the County’s and the Architect’s knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to:

19.3.1.2.1 Observation of the Work for general conformance with the Contract Documents,

19.3.1.2.2 Results of subsequent tests and inspections,

19.3.1.2.3 Minor deviations from the Contract Documents correctable prior to completion, and

19.3.1.2.4 Specific qualifications expressed by the Architect.

19.3.1.3 County’s approval of the certified Application for Payment shall be based on Contractor complying with all requirements for a fully complete and valid certified Application for Payment.

19.3.2 Payments to Contractor

19.3.2.1 Within thirty (30) days after approval of the Application for Payment, Contractor shall be paid a sum equal to ninety percent (90%) of the value of the Work performed (as verified by Architect and certified by Contractor) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The value of the Work completed shall be Contractor’s best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any Surety upon any
bond, from damages arising from such Work, or from the County's right to enforce each and every provision of this Contract, and the County shall have the right subsequently to correct any error made in any estimate for payment.

19.3.2.2 The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for Work performed, so long as any lawful or proper direction given by the County concerning the Work, or any portion thereof, remains incomplete.

19.3.2.3 If the County fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted Application for Payment from the Contractor, the County shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

19.3.3 No Waiver
No payment by County hereunder shall be interpreted so as to imply that County has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the County may enforce each and every provision of this Contract. The County may correct or require correction of any error subsequent to any payment.

19.3.4 Removal of Liens
19.3.4.1 If a lien or a claim based on a stop notice of any nature should at any time be filed against the Work or any County property, by any entity that has supplied material or services at the request of the Contractor, Contractor and Contractor’s Surety shall promptly, on demand by County and at Contractor’s and Surety’s own expense, take any and all action necessary to cause any such lien or a claim based on a stop notice to be released or discharged immediately therefrom.

19.3.4.2 If the Contractor fails to furnish to the County within ten (10) calendar days after demand by the County, satisfactory evidence that a lien or a claim based on a stop notice has been so released, discharged, or secured, the
County may discharge such indebtedness and deduct the amount required therefor, together with any and all losses, costs, damages, and attorney’s fees and expense incurred or suffered by County from any sum payable to Contractor under the Contract.

19.4 Decisions to Withhold Payment

19.4.1 Reasons to Withhold Payment

The County may withhold payment in whole, or in part, to the extent reasonably necessary to protect the County if, in the County’s opinion, the representations to the County required herein cannot be made. The County may withhold payment, in whole, or in part, to such extent as may be necessary to protect the County from loss because of, but not limited to:

19.4.1.1 Defective Work not remedied within the time frames noted in Section 14 hereof of written notice to Contractor;

19.4.1.2 Stop Notices or other liens served upon the County as a result of the Contract;

19.4.1.3 Liquidated damages assessed against the Contractor;

19.4.1.4 The cost of completion of the Contract if there exists reasonable doubt that the Work can be completed for the unpaid balance of the Contract Price or by the completion date;

19.4.1.5 Damage to the County or other contractor(s);

19.4.1.6 Unsatisfactory prosecution of the Work by the Contractor;

19.4.1.7 Failure to store and properly secure materials;

19.4.1.8 Failure of the Contractor to submit, on a timely basis, proper, sufficient, and acceptable documentation required by the Contract Documents, including, without limitation, a Construction Schedule, Schedule of Submittals, Schedule of Values, Monthly Progress Schedules, Shop Drawings, Product Data and samples, Proposed product lists, executed Change Orders, and/or properly completed Elation updates;

19.4.1.9 Failure of the Contractor to maintain Record Drawings;
19.4.1.10 Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment;

19.4.1.11 Unauthorized deviations from the Contract Documents;

19.4.1.12 Failure of the Contractor to prosecute the Work in a timely manner in compliance with the Construction Schedule, established progress schedules, and/or completion dates;

19.4.1.13 Failure to properly pay prevailing wages as defined in Labor Code section 1720 et seq., and/or failure to comply with any other Labor Code requirements,

19.4.1.14 Failure to properly maintain or clean up the Site;

19.4.1.15 Payments to indemnify, defend, or hold harmless the County;

19.4.1.16 Any payments due to the County, including but not limited to payments for failed tests, utilities changes, or permits;

19.4.1.17 Failure to pay Subcontractor(s) or supplier(s) as required by law and by the Contract Documents;

19.4.1.18 Contractor is otherwise in breach, default, or in substantial violation of any provision of this Contract.

19.4.2 Reallocation of Withheld Amounts

19.4.2.1 County may, in its discretion, apply any withheld amount to pay outstanding claims or obligations as defined herein. In so doing, County shall make such payments on behalf of Contractor. If any payment is so made by County, then that amount shall be considered a payment made under Contract by County to Contractor and County shall not be liable to Contractor for any payment made in good faith. These payments may be made without prior judicial determination of claim or obligation. County will render Contractor an accounting of funds disbursed on behalf of Contractor.
19.4.2.2 If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents or fails to perform any provision thereof, County may, after FORTY-EIGHT (48) hours written notice to the Contractor and, without prejudice to any other remedy, make good such deficiencies. The County shall adjust the total Contract Price by reducing the amount thereof by the cost of making good such deficiencies. If County deems it inexpedient to correct Work that is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract Price (of at least one hundred twenty-five percent (125%) of the estimated reasonable value of the nonconforming Work) shall be made therefor.

19.4.3 Payment After Cure
When Contractor removes the grounds for declining approval, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

19.5 Subcontractor Payments

19.5.1 Payments to Subcontractors
No later than ten (10) days after receipt, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor’s portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Sub-subcontractors in a similar manner.

19.5.2 No Obligation of County for Subcontractor Payment
The County shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

19.5.3 Joint Checks
County shall have the right in its sole discretion, if necessary for the protection of the County, to issue joint checks made payable to the Contractor and Subcontractors and
material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the County and a Subcontractor of any tier, any obligation from the County to such Subcontractor, or rights in such Subcontractor against the County.

20. COMPLETION OF THE WORK

20.1 Completion

20.1.1 County will accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of County.

20.1.2 The Work may only be accepted as complete by action of the County Board of Supervisors.

20.1.3 County, at its sole option, may accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of County, except for minor corrective items, as distinguished from incomplete items. If Contractor fails to complete all minor corrective items within thirty (30) days after the date of the County's acceptance of completion, County shall withhold from the final payment one hundred fifty percent (150%) of an estimate of the amount sufficient to complete the corrective items, as determined by County, until the item(s) are completed.

20.1.4 At the end of the thirty-five (35) day period, if there are any items remaining to be corrected, County may elect to proceed as provided herein related to adjustments to Contract Price, and/or County’s right to perform the Work of the Contractor.

20.2 Close-Out Procedures

20.2.1 Punch List

The Contractor shall notify the Architect when Contractor considers the Work complete. Upon notification, Architect will prepare a list of minor items to be completed or corrected (“Punch List”). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

20.2.2 Close-Out Requirements
20.2.2.1 Utility Connections

Buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

20.2.2.2 Record Drawings

20.2.2.2.1 Contractor shall provide exact “as-built” Record Drawings of the Work upon completion of the Project as indicated in the Specifications.

20.2.2.2.2 Contractor is liable and responsible for any and all inaccuracies in as-built Record Drawings, even if inaccuracies become evident at a future date.

20.2.2.2.3 Upon completion of the Work and as a condition precedent to approval of final payment, Contractor shall obtain the Architect’s approval of the corrected prints and employ a competent draftsman to transfer the “as-built” information to the most current version of Autocad that is, at that time, currently utilized for plan check submission by either the County, the Construction Manager and/or the Architect, and submit electronic files. When completed, Contractor shall deliver corrected electronic files acceptable to County with Autocad file to the County.

20.2.2.2.4 Maintenance Manuals: Contractor shall prepare all operation and maintenance manuals and date as indicated in the Specifications.

20.3 Final Inspection

20.3.1 Contractor shall comply with Punch List procedures as provided herein, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of
the Punch List. Upon receipt of Contractor’s written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and acceptance, Architect and Construction Manager will inspect the Work and shall submit to Contractor and County a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

20.3.2 Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the County and Architect, who shall again inspect such Work. If the Architect finds the Work complete and acceptable under the Contract Documents, the Architect will notify Contractor, who shall then jointly submit to the Architect and the County its final Application for Payment.

20.3.3 Final Inspection Requirements

Before calling for final inspection, Contractor shall determine that the following have been performed:

20.3.3.1 The Work has been completed.
20.3.3.2 All life-safety items are completed and in working order.
20.3.3.3 Mechanical and electrical Work are complete and tested, fixtures are in place, connected, and ready for tryout.
20.3.3.4 Electrical circuits scheduled in panels and disconnect switches labeled.
20.3.3.5 Painting and special finishes complete.
20.3.3.6 Doors complete with hardware, cleaned of protective film, relieved of sticking or binding, and in working order.
20.3.3.7 Tops and bottoms of doors sealed.
20.3.3.8 Floors waxed and polished as specified.
20.3.3.9 Broken glass replaced and glass cleaned.
20.3.3.10 Grounds cleared of Contractor’s equipment, raked clean of debris, and trash removed from Site.
20.3.3.11 Work cleaned, free of stains, scratches, and other foreign matter, of damaged and broken material replaced.
20.3.3.12 Finished and decorative work shall have marks, dirt, and superfluous labels removed.

20.3.3.13 Final cleanup, as provided herein.

20.4 Costs of Multiple Inspections

More than two (2) requests of the County to make a final inspection shall be considered an additional service of County, Architect, and/or Construction Manager, and all subsequent costs will be invoiced to Contractor and if funds are available, withheld from remaining payments.

20.5 Partial Occupancy or Use Prior to Completion

20.5.1 County's Rights

The County may occupy or use any completed or partially completed portion of the Work at any stage. The County and the Contractor shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents. Any dispute as to responsibilities shall be resolved pursuant to the Claims and Disputes provisions herein, with the added provision that during the dispute process, the County shall have the right to occupy or use any portion of the Work that it needs or desires to use.

20.5.2 Inspection Prior to Occupancy or Use

Immediately prior to partial occupancy or use, the County, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

20.5.3 No Waiver

Unless otherwise agreed upon, partial or entire occupancy or use of a portion or portions of the Work shall not constitute beneficial occupancy or acceptance of the Work not complying with the requirements of the Contract Documents.

21. FINAL PAYMENT AND RETENTION

21.1 Final Payment
Upon receipt and approval of a valid and final Application for Payment, the Architect will issue a final Certificate of Payment. The County shall thereupon jointly inspect the Work and either accept the Work as complete or notify the Architect and the Contractor in writing of reasons why the Work is not complete. Upon acceptance of the Work of the Contractor as fully complete (that, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the County shall record a Notice of Completion with the County Recorder, and the Contractor shall, upon receipt of final payment from the County, pay the amount due Subcontractors.

21.2 Prerequisites for Final Payment

The following conditions must be fulfilled prior to Final Payment:

21.2.1 A full and final waiver or release of all Stop Notices in connection with the Work shall be submitted by Contractor, including a release of Stop Notice in recordable form, together with (to the extent permitted by law) a copy of the full and final release of all Stop Notice rights.

21.2.1.1 A duly completed and executed conditional waiver and release upon final payment compliant with Civil Code section 3262 from the Contractor and each subcontractor of any tier and supplier to be paid from the current progress payment;

21.2.1.2 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 3262 from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payment; and

21.2.1.3 The Contractor shall have made all corrections to the Work that are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of County required under the Contract Documents.

21.2.2 Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.
21.2.3 Contractor must have completed all requirements set forth under “Close Out Procedures,” including, without limitation, an approved set of complete “as-built” Record Drawings.

21.2.4 Architect shall have issued its written approval that final payment can be made.

21.2.5 The Contractor shall have delivered to the County all manuals and materials required by the Contract Documents.

21.2.6 The Contractor shall have completed final clean up as provided herein.

21.3 Retention

21.3.1 The retention, less any amounts disputed by the County or that the County has the right to withhold pursuant to provisions herein, shall be paid:

21.3.1.1 After approval of the County by the Architect’s Certificate of Payment,

21.3.1.2 After the satisfaction of the conditions set forth herein, and

21.3.1.3 After thirty-five (35) days after the recording of the Notice of Completion by County.

21.3.2 No interest shall be paid on any retention, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the County and the Contractor pursuant to Public Contract Code section 22300.

21.4 Substitution of Securities

The County will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.

22. UNCOVERING OF WORK

If a portion of the Work is covered without Architect approval or not in compliance with the Contract Documents, it must, if required in writing, including by email, by the County or the Architect, be uncovered for the Architect’s observation and be replaced at the Contractor’s expense without change in the Contract Price or Contract Time.
If a portion of the Work has been covered, which the Project Inspector or the Architect has not specifically requested to observe prior to its being covered, the County, Project Inspector, or the Architect may request to see that Work, and it shall be uncovered by the Contractor. If that Work is in accordance with the Contract Documents, costs of uncover and replacement shall, by appropriate Change Order, be charged to the County. If that Work is not in accordance with Contract Documents, the Contractor shall pay these costs unless the condition was caused by the County or a separate contractor, in which event the County shall be responsible for payment of such costs to the Contractor.

23. NONCONFORMING WORK, CORRECTION OF WORK AND COUNTY’S RIGHT TO PERFORM WORK

23.1 Nonconforming Work

23.1.1 Contractor shall promptly remove from Premises all Work identified by County as failing to conform to the Contract Documents whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract Documents without additional expense to the County and shall bear the expense of making good all work of other contractors destroyed or damaged by any removal or replacement pursuant hereto and/or any delays to the County or other Contractors caused thereby.

23.1.2 If Contractor does not remove Work that County has identified as failing to conform to the Contract Documents within a reasonable time, not to exceed FORTY-EIGHT (48) hours, County may remove it and may store any material at Contractor’s expense. If Contractor does not pay expense(s) of that removal within ten (10) days’ time thereafter, County may, upon ten (10) days’ written notice, sell any material at auction or at private sale and shall deduct all costs and expenses incurred by the County and/or County may withhold those amounts from payment(s) to Contractor.

23.2 Correction of Work

23.2.1 Correction of Rejected Work

Pursuant to the notice provisions herein, the Contractor shall promptly correct the Work rejected by the County or the Architect as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Architect’s services and expenses made necessary thereby.
23.2.2 Two-Year Warranty Corrections

If, within two (2) years after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established hereunder, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the County to do so. This period of two (2) years shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation hereunder shall survive acceptance of the Work under the Contract and termination of the Contract. The County shall give such notice promptly after discovery of the condition.

23.3 County's Right to Perform Work

23.3.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this contract, the County, after FORTY-EIGHT (48) hours written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

23.3.2 If it is found at any time, before or after completion of the Work, that Contractor has varied from the Drawings and/or Specifications, including, but not limited to, variation in material, quality, form, or finish, or in the amount or value of the materials and labor used, County may require at its option:

23.3.2.1 That all such improper Work be removed, remade or replaced, and all work disturbed by these changes be made good by Contractor at no additional cost to the County;

23.3.2.2 That the County deduct from any amount due Contractor the sum of money equivalent to the difference in value between the work performed and that called for by the Drawings and Specifications; or

23.3.2.3 That the County exercise any other remedy it may have at law or under the Contract Documents, including but not limited to the County hiring its own forces or another contractor to replace the Contractor’s nonconforming Work, in which case the County shall either issue a deductive Change Order, a Construction Change...
Directive, or invoice the Contractor for the cost of that work. Contractor shall pay any invoices within thirty (30) days of receipt of same or County may withhold those amounts from payment(s) to Contractor.

24. TERMINATION AND SUSPENSION

24.1 County's Right to Terminate Contractor for Cause

24.1.1 Grounds for Termination.

The County, in its sole discretion, may terminate the Contract and/or terminate the Contractor’s right to perform the work of the Contract based upon the following:

24.1.1.1 Contractor refuses or fails to execute the Work or any separable part thereof with sufficient diligence as will ensure its completion within the time specified or any extension thereof, or

24.1.1.2 Contractor fails to complete said Work within the time specified or any extension thereof, or

24.1.1.3 Contractor persistently fails or refused to perform Work or provide material of sufficient quality as to be in compliance with Contract Documents; or

24.1.1.4 Contractor files a petition for relief as a debtor, or a petition is filed against the Contractor without its consent, and the petition not dismissed within sixty (60) days; or

24.1.1.5 Contractor makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency; or

24.1.1.6 Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

24.1.1.7 Contractor fails to make prompt payment to Subcontractors, or for material, or for labor; or
24.1.1.8 Contractor persistently disregards laws, or ordinances, or instructions of County; or

24.1.1.9 Contractor fails to supply labor, including that of Subcontractors, that can work in harmony with all other elements of labor employed or to be employed on the Work; or

24.1.1.10 Contractor or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Contract.

24.1.2 Notification of Termination

24.1.2.1 Upon the occurrence at County's sole determination of any of the above conditions, County may, without prejudice to any other right or remedy, serve written notice upon Contractor and its Surety of County's termination of this Contract and/or the Contractor's right to perform the work of the Contract. This notice will contain the reasons for termination. Unless, within three (3) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to County for the correction of the condition(s) and/or violation(s) be made, this Contract shall cease and terminate. Upon Determination, Contractor shall not be entitled to receive any further payment until the entire Work is finished.

24.1.2.2 Upon Termination, County may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Contract only if Surety:

24.1.2.2.1 Within three (3) days after service upon it of the notice of tender, gives County written notice of Surety’s intention to take over and perform this Contract; and
24.1.2.2 Commences performance of this Contract within (three (3) days from date of serving of its notice to County.

24.1.2.3 If Surety fails to notify County or begin performance as indicated herein, County may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of Contractor and/or its Surety. Contractor and/or its Surety shall be liable to County for any excess cost or other damages the County incurs thereby. Time is of the essence in this Contract. If the County takes over the Work as herein provided, County may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plan, and other property belonging to Contractor as may be on the Site of the Work, in bonded storage, or previously paid for.

24.1.3 Effect of Termination

24.1.3.1 Contractor shall, only if ordered to do so by the County, immediately remove from the Site all or any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The County retains the right, but not the obligation, to keep and use any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The Contractor and its Surety shall be liable upon the performance bond for all damages caused the County by reason of the Contractor’s failure to complete the Contract.

24.1.3.2 In the event that the County shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the County shall not be liable nor account to the Contractor in any way for the time within which, or the manner in which, the Work is performed by the County or for any changes the County may make in the Work or for the money expended by the County in
satisfying claims and/or suits and/or other obligations in connection with the Work.

24.1.3.3 In the event that the Contract is terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by the Contractor.

24.1.3.4 If the expense to the County to finish the Work exceeds the unpaid Contract Price, Contractor and Surety shall pay difference to County within twenty-one (21) days of County's request.

24.1.3.5 The County shall have the right (but shall have no obligation) to assume and/or assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the Contractor under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the County, no Subcontractor shall have any claim against the County or third party for Work performed by Subcontractor or other matters arising prior to termination of the Contract. The County or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the County so elect, the Contractor shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the County may require, for the purpose of fully vesting in the County the rights and benefits of it Subcontractor under Subcontracts or other obligations or commitments. All payments due the Contractor hereunder shall be subject to a right of offset by the County for expenses and damages suffered by the County as a result of any default, acts, or omissions of the Contractor. Contractor must include this assignment provision in all of its contracts with its Subcontractors.

24.1.3.6 The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to County.
24.2 Termination of Contractor for Convenience

24.2.1 County in its sole discretion may terminate the Contract upon three (3) days written notice to the Contractor. Under a termination for convenience, the County retains the right to all the options available to the County if there is a termination for cause. In case of a termination for convenience, the Contractor shall have no claims against the County except:

24.2.1.1 The actual cost for labor, materials, and services performed that is unpaid and can be documented through timesheets, invoices, receipts, or otherwise, and

24.2.1.2 Five percent (5%) of the total cost of work performed as of the date of termination, or five percent (5%) of the value of the Work yet to be performed, whichever is less. This five percent (5%) amount shall be full compensation for all Contractor's and its Subcontractor(s)’ mobilization and/or demobilization costs and any anticipated loss profits resulting from termination of the Contractor for convenience.

24.3 Emergency Termination of Public Contracts Act of 1949

24.3.1 This Contract is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

24.3.1.1 Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

24.3.1.2 Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.
24.3.1.3 Compensation to the Contractor shall be determined at the sole discretion of County on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the County’s discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price shall control. The County, at its sole discretion, may adopt the Contract Price as the reasonable value of the work done or any portion thereof.

25. CLAIMS AND DISPUTES

25.1 Performance During Claim Process
The Contractor shall continue to perform its Work under the Contract and shall not cause a delay of the Work during any dispute, claims definition, negotiation, mediation, or arbitration proceeding, except by written agreement by the County.

25.2 Definition of Claim

25.2.1 For purposes of this section, a claim means a separate demand by the Contractor for:

25.2.1.1 A time extension,

25.2.1.2 Payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or

25.2.1.3 Payment of money that the County disputes is owing.

25.3 Claim Presentations

25.3.1 If Contractor intends to claim an increase in the Contract Price or Contract Time for any reason including, without limitation, the acts of County or its agents, Contractor shall, within ten (10) days after the event giving rise to the claim, give notice of the claim in writing and submit to the County a written statement of the damage sustained or time requested. On or before twenty (20) days after Contractor’s written notice of claim, Contractor shall file with the County an itemized statement of the details and amounts of its claim for any increase in the Contract Price of Contract Time. Contractor must timely submit the Notice of Claim and the substantiating documentation for any claim. Otherwise, Contractor shall have waived and
relinquished its claim against the County and Contractor's claims for compensation or an extension of time shall be forfeited and invalidated, and Contractor shall not be entitled to consideration for payment or time on account of the instant matter.

25.3.2 The attention of the Contractor is drawn to Government Code section 12650, et seq. regarding penalties for false claims.

25.3.3 Contractor shall file with the County any written claim, including the documents necessary to substantiate it, on or before the day of final payment on the Contract.

25.3.4 The Contractor shall not cause a delay of the Work during any dispute, claims definition, negotiation, mediation, or arbitration proceeding, except by written agreement by the County.

25.3.5 The Contractor shall bind all its Subcontractors, material persons, and suppliers to the provisions of this section on mediation and arbitration and will hold the County harmless against disputes and claims by Subcontractors, material persons, or suppliers.

25.4 Claim Resolution

25.4.1 In the event of a dispute between the parties as to performance of the Work, the interpretation of this Contract, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve the dispute by those procedures set forth in Public Contract Code section 20104, if applicable. Pending resolution of the dispute, if the dispute is not resolved, Contractor agrees it will neither rescind the Contract nor stop the progress of the Work, but will allow determination by a court of the State of California having competent jurisdiction of the dispute, after the Project has been completed, and not before.

25.4.2 Public Works Claims of $375,000 or Less

25.4.2.1 For all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a Contractor and a local agency, the procedure set forth in Public Contract Code section 20104 et seq. shall apply:

25.4.2.1.1 For claims of less than fifty thousand dollars ($50,000), the County shall respond in writing within forty-five (45) days of receipt of the claim or may request in writing within thirty (30) days of receipt of the claim any additional documentation supporting the claim or
relating to defenses or claims the County may have against the claimant.

25.4.2.1.1 If additional information is required, it shall be requested and provided by mutual agreement of the parties.

25.4.2.1.2 The County's written response to the documented claim shall be submitted to the claimant within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by the claimant to produce the additional information, whichever is greater.

25.4.2.1.2 For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred Seventy-five thousand dollars ($375,000), the County shall respond in writing to all written claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the claim any additional documentation supporting the claim or relating to defenses or claims the County may have against the claimant.

25.4.2.1.2.1 If additional information is required, it shall be requested and provided upon mutual agreement of the County and the claimant.

25.4.2.1.2.2 The County's written response to the claim, as further documented, shall be submitted to the claimant within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant to produce the additional information.
or requested documentation, whichever is greater.

25.4.2.2 If the claimant disputes the County's written response, or the County fails to respond within the time prescribed, the claimant may so notify the County, in writing, either within fifteen (15) days of receipt of the County's response or within fifteen (15) days of the County's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the County shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

25.4.2.3 Following the meet and confer conference, if the claim or any portion of it remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions the running of the time within which a claim must be filed shall be tolled from the time the claimant submits its written claim until the time the claim is denied, including any period of time utilized by the meet and confer process.

25.4.2.4 For any civil action filed to resolve claims filed pursuant to this section, within sixty (60) days, but no earlier than thirty (30) days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties
fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

25.4.2.5 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of the Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986, (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

25.4.2.6 The County shall not fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the Contract Documents. In any suit filed pursuant to this section, the County shall pay interest at the legal rate on any arbitration award or judgment. Interest shall begin to accrue on the date the suit is filed in a court of law.

25.4.3 Public Works Claims Over $375,000

25.4.3.1 For all claims of over three hundred seventy-five thousand dollars ($375,000) which arise between a Contractor and the County, the following procedure shall apply:

25.4.3.1.1 The parties agree to first endeavor to settle the dispute in an amicable manner by mediation under the Construction Industry Mediation Rules of the American Arbitration Association before having recourse to arbitration or a judicial forum. The claim or dispute shall be identified in writing to the County within thirty (30) days of discovery and shall be mediated within one hundred and twenty (120) days of discovery.

25.4.3.2 The parties further agree that all Contractors, Subcontractors, Sub-subcontractors, suppliers, and material persons whose portion of the Work amounts to five thousand dollars ($5,000) or more, and their insurers and their sureties, shall agree to mediation as the first
method of dispute resolution on all claims in excess of three hundred seventy-five thousand dollars ($375,000).

26. LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

26.1 Wage Rates, Travel, and Subsistence

26.1.1 Pursuant to the provisions of article 2 (commencing at section 1770), chapter 1, part 7, division 2, of the Labor Code of California, the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification, or type of worker needed to execute this Contract are on file at the County’s principal office and copies will be made available to any interested party on request. Contractor shall obtain and post a copy of these wage rates at the job site.

26.1.2 Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half times the above specified rate of per diem wages, unless otherwise specified. The holidays upon which those rates shall be paid need not be specified by the County, but shall be all holidays recognized in the applicable collective bargaining agreement. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.

26.1.3 Contractor shall pay and shall cause to be paid each worker engaged in Work on the Project not less than the general prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations (“DIR”) (“Director”), regardless of any contractual relationship which may be alleged to exist between Contractor or any Subcontractor and such workers.

26.1.4 Contractor shall pay and shall cause to be paid to each worker needed to execute the Work on the Project travel and subsistence payments, as such travel and subsistence payments are defined in the applicable Collective Bargaining Agreements filed with the Department of Industrial Relations in accordance with Labor Code section 1773 et seq.

26.1.5 If during the period this bid is required to remain open, the Director determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract is to be performed, such change shall not alter the wage rates in the Notice to Bidders or the Contract subsequently awarded.
26.1.6 Pursuant to Labor Code section 1775, Contractor shall, as a penalty to County, forfeit the statutory amount for each calendar day, or portion thereof, for each worker paid less than the prevailing rates, determined by the County and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by Contractor or by any Subcontractor under it. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate, shall be paid to each worker by Contractor.

26.1.7 Any worker employed to perform Work on the Project, which Work is not covered by any classification listed in the general prevailing wage rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to Work to be performed by him, and such minimum wage rate shall be retroactive to time of initial employment of such person in such classification.

26.1.8 Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by section 3093, and similar purposes.

26.1.9 Contractor shall post at appropriate conspicuous points on the Site of Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, Contractor shall post a sign-in log for all workers and visitors to the Site, a list of all subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).

26.2 Hours of Work

26.2.1 As provided in article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal days work. The time of service of any worker employed at any time by Contractor or by any Subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by Contractor to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.
26.2.2 Contractor shall keep and shall cause each Subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of County and to the Division of Labor Standards Enforcement of the DIR.

26.2.3 Pursuant to Labor Code section 1813, Contractor shall as a penalty to the County forfeit the statutory amount for each worker employed in the execution of this Contract by Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code.

26.2.4 Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the County.

26.3 Payroll Records

26.3.1 County will use the Alameda County Contract Compliance System, including the Elation Systems, Inc. program, to monitor contract and labor compliance. Contractor shall use the Compliance System to meet County’s requirements, and shall participate in training as directed by County in order to become and remain competent in the use of the Compliance System.

26.3.2 Pursuant to the provisions of section 1776 of the Labor Code, notice is hereby given that Contractor shall prepare and provide to the County and shall cause each Subcontractor performing any portion of the Work under this Contract to prepare and provide to the County an accurate and certified payroll record (“CPR(s)”), showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work.

26.3.3 The CPRs enumerated hereunder shall be certified and shall be provided to the County on a weekly basis. The CPRs from the Contractor and each Subcontractor for each week shall be provided on or before Wednesday of the week following the week covered by the CPRs. County shall not make any payment to Contractor until:
26.3.3.1  Contractor and/or its Subcontractor(s) provide CPRs acceptable to the County, and

26.3.3.2  The County is given sufficient time to review and/or audit the CPRs to determine their acceptability. Any delay in Contractor and/or its Subcontractor(s) providing CPRs to the County in a timely manner will directly delay the County’s review and/or audit of the CPRs and Contractor’s payment.

26.3.4  All CPRs shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

26.3.4.1  A certified copy of an employee’s CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

26.3.4.2  CPRs shall be made available for inspection or furnished upon request to a representative of County, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the Department of Industrial Relations.

26.3.4.3  CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the County, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records reimburse the costs of preparation by Contractor, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Contractor.

26.3.5  The form of certification for the CPRs shall be as follows:

I, (Name-Print), the undersigned, am the (Position in business) with the authority to act for and on behalf of (Name of business and/or Contractor), certify under penalty of perjury that the records or copies thereof submitted and consisting of (Description, number of pages) are the originals or true, full, and correct copies of
the originals which depict the payroll record(s) of actual disbursements by way of cash, check, or whatever form to the individual or individual named, and (b) we have complied with the requirements of sections 1771, 1811, and 1815 for any work performed by our employees on the Project.

Date:  
Signature:

(Section 16401 of the California Code of Regulations)

26.3.6 Each Contractor shall file a certified copy of the CPRs with the entity that requested the records within ten (10) days after receipt of a written request.

26.3.7 Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by County, Division of Apprenticeship Standards, or Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual’s name, address, and social security number. The name and address of Contractor awarded Contract or performing Contract shall not be marked or obliterated.

26.3.8 Contractor shall inform County of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address.

26.3.9 In the event of noncompliance with the requirements of this section, Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply with this section. Should noncompliance still be evident after the ten (10) day period, Contractor shall, as a penalty to County, forfeit twenty-five dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of Division of Apprenticeship Standards or Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

26.3.10 It shall be the responsibility of Contractor to ensure compliance with the provisions of Labor Code section 1776.

26.4 Apprentices

26.4.1 Contractor acknowledges and agrees that, if this Contract involves a dollar amount greater than or a number of working days greater than that
specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of Contractor to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.

26.4.2 Apprentices of any crafts or trades may be employed and, when required by Labor Code section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.

26.4.3 Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.

26.4.4 Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprentice agreements under chapter 4 (commencing at section 3070), division 3, of the Labor Code, are eligible to be employed. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

26.4.5 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving the Contractor or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.

26.4.6 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractor may be required to make contributions to the apprenticeship program.

26.4.7 If Contractor or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:

26.4.7.1 Be denied the right to bid on any subsequent project for one (1) year from the date of such determination;

26.4.7.2 Forfeit as a penalty to County the full amount as stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California
Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.

26.4.8 Contractor and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

26.4.9 Contractor shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and title 8, California Code of Regulations, section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California 94102.

26.5 Non-Discrimination

26.5.1 Contractor herein agrees not to discriminate in its recruiting, hiring, promotion, demotion, or termination practices on the basis of race, religious creed, national origin, ancestry, sex, age, or physical handicap in the performance of this Contract and to comply with the provisions of the California Fair Employment and Housing Act as set forth in part 2.8 of division 3 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246, and all administrative rules and regulations found to be applicable to Contractor and Subcontractor.

26.5.2 Special requirements for Federally Assisted Construction Contracts: During the performance of this Contract, Contractor agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

26.6 Labor First Aid


27. MISCELLANEOUS

27.1 Assignment of Antitrust Actions

27.1.1 Section 7103.5(b) of the Public Contract Code states:
In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

27.1.2 Section 4552 of the Government Code states:
In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

27.1.3 Section 4553 of the Government Code states:
If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

27.1.4 Section 4554 of the Government Code states:
Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

27.1.5 Under this Article, “public purchasing body” is County and “bidder” is Contractor.
27.2 Excise Taxes
If, under Federal Excise Tax Law, any transaction hereunder constitutes a sale on which a Federal Excise Tax is imposed and the sale is exempt from such Federal Excise Tax because it is a sale to a State or Local Government for its exclusive use, County, upon request, will execute documents necessary to show (1) that County is a political subdivision of the State for the purposes of such exemption, and (2) that the sale is for the exclusive use of County. No Federal Excise Tax for such materials shall be included in any Contract Price.

27.3 Taxes
Contract Price is to include any and all applicable sales taxes or other taxes that may be due in accordance with section 7051 of the Revenue and Taxation Code; Regulation 1521 of the State Board of Equalization or any other tax code that may be applicable.

27.4 Shipments
All shipments must be F.O.B. destination to Site or sites, as indicated in the Contract Documents. There must be no charge for containers, packing, unpacking, drayage, or insurance. The total Contract Price shall be all inclusive (including sales tax) and no additional costs of any type will be considered.

END OF DOCUMENT
# SECTION 00 72 13

## GENERAL CONDITIONS

### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CONTRACT TERMS AND DEFINITIONS</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Definitions</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Laws Concerning The Contract</td>
<td>5</td>
</tr>
<tr>
<td>1.3 No Oral Agreements</td>
<td>6</td>
</tr>
<tr>
<td>1.4 No Assignment</td>
<td>6</td>
</tr>
<tr>
<td>1.5 Notice And Service Thereof</td>
<td>6</td>
</tr>
<tr>
<td>1.6 No Waiver</td>
<td>7</td>
</tr>
<tr>
<td>1.7 Substitutions For Specified Items</td>
<td>7</td>
</tr>
<tr>
<td>1.8 Materials and Work</td>
<td>7</td>
</tr>
<tr>
<td>2. COUNTY</td>
<td>9</td>
</tr>
<tr>
<td>2.1 Occupancy</td>
<td>9</td>
</tr>
<tr>
<td>3. ARCHITECT</td>
<td>9</td>
</tr>
<tr>
<td>3.1 Role and Authority</td>
<td>9</td>
</tr>
<tr>
<td>3.2 Interpretations</td>
<td>9</td>
</tr>
<tr>
<td>3.3 Laws</td>
<td>9</td>
</tr>
<tr>
<td>3.4 Communications</td>
<td>9</td>
</tr>
<tr>
<td>4. CONSTRUCTION MANAGER</td>
<td>10</td>
</tr>
<tr>
<td>4.1 Role and Authority</td>
<td>10</td>
</tr>
<tr>
<td>4.2 Authority to Reject</td>
<td>10</td>
</tr>
<tr>
<td>4.3 If No Construction Manager</td>
<td>10</td>
</tr>
</tbody>
</table>
5. INSPECTIONS AND TESTS
   5.1 Tests and Inspections
   5.2 Costs for After Hours and/or Off Site Inspections

6. CONTRACTOR
   6.1 Status of Contractor
   6.2 Contractor’s Supervision
   6.3 Duty to Provide Fit Workers
   6.4 Purchase of Materials and Equipment
   6.5 Documents On Work Site
   6.6 Preservation of Records
   6.7 Integration of Work
   6.8 Obtaining of Permits and Licenses
   6.9 Work to Comply With Applicable Laws and Regulations
   6.10 Safety/Protection of Persons and Property
   6.11 Working Evenings and Weekends
   6.12 Badge Policy For Contractors
   6.13 County Drug Policy - Drug Free Work Place
   6.14 Cleaning Up

7. SUBCONTRACTORS
   7.1 Contractor Shall Provide Subcontractor Information
   7.2 No Contractual Relationship Between County and Subcontractors
   7.3 Contractor Binds Every Subcontractor by Berms of Contract
   7.4 No Waiver of Obligations
Highland ATR Make Ready Work
Fairmont Campus – Building C & E Project # 2043-02

7.5 Contractor to Familiarize Itself with Laws ......................................................22
7.6 Subcontractor Substitutions .............................................................................22
7.7 Subcontractor Coordination ............................................................................23
7.8 Subcontractor Relations ...................................................................................23
7.9 Assignment or Termination .............................................................................23

8. OTHER CONTRACTS/CONTRACTORS ..............................................................23
8.1 County Right to Perform .................................................................................23
8.2 Protection of Work ..........................................................................................23
8.3 Coordination with Other Work .......................................................................24
8.4 Measurement of Work Performed ..................................................................24
8.5 Knowledge of Other Work ..............................................................................24
8.6 No Exclusive Occupancy of Site ....................................................................24

9. DRAWINGS AND SPECIFICATIONS.............................................................24
9.1 List of all Drawings .........................................................................................24
9.2 Technical and Trade Words .............................................................................25
9.3 Trade Name or Trade Term .............................................................................25
9.4 The Naming of any Material and/or Equipment Shall Mean Furnishing ........25
9.5 Contract Documents are Complementary .....................................................25
9.6 Drawings and Specifications are Intended to Comply With All Laws ..........25
9.7 Plans, Drawings, Designs, Specifications are County Property ......................26
9.8 Order of Precedence .........................................................................................26
9.9 Resolution of Discrepancy or Ambiguity ........................................................26
9.10 County Clarification .......................................................................................26
10. CONTRACTOR’S SUBMITTALS AND SCHEDULES.................................26

10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values ........27
10.2 Monthly Progress Schedule(s) .................................................................30
10.3 Material Safety Data Sheets (MSDS) .......................................................30

11. SITE ACCESS, CONDITIONS, AND REQUIREMENTS ......................30

11.1 Site Investigation .....................................................................................30
11.2 Soils Investigation Report .................................................................31
11.3 Access to Work ......................................................................................31
11.4 Layout and Field Engineering ..............................................................31
11.5 Utilities ..................................................................................................32
11.6 Sanitary Facilities ..................................................................................32
11.7 Surveys ..................................................................................................32
11.8 Regional Notification Center ..............................................................32
11.9 Existing Utility Lines ............................................................................33
11.10 Notification ..........................................................................................33
11.11 Hazardous Materials ...........................................................................34
11.12 No Signs ..............................................................................................34

12. TRENCHES ..........................................................................................34

12.1 Trenches Greater Than Five Feet .........................................................34
12.2 Excavation Safety ...............................................................................34
12.3 No Tort Liability of County .................................................................34
12.4 No Excavation Without Permits ..........................................................34
12.5 Discovery of Hazardous Waste and/or Unusual Conditions ..............35
13. INSURANCE AND BONDS .................................................................35
  13.1 Insurance .....................................................................................35
  13.2 Contract Security - Bonds .........................................................39
14. WARRANTY/GUARANTEE/INDEMNITY ........................................39
  14.1 Warranty/Guarantee .................................................................39
  14.2 Indemnity ..................................................................................40
15. TIME ...............................................................................................41
  15.1 Notice to Proceed .................................................................41
  15.2 Computation of Time / Adverse Weather ...............................42
  15.3 Hours of Work ........................................................................43
  15.4 Progress and Completion .........................................................43
  15.5 Expeditious Completion .........................................................44
16. EXTENSIONS OF TIME – LIQUIDATED DAMAGES ...........44
  16.1 Liquidated Damages .................................................................44
  16.2 Excusable Delay ......................................................................44
  16.3 No Additional Compensation for Delays Within Contractor’s Control ....45
  16.4 Float or Slack in the Schedule ................................................46
17. CHANGES IN THE WORK .............................................................46
  17.1 No Changes Without Authorization ........................................46
  17.2 Architect Authority to Order Minor Changes .......................47
  17.3 Change Orders .........................................................................47
  17.4 Construction Change Directives ............................................47
  17.5 Force Account Directives .......................................................47
17.7 Proposed Change Order ................................................................. 49
17.6 Price Request ........................................................................... 49
17.8 Format for Proposed Change ..................................................... 50
17.9 Change Order Certification .......................................................... 51
17.10 Determination of Change Order Cost ......................................... 52
17.11 Allowable Costs ..................................................................... 52
17.12 Deductive Change Orders ........................................................... 53
17.13 Discounts, Rebates, and Refunds ............................................. 54
17.14 Accounting Records ................................................................. 54
17.15 Notice Required ..................................................................... 54
17.16 Applicability to Subcontractors ................................................. 54
17.17 Alteration to Change Order Language ...................................... 55
17.18 Failure of Contractor to Execute Change Order ....................... 55
18. REQUEST FOR INFORMATION ..................................................... 55
18.1 Coordination of Contract Work .................................................... 55
18.2 Reference Contract Documents .................................................. 55
18.3 Contractor Responsible For Costs .............................................. 55
19. PAYMENTS ............................................................................... 55
19.1 Contract Price .......................................................................... 55
19.2 Applications for Progress Payments .......................................... 56
19.3 Progress Payments ................................................................... 59
19.4 Decisions to Withhold Payment ................................................ 62
19.5 Subcontractor Payments ............................................................ 64
20. COMPLETION OF THE WORK ................................................................. 65
   20.1 Completion ....................................................................................... 65
   20.2 Close-Out Procedures ........................................................................ 65
21. FINAL PAYMENT AND RETENTION ..................................................... 68
   21.1 Final Payment ................................................................................... 68
   21.2 Prerequisites for Final Payment .......................................................... 69
   21.3 Retention .......................................................................................... 70
   21.4 Substitution of Securities .................................................................... 70
22. UNCOVERING OF WORK ....................................................................... 70
23. NONCONFORMING WORK, CORRECTION OF WORK AND COUNTY’S
    RIGHT TO PERFORM WORK .................................................................. 71
   23.1 Nonconforming Work ........................................................................ 71
   23.2 Correction of Work ............................................................................ 71
   23.3 County’s Right to Perform Work ......................................................... 72
24. TERMINATION AND SUSPENSION ........................................................ 73
   24.1 County’s Right to Terminate Contractor for Cause .............................. 73
   24.2 Termination of Contractor for Convenience ....................................... 77
   24.3 Emergency Termination of Public Contracts Act of 1949 .................... 77
25. CLAIMS AND DISPUTES ...................................................................... 78
   25.1 Performance During Claim Process ................................................... 78
   25.2 Definition of Claim ............................................................................ 78
   25.3 Claim Presentations ............................................................................ 78
   25.4 Claim Resolution ................................................................................ 79
26. LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS 83
26.1 Wage Rates, Travel, and Subsistence .........................................................83
26.2 Hours of Work .........................................................................................84
26.3 Payroll Records ......................................................................................85
26.4 Apprentices ..............................................................................................87
26.5 Non-Discrimination ...............................................................................89
26.6 Labor First Aid ........................................................................................89
27. MISCELLANEOUS .....................................................................................89
  27.1 Assignment of Antitrust Actions ............................................................89
  27.2 Excise Taxes ..........................................................................................91
  27.3 Taxes ......................................................................................................91
  27.4 Shipments ...............................................................................................91
SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents must be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions
B. Special Conditions.
C. Construction Waste Management Document 01 35 13.26
D. LEED™ Requirements 01 35 13.23 [IF APPLICABLE]
E. General Commissioning Requirements 01 91 13 [IF APPLICABLE]

1.02 SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract may consist of the following:

General construction including abatement, demolition and improvements per plans and specifications.

1.03 CONTRACTS

A. Perform the Work under a single, fixed-price Contract.

B. Any bid item may be deleted in total or in part prior to or after award of Contract without compensation in any form or adjustment of other bid items or prices.

1.04 WORK BY OTHERS

A. Work on the Project that will be performed and completed prior to the start of the Work of this Contract:

(1) None

B. Work on the Project that will be performed by others concurrent with the Work of this Contract:

(1) Furniture
(2) Information Technology: Pulling wires and including plates
(3) Infrastructure Tie-In for Fire Alarm

1.05 CODES, REGULATIONS, AND STANDARDS
A. The codes, regulations, and standards adopted by the state and federal agencies having jurisdiction shall govern minimum requirements for this project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the County and the Architect.

B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

1.06 PROJECT RECORD DOCUMENTS:

A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:

(1) Contract Drawings.

(2) Record Drawings Including Addenda and all Current Changes.

(3) Specifications.

(4) Addenda.

(5) Change Orders and other modifications to the Contract including RFI’s, IB’s, ASI’s.

(6) Reviewed shop drawings, product data, and samples.

(7) Field test records.

(8) Inspection certificates.

(9) Manufacturer's certificates.

B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.

C. Contractor shall record information concurrent with construction progress.

D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:

(1) Manufacturer's name and product model and number.
(2) Product substitutions or alternates utilized.

(3) Changes made by Addenda and Change Orders and written directives.

1.07 EXAMINATION OF EXISTING CONDITIONS

A. The Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site or of the streets or roads approaching the Site.

B. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.

C. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the County and the Architect.

1.08 CONTRACTOR'S USE OF PREMISES

A. If unoccupied and only with County’s prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the County chooses to beneficially occupy any building(s), Contractor must obtain the County’s written approval for Contractor's use of spaces and types of operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

B. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor.

C. Contractor shall not interfere with use of or access to occupied portions of the building(s) or adjacent property.

D. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.

E. No one other than those directly involved in the demolition and construction, or specifically designated by the County or the Architect shall be permitted in the areas of work during demolition and construction activities.

F. The Contractor shall install the construction security fence and maintain that it will be locked when not in use. Keys to this fencing will be provided to the County.
1.09 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the County's satisfaction.

B. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the County for disposition of same as indicated in the General Conditions.

C. Contract shall employ utility locating services to locate any underground utilities within the limits of work prior to the start of any excavating work. Contractor shall subsequently be responsible for repairs of any located underground utilities damaged by construction activities.

1.10 UTILITY SHUTDOWNS AND INTERRUPTIONS

A. Contractor shall give the County a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. The County will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.

B. Contractor shall obtain County's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with County's use of the building(s) or adjacent facilities.

1.11 STRUCTURAL INTEGRITY

A. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.

B. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

1.12 WORK SEQUENCE
A. Contractor shall be responsible for compliance with all requirements outlined in the hazardous materials sections of the Contract Documents.

B. Construct Work in stages and at times to accommodate County operation requirements during the construction period; coordinate construction schedule and operations with the County.

C. Phasing Schedule included in item 1.13 must be adhered to. Moving dates are included in the Phasing Schedule to show planned windows for relocation of building occupants. Liquidated damages may be assessed as described in the Contract Documents for failure to achieve milestone dates.

D. This facility may be occupied during construction. In that case: County will provide contractor with schedule of uses; at the site during the construction period; Contractor is to coordinate work with the County and maintain safe access to all buildings at all times and to not disrupt ongoing uses. Contractor must comply with the following requirements:

(1) If Contractor must shut down power to any part of the site, Contractor must provide temporary power for that section of the site.

(2) Scope of work includes utility and systems upgrade and replacement that may impact the entire site. Work must be coordinated so that site-wide systems remain functional at all times until new systems work is complete and tested.

### 1.13 PHASING SCHEDULE

<table>
<thead>
<tr>
<th>No.</th>
<th>Milestones</th>
<th>Start</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Phase I Building E Construction</td>
<td>02-04-09</td>
<td>05-19-09</td>
</tr>
<tr>
<td>2</td>
<td>Phase I Owner Move In</td>
<td>05-20-09</td>
<td>05-26-09</td>
</tr>
<tr>
<td>3</td>
<td>Phase II Building C Construction</td>
<td>05-20-09</td>
<td>10-02-09</td>
</tr>
<tr>
<td>4</td>
<td>Phase II Owner Move In</td>
<td>10-05-09</td>
<td>10-09-09</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. The “Start” dates included in the phasing schedule indicate the date that work is to begin on the identified milestone scope of work.

B. The “Complete” dates included in the phasing schedule indicates that the following must be complete:

(3) The entire scope of work for the milestone work must be complete, including all utility work up to the building and all final termination and operation of all building systems.
(4) Fire alarm, telephone, data, public address and all other systems final connections must be complete and systems programmed and tested so that fully functional systems are provided.
(5) All punch list work must be complete.
(6) Maintenance and Operations Manuals must be submitted to the County.
(7) All required testing must be complete.
(8) All training for all building systems must be complete.
(9) A minimum of six (6) keys for each and every lock must be provided. Where fewer keys are specified elsewhere in the Contract Documents, provide a minimum of 6 keys. All keys must be permanently stamped with three (3) characters identification as directed by the County.

C. Record Documents for the scope of work of each Milestone included in the Phasing Schedule must be submitted within one week after completion of the Milestone. AutoCAD files to be provided at Final Contract Completion.

D. Notice to proceed date is the anticipated date of issuance of the Notice to Proceed. If the Notice to Proceed is issued after the date indicated in the Phasing schedule, the start and completion dates of Milestone No. 1 and No. 8 will be adjusted by the number of days that the Notice to Proceed is delayed.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT
WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

1.1.1 Prior to the start of a project, the Contractor shall prepare Construction Logistic Drawings and must obtain approval from the County’s Representative for any and all necessary arrangements for routing of workers, equipment, and material to the job location, schedule for elevator usage; and procedures in clean and sterile areas. In addition, the Contractor shall become familiar with applicable Alameda County Medical Center policies and procedures and comply with the following for the duration of the Project. The Contractor’s Quality Control Manager shall designate a person responsible for assuring the implementation of environmental controls needed for environmental control and mitigation.

1.1.2 Related Sections include the following:

1.1.2.1 Section 01 00 10 (Summary of Work)
1.1.2.2 Section 01 41 00 (Regulatory Requirements).
1.1.2.3 Section 01 31 00 (Project Management and Coordination)
1.1.2.4 Section 01 31 19 (Project Meetings).
1.1.2.5 Section 01 45 00 (Quality Control)
1.1.2.6 Section 01 73 29 (Cutting and Patching)

1.1.3 References


1.1.3.2 Association for Professionals in Infection Control and Epidemiology, Inc. (APIC), Washington, D.C.

1.1.3.3 APIC State-of-the-Art Report: The role of infection control during construction in health care facilities by Judene Mueller Bartley, MS, MPH, CIC

1.1.3.4 California Code of Regulations, Title 17, Public Health.
1.1.3.5 Joint Commission on Accreditation of Healthcare Organizations (JCAHO), Comprehensibe Accreditation Manual for Hospitals, latest edition, JCAHO, Oak Brook Terrace, IL, 60181.

1.1.3.6 U.S. Department of Health and Human Services, Centers for Disease Control, Guidelines for Environmental Infection Control in Health-Care Facilities, Centers for Disease Control, Atlanta, GA, 2003.

1.1.3.7 Alameda County Medical Center Construction and Renovation Infection Control Guidelines, November 25, 2002 (rev. September 2005) or most current.

1.1.3.8 Alameda County Medical Center Contracted Services Personnel Facility Handbook, March 1, 2006.

1.1.3.9 Alameda County Medical Center, Authority Control Committee, 9/05.

1.1.3.10 Alameda County Medical Center, Construction and Renovation Infection Control Guidelines, 9/05.

1.1.3.11 Alameda County Medical Center, Infection Control – Employee Health Program, 9/05.

1.1.3.12 Alameda County Medical Center, Hand Hygiene, 9/05.

1.1.3.13 Alameda County Medical Center, The Infection Control Program, 9/05.

1.1.3.14 Alameda County Medical Center, Mission and Philosophy Statements, and Scope of Services.

1.2 SUBMITTALS

1.2.1 Medical Safety and Infection Control Program: Within fifteen (15) Days after Notice to Proceed with the Work, but not less than ten (10) Days before gaining access to the site to start Work, Contractor shall submit its written program with detailed outline of procedures for complying with County’s and Alameda County Medical Center’s requirements. The program shall be coordinated with the Contractor’s Contract Schedule.

1.2.1.1 The Contractor shall revise and resubmit the Medical Safety and Infection Control Program to address changes requested by the County.

1.2.1.2 Enforcement of the protocols and procedures contained in the Medical Safety and Infection Control Program shall be implemented through measures incorporated into the Contractor’s Quality Control Plan.
1.3 COMMUNICATION, COORDINATION AND PLANNING

1.3.1 The Contractor shall comply with supplemental instructions from the County concerning the facility’s medical safety and infection control. When necessary to prevent unsafe incidents, supplemental instructions may include work stoppages to reschedule and/or redirect the Work.

1.4 TRAINING

1.4.1 Provide training and orientation on infection control and ACMC procedures for all personnel employed by the Contractor, subcontractors, and any other personnel entering ACMC in support of the Contractor.

1.5 UTILITY INTERRUPTIONS AND PRIOR NOTIFICATION

1.5.1 Shutdown or interruption of water, chilled water, steam, electrical services, natural gas, compressed air, vacuum, oxygen, nitrous oxide, or any utility system requires written notice a minimum of fourteen (14) Business Days in advance. Contractor is not authorized to interrupt utility services without this advance notification and the prior approval of the County’s Representative.

1.6 ENVIRONMENTAL CONTROLS

1.6.1 Noise: All work shall be performed with a minimum of noise or disruption to normal activities in the surrounding areas. In and around patient care areas, extraordinary care and concern must be exercised. If nursing department staff, medical staff, or administrative staff indicates a problem due to these conditions, the activity must be stopped until the County’s Representative is contacted and satisfactory arrangements are determined. Contractor will give thirty (30) Day notice for any work to be done outside the hours of 7am and 7pm.

During the construction, extraordinary care and concern must be exercised to not disrupt the patient population. The Contractor shall develop a Workplan, for the County’s approval, which demonstrates noise considerations for the patients’ sleep period and the ongoing function of the facility. The following noise control procedures shall be employed:

1.6.1.1 Maximum increase in noise shall be limited to approximately 15db over ambient and shall not exceed regulatory standards for noise.

1.6.1.2 The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

1.6.1.3 All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where
appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

1.6.1.4 All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.

1.6.1.5 Electrically-powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible and needed to control excessive noise.

1.6.1.6 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

1.6.1.7 Construction site and access road speed limits shall be established and enforced during the construction period.

1.6.1.8 The hours of material transport shall be restricted to the periods and days permitted by both this contract and local noise or other applicable ordinance.

1.6.1.9 The use of noise producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

1.6.1.10 No project related public address or music system shall be audible at any adjacent noise-sensitive receptor.

1.6.2 Dust: Dust control is a critical activity given the proximity of construction to hospital operations. The Contractor shall prepare a submittal that identifies source air pollution and related pollution reduction measures. The following dust control measures shall be employed:

1.6.2.1 Implement fugitive dust control measures as provided in Bay Area Air Quality Management District (BAQMD).

1.6.2.2 Develop a staging area, vehicle and truck routes, and a daily meeting to assure all applicable control measures are established for that particular workday.

1.6.2.3 Dust barriers shall be provided by the Contractor as necessary to contain dust within the construction site.

1.6.2.4 If necessary, install a water misting system along fence perimeter or any other necessary area to prevent fugitive dust from creating a nuisance to the public or to hospital staff or patients.
1.6.2.5 Reduce the use of diesel fuel powered equipment and use equipment with alternative fuel whenever practical to minimize diesel exhaust emissions in areas close proximity to the operating Alameda County Medical Center.

1.6.2.6 Turn off equipment when not in use for long periods of time. No idling of diesel-fueled equipment for durations longer than five minutes when within 100 feet of any low level air intake or building opening (doors and windows).

1.6.2.7 Control fugitive dust at active soil grading/excavation areas using water in a manner that would not impact soil compaction. Continuous wet-down may be required in the area of construction activity.

1.6.2.8 Use ground-covering such as mulch, wood chips, straws, hydro-seeding, surfactants, or plastic sheeting to cover inactive exposed areas to minimize fugitive dust.

1.6.2.9 Provide drainage for erosion control measures.

1.6.2.10 Use sand bags, as necessary, along site perimeter to keep soil on site.

1.6.2.11 Provide gravel entry way into construction site entrance to reduce/eliminate mud and sediment carried off site by vehicles.

1.6.2.12 Cover top of haul trucks to eliminate wind-blown fugitive dust.

1.6.2.13 Schedule haul trucks and material delivery trucks to prevent traffic congestion and impede the normal operation of the Alameda County Medical Center. Set up truck queuing area and have staff communicate via cell phone for efficiency and less traffic at ACMC.

1.6.2.14 As necessary, use street sweepers along travel routes in general vicinity of project area.

1.6.2.15 All vehicle routes are to be watered for dust control. All existing roadway and parking surfaces impacted by construction activity are to be swept and kept free of debris and dust. All areas within the construction site are to be broom swept as required to keep dust and debris to a minimum.

1.6.2.16 Limit the number of haul trucks on site and establish a haul route. Install a gravel or base road on site for loading trucks. Haul route shall be reviewed and approved by Alameda County Medical Center.

1.6.2.17 Place on-site portable toilets away from building air intakes, windows, and entryway.

1.6.2.18 All stockpiles shall be kept moist throughout the day to minimize particulate matter emissions. Wet down stockpiles on a regular basis including prior to end of work day.
1.6.2.19 Haul roads shall be paved, lined with gravel or base material, or kept moist to minimize particulate matter emissions.

1.6.2.20 Where practical, use paddle-wheel scrapers instead of traditional scrapers to minimize fugitive dust and reduce exhaust emissions.

1.6.2.21 Handling of soil shall be kept to a minimum.

1.6.2.22 Provide a boundary/zone where equipment shall not enter because of proximity to active hospital operation, and if necessary, equipment shall operate on alternative fuel to reduce diesel particulate matter.

1.6.3 Demolition: The Contractor shall plan the demolition activities to minimize environmental impacts on hospital operations in accordance with Sections 01 73 29 Cutting and Patching. The Contractor has the option of recycling demolished building material, but must do so in compliance with these Contract Documents and regulations. In addition to the above mitigation measures, the following applies to demolition activities:

1.6.3.1 Provide the County’s Representative with fourteen (14) Day advance written notice of demolition work, so that they take the necessary steps to prevent airborne contaminants from entering nearby buildings.

1.6.3.2 Identify the material that are recyclable and if possible, send to recycling facility.

1.6.3.3 Waste and debris shall be segregated, processed, and recycled to minimize waste volume and number of trips.

1.6.4 Odors: When odors are a concern, arrangements shall be made by the Contractor for their containment or control. Where this is not feasible, specific arrangements should be made to minimize the disturbance of normal Alameda County Medical Center activities. Where controllable, fumes and odors shall not be allowed to migrate to occupied areas. The Contractor shall immediately notify the County’s Representative. If necessary, ACMC Facilities Management shall modify adjacent air circulation systems as deemed necessary during the construction period.

1.6.5 Vibrations: The impacts of vibration for hospital replacement and renovation activities will be limited. The most sensitive area will be surgeries and MRIs within 200 feet of construction. If vibration becomes an impact to hospital operations, the Contractor shall stop operations, reschedule and/or implement the following with the approval of the County Representative:

1.6.5.1 Route heavily loaded trucks and equipment away from the most sensitive medical facilities if possible.
1.6.5.2 Phase demolition, earthmoving and ground-impacting operations so as not to occur in the same time period, to the extent practicable. The total vibration level produced could be less when each vibration source operates separately.

1.6.5.3 Select demolition methods not involving impact, where practicable

1.6.5.4 Avoid vibratory rollers and packers near vibration-sensitive areas.

1.7 SHIPMENTS AND MATERIALS

1.7.1 Equipment and materials shall not be shipped to ACMC unless specific arrangements are made for receipt and acceptance of these items. When such shipments are authorized, they are the total responsibility of the Contractor. The placement of such materials shall be limited to the specific lay-down and staging areas as defined in the Construction Logistic Drawings unless approved in advance by the ACMC. The County accepts no responsibility for the receipt, storage, or protection of the Contractor’s materials and equipment.

1.8 SALVAGE AND DISPOSAL

1.8.1 All existing property of the Alameda County Medical Center that is removed from the construction site and has been identified to be salvaged by the County shall be delivered to a secure site as specified by the County’s Representative.

1.8.2 Construction debris, or material that has no redeemable value, is to be placed in Contractor-furnished refuse bins for safe and legal removal from the premises. ACMC refuse bins may not be utilized unless so authorized by the County.

1.9 PARKING

1.9.1 The County’s Representative will meet with the Contractor to determine parking requirements.

1.9.2 The primary parking and storage area shall be designated areas.

1.9.3 The County’s Representative will notify Alameda County Engineering Department of parking area proposed to be used by construction personnel if at variance with this procedure.

1.9.4 Contractor and related personnel shall park in authorized areas only.

1.9.5 Parking in Garage parking spaces is prohibited.

1.10 SANITARY

1.10.1 Contractor shall provide temporary toilet facilities adjacent to all projects. The Contractor will not be allowed to use the ACMC restroom facilities whether in existing facilities or those being constructed.
1.10.2 Contractor shall submit proposed location of temporary toilet(s) to the County’s Representative for approval.

1.10.3 Construction personnel will not be allowed to use restroom facilities for personal or equipment clean-up.

1.10.4 Sanitary Facilities shall be in accordance with OSHA regulations.

1.11 CAFETERIA AND FOOD

1.11.1 Construction personnel will not be allowed access to the ACMC cafeteria.

1.11.2 Construction personnel shall police their own areas. All cups, cans, paper, wrappers, and discarded food must be placed in trash receptacles at the end of each break.

1.11.3 Contractors shall submit the proposed location of any break and eating areas, which shall be outside of the Project boundaries, to the County’s Representative for approval.

1.11.4 Construction personnel are not allowed to have food within the ACMC facilities, whether those facilities exist or are under construction.

1.12 BADGES

1.12.1 Badges shall be worn by all of the Contractor’s personnel and all of their subcontractors’ personnel.

1.12.2 Special badges shall be issued to construction personnel to identify management positions and when the term of construction exceeds six months.

1.13 PHONES

1.13.1 No cellular telephones shall be operated in patient care areas.

1.13.2 Construction personnel shall pay for separate phone services. Pay phones are not available for Contractor use. Pay phones on site are to be reserved for staff, patients and their families.

1.14 SMOKING AND TOBACCO

1.14.1 Smoking is not permitted indoors.

1.14.2 Smoking is not permitted within the facilities under construction.

1.14.3 Smoking is permitted in designated areas. Contractor to contact Alameda County Medical Center for approved smoking areas.

1.14.4 All ashes and cigarette butts must be deposited in approved receptors.
1.14.5 No chewing tobacco or spitting of tobacco is permitted.

1.15 ELEVATORS

1.15.1 ACMC will inform the Contractor as to which elevators will be available for use.

1.16 SECURITY

1.16.1 All personnel must obey and act immediately upon any request by security.

1.16.2 A list of emergency phone numbers will be provided by the Engineering Department Service Center.

1.17 SAFETY

1.17.1 General

1.17.1.1 Watch for guests and patients.

1.17.1.2 Work only where there is a positive barrier separation between construction activities and others.

1.17.1.3 Clean up all areas immediately in occupied areas.

1.17.1.4 Do not drape cords across corridors. All cords must be attached to the ceiling or taped to the floor (use tape with non-marring adhesive).

1.17.1.5 Maintain a minimum of 8’-0” clear within all corridors.

1.17.1.6 Do not leave materials or equipment in the corridor.

1.17.2 Safety equipment and consideration should include, but are not limited to:

1.17.2.1 Anyone known to be under the influence of alcohol or drugs shall be dismissed from the Project at once and not be allowed to return.

1.17.2.2 Offensive language is not permitted in any area where it may be overheard by patients, staff or visitors.

1.17.2.3 Provide adequate emergency first aid equipment.

1.17.2.4 Post location and emergency phone numbers for local medical care.

1.17.2.5 Monitor safe ladder usage.

1.17.2.6 Provide exhaust controls for equipment.

1.17.2.7 Monitor noise levels and establish safe limitations.
1.17.2.8 Ensure adequate ventilation for air contaminants.

1.17.2.9 Insist on personal protective equipments, such as hard hats, safety shoes, and eye, ear, and face protection equipment.

1.17.2.10 Safety nets, belts, and lifelines shall be used, as appropriate.

1.17.2.11 Provide adequate emergency fire protection equipment.

1.17.2.12 Post location and emergency phone numbers for local fire departments.

1.17.2.13 Provide safe storage for all flammable and combustible materials.

1.17.2.14 Insist on safe and proper use of hand power tools and electrical drop cords.

1.17.2.15 Operation of cranes, derricks, and hoists should be in accordance with manufacturer’s recommendations and appropriate ANSI and Cal/OSHA regulations.

1.17.2.16 All construction operations and personnel are subject to CAL-OSHA and ACMC Environmental Health & Safety regulations.

1.17.2.17 Provide adequate barricades and safety lighting at all open trenches adjacent to public access (must accommodate proper warning for blind students).

1.17.2.18 Properly fence entire confines of project site so as to avoid public access or unauthorized personnel.

1.17.2.19 All wall, floor, and ceiling penetrations shall be sealed to maintain fire and smoke ratings in accordance with CBC, NFPA 99 and Life Safety Code.

1.17.2.20 All emergency exit passages must be maintained free of obstructions.

1.17.2.21 Provide barricades and fencing in accordance with the Construction Logistic Drawings.

1.17.3 Fire Prevention During Welding, Cutting, and Other Hot Work

1.17.3.1 All hot work shall be in accordance with ACMC Contracted Services Personnel Facility Handbook.

1.17.3.2 Hot work includes welding, heat treating grinding, thawing pipe, powder-driven fasteners, hot riveting, and similar applications producing a spark, flame, or heat.

1.17.3.3 Hot work shall be performed in a designated area that is approved for hot work by the County’s Representative.
1.17.3.4 The Contractor shall ensure that only approved apparatus, such as torches, manifolds, regulators, or pressure-reducing valves, and acetylene generators, are used.

1.17.3.5 The Contractor shall ensure that all individuals involved in hot work are:

1.17.3.5.1 Trained in the safe operation of their equipment and the safe use of the process.

1.17.3.5.2 Have an awareness of the inherent risks involved and understand the emergency procedures in the event of a fire.

1.17.3.5.3 Are aware if any special risks, such a flammable materials or hazardous conditions at the hot work site.

1.17.4 Emergency Codes Procedures

1.17.4.1 Emergency Codes are announced over the public address system. Any and all times that a Code is announced:

1.17.4.1.1 Do not use the elevators.

1.17.4.1.2 Quickly remove all equipment and obstructions from corridors and doorways.

1.17.4.1.3 Maintain these conditions until “code clear” is announced.

1.17.5 Alarms

1.17.5.1 Fire alarm signals are initiated manually or automatically through smoke and heat sensing devices.

1.17.5.2 Construction activities often create dust or smoke, which will activate the fire alarm system. Prior to conducting any work, notify Alameda County Engineering Department of the scope of work, the duration and location of the work, and determine if the work will create dust or smoke. If the work will create dust or smoke, proceed as follows:

1.17.5.2.1 For localized operations, cover the smoke detector with a dust cover approved by Alameda County Engineering Department and OSHPD FLSO. Remove promptly when work is complete.

1.17.5.2.2 For larger areas, the detection system must be disabled. This is to be done only by Facilities Management staff. Even though the system is disabled, dust covers must be installed on all area smoke detectors.
1.17.5.2.1.1 Contractor shall provide a continuous fire-watch until the system is restored.

1.17.5.2.1.2 Remove dust covers promptly when work is complete.

1.17.5.2.1.3 Detection system shall be restored to proper working order prior to releasing the fire-watch.

1.17.6 Interim Life Safety Measures

1.17.6.1 Interim Life Safety Measures (ILSMs) are a series of 11 administrative actions required to temporarily compensate for the significant hazards posed by existing NFPA 101 2000 Life Safety Code (LSC) deficiencies or construction activities. Implementation of ILSM is required in or adjacent to all construction areas and throughout buildings with existing LSC deficiencies. ILSMs apply to all personnel (including construction workers), must be implemented upon project development, and must be continuously enforced through project completion. ILSMs are intended to provide a level of life-safety comparable to that described in Chapters 1-7, 31, and the applicable occupancy chapters of the LSC. Each ILSM action must be documented through written policies and procedures. The ILSMs are:

1.17.6.1.1 Ensuring free and unobstructed exits. Personnel receive additional training when alternative exits are designated. Buildings or areas under construction must maintain escape routes for construction workers at all times. Means of exiting construction areas are inspected daily.

1.17.6.1.2 Ensuring free and unobstructed access to emergency services and for fire, police, and other emergency forces.

1.17.6.1.3 Ensuring fire alarm, detection, and suppression systems are in good working order. A temporary but equivalent system shall be provided when any fire system is impaired. Temporary systems must be inspected and tested monthly.

1.17.6.1.4 Ensuring temporary partitions are smoke tight and built of noncombustible or limited combustible materials that will not contribute to the development or spread of fire.

1.17.6.1.5 Providing additional fire-fighting equipment and training personnel in its use.

1.17.6.1.6 Prohibiting smoking according to EC.5 throughout the organization’s buildings, and in and adjacent to construction areas.
1.17.6.1.7 Developing and enforcing storage, housekeeping, and debris removal practices that reduce the building’s flammable and combustible fire load to the lowest feasible level.

1.17.6.1.8 Conducting a minimum of two fire drills per shift per quarter.

1.17.6.1.9 Increasing hazard surveillance of buildings, grounds, and equipment with special attention to excavations, construction areas, construction storage, and field offices.

1.17.6.1.10 Training personnel to compensate for impaired structural or compartmentalization features of fire safety.

1.17.6.1.11 Conducting organization wide education programs to promote awareness of LSC deficiencies, construction hazards, and ILSMs.

1.17.6.2 The Contractor must maintain the ILSM Daily Monitoring Form on site for inspection by Environmental Health and Safety (EH&S) and submit it to the County and Alameda County Engineering Department monthly and provide a complete set complied as a report at each project close-out.

1.17.6.3 Fire Drills shall be conducted in the construction zones and areas adjacent to the construction zones.

1.17.7 Infection Control

1.17.7.1 Infection control is critical in all hospital areas. Dust in ceilings and dust potentially entrained into buildings, as well as construction debris, can contain fungal spores or bacteria which, if inhaled by patients, can cause pneumonia and even death. Construction, demolition, remodeling and landscaping activities in and around hospitals have been implicated as a risk factor for certain nosocomial infections in immunocompromised patients. The most notable organism is aspergillus, a fungus ubiquitous in ceiling and wall spaces where dust has accumulated. Activities that disturb accumulation of dust may cause fungal spores to become airborne, inhaled by the susceptible individual, and cause disease.

1.17.7.2 Patients most at risk include those with congenital or acquired immunodeficiency, premature neonates and those receiving immunosuppressive therapy.

1.17.7.3 Activities that disturb the environment where settled dust is found may cause spores to become airborne and increase risk for nosocomial infection. Activities include:

1.17.7.3.1 Demolition, construction activities, grading, excavation, landscaping or remodeling,
1.17.7.3.2 Exposure of ceiling spaces, pipe chases, etc. and/or
1.17.7.3.3 Storage and removal of uncovered or partially covered debris from construction areas.
1.17.7.4 See Section 3.1 for Infection Control planning and implementation requirements for this project

1.17.8 Project Inspector
1.17.8.1 Provision of inspectors by the County, if any, or by Office of Statewide Health Planning and Development (OSHPD) pursuant to provisions of this section shall be subject to following:

1.17.8.1.1 Contractor shall allow inspectors full access to project at all times Work is in progress.
1.17.8.1.2 Contractor shall not take any direction, approvals or disapprovals from inspectors.
1.17.8.1.3 Contractor shall not rely on inspectors to ensure Work is completed in accordance with Contract documents.

1.17.8.2 Acts or omissions of any inspector (including, without limitation, inspector’s failure to observe or report deficiencies in Contractor’s Work) shall not relieve Contractor from its responsibility to complete Work in accordance with Contract documents.

1.17.9 Directory For Assistance
1.17.9.1 A list of emergency phone numbers will be provided by the Engineering Department Service Center.

PART 2 - PRODUCTS
Not used.

PART 3 - EXECUTION
3.1 INFECTION CONTROL
3.1.1 The Contractor shall prepare an Infection Control Plan for the entire Project that complies with, at a minimum, Alameda County Medical Center’s Infection Control Risk Assessment Policy. (See 1.1 C.) The policy requires an Infection Control Risk Assessment (ICRA) to be completed for each OSHPD project. The Acute Care Tower and the Central Energy Plant are Type D Projects (Major Demolition & Construction).
The Contractor must meet, at a minimum, the Infection Control requirements of CDC, JCAHO and AIA guidelines for this type of construction.

3.1.2 The Contractor shall implement the conditions of approval identified through the ICRA permit issued by the Infection Control Officer. The Contractor shall incorporate these requirements into their Quality Control Plan.

3.1.3 ACMC Infection Control or Environmental Health & Safety may modify infection control requirements based on patient and employee safety needs. Any modification does not relieve the Contractor of compliance with proper control procedures. Infection Control or Environmental Health & Safety have the authority to stop work immediately should a clear safety health violation be observed during performance of the Work.

3.1.4 Based on the degree of patient risk and the type of work to be performed, ICRA conditions of approval may include, but are not limited to, the following requirements:

3.1.4.1 Before any construction on project site begins, all workers who will be working on site shall attend a mandatory meeting held by County Infection Control authorities, for training and instruction on precautions to be taken. Contractor is responsible for making sure that all workers receive the training.

3.1.4.2 Develop and implement an appropriate airborne testing program for fungi and respirable dust including baseline, during construction, and post-construction measurements. All samples will be submitted to an independent laboratory accredited by the American Industrial Hygiene Association (AIHA) under the Environmental Microbiology Laboratory Accreditation Program (EMLAP).

3.1.4.3 Disturbed or removed materials shall be cautiously removed, contained and immediately removed to the Contractor’s rubbish containment area.

3.1.4.4 In areas undergoing or potentially affected by construction, renovation, excavation, grading or landscaping activities:

3.1.4.4.1 The existing supply ductwork serving the space shall be partially restricted to reduce the incoming air, as necessary. Temporary filter(s) shall be installed on the ducted returns to collect dust particles from the construction area(s). The overall construction space shall be placed under a negative pressure, when feasible, to minimize contaminating the adjacent areas. Filter media are to be changed by the Contractor as required to maintain negative pressure. Pressure relationships will be checked and logged daily by the Contractor.

3.1.4.4.2 Maintain negative air pressure within work site utilizing HEPA-equipped air filtration units.
3.1.4.4.3 Use wet method to control dust while cutting.

3.1.4.4.4 Control moisture of materials during the construction process.

3.1.4.4.5 Seal unused doors with non-marring duct tape.

3.1.4.4.6 Isolate HVAC system in work area to prevent contamination of duct system.

3.1.4.4.7 Complete all critical barriers before construction begins.

3.1.4.4.8 Seal holes, pipes, conduits, and punctures prior to the start of work.

3.1.4.4.9 Barriers must be installed whenever a worker must crawl into or place equipment through any ceiling space in patient care areas.

3.1.4.4.10 Barriers must be completely sealed from floor to ceiling to prevent dust from seeping into patient care areas. The seals must be maintained throughout the construction period.

3.1.4.4.11 When openings are made into existing ceilings, provide fire retardant, dust-tight polyethylene covering sealed at edges to enclose and dust. Provide thorough cleaning of existing surfaces that become exposed to dust before County’s room occupation.

3.1.4.4.12 Whenever access panels are opened for Work above ceilings, provide a polyethylene shroud taped to floor and ceiling enclosing ladder and sealing off opening. All polyethylene shall be fire retardant.

3.1.4.4.13 Ceiling access panels must be closed when unattended.

3.1.4.4.14 Ceiling tiles that are removed must be covered over with plastic and sealed until replaced.

3.1.4.4.15 Construct an anteroom for cleaning equipment and clothing using a HEPA-equipped vacuum cleaner that all personnel are required to pass through as they enter and leave the work area. Alternatively, personnel can wear cloth or paper coveralls that are removed each time they leave the work area. Wet mop or HEPA vacuum the anteroom daily.

3.1.4.4.16 During demolition, dust-producing work, or work in the ceiling, disposable shoe covers and coveralls must be worn and removed in the anteroom when leaving the work area.
3.1.4.17 Dust will be kept to a minimum by frequent wet-mopping and placing door mats at entrances.

3.1.4.18 Carpets at barricade entrances shall be vacuumed daily using a HEPA filter equipped vacuum cleaner.

3.1.4.19 Dust tracked outside of barriers shall be removed immediately.

3.1.4.20 Direct construction and debris traffic away from patient care areas.

3.1.4.21 Debris shall be removed outside of normal work hours. Debris shall be transported in tightly covered containers to contain dust.

3.1.4.22 Removal of construction barriers and ceiling protection shall be done carefully, outside of normal work hours to minimize spreading of dirt and debris associated with construction. Vacuum and clean all surfaces free of dust after removal.

3.1.4.23 Wipe horizontal and patient care surfaces with a hospital-approved disinfectant.

3.1.4.24 Remove blockage and filters from air vents.

3.1.4.5 Problems or questions regarding construction activities should be directed to the County’s Representative.

3.1.4.6 If any pre-existing microbiological growth is noted during construction activities, the ACMC Infection Control Officer or the County’s Representative must be notified immediately prior to any disturbance of the material.

3.1.4.7 During any of the construction activities described above, Design/Builder must implement an infection compliance monitoring program to ensure compliance with the Infection Control Plan.

3.1.4.8 If portable infectious material containment cubes are to be used, a monitoring, maintenance and servicing protocol must be included in the ICRA.

3.1.4.9 The ACMC Infection Control Officer or the County’s Representative have authority to immediately stop work at any time if it is determined that activities or conditions or other emergency situations exist that could impact the health of patients in the facility.

3.1.4.10 The ACMC Infection Control Officer or the County’s Representative have authority to stop work at any time if it is determined that work is not being performed according to these specifications or applicable regulations.
stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the County. Standby time required for resolving deficiencies shall be at the Contractor's expense.

3.1.5 The Contractor shall notify the County’s Representative, Facilities Management, Environmental Health and Safety, and Infection Control before work begins on any construction projects adjacent to patient care areas to establish all necessary and appropriate protective measures to minimize or eliminate risk of nosocomial infections.

3.1.6 The U.S. Department of Health and Human Services, Centers for Disease Control, has published *Guidelines for Environmental Infection Control in Health-Care Facilities*. The tables below, which are taken from the CDC guidelines, list the types of measures that are typically taken to implement infection control programs. These are guidelines to assist the Contractor in their submittal as noted in paragraph 1.2.
Table 2: Strategies to Reduce Dust & Moisture Intrusion During External Demolition & Construction (Adapted from CDC Guidelines Table 8)

<table>
<thead>
<tr>
<th>Item</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust-generating Equipment</td>
<td>Prior to placing dust-generating equipment, evaluate the location to ensure that dust produced by the equipment will not enter any hospital building through open doorways or windows, or though ventilation air intakes.</td>
</tr>
<tr>
<td>Construction Materials Storage</td>
<td>Locate this storage away from the facility and ventilation air intakes.</td>
</tr>
<tr>
<td>Adjacent Air Intakes</td>
<td>Seal off affected intakes, if possible. Take no action without the approval of County Representative.</td>
</tr>
<tr>
<td>Environment</td>
<td>Determine how environmental issues may affect the project such as prevailing winds and outdoor temperatures.</td>
</tr>
<tr>
<td>HVAC Systems</td>
<td>Determine location of air intakes for the hospital. Consult with the Alameda County Engineering Department about pressure differentials and air recirculation options; Alameda County Engineering Department shall be responsible to keep the existing building air pressure positive to outside air. Contractor shall assist in determining pressure requirements. Pressure gradients between clean/dirty areas must meet current requirements. (e.g. 0.01 inches of water)</td>
</tr>
</tbody>
</table>
| Filters                     | Alameda County Engineering Department shall ensure that existing building filters are properly installed;  
|                             | • Design-Builder shall record status of existing building filters prior to beginning work.  
|                             | • Design-Builder shall change temporary and roughing filters frequently to prevent dust build-up on high-efficiency filters. |
| Windows                     | Locate any potential infiltration points pre-construction such as windows and doors. Seal and caulk to prevent entry of airborne fungal spores. |
| Doors                       | When construction activities may impact a nearby building or when working in an existing building, keep doors closed as much as possible; do not prop open; seal and caulk unused doors (i.e., those that are not designated as emergency exits). Use mats with tacky surfaces at outside entrances. |
| Water Utilities             | Note location relative to construction area to prevent intrusion of dust into water systems. |
| Medical Gas Piping          | Ensure that these lines/pipes are insulated during periods of vibration. Isolate as much as practical.                                            |
| Rooftops                    | Temporarily close off during active demolition/construction sites; avoid rooftops.                                                              |
| Dust Generation             | Provide methods (e.g., misting the area with water) to minimize dust.                                                                         |
| Immunocompromised Patients  | Design-Builder shall coordinate work with the County to allow staff and patients to:  
|                             | • use walk-ways protected from demolition/construction sites;  
|                             | • avoid outside areas close to these sites; avoid rooftops.                                                                                  |
| Pedestrian Traffic          | Close off entry ways as needed to minimize dust intrusion.                                                                                  |
| Truck Traffic               | Reroute if possible, or arrange for frequent street cleaning.                                                                               |
| Education | Encourage reporting of hazardous or unsafe incidents associated with construction. Educate staff and construction workers about the importance of adhering to infection control measures during the project. |

1 Contamination of water pipes during demolition activities has been associated with health-care-associated transmission of Legionella.
### Table 3 – Infection Control Measures for Internal Construction & Repair Projects (Adapted from CDC Guidelines Table 9)

<table>
<thead>
<tr>
<th>Item</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare for the Project</td>
<td>Use a multi-disciplinary team approach to incorporate infection control into the project. Conduct the risk assessment and a preliminary walk-through with project managers and staff.</td>
</tr>
<tr>
<td>Issue Hazard &amp; Warning Notices</td>
<td>Post signs to identify construction areas and potential hazards. Mark detours requiring pedestrians to avoid the work area.</td>
</tr>
<tr>
<td>Identify Services and/or Utilities</td>
<td>Determine which essential services or utilities could be affected that are necessary for the delivery of patient care in the short or long term.</td>
</tr>
<tr>
<td>Relocate High-Risk Patients as Needed, If work is in or Adjacent to a PE</td>
<td>Identify activities occurring in sensitive areas (e.g. Surgery, Oncology, Intensive Care) and Identify target patient populations for relocation based on the risk assessment. Arrange for the transfer in advance to avoid delays. At-risk patients should wear protective respiratory equipment (e.g., a high-efficiency mask) when outside their Protective Environment (PE) rooms.</td>
</tr>
<tr>
<td>Establish Alternate Traffic Patterns for Staff, Patients, Visitors &amp; Construction Workers</td>
<td>Determine appropriate alternate routes from the risk assessment. Designate areas (e.g., hallways, elevators, and entrances/exits) for construction worker use. Do not transport patients on the same elevator with construction materials and debris.</td>
</tr>
<tr>
<td>Erect Appropriate Barrier Containment</td>
<td>Use fire retardant prefabricated plastic units or plastic sheeting for short-term projects that will generate minimal dust. Use durable rigid barriers for ongoing, long-term projects.</td>
</tr>
<tr>
<td>Establish Proper Ventilation / Remodel Construction</td>
<td>Shut off return air vents, if possible, and seal around grilles. Exhaust air and discharge to the outside, if possible. If re-circulated air from the construction zone is unavoidable, use a pre-filter and a HEPA filter before the air returns to the HVAC system. When vibration-related work is being done that may dislodge dust in the ventilation system or when modifications are made to ductwork serving occupied spaces, install filters on the supply air grilles temporarily. Set pressure differentials so that the contained work area is under negative pressure. Use air flow monitoring devices to verify the direction of the air pattern. Monitor temperature, air changes per hour (ACH), and humidity levels (humidity levels should be &lt;65%). Use portable, industrial grade HEPA filters in the adjacent area and/or the construction zone for additional ACH. Keep windows closed, if possible.</td>
</tr>
<tr>
<td>Control Solid Debris</td>
<td>When replacing filters, place the old filter in a bag prior to transport and dispose as a routine solid waste. Clean the construction zone daily or more often, as needed. Designate a removal route for small quantities of solid debris. Mist debris and cover disposal carts before transport (i.e., leaving the construction zone). Use window chutes and negative pressure equipment for removal of larger pieces of debris while maintaining pressure differentials in the construction zone.</td>
</tr>
<tr>
<td>Item</td>
<td>Recommendation</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Control Water Damage</strong></td>
<td>Schedule debris removal to periods when patient exposure to dust is minimal. Make provisions for dry storage of building materials. Do not install wet, porous building materials (i.e., sheet rock). Replace water-damaged porous building materials if they cannot be completely dried out within 72 hours.</td>
</tr>
<tr>
<td><strong>Control Dust in Air and on Surfaces</strong></td>
<td>Monitor the construction area daily for compliance with the infection-control plan. Protective outer clothing for construction workers shall be removed before entering clean areas. Use mats with tack surfaces within the construction zone at the entry; cover sufficient area so that both feet make contact with the mat while walking through the entry. Clean the construction zone and all areas used by construction workers with a wet mop. If the area is carpeted, vacuum daily with a HEPA-filter equipped vacuum. Provide temporary essential services (e.g., toilets) and worker conveniences (e.g., vending machines) in the construction zone as appropriate. Damp-wipe tools if removed from the construction zone or left in the area. Ensure that construction barriers remain well sealed; use particle sampling as needed. Ensure that the clinical laboratory is free from dust contamination.</td>
</tr>
<tr>
<td><strong>Complete the Project</strong></td>
<td>Flush the main water system to clear dust-contaminated lines. Terminally clean the construction zone before the construction barriers are removed. Check for visible mold/mildew and eliminate if present. Verify appropriate ventilation parameters for the new area as needed. Do not accept ventilation deficiencies, especially in special care areas. Clean or replace HVAC filters using proper dust-containment procedures. Remove the barriers and clean the area of any dust generated during this work. Ensure that the designated air balances in the operating rooms (OR) and protective environments (PE) are achieved before occupancy. Commission the space as indicated especially in the OR and PE, ensuring that the room’s required engineering specifications are met. Ensure that the building envelope has been protected at all times from moisture intrusion during construction.</td>
</tr>
</tbody>
</table>
UNIT PRICES AND ALTERNATES

PART I – ALTERNATES

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;
B. Special Conditions;
C. Bid Form;
D. Instruction to Bidders.

1.02 DESCRIPTION

The items of work indicated below propose modifications to, substitutions for, additions to and/or deletions from the various parts of the Work specified in other Sections of the Specifications. The acceptance or rejection of any of the alternates is strictly at the option of the County subject to County's acceptance of Contractor's stated prices contained in this Proposal.

1.03 GENERAL

Where an item is omitted, or scope of Work is decreased, all Work pertaining to the item whether specifically stated or not, shall be omitted and where an item is added or modified or where scope of Work is increased, all Work pertaining to that required to render same ready for use on the Project in accordance with the intention of the Drawings and Specifications shall be included in an agreed upon price amount.

1.04 BASE BID

The Base Bid includes all work required to construct the Project completely and in accordance with the Contract Documents.

1.05 ALTERNATES

A. Add Alternate 1. [FILL IN OR MODIFY AS APPROPRIATE]
The above Alternate descriptions are general in nature and for reference purposes only. The Contract Documents, including, without limitation, the Drawings and Specifications, must be referred to for the complete scope of Work.

PART 2 - UNIT PRICING

2.01 GENERAL

Contractor shall completely state all required figures based on Unit Prices listed below. Where scope of Work is decreased, all Work pertaining to the item, whether specifically stated or not, shall be omitted and where scope of Work is increased, all work pertaining to that item required to render same ready for use on the Project in accordance with intention of Drawings and Specifications shall be included in an agreed upon price amount.

2.02 UNIT PRICES

Furnish unit prices for each of the named items on a square foot, lineal foot, or per each basis, as applies. Unit prices shall include all labor, materials, services, profit, overhead, insurance, bonds, taxes, and all other incidental costs of Contractor, subcontractors, and supplier(s).

[FILL IN OR MODIFY AS APPROPRIATE]

END OF DOCUMENT
1. **PART 1 - GENERAL**

1.01 **SUMMARY**

A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.

1. Development of schedule, cost loading of the schedule, monthly payment requests and project status reporting requirements of the Contract shall employ scheduling as required in this Document.

2. The Schedule shall be cost loaded based on Schedule of Values as approved by the County.

3. Submit schedules and reports as specified in section 00 72 13 (General Conditions.)

B. Upon Award of Contract, Contractor shall immediately commence development of Initial Schedule to ensure compliance with schedule submittal requirements.

C. Related Sections

1. Section 00 72 13 General Conditions
2. Section 01 00 10: Summary of Work
3. Section 01 31 19: Project Meetings
4. Section 01 33 00: Submittals

1.02 **GENERAL**

A. Progress Schedule shall be based on and incorporate milestone and completion dates specified in Contract Documents.

B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in Section 00 52 13 (Agreement) and Section 01 00 10 Summary of Work, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by the County. Any such agreement shall be formalized by a Change Order.
1. The County is not required to accept an earlier (advanced) schedule, i.e., one that shows early completion dates for the Contract Times.

2. Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier (advanced) schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in earlier (advanced) schedule but within the Contract Times.

3. A schedule showing the work completed in less than the Contract Times, which has been accepted by the County, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and Contract Completion. Project Float is a resource available to both the County and Contractor.

C. Float Ownership: Neither the County nor Contractor owns float. The Project owns the float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.

D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.

E. Failure of Progress Schedule to include any element of the Work or any inaccuracy in Progress Schedule will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. The County's acceptance of Schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests, and shall not, in any manner, impose a duty of care upon the County, or act to relieve Contractor of its responsibility for means and methods of construction.

F. Transmit each item under form approved by the County.

1. Identify Project with the County Contract number, and name of Contractor.

2. Provide space for Contractor's approval stamp and the County's review stamps.

3. Submittals received from sources other than Contractor will be returned to Contractor without the County's review.
1.03 INITIAL AND ORIGINAL SCHEDULE

A. Initial Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to thirty (30) days after the Notice to Proceed.

B. Indicate detailed plan for the Work to be completed in first thirty (30) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; and procurement of materials and equipment. Show Work beyond thirty (30) days in summary form.

C. Original Schedule shall be submitted for review no later than first progress payment.

D. All schedules shall be time-scaled.

E. All schedules shall be cost loaded. Accepted cost loaded schedule will be used as basis for monthly progress payments. Use of Initial Schedule for progress payments shall not exceed thirty (30) days.

F. The County and Contractor shall meet to review and discuss the Schedules within ten (10) working days after it has been submitted to the County.

1. The County's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).

2. Contractor shall make corrections to Schedule necessary to comply with Contract requirements and shall adjust Schedule to incorporate any missing information requested by the County. Contractor shall resubmit Initial Schedule if requested by the County.

G. If Contractor is of the opinion that any of the Work included on its Schedule has been impacted, Contractor shall submit to the County schedule fragment and narrative in accordance with Article 1.08 of this Section. The fragment shall be based on the most current update of the Initial Schedule.

1.04 CONSTRUCTION SCHEDULE FORMAT AND LEVEL OF DETAIL

A. The Construction Schedule is to indicate all separate fabrication and field construction activities required for completion of the work, including but not limited to the following:

1. All Contractor, Subcontractor and assigned Contractor work shall be shown in a logical work sequence that demonstrates a coordinated plan of work for all contractors.
2. Activities related to the delivery of the County-furnished equipment to be contractor-installed per Contract shall be shown.

3. All activities shall be identified through codes or other identification to indicate the building (i.e. buildings, sitework), area (i.e. first floor, second floor, exterior), CSI Division and Contractor/subcontractor responsibility to which they pertain.

4. Schedule must show logic dependencies (or relationships) and logic ties between activities. Open ended activities will not be permitted.

5. Contractor shall break up the work schedule into activities of durations of no more than fourteen (14) calendar days each, except for non-field construction activities or as otherwise deemed acceptable by the County.

6. No more than fifteen percent (15%) of the schedule activities are to be considered critical.

7. A tabular report must be forwarded with each schedule update. Format of tabular report to be as requested by the County and to be generated by Primavera Scheduling software.

B. Seasonal weather shall be considered in the planning and scheduling of all work influenced by high or low ambient temperatures or presence of high moisture for the completion of the work within the allotted contract time.

C. In conformance with the Contract Documents Contractor shall furnish a breakdown of the bid by assigning dollar values (cost estimated) to each applicable network activity, which cumulatively equals the bid. Upon acceptance by the County, the values will be used as the basis for determining progress payments. Contractor's overhead, profit, and cost of bonds and insurance, shall be prorated through all activities.

D. Failure by Contractor to include any element of work required for performance of the work on the detailed construction schedule shall not excuse Contractor from completing all work required within the Contract time.

E. A four week "short interval" detailed daily bar chart schedule shall be updated and issued weekly. This schedule is to include work performed during the previous week, work to be performed during the current week and work to be performed in the next two weeks.

F. Contractor shall utilize the current version of PRIMAVERA computer scheduling
software for all scheduling including schedule updates. Contractor shall supply
computer data files for all schedules including the original schedule and monthly
schedule updates.

1.05 MONTHLY SCHEDULE UPDATE SUBMITTALS

A. Following acceptance of Contractor's Initial Schedule, Contractor shall monitor
progress of Work and adjust schedule each month to reflect actual progress and any
anticipated changes to planned activities.

1. Each schedule update submitted shall be complete, including all information
requested for the Initial Schedule submittal.

2. Each update shall continue to show all work activities including those already
completed. These completed activities shall accurately reflect "as built"
information by indicating when activities were actually started and completed.

B. A meeting will be held on approximately the twentieth of each month to review the
schedule update submittal and progress payment application.

1. At this meeting, at a minimum, the following items will be reviewed: Percent
complete of each activity; Time impact evaluations for Change Orders and
Time Extension Request; actual and anticipated activity sequence changes;
actual and anticipated duration changes; and actual and anticipated contractor
delays.

2. These meetings are considered a critical component of overall monthly
schedule update submittal and Contractor shall have appropriate personnel
attend. At a minimum, these meetings shall be attended by Contractor's
General Superintendent and Scheduler.

3. Contractor shall plan on the meeting taking no less than one hour.

C. Within seven (7) calendar days after monthly schedule update meeting, Contractor
shall submit the updated Schedule update.

D. Within seven (7) calendar days of receipt of above noted revised submittals, the
County will either accept or reject monthly schedule update submittal.

1. If accepted, percent complete shown in monthly update will be basis for
Application for Payment by Contractor. The schedule update shall be submitted
as part of Contractor's Application for Payment.
2. If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.

E. Updating, changing or revising of any report, curve, schedule or narrative submitted to the County by Contractor under this Contract, nor the County's review or acceptance of any such report, curve, schedule or narrative shall not have the effect of amending or modifying, in any way, the Contract Completion date or milestone dates or of modifying or limiting, in any way, Contractor's obligations under this Contract.

1.06 SCHEDULE REVISIONS

A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.

B. To reflect revisions to the schedule, Contractor shall provide the County with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.

C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by the County. The County may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide the County with a complete written narrative response to the County's request.

D. If Contractor's revision is still not accepted by the County, and Contractor disagrees with the County's position, Contractor has seven (7) days from receipt of the County's letter rejecting the revision, to provide a written narrative providing full justification and explanation for the revision. Contractor's failure to respond in writing within seven (7) days of the County's written rejection of a schedule revision shall be contractually interpreted as acceptance of the County's position, and Contractor waives its rights to subsequently dispute or file a claim regarding the County's position.

E. At the County's discretion, Contractor can be required to provide subcontractor certifications of performance regarding proposed schedule revisions affecting said subcontractors.

1.07 RECOVERY SCHEDULE
A. If the Schedule Update shows a Completion date fourteen (14) calendar days beyond the Contract Completion date, or individual milestone completion dates, Contractor shall submit to the County the proposed revisions to recover the lost time within seven (7) days. As part of this submittal, Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by the County.

C. If Contractor's revisions are not accepted by the County, the County and Contractor shall follow the procedures in paragraph 1.06.C, 1.06.D and 1.06.E above.

D. At the County's discretion, Contractor can be required to provide subcontractor certifications for revisions affecting said subcontractors.

1.08 TIME EXTENSION REQUESTS

A. Should the Contractor, any Subcontractor of any supplier seek an extension of time, the Contractor, subcontractor or supplier shall prepare and submit, within fourteen (14) days from the discovery of impact, a schedule fragnet and narrative describing the delay and the affects to other schedule activities. The schedule fragnet shall show how the delay impacts the current schedule update critical path. Contractor is responsible for requesting time extensions based on the impact to the critical path. The fragnet must be tied to the main sequence of schedule activities to enable the County to evaluate the impact of delays to the scheduled critical path.

B. Where an event for which the County is responsible impacts the projected Completion date, Contractor shall provide a written mitigation plan, including a schedule fragnet, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. Contractor shall also include a detailed cost breakdown of the labor, equipment and material Contractor would expend to mitigate the County caused time impact. Contractor shall submit its mitigation plan to the County within fourteen (14) calendar days from the date of discovery of said impact. Contractor is responsible for the cost to prepare the mitigation plan.

C. Contractor shall be required to comply with the requirements of Paragraph 1.08.A for all types of delays such as, but not limited to,
Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, change orders etc.

D. Contractor shall be responsible for all costs associated with the preparation of schedule fragnet and narrative, and the process of incorporating them into the current schedule update. Contractor shall provide the County with four (4) copies of the fragnet and narrative.

E. Once agreement has been reached on the time extension, the Contract Times will be adjusted accordingly. If agreement is not reached, the Contract Times may be extended in an amount the County allows, and Contractor may submit a claim for additional time claimed by contractor.

F. Failure to request time, provides schedule fragnet and narrative, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.

G. No time will be granted under this Contract for cumulative effect of changes.

H. The County will not be obligated to consider any time extension request unless requirements of Contract Documents are complied with.

I. Failure of Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

1.9 PROJECT STATUS REPORTING

A. In addition to submittal requirements for scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each Schedule as specified herein. Status reporting shall be in form specified below.

B. Contractor shall prepare monthly written narrative reports of status of Project for submission to the County. Written status reports shall include:

1. Status of major Project components (percent complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.

2. Progress made on critical activities indicated on Schedule, inspections and visits by regulatory agencies;
3. Explanations for any lack of work on critical path activities planned to be performed during last month.

4. Explanations for any schedule changes, including changes to logic or to activity durations.

5. List of critical activities scheduled to be performed next month.

6. Status of major material and equipment procurement.

7. Any delays encountered during reporting period.

8. Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by the County at no additional cost.

9. Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

PART 2 - PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

This section includes additional requirements and special requirements as delineated here in.

1.02 PROTECTION OF THE PUBLIC BY THE CONTRACTOR

A. Littering Streets
   1. The Contractor shall be responsible for removing any demolition debris or mud from any street, alley or right-of-way resulting from the execution of the demolition work. Any cost incurred by the Jurisdiction in cleaning up any litter or mud shall be charged to the Contractor and be deducted from funds due for the work.
   2. Littering of the site shall not be permitted.
   3. All waste materials, building materials, rubble, trash, debris etc, except for specifically and explicitly permitted on site fill materials, shall be promptly removed from the site.
   4. No materials shall be deposited on any area outside of Limits of Work.

B. Street Closure
   1. If it should become necessary to close any traffic lanes, it shall be the Contractor's responsibility to acquire the necessary obstruction permits and to place adequate barricades and warning signs as required by the Jurisdiction.
   2. Street or lane closures shall be coordinated with the appropriate Jurisdiction authority.

C. Protection of the Public by the Contractor
   1. Sidewalks: The Contractor shall be responsible for any damage to public sidewalks abutting or adjacent to the demolition properties resulting from the execution of the demolition work. The cost of repair or replacement shall be considered incidental to the work and the Contractor shall obtain all permits and pay any fees.
   2. Pedestrian Access: It shall be the Contractor's responsibility to place and construct the necessary warning signs, barricades, fencing and temporary pedestrian sidewalks, as directed by the Jurisdiction or Alameda County; and to maintain alternate pedestrian access for sidewalks around the demolition site. The cost of these items shall be considered incidental to the work.
   3. Temporary Fence: Temporary fence shall be erected around all excavation, buildings or structures to prevent access to the public. Such fence shall be at least four feet high, consistently restrictive from top to grade, and without horizontal openings wider than two inches. The fence shall be erected before demolition and shall not be removed until the hazard is removed.
   4. Whenever Contractor’s work within 50 feet of roadways, parking lots, pedestrian pathways or other areas that are used or accessed by the public, includes demolition or excavation or removal of debris: Contractor shall cordon off the area and post one or more flag men to direct traffic. Roadways shall
be maintained open at all times.

D. Demolition Hours

1. The Contractor shall comply with any restrictions to working hours as included in the Contract Documents. Refer to Sections 00 20 00 and 00 70 00.

2. The Contractor shall comply with all applicable ordinances and restrictions of the Jurisdictional entity.

E. Noise Pollution: All construction equipment used in conjunction with this project shall be in good repair and adequately muffled. The Contractor shall comply with any noise pollution requirements of the Jurisdiction.

F. Dust Control: The Contractor shall comply with applicable air pollution control requirements of the Jurisdiction. The Contractor shall take appropriate actions to minimize atmospheric pollution. Contractor shall at all times comply with Bay Area Air Quality Management District’s requirements. To minimize atmospheric pollution the Contractor shall make necessary arrangements and precautions to prevent particulate matter from becoming airborne. No visible emissions are permitted at any time or any location on this project site. Reasonable precautions shall include, but not be limited to:

1. The use of water or chemicals for control of dusts in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land.

2. Covering, at all times when in motion, open bodied trucks transporting materials likely to give rise to airborne dusts.

G. Requirements for the Reduction of Fire Hazards

1. Removal of Material: Before demolition of any part of any building, the Contractor shall remove all volatile or flammable materials, such as gasoline, kerosene, benzene, cleaning fluids, paints or thinners in containers, and similar substances.

2. Fire Extinguishing Equipment: The Contractor shall be responsible for having and maintaining the correct type and class of fire extinguisher on site. When a cutting torch or other equipment that might cause a fire is being used, a fire extinguisher shall be placed close at hand for instant use.

3. Fires: No fires of any kind will be permitted in the demolition work area.

4. Hydrants: No material obstructions or debris shall be placed or allowed to accumulate within twenty-five feet of any fire hydrant. All fire hydrants shall be accessible at all times. No parking within 25 feet of any hydrant is permitted at any time.

5. Debris: Debris shall not be allowed to accumulate on roofs, floors, or in areas outside of and around any structure being demolished. Excess debris and materials shall be removed from the site as the work progresses. Temporary stockpiling of debris may be permitted with County’s prior approval.

6. Telephone Service: The Contractor shall arrange for access to and use of, during working hours, one or more telephones in the vicinity of the work site for the purposes of making calls in case of fire or other emergencies, and shall keep all personnel on the job, and the local jurisdiction informed of the location of such telephones. The Contractor’s foreman, or at least one regular member of each shift, shall be charged with the responsibility of promptly calling emergency services when necessary. The same person shall be required to inspect the building and the site frequently for possible fires or fire-producing conditions and to apply appropriate corrective action, particularly at the close of work each day.

H. Protection of Public Utilities: The Contractor shall not damage any: existing fire hydrants, street lights, traffic signals, power poles, telephone poles, fire alarm boxes, wire cables, pole guys, underground utilities or other appurtenances that are noted on Contract Documents to remain in service in the vicinity of the
demolition sites. The Contractor shall pay for temporary relocation of utilities, which are relocated at the Contractor's request for his convenience.

I. Protection of Adjacent Property

1. The Contractor shall not damage or cause to be damaged any public right-of-way, structures, parking lots, drives, streets, sidewalks, utilities, lawns or any other property adjacent to parcels released for demolition whether or not the property is scheduled for future demolition. The Contractor shall provide such sheeting and shoring as required to protect adjacent property during demolition. Care must also be taken to prevent the spread of dust and flying particles.

2. The Contractor shall restore existing any drain tiles or pipes serving buildings, roadways or areas that are to remain in service. Contractor shall protect restored roadway sub drains that are cut or removed, including drainable backfill, to original condition. Repairs shall be subject to approval by the property owner where applicable, and by County.

1.03 RISK OF LOSS

The Contractor shall accept the site in its present condition and shall inspect the site for its character and the type of structures to be demolished. Alameda County and its Agents and Consultants assumes no responsibility for the condition or safety of existing buildings, structures, and other property within the demolition area, or the condition of the property before or after the solicitation for proposals. No adjustment of proposal price or allowance for any change in conditions that occur after the acceptance of the lowest responsible, responsive proposal will be allowed.

1.04 PROPERTY OWNERSHIP

A. Title: The property address, legal description, and ownership will be included in the Contract Documents. Upon execution of the contract for the work of demolition and site clearance on all or any part of the demolition area, all rights, title, and interest of the Jurisdiction in and to buildings, structures and other property to be demolished and/or removed by the Contractor on part or all of said project area as described in the Contract Documents and contract addenda thereto, shall be deemed to be vested in the Contractor.

B. Land: No property rights, title, or interest of any kind whatsoever, in or to the land or premises upon which such buildings or structures stand, is created, assigned, conveyed, granted, or transferred to the Contractor, or any other person or persons, except only the license and right of entry to remove such buildings and structures in strict accordance with the Contract Documents. Contractor shall not use the land or premises, or allow any other party to use the land or premises, for any purpose other than activities in direct support of the demolition of the building.

C. Access to Area within “Limits of Work”. Contractor shall permit scheduled access to areas within “Limits of Work” to County Personnel, Sherriff, Building Maintenance, Utility Companies and others as necessary to conduct normal services and additionally the Contractor shall furnish the County and Sherriff with copies of keys to all gates for emergency access.

END OF DOCUMENT
PART I – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions
B. Special Conditions

1.02 PRECONSTRUCTION CONFERENCE:

The contractor shall attend a conference at the Project Site prior to the start of construction for the purpose of determining Contractor’s access to, and use of the site, verifying utilities, review construction administrative procedures, and such other items as may be pertinent to the start of construction.

1.03 PROGRESS MEETINGS:

A. Construction Manager shall schedule and hold regular weekly progress meetings after a minimum of one week's prior written notice of the meeting date and time to all Invitees as indicated below.

B. Location: Contractor's field office.

C. The Contractor shall notify and invite the following entities (“Invitees”):

   (1) County Representative(s).
   (2) Contractor.
   (3) Contractor's Project Manager.
   (4) Contractor's Superintendent.
   (5) Subcontractors/suppliers, as appropriate to the agenda of the meeting.
   (6) Inspector of record.
(7) Construction Manager, if any.

(8) Project Manager

(9) Architect

(10) Engineer(s), if any and as appropriate to the agenda of the meeting.

(11) Others, as appropriate to the agenda of the meeting.

D. The County's, the Architect’s, and/or an engineer's Consultants will attend at their discretion, in response to the agenda.

E. The County representative, the Construction Manager, and/or another County Agent shall take and distribute meeting notes to attendees and other concerned parties. If exceptions are taken to anything in the meeting notes, those exceptions shall be stated in writing to the County within five (5) working days following County's distribution of the meeting notes.

1.04 PRE-INSTALLATION/PERFORMANCE MEETING:

A. Contractor shall schedule a meeting prior to the start of each of the following portions of the Work: cutting and patching of plaster and roofing, and other weather-exposed and moisture-resistant products. Contractor shall invite all Invitees to this meeting, and others whose work may affect or be affected by the quality of the cutting and patching work.

B. Contractor shall review in detail prior to this meeting, the manufacturer's requirements and specifications, applicable portions of the Contract Documents, Shop Drawings, and other submittals, and other related work. At this meeting, invitees shall review and resolve conflicts, incompatibilities, or inadequacies discovered or anticipated.

C. Contractor shall review in detail Project conditions, schedule, requirements for performance, application, installation, and quality of completed Work, and protection of adjacent Work and property.

D. Contractor shall review in detail means of protecting the completed Work during the remainder of the construction period.

1.05 SPECIAL MEETINGS:
Special meetings may be requested by the County. Contractor, subcontractors, material suppliers and any other members of the project team may be required to attend.

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Contractor’s Submittals and Schedules, Drawings and Specifications;

B. Special Conditions.

1.02 SECTION INCLUDES:

A. Definitions:

(1) Shop Drawings and Product Data are as indicated in the General Conditions and include, but are not limited to, fabrication, erection, layout and setting drawings, formwork and falsework drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams. In addition, there are other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment or systems and all positions conform to the requirement of the Contract Documents, including, without limitation, the Drawings.

(2) "Manufactured" applies to standard units usually mass-produced; "fabricated" means specifically assembled or made out of selected materials to meet design requirements. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicate proper relation to adjoining work and amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.

(3) Manufacturer's Instructions: Where any item of Work is required by the Contract Documents to be furnished, installed, or performed, at a minimum, in accordance with a specified product manufacturer's instructions, the Contractor shall procure and distribute copies of these to
the County, the Architect, and all other concerned parties and shall furnish, install, or perform the work, at a minimum, in accordance with those instructions.

B. Samples, Shop Drawings, Product Data, and other items as specified, in accordance with the following requirements:

(1) Contractor shall submit all Shop Drawings, Product Data, and Samples to the County, the Architect, and the Construction Manager.

(2) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.

(3) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.

(4) Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.

(5) Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and “cuts” shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.

(6) When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.

(7) Contractor shall certify on submittals for review that submittals conform to Contract requirements. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Also certify that Contractor-furnished equipment can be installed in allocated space.
(8) Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.

(9) Upon demand by Architect or County, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples that are of value after testing will remain the property of Contractor.

C. Submittal Schedule:

(1) Contractor shall prepare its proposed submittal schedule that is coordinated with its proposed construction schedule and submit both to the County within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the County.

(2) Contractor is responsible for all lost time should the initial submittal be rejected, marked "revised and resubmit", etc.

(3) All Submittals shall be forwarded to the County by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those Submittals shall be forwarded to the County so as not to delay the Construction Schedule.

1.03 SHOP DRAWINGS:

A. Contractor shall submit one reproducible transparency and six (6) opaque reproductions. The County will review and return the reproducible copy and one (1) opaque reproduction to Contractor.

B. Before commencing installation of any Work, the Contractor shall submit and receive approval of all drawings, descriptive data, and material list(s) as required to accomplish Work.

C. Review of Shop Drawings is regarded as a service to assist Contractor and in all cases original Contract Documents shall take precedence as outlined under General Conditions.
D. No claim for extra time or payment shall be based on work shown on Shop Drawings unless the claim is (1) noted on Contractor's transmittal letter accompanying Shop Drawings and (2) Contractor has complied with all applicable provisions of the General Conditions, including, without limitation, provisions regarding changes and payment, and all required written approvals.

E. County shall not review Shop Drawings for quantities of materials or number of items supplied.

F. County's and/or Architect’s review of Shop Drawings will be general. County and/or Architect review does not relieve Contractor of responsibility for accuracy, proper fitting, construction of Work, furnishing of materials, or Work required by Contract Documents and not indicated on Shop Drawings. Shop Drawings reviewed by County and/or Architect is not to be construed as approving departures from Contract Documents.

G. Review of Shop Drawings and Schedules does not relieve Contractor from responsibility for any aspect of those Drawings or Schedules that is a violation of local, County, State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards, or other authorities or utilities having jurisdiction.

H. Before submitting Shop Drawings for review, Contractor shall check Shop Drawings of its subcontractors for accuracy, and confirm that all Work contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.

I. Submitted drawings and details must bear stamp of approval of Contractor:

1. Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.

2. If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the County and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.

J. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.
K. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the County, the Architect, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.

L. Shop Drawings must clearly delineate the following information:

1. Project name and address.
2. Architect's name and project number.
3. Shop Drawing title, number, date, and scale.
4. Names of Contractor, Subcontractor(s) and fabricator.
5. Working and erection dimensions.
6. Arrangements and sectional views.
7. Necessary details, including complete information for making connections with other Work.
8. Kinds of materials and finishes.
9. Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.

M. Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions.

1. Shop Drawings shall consist of dimensioned plans and elevations and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.
(2) Contractor shall coordinate these composite Shop Drawings and installation layouts in the field between itself and its Subcontractor(s) for proper relationship to the Work, the work of other trades, and the field conditions. The Contractor shall check and approve the submittal(s) before submission for final review.

1.04 PRODUCT DATA OR NON REPRODUCIBLE SUBMITTALS:

A. Contractor shall submit manufacturer's printed literature in original form. Any fading type of reproduction will not be accepted. Contract must submit a minimum of six (6) each, to the County. County shall return one (1) to the Contractor, who shall reproduce whatever additional copies it requires for distribution.

B. Contractor shall submit six (6) copies of a complete list of all major items of mechanical, plumbing, and electrical equipment and materials in accordance with the approved Submittal Schedule, except as required earlier to comply with the approved Construction Schedule. Other items specified are to be submitted prior to commencing Work. Contractor shall submit items of like kind at one time in a neat and orderly manner. Partial lists will not be acceptable.

C. Submittals shall include manufacturer's specifications, physical dimensions, and ratings of all equipment. Contractor shall furnish performance curves for all pumps and fans. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on sheet and superfluous information shall be crossed out. If highlighting is used, Contractor shall mark all copies.

D. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and supplemental information that may be requested.

1.05 SAMPLES:

A. Contractor shall submit for approval Samples as required and within the time frame in the Contract Documents. Materials such as concrete, mortar, etc., which require on-site testing will be obtained from Project Site.

B. Contractor shall submit six (6) samples except where greater or lesser number is specifically required by Contract Documents including, without limitation, the Specifications.
(1) Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.

(2) Samples must show full range of texture, color, and pattern.

C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the County in writing to this effect.

D. Samples to be shipped prepaid or hand-delivered to the County.

E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.

F. Contractor shall not deliver any material to Site prior to receipt of County's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.

G. County's and/or Architect’s review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final acceptance of completed Work.

H. After a material has been approved, no change in brand or make will be permitted.

I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.

J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.

K. Field Samples and Mock-Ups are to be removed by Contractor at County’s direction:

(1) Size: As Specified.

(2) Furnish catalog numbers and similar data, as requested.
1.06 REVIEW AND RESUBMISSION REQUIREMENTS:

A. The County will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty one (21) days after receipt or within twenty one (21) days after receipt of all related information necessary for such review, whichever is later.

B. One (1) copy of product or materials data will be returned to Contractor with the review status.

C. Samples to be incorporated into the Work will be returned to Contractor, together with a written notice designating the Sample with the appropriate review status and indicating errors discovered on review, if any. Other Samples will not be returned, but the same notice will be given with respect thereto, and that notice shall be considered a return of the Sample.

D. Contractor shall revise and resubmit any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) as required by the reviewer. Such resubmittals will be reviewed and returned in the same manner as original Sample(s), Shop Drawing(s), Product Data, and other submittal(s), within fourteen (14) days after receipt thereof or within fourteen (14) days after receipt of all related information necessary for such review.

E. Contractor may proceed with any of the Work covered by Sample(s), Shop Drawing(s), Product Data, and other submittal(s) upon its return if designated as no exception taken, or revise as noted, provided the Contractor proceeds in accordance with the County’s and/or the Architect’s notes and comments.

F. Contractor shall not begin any of the work covered by a Sample(s), Shop Drawing(s), Product Data, and other submittal(s), designated as revise and resubmit or rejected, until a revision or correction thereof has been reviewed and returned to Contractor.

G. Sample(s), Shop Drawing(s), Product Data, and other submittal(s) designated as revise and resubmit or rejected and requiring resubmittal, shall be revised or corrected and resubmitted to the County no later than fourteen (14) days or a shorter period as required to comply with the approved Construction Schedule, after its return to Contractor.

H. Neither the review nor the lack of review of any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) shall waive any of the requirements of the Contract Documents, or relieve Contractor of any obligation thereunder.
I. County's and/or Architect’s review of Shop Drawings does not relieve the Contractor of responsibility for any errors that may exist. Contractor is responsible for the dimensions and design of adequate connections and details and for satisfactory construction of all the Work.

END OF DOCUMENT
PART I -- GENERAL

1.01 SUMMARY

A. Section Includes: General requirements and procedures for compliance with certain U.S. Green Building Council’s (USGBC) LEED™ prerequisites and credits needed for the Project to obtain minimum LEED™ [FILL IN LEVEL] certification.

1. Other LEED™ prerequisites and credits needed to obtain LEED™ certification are dependent on material selections and may not be specifically identified as LEED™ requirements. Compliance with requirements needed to obtain LEED™ prerequisites and credits may be used as one criterion to evaluate substitution requests.

2. Additional LEED™ prerequisites and credits needed to obtain the indicated LEED™ certification are dependent on the Architect’s design and other aspects of the Project that are not part of the Work of the Contract.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

C. Related Documents
   1. Document 01 10 00 - Summary of Work: For summary of work.
   2. Document 01 50 00 - Temporary Facilities and Controls: For requirements for temporary facilities and controls, including temporary utilities, support facilities and security and protection.
   3. Document 01 62 00 - Product Options and Substitutions: For procedures for selecting products and requesting substitutions.
   4. Divisions 02 through 49 Sections for LEED™ requirements specific to the Work of each of those Sections. These requirements may or may not include reference to LEED™.

1.02 REFERENCES

A. ANSI - American National Standards Institute

B. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
   1. 52.2 - Method of Testing General Ventilation Air Cleaning Devices for removal Efficiency by Particle Size.
   2. 55 - Thermal Comfort Conditions for Human Occupancy.
   3. 62.1 - Ventilation for Acceptable IAQ.
C. ASTM - American Society for Testing and Materials

D. Center for Resource Solutions

E. CRI - Carpet and Rug Institute

F. Energy Star

G. EPA - Environmental Protection Agency
   1. Brownfields Definition.

H. FSC - Forest Stewardship Council

I. Green Seal
   1. GC-03 - Anti-Corrosive Paints.
   2. GS-11 - Paints.

J. IPMVP - International Performance Measurement and Verification Protocol

K. ISO - International Standards Organization
   1. 14021 - Environmental Labels.

L. SCAQMD - South Coast Air Quality Management District

M. SMACNA - Sheet Metal and Air Conditioning Contractors’ National Association
1. IAQ Guideline for Occupied Buildings Under Construction.

N. USDA - United States Department of Agriculture

O. USGBC - U. S. Green Building Council
1. LEED™-NC v2.2, Green Building Rating System.

1.03 DEFINITIONS

A. Certificates of Chain-of-Custody: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, “Principles and Criteria”. Certificates shall include evidence that mill is certified for chain-of-custody by an FSC-accredited certification body.

B. LEED™: Leadership in Energy & Environmental Design.

C. Rapidly Renewable Materials: Materials made from agricultural products that are typically harvested within a ten-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.

D. Regionally Manufactured Materials: Materials that are manufactured within a radius of 500 miles from the Project location. Manufacturing refers to the final assembly of components into the building product that is installed at the Project site.

E. Regionally Extracted, Harvested, or Recovered Materials: Materials that are extracted, harvested, or recovered and manufactured within a radius of 500 miles from the Project site.

F. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).
   1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
   2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.

1.04 SUBMITTALS

A. General: Submit additional LEED™ submittal requirements included in other sections of the Specifications.
B. LEED™ submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated LEED™ requirements.

C. LEED™ submittals must be prepared and submitted using the LEED™-Online credit website.
   1. The Contractor is responsible for obtaining project access to LEED™-Online and joining the project using the project’s IS digit project access code.
      a. Access to the credit templates requires installation of Adobe Reader or Professional 7.0 or higher.
   2. Once the Contractor has joined the project through LEED™-Online, the LEED™ Project Administrator or Architect will assign the LEED™ credits that the Contractor is responsible for completing.
      a. Each credit template is an editable Adobe pdf document.
      b. Each credit template may be completed or updated at any time prior to the LEED™ Construction Submittal.
      c. After completion of each credit documentation, use the “Save Template to LEED™ Online” button at the lower right hand corner of the last page of the template to save the data.
      d. Additional submittal documentation and back-up requirements should be uploaded to the LEED™-Online website following the instructions for each credit.

D. Project Materials Cost Data: Include specific material cost data for individual components and materials (not including labor) where required as part of LEED™ prerequisite and credit submittals. To avoid repeated calculations, cost data shall be consistent for all credits requiring similar material cost data.

E. LEED™ Project Goals:
   1. SS Prerequisite (Erosion and Sedimentation Control).
   2. SS 4.2 (Bike racks component).
   3. SS 4.3 (Low-emitting/fuel efficient vehicles signage component).
   4. SS 4.4 (Carpool signage component).
   5. SS 6.1 and 6.2 (Stormwater Management and Treatment).
   6. SS 7.2 (Heat Island: Roof).
   7. SS 8 (Light Pollution Reduction).
   8. WE I (Water Efficient Landscaping).
   9. WE 2 (Innovative Wastewater Technologies).
   10. WE 3 (Water Use Reduction).
   11. LA Prerequisite I (Fundamental Commissioning).
   13. EA 3 (Additional Commissioning).
   14. EA 4 (Ozone Depletion: No HCFCs).
   15. MR 2.1 and 2.2 (Construction Waste Management).
   16. MR 4.1 and 4.2 (Recycled Content).
   17. MR 6 (Rapidly Renewable Materials).
18. MR 7 (FSC Certified Wood).
19. EQ 3.1 and 3.2 (Construction IAQ Management Plan: During and After Construction).
20. EQ 4.1, 4.2, 4.3, and 4.4 (Low-Emitting Materials).
21. EQ 5 (Permanent entryway grate component).
22. EQ 6.1 and 6.2 (Controllability of Systems: Perimeter and Non-Perimeter).
23. ID Credits (Construction/materials implications).

F. LEED™ Action Plans: Provide preliminary submittals within 7 days of date established for commencement of the Work indicating how the following requirements will be met:
1. Credit MR 2.1 and Credit MR 2.2: Waste management plan.
2. Credit MR 4.1 and Credit MR 4.2: List of proposed materials with recycled content.
a. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.
3. Credit MR 5.1 and Credit MR 5.2: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials.
a. Identify each regionally manufactured material, its source, and cost.
b. Identify each regionally extracted, harvested or recovered material, its source, and cost.
4. Credit MR 7.0: List of proposed certified wood products.
a. Indicate each product containing certified wood, its source, and cost.
b. Include statement indicating total cost for wood-based materials used for Project, including non-rented temporary construction.

G. LEED™ Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED™ action plans for the following:
1. Credit MR 2.1 and Credit MR 2.2: Waste reduction progress reports.
2. Credit MR 4.1 and Credit MR 4.2: Recycled content.
3. Credit MR 5.1 and Credit MR 5.2: Regionally manufactured materials and regionally extracted, harvested, or recovered materials.

H. LEED™ Documentation Submittals
2. Credit SS 8.0: Product Data for interior and exterior lighting fixtures that stop direct-beam illumination from leaving the building site.
3. Credit MR 2.1 and Credit MR 2.2
a. Complete the construction waste calculation tables in the LEED™ credit template. The following information will be required to fill in these tables:
   1) General description of each type/category of waste generated.
   2) Location of receiving agent (recycler/landfill) for waste.
   3) Quantity of waste diverted (by category) in tons or cubic yards.
b. Provide a narrative describing the project’s construction waste management approach. The narrative should include the project’s Construction Waste Management Plan. Please provide any additional comments or notes to describe special circumstances or considerations regarding the project’s credit approach.

4. Credit MR 4.1 and Credit MR 4.2
   a. Complete the LEED™ credit template to provide the following information:
      1) Provide the total project materials cost or provide the total project cost to apply the 45 percent default materials value.
      2) Provide a tabulation of each material used on the project that is being tracked for recycled content. The tabulation must include a description of the material, the manufacturer of the material, the product cost, the pre-consumer and/or post consumer recycled content percentage, and the source of the recycled content data.

   b. Provide an optional narrative describing any special circumstances or considerations regarding the project’s credit approach.

5. Credit MR 5.1 and Credit MR 5.2: Product Data indicating location of material manufacturer for regionally manufactured materials.
   a. Include statement indicating cost and distance from manufacturer to Project for each regionally manufactured material.
   b. Include statement indicating cost and distance from point of extraction, harvest, or recovery to Project for each raw material used in regionally manufactured materials.

   a. Include statement indicating costs for each rapidly renewable material.

7. Credit MR 7.0
   a. Complete the LEED™ credit template to provide the following information:
      1) A list of items (and/or components of products) claimed as FSC certified, including product type, manufacturer, and the appropriate entity’s Chain of Custody (COC) certification number. Each product name can then be cross-referenced with the manufacturer or vendor COC number during the LEED™ certification review. Visit www.fscus.org/green building for more information.
      b. Provide an optional narrative describing any special circumstance or considerations regarding the project’s credit approach.

8. Credit EQ 3.1
   a. Complete the LEED™ credit template to provide the following information:
      1) Provide a copy of the project’s Indoor Air Quality (IAQ) Management Plan.
      2) Confirm if the permanently installed air handling equipment was used during construction.
      3) Provide photos to highlight the implemented construction IAQ practices.
      4) List all filtration media (manufacturer, model number, MERV rating, location of installed filter) installed during construction and confirm that
each unit replaced prior to occupancy.

b. Provide an optional narrative describing any special circumstance or non-standard approached taken by the project.

9. Credit EQ 3.2
   a. Complete the LEED™ credit template to provide the following information:
      1) Confirm the approach taken by project (pre-occupancy flush-out; flush-out with early occupancy; IAQ testing).
      2) Provide a copy of the project’s Indoor Air Quality Testing Report (if applicable).
   b. Provide a narrative describing the project’s specific flush-out procedures and/or IAQ testing process and results.

10. Credit EQ 4.1
    a. Complete the LEED™ credit template to provide the following information:
       1) Provide a listing of each indoor adhesive, sealant and sealant primer product used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard (listed on page 333 of the LEED™-NC v2.2 Reference Guide).
       2) Provide a listing of each indoor aerosol adhesive product used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard (listed on page 333 of the LEED™-NC v2.2 Reference Guide).
    b. Provide a narrative to describe any special circumstances or non-standard compliance path taken by the project.

11. Credit EQ 4.2
    a. Complete the LEED™ credit template to provide the following information:
       1) Provide a listing of each indoor paint and coating used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard (listed on page 337 of the LEED™-NC v2.2 Reference Guide).
    b. Provide a narrative to describe any special circumstances or non-standard compliance path taken by the project.

12. Credit EQ 4.3
    a. Complete the LEED™ credit template to provide the following information:
       1) Provide a listing of each indoor paint and coating used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard.
       2) Provide a listing of each indoor aerosol adhesive product used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard.
    b. Provide a narrative to describe any special circumstances or non-standard compliance path taken by the project.

13. Credit EQ 4.4
    a. Complete the LEED™ credit template to provide the following information:
       1) Provide a listing of each indoor paint and coating used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard.
       2) Provide a listing of each indoor aerosol adhesive product used on the project. Include the manufacturer’s name, product name, specific VOC data (in g/L less water) for each product, and the corresponding allowable VOC from the referenced standard.
    b. Provide a narrative to describe any special circumstances or non-standard compliance path taken by the project.
a. Complete the LEED™ credit template to provide the following information:
   1) Provide a listing of each composite wood and agrifiber product installed in the building interior. Confirm that the product does not contain any added urea-formaldehyde.

b. Provide a narrative to describe any special circumstances or non-standard compliance path taken by the project.

1.05 SUBSTITUTIONS

A. In addition to the requirements of Document 01 62 00, the special substitution requirements described here apply only to the LEED™ certification related materials and requirements and environmental products and procedures identified in this Section.

B. Notify Owner and Architect when Contractor wishes to substitute materials, equipment, or products that meet the aesthetic and programmatic intent of the Construction Documents and offer equivalent or increased environmental sensitivity to materials, equipment, or products specified to meet LEED™ requirements as indicated in the Construction Documents.

C. Substitutions that may affect LEED™ certification must be clearly stated as such.

D. Comply with the requirements of Document 01 62 00, except as follows:
   1. Only 1 request for substitution for each product will be considered. When substitution is not accepted, provide specified product. Prior to submitting detailed information required under Document 01 62 00, submit the following for initial review by the Architect:
      a. Product data including manufacturers’ names, addresses, and phone numbers.
      b. Include copy of Material Safety Data Sheet (MSDS) if applicable.
      c. Description of the differences of the proposed substitution from specified product related to LEED™ requirements. Include description of environmental advantages of proposed substitution over specified product.

E. The Contractor is responsible for re-submittal of all calculations and documentation of products or material substitutions that affect LEED™ prerequisites and credits referenced in this Section, and which apply to any credits previously submitted as part of the LEED™ Design Application Submittal, and all credits included in the LEED™ Construction Submittal. Products that do not meet these requirements should not be submitted for substitution. Substitutions of materials and products specified as part of the Contract Documents in the following areas (but not necessarily limited to these items) will require review and potential re-submittal of LEED™ Design Application Prerequisites and Credits:

   1. Irrigation system.
   2. Stormwater system.
   3. Roofing products and materials.
   4. Plumbing fixtures and controls.
5. Interior and exterior lighting systems and controls.
6. HVAC equipment, systems, and controls.
7. CO2 monitoring system.

F. Substituted products shall not be ordered or installed without written acceptance by the owner.

G. Requests for Substitutions
1. Submit a separate request for each LEED™ related product substitution.
2. Identify product by Specification Section and LEED™ credit or credits, if applicable.
3. List similar projects using product, dates of installation, and names of Contractor and Owner.
5. Include copy of Material Safety Data Sheet (MSDS) if applicable.
6. Give cost data comparing proposed substitution with specified product and amount of net change to Contract Sum. The cost data should be based on life cycle analysis for each affected product including annual energy consumption and maintenance costs.
7. State the effect of substitution on construction schedule and changes required in other work of products.

PART 2- PRODUCTS

2.01 RECYCLED CONTENT OF MATERIALS

A. Credit MR 4.1 and Credit MR 4.2: Provide building materials with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of 10 percent of the cost of materials used for the Project.
1. The cost of post-consumer recycled content of an item shall be determined by dividing the weight of post-consumer recycled content in the item by the total weight of the item and multiplying by the cost of the item.
2. The cost of post consumer recycled content plus one-half of pre-consumer recycled content of an item shall be determined by dividing the weight of post-consumer recycled content plus one-half of pre-consumer recycled content in the item by the total weight of the item and multiplying by the cost of the item.
3. Do not include mechanical and electrical components in the calculation.
4. Recycled content of materials shall be defined according to the Federal Trade Commission’s “Guide for the Use of Environmental Marketing Claims,” 16 CFR 260.7 (e).

2.02 REGIONAL MATERIALS

A. Credit MR 5.1: Provide 20 percent of building materials (by cost) that are regionally
manufactured materials.

B. Credit MR 5.2: Of the regionally manufactured materials required by Paragraph “Credit MR 5.1” above, provide at least 50 percent (by cost) that are regionally extracted, harvested, or recovered materials.

2.03 CERTIFIED WOOD

A. Credit MR 7.0: Provide a minimum of 50 percent (by cost) of wood-based materials that are produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, “Principles and Criteria”.

1. Wood-based materials include but are not limited to the following materials when made from wood, engineered wood products, or wood-based panel products:
   a. Rough carpentry.
   b. Miscellaneous carpentry.
   c. Heavy timber construction.
   d. Wood decking.
   e. Metal-plate-connected wood trusses.
   f. Structural glued-laminated timber.
   g. Finish carpentry.
   h. Architectural woodwork.
   i. Wood cabinets.
   j. Non-rented temporary construction, including bracing, concrete formwork, pedestrian barriers, and temporary protection.

2.04 LOW-EMITTING MATERIALS

A. Credit EQ 4.1: For interior applications use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24):

1. Wood Glues: 30 g/L.
2. Metal to Metal Adhesives: 30 g/L.
3. Adhesives for Porous Materials (Except Wood): 50 g/L.
4. Subfloor Adhesives: 50 g/L.
5. Plastic Foam Adhesives: 50 g/L.
6. Carpet Adhesives: 50 g/L.
7. Carpet Pad Adhesives: 50 g/L.
8. VCT and Asphalt Tile Adhesives: 50 g/L.
9. Cove Base Adhesives: 50 g/L.
10. Gypsum Board and Panel Adhesives: 50 g/L.
11. Rubber Floor Adhesives: 60 g/L.
12. Ceramic Tile Adhesives: 65 g/L.
13. Multipurpose Construction Adhesives: 70 g/L.
14. Fiberglass Adhesives: 80 g/L.
15. Structural Glazing Adhesives: 100 g/L.
16. Wood Flooring Adhesive: 100 g/L.
17. Contact Adhesive: 250 g/L.
18. Plastic Cement Welding Compounds: 350 g/L.
19. ABS Welding Compounds: 400 g/L.
20. CPVC Welding Compounds: 490 g/L.
21. PVC Welding Compounds: 510 g/L.
22. Adhesive Primer for Plastic: 650 g/L.
23. Sealants: 250 g/L.
24. Sealant Primers for Nonporous Substrates: 250 g/L.
25. Sealant Primers for Porous Substrates: 775 g/L.

B. Credit EQ 4.2: For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the following chemical restrictions:
1. Flat Paints and Coatings: VOC not more than 50 g/L.
2. Non-Flat Paints and Coatings: VOC not more than 150 g/L.
3. Anti-Corrosive Coatings: VOC not more than 250 g/L.
4. Varnishes and Sanding Scalers: VOC not more than 350 g/L.
5. Stains: VOC not more than 250 g/L.
6. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
7. Restricted Components: Paints and coatings shall not contain any of the following:
   a. Acrolein.
   b. Acrylonitrile.
   c. Antimony.
   d. Benzene.
   e. Butyl benzyl phthalate.
   f. Cadmium.
   g. Di (2-ethylhexyl) phthalate.
   h. Di-n-butyl phthalate.
   i. Di-n-octyl phthalate.
   j. 1,2-dichlorobenzene.
   k. Diethyl phthalate.
   l. Dimethyl phthalate.
   m. Ethylbenzene.
   n. Formaldehyde.
   o. Hexavalent chromium.
   p. Isophorone.
   q. Lead.
   r. Mercury.
   s. Methyl ethyl ketone.
   t. Methyl isobutyl ketone.
   u. Methylene chloride.
   v. Naphthalene.
   w. Toluene (methylbenzene).
x. 1,1,1-trichloroethane.
y. Vinyl chloride.

C. Credit EQ 4.4: Do not use composite wood and agrifiber products that contain urea-formaldehyde resin.

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Salvaging non-hazardous demolition and construction waste.
2. Recycling non-hazardous demolition and construction waste.
3. Disposing of non-hazardous demolition and construction waste.

B. Related Sections include the following:

1. Document 01 35 20 "LEED™ Requirements" for additional LEED™ requirements.
2. Document 01 50 00 "Temporary Facilities and Controls" for environmental-protection measures during construction.

1.03 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.2 PERFORMANCE [GOALS] [REQUIREMENTS]

A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of [50] [75] \textless Insert number\textgreater percent by weight of total waste generated by the Work.

B. Salvage/Recycle [Goals] [Requirements]: Owner's goal is to salvage and recycle as much non-hazardous [demolition] [and] [construction] waste as possible including the following materials:

C. Salvage/Recycle [Goals] [Requirements]: Owner's goal is to salvage and recycle as much non-hazardous [demolition] [and] [construction] waste as possible. Owner has established minimum goals for the following materials:

1. Demolition Waste:
   a. Asphalitic concrete paving.
   b. Concrete.
   c. Concrete reinforcing steel.
   d. Brick.
   e. Concrete masonry units.
   f. Wood studs.
   g. Wood joists.
   h. Plywood and oriented strand board.
   i. Wood paneling.
   j. Wood trim.
   k. Structural and miscellaneous steel.
   l. Rough hardware.
   m. Roofing.
   n. Insulation.
   o. Doors and frames.
   p. Door hardware.
   q. Windows.
   r. Glazing.
   s. Metal studs.
   t. Gypsum board.
   u. Acoustical tile and panels.
   v. Carpet.
   w. Carpet pad.
   x. Demountable partitions.
y. Equipment.
z. Cabinets.
aa. Plumbing fixtures.
bb. Piping.
c. Supports and hangers.
dd. Valves.
e. Sprinklers.
f. Mechanical equipment.
gg. Refrigerants.
hh. Electrical conduit.
ii. Copper wiring.
jj. Lighting fixtures.
k. Lamps.
l. Ballasts.
mm. Electrical devices.
nn. Switchgear and panelboards.
oo. Transformers.
pp. <Insert other materials required.>

2. Construction Waste:

a. Site-clearing waste.
b. Masonry and CMU.
c. Lumber.
d. Wood sheet materials.
e. Wood trim.
f. Metals.
g. Roofing.
h. Insulation.
i. Carpet and pad.
j. Gypsum board.
k. Piping.
l. Electrical conduit.
m. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
7) Plastic pails.

n. <Insert other materials required.>
1.3 SUBMITTALS

A. Waste Management Plan: Submit [3] copies of plan within [7] [30] days of date established for [commencement of the Work] [the Notice to Proceed] [the Notice of Award].

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit [three] copies of report. Include separate reports for demolition and construction waste. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons (tonnes).
4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

C. Waste Reduction Calculations: Before request for Substantial Completion, submit [three] copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. LEED™ Submittal: LEED™ letter template for Credit MR 2.1[ and 2.2], signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

I. Qualification Data: For [Waste Management Coordinator] [and] [refrigerant recovery technician].

J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was
recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.4 QUALITY ASSURANCE


B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.5 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. [Include separate sections in plan for demolition and construction waste.] Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of [demolition] [site-clearing] [and] [construction] waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.

2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.

3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.

4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

1. Total quantity of waste.
2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
3. Total cost of disposal (with no waste management).
4. Revenue from salvaged materials.
5. Revenue from recycled materials.
7. Savings in hauling and tipping fees that are avoided.
8. Handling and transportation costs. Include cost of collection containers for each type of waste.
9. Net additional cost or net savings from waste management plan.

E. Forms: Prepare waste management plan on forms included at end of Part 3.
transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with Division 1 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

   1. Distribute waste management plan to everyone concerned within [three] <Insert number> days of submittal return.
   2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

   1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
   2. Comply with Division 1 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

   1. Clean salvaged items.
   2. Pack or crate items after cleaning. Identify contents of containers.
   3. Store items in a secure area until installation.
   4. Protect items from damage during transport and storage.
   5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for [Sale] [and] [Donation]: [Permitted] [Not permitted] on Project site.

C. Salvaged Items for Owner's Use:

   1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area [on-site] [off-site] [designated by Owner].
5. Protect items from damage during transport and storage.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.3 RECYCLING [DEMOLITION] [AND] [CONSTRUCTION] WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:

1. <Insert names and telephone numbers of local recycling receivers and processors of recyclable materials.>

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall [accrue to Owner] [accrue to Contractor] [be shared equally by Owner and Contractor].

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

   a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.

4. Store components off the ground and protect from the weather.

5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.
3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Grind asphalt to maximum \(1-1/2\)-inch (38-mm) [4-inch (100-mm)] size.
   1. Crush asphaltic concrete paving and screen to comply with requirements in Division 2 Section "Earthwork" for use as general fill.

B. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
   1. Pulverize concrete to maximum \(1-1/2\)-inch (38-mm) [4-inch (100-mm)] size.
   2. Crush concrete and screen to comply with requirements in Division 2 Section "Earthwork" for use as satisfactory soil for fill or subbase.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
   1. Pulverize masonry to maximum \(3/4\)-inch (19-mm) [1-inch (25-mm)] [1-1/2-inch (38-mm)] [4-inch (100-mm)] size.
      a. Crush masonry and screen to comply with requirements in Division 2 Section "Earthwork" for use as [general fill] [satisfactory soil for fill or subbase].
      b. Crush masonry and screen to comply with requirements in Division 2 Section "Exterior Plants" for use as mineral mulch.
   2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.
   1. Structural Steel: Stack members according to size, type of member, and length.
   2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

H. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.

J. Carpet[ and Pad]: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet[ and pad] in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

K. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

L. Plumbing Fixtures: Separate by type and size.

M. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

N. Lighting Fixtures: Separate lamps by type and protect from breakage.

O. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

P. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees [on-site] [at landfill facility].

1. Comply with requirements in Division 2 Section "Exterior Plants" for use of chipped organic waste as organic mulch.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
a. Comply with requirements in Division 2 Section "Exterior Plants" for use of clean sawdust as organic mulch.

D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
   1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
      a. Comply with requirements in Division 2 Section "Exterior Plants" for use of clean ground gypsum board as inorganic soil amendment.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
   1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

D. Disposal: Transport waste materials and dispose of at designated spoil areas on Owner's property.

E. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF DOCUMENT
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Obtaining of Permits and Licenses and Work To Comply With All Applicable Regulations;

B. Special Conditions;

C. Quality Control.

1.02 DESCRIPTION:

A. This section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

1.03 REQUIREMENTS OF REGULATORY AGENCIES:

A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction of the Work, are hereby incorporated into these Contract Documents as if repeated in full herein and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the list below. Contractor shall make available at the Site copies of all the listed documents applicable to the Work as the County and/or Architect may request, including, without limitation, applicable portions of the California Code of Regulations ("CCR").

B. Items of deferred approval shall be clearly marked on the first sheet of the Architect’s and/or Engineer's approved Drawings.

(1) Building Standards Administrative Code, Part 1, Title 24, CCR

(2) California Building Code (CBC), Part 2, Title 24, CCR; (Uniform Building code volumes 1-3 and California Amendments).
(3) California Electrical Code (CEC), Part 3, Title 24, CCR; (National Electrical Code and California Amendments).

(4) California Mechanical Code (CMC), Part 4, Title 24, CCR; (Uniform Mechanical Code and California Amendments).

(5) California Plumbing Code (CPC), Part 5, Title 24, CCR; (Uniform Plumbing Code and California Amendments).

(6) California Fire Code (CFC), Part 9, Title 24, CCR; (Fire Plumbing Code and California Amendments).

(7) California Referenced Standards Code, Part 12, Title 24, CCR

(8) Title 19, CCR, Public Safety, State Fire Marshal Regulations.

(9) Partial List of Applicable NFPA Standards:

(a) NFPA 13 - Automatic Sprinkler System.

(b) NFPA 14 - Standpipes Systems.

(c) NFPA 17A - Wet Chemical System

(d) NFPA 24 - Private Fire Mains.

(e) (California Amended) NFPA 72 - National Fire Alarm Codes.

(f) NFPA 253 - Critical Radiant Flux of Floor Covering System.

(g) FPA 2001 - Clean Agent Fire Extinguishing Systems.

END OF DOCUMENT
ABBREVIATIONS AND ACRONYMS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions including without limitation, Definitions
B. Special Conditions

1.02 DOCUMENT INCLUDES:

A. Abbreviations used throughout the Contract Documents.
B. Reference to a technical society, organization, or body is by abbreviation, as follows:

1. AA  Aluminum Association
2. AAMA  Architectural Aluminum Manufacturers Association
3. AASHTO  American Association of State Highway and Transportation Officials
4. ABPA  Acoustical and Board Products Association
5. ACI  American Concrete Institute
6. AGA  American Gas Association
7. AGC  Associated General Contractors
8. AHC  Architectural Hardware Consultant
9. AI  Asphalt Institute
10. AIA  American Institute of Architects
11. AIEE  American Institute of Electrical Engineers
12. AISC  American Institute of Steel Construction
13. AISI  American Iron and Steel Institute
14. AMCA  Air Moving and Conditioning Association
15. ANSI  American National Standards Institute
16. APA  American Plywood Association
17. ARI  Air Conditioning and Refrigeration Institute
18. ASHRAE  American Society of Heating, Refrigeration and Air Conditioning Engineers
<table>
<thead>
<tr>
<th>No.</th>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
</tr>
<tr>
<td>20.</td>
<td>ASSE</td>
<td>American Society of Structural Engineers</td>
</tr>
<tr>
<td>21.</td>
<td>ASTM</td>
<td>American Society of Testing and Materials</td>
</tr>
<tr>
<td>22.</td>
<td>AWPB</td>
<td>American Wood Preservers Bureau</td>
</tr>
<tr>
<td>23.</td>
<td>AWPI</td>
<td>American Wood Preservers Institute</td>
</tr>
<tr>
<td>24.</td>
<td>AWS</td>
<td>American Welding Society</td>
</tr>
<tr>
<td>25.</td>
<td>AWSC</td>
<td>American Welding Society Code</td>
</tr>
<tr>
<td>26.</td>
<td>AWI</td>
<td>Architectural Woodwork Institute</td>
</tr>
<tr>
<td>27.</td>
<td>AWWA</td>
<td>American Water Works Association</td>
</tr>
<tr>
<td>28.</td>
<td>BIA</td>
<td>Brick Institute of America</td>
</tr>
<tr>
<td>29.</td>
<td>CCR</td>
<td>California Code of Regulations</td>
</tr>
<tr>
<td>30.</td>
<td>CLFMI</td>
<td>Chain Link Fence Manufacturers Institute</td>
</tr>
<tr>
<td>31.</td>
<td>CMG</td>
<td>California Masonry Guild</td>
</tr>
<tr>
<td>32.</td>
<td>CRA</td>
<td>California Redwood Association</td>
</tr>
<tr>
<td>33.</td>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>34.</td>
<td>CS</td>
<td>Commercial Standards</td>
</tr>
<tr>
<td>35.</td>
<td>CSI</td>
<td>Construction Specifications Institute</td>
</tr>
<tr>
<td>36.</td>
<td>CTI</td>
<td>Cooling Tower Institute</td>
</tr>
<tr>
<td>37.</td>
<td>FGMA</td>
<td>Flat Glass Manufacturer’s Association</td>
</tr>
<tr>
<td>38.</td>
<td>FIA</td>
<td>Factory Insurance Association</td>
</tr>
<tr>
<td>39.</td>
<td>FM</td>
<td>Factory Mutual</td>
</tr>
<tr>
<td>40.</td>
<td>FS</td>
<td>Federal Specification</td>
</tr>
<tr>
<td>41.</td>
<td>FTI</td>
<td>Facing Title Institute</td>
</tr>
<tr>
<td>42.</td>
<td>GA</td>
<td>Gypsum Association</td>
</tr>
<tr>
<td>43.</td>
<td>ICBO</td>
<td>International Conference of Building Officials</td>
</tr>
<tr>
<td>44.</td>
<td>IEEE</td>
<td>Institute of Electrical and Electronic Engineers</td>
</tr>
<tr>
<td>45.</td>
<td>IES</td>
<td>Illumination Engineering Society</td>
</tr>
<tr>
<td>46.</td>
<td>LIA</td>
<td>Lead Industries Association</td>
</tr>
<tr>
<td>47.</td>
<td>MIA</td>
<td>Marble Institute of America</td>
</tr>
<tr>
<td>48.</td>
<td>MLMA</td>
<td>Metal Lath Manufacturers Association</td>
</tr>
<tr>
<td>49.</td>
<td>MS</td>
<td>Military Specifications</td>
</tr>
<tr>
<td>50.</td>
<td>NAAMM</td>
<td>National Association of Architectural Metal Manufacturers</td>
</tr>
<tr>
<td>51.</td>
<td>NBHA</td>
<td>National Builders Hardware Association</td>
</tr>
<tr>
<td>52.</td>
<td>NBFU</td>
<td>National Board of Fire Underwriters</td>
</tr>
<tr>
<td>53.</td>
<td>NBS</td>
<td>National Bureau of Standards</td>
</tr>
<tr>
<td>54.</td>
<td>NCMA</td>
<td>National Concrete Masonry Association</td>
</tr>
<tr>
<td>55.</td>
<td>NEC</td>
<td>National Electrical Code</td>
</tr>
<tr>
<td>56.</td>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
<tr>
<td>57.</td>
<td>NFPA</td>
<td>National Fire Protection Association/National Forest Products Association</td>
</tr>
<tr>
<td>58.</td>
<td>NMWIA</td>
<td>National Mineral Wool Insulation Association</td>
</tr>
<tr>
<td>59.</td>
<td>NTMA</td>
<td>National Terrazzo and Mosaic Association</td>
</tr>
</tbody>
</table>
60. NWMA  National Woodwork Manufacturer’s Association
61. ORS   Office of Regulatory Services (California)
62. OSHA  Occupational Safety and Health Act
63. PCI   Precast Concrete Institute
64. PCA   Portland Cement Association
65. PDCA  Painting and Decorating Contractors of America
66. PDI   Plumbing Drainage Institute
67. PEI   Porcelain Enamel Institute
68. PG&E  Pacific Gas & Electric Company
69. PS    Product Standards
70. SDI   Steel Door Institute; Steel Deck Institute
71. SJI   Steel Joist Institute
72. SSPC  Steel Structures Painting Council
73. TCA   Tile Council of America
74. TPI   Truss Plate Institute
75. UBC   Uniform Building Code
76. UL    Underwriters Laboratories Code
77. UMC   Uniform Mechanical Code
78. USDA  United States Department of Agriculture
79. VI    Vermiculite Institute
80. WCLA  West Coast Lumberman’s Association
81. WCLB  West Coast Lumber Bureau
82. WEUSER Western Electric Utilities Service Engineering Requirements
83. WIC   Woodwork Institute of California
84. WPOA  Western Plumbing Officials Association

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISION

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions including without limitation, Definitions;
B. Special Conditions;

1.02 QUALITY ASSURANCE:

A. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more rigid requirements are specified in the Contract Documents, or are required by applicable codes.
B. Contractor shall conform to current reference standard publication date in effect on the date of bid opening.
C. Contractor shall obtain copies of standards unless specifically required not to by the Contract Documents.
D. Contractor shall maintain a copy of all standards at jobsite during submittals, planning, and progress of the specific Work, until final completion, unless specifically required not to by the Contract Documents.
E. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from the County and/or the Architect before proceeding.
F. The contractual relationship of the parties to the Contract shall not be altered from the contractual relationship as indicated in the Contract Documents by mention or inference otherwise in any referenced document.
G. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.
1.03 SCHEDULE OF REFERENCES:

The following information is intended only for the general assistance of the Contractor, and the County does not represent that all of the information is current. It is the Contractor’s responsibility to verify the correct information for each of the entities listed.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Name</th>
<th>Phone</th>
<th>Address</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
<td>202/624-5800</td>
<td>444 North Capitol Street, Suite 249, Washington, DC 20001</td>
<td><a href="http://www.aashto.org">www.aashto.org</a></td>
</tr>
<tr>
<td>AATCC</td>
<td>American Association of Textile Chemists and Colorists</td>
<td>919/549-8141</td>
<td>P.O. Box 12215, One Davis Drive, Research Triangle Park, NC 27709-2215</td>
<td><a href="http://www.aatcc.org">www.aatcc.org</a></td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
<td>248/848-3700</td>
<td>P.O. Box 9094, Farmington Hills, MI 48333-9094</td>
<td><a href="http://www.aci-int.org">www.aci-int.org</a></td>
</tr>
<tr>
<td>ACPA</td>
<td>American Concrete Pipe Association</td>
<td>972/506-7216</td>
<td>222 West Las Colinas Blvd., Suite 641, Irving, TX 75039-5423</td>
<td></td>
</tr>
</tbody>
</table>
www.concrete-pipe.org

ADC  Air Diffusion Council  312/201-0101
   11 South LaSalle St., Suite 1400
   Chicago, IL  60603

AFPA  American Forest and Paper Association  202/463-2700
   1111 19th St., NW, Suite 800
   Washington, DC 20036

AGA  American Gas Association  703/841-8400
   1515 Wilson Blvd.
   Arlington VA  22209
   www.aga.com

AHA  American Hardboard Association  847/934-8800
   1210 W. Northwest Hwy
   Palatine, IL  60067-1897

AI  Asphalt Institute  606/288-4960
   Research Park Drive
   P.O. Box 14052
   Lexington, KY  40512-4052
   www.asphaltinstitute.org

AIA  The American Institute of Architects  202/626-7300
   1735 New York Avenue, NW
   Washington, DC  20006-5292
   www.aia.org

AISC  American Institute of Steel Construction  800/644-2400
   One East Wacker Drive, Suite 3100
   Chicago, IL  60601-2001

AITC  American Institute of Timber Construction  303/792-9559
   7012 S. Revere Pkwy., Suite 140
   Englewood, CO  80112
   www.aite-glulam.org

ALCA  Associated Landscape Contractors of America  703/620-6363
   12200 Sunrise Valley Drive, Suite 150
   Reston, VA  20191
   www.alca.org
ALI Associated Laboratories, Inc.  214/565-0593
P.O. Box 152837
1323 Wall St.
Dallas, TX  75315
<table>
<thead>
<tr>
<th>Organization</th>
<th>Name</th>
<th>Phone</th>
<th>Fax</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCE</td>
<td>American Society of Civil Engineers</td>
<td>800/548-2723</td>
<td>703/295-6000</td>
<td>1801 Alexander Bell Drive, Reston, VA 20190-4400</td>
</tr>
<tr>
<td>ASHRAE</td>
<td>American Society of Heating, Refrigerating and Air Conditioning Engineers</td>
<td>800/527-4723</td>
<td>404/636-8400</td>
<td>1791 Tullie Circle, NE, Atlanta, GA 30329-2305</td>
</tr>
<tr>
<td>ASLA</td>
<td>American Society of Landscape Architects</td>
<td>202/686-2752</td>
<td></td>
<td>4401 Connecticut Ave., NW, 5th Floor, Washington, DC 20008-2369</td>
</tr>
<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
<td>800/434-2763</td>
<td></td>
<td>345 East 47th Street, New York, NY 10017-2392</td>
</tr>
<tr>
<td>ASPE</td>
<td>American Society of Plumbing Engineers</td>
<td>805/495-7120</td>
<td></td>
<td>3617 Thousand Oaks Blvd., Suite 210, Westlake, CA 91362-3649</td>
</tr>
<tr>
<td>ASQC</td>
<td>American Society for Quality Control</td>
<td>800/248-1946</td>
<td>414/272-8575</td>
<td>611 E. Wisconsin Avenue, Milwaukee, WI 53201-3005</td>
</tr>
<tr>
<td>ASSE</td>
<td>American Society of Sanitary Engineering</td>
<td>216/835-3040</td>
<td></td>
<td>28901 Clemens Road, Westlake, OH 44145</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
<td>610/832-9500</td>
<td></td>
<td>100 Barr Harbor Drive, West Conshohocken, PA 19428-2959</td>
</tr>
<tr>
<td>Organization</td>
<td>Address</td>
<td>Phone Numbers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWCI</td>
<td>Association of the Wall and Ceiling Industries--International</td>
<td>703/534-8300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>307 E. Annandale Road, Suite 200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Falls Church, VA 22042-2433</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.awci.org">www.awci.org</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWPA</td>
<td>American Wood-Preservers' Association</td>
<td>817/326-6300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3246 Fall Creek Highway, Suite 1900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Granbury, TX 76049-7979</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWS</td>
<td>American Welding Society</td>
<td>800/443-9373</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>550 NW LeJeune Road</td>
<td>305/443-9353</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Miami, FL 33126</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.awmaweld.org">www.awmaweld.org</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
<td>800/926-7337</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6666 West Quincy Avenue</td>
<td>303/794-7711</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Denver, CO 80235</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.awwa.org">www.awwa.org</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHMA</td>
<td>Builders' Hardware Manufacturers Association</td>
<td>212/661-4261</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>355 Lexington Avenue, 17th Floor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York, NY 10017-6603</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBM</td>
<td>Certified Ballast Manufacturers Association</td>
<td>216/241-0711</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1422 Euclid Avenue, Suite 402</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cleveland, OH 44115-2094</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CGA</td>
<td>Compressed Gas Association</td>
<td>703/412-0900</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1725 Jefferson Davis Hwy, Suite 1004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arlington, VA 22202-4102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.cganet.com">www.cganet.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CISCA</td>
<td>Ceilings &amp; Interior Systems Construction Association</td>
<td>630/584-1919</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1500 Lincoln Hwy, Suite 202</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>St. Charles, IL 60174</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.cisca.org">www.cisca.org</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CISPI</td>
<td>Cast Iron Soil Pipe Institute</td>
<td>423/892-0137</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5959 Shallowford Road, Suite 419</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chattanooga, TN 37421</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Organization</td>
<td>Phone</td>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------</td>
<td>-------</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>CPSC</td>
<td>Consumer Product Safety Commission</td>
<td>800/638-2772</td>
<td>East West Towers, 4330 East-West Hwy., Bethesda, MD 20814</td>
<td></td>
</tr>
<tr>
<td>CPPA</td>
<td>Corrugated Polyethylene Pipe Association</td>
<td>800/510-2772, 419/241-2221</td>
<td>432 N. Superior Street, Toledo, OH 43604</td>
<td></td>
</tr>
<tr>
<td>CRA</td>
<td>California Redwood Association</td>
<td>415/382-0662</td>
<td>405 Enfrente Drive, Suite 200, Novato, CA 94949</td>
<td></td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
<td>847/517-1200</td>
<td>933 N. Plum Grove Road, Schaumburg, IL 60173-4758, <a href="http://www.crsi.org">www.crsi.org</a></td>
<td></td>
</tr>
<tr>
<td>CTI</td>
<td>Ceramic Tile Institute of America</td>
<td>310/574-7800</td>
<td>12061 W. Jefferson Blvd., Culver City, CA 90230-6219</td>
<td></td>
</tr>
<tr>
<td>DHI</td>
<td>Door and Hardware Institute</td>
<td>703/222-2010</td>
<td>14170 Newbrook Drive, Chantilly, VA 20151-2223, <a href="http://www.dhi.org">www.dhi.org</a></td>
<td></td>
</tr>
<tr>
<td>DIPRA</td>
<td>Ductile Iron Pipe Research Association</td>
<td>205/988-9870</td>
<td>245 Riverchase Pkwy East, Suite O, Birmingham, AL 35244</td>
<td></td>
</tr>
<tr>
<td>DOC</td>
<td>Department of Commerce</td>
<td>202/482-2000</td>
<td>14th Street and Constitution Avenue, NW, Washington, DC 20230</td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transportation</td>
<td>202/366-4000</td>
<td>400 Seventh Street, SW</td>
<td></td>
</tr>
</tbody>
</table>
### Highland ATR Make Ready Work

**Fairmont Campus – Building C & E**  
**Project # 2043-02**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJMA</td>
<td>Expansion Joint Manufacturers Association</td>
<td>25 N. Broadway, Tarrytown, NY 10591-3201</td>
<td>914/332-0040</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
<td>401 M Street, SW, Washington, DC 20460</td>
<td>202/260-2090</td>
</tr>
<tr>
<td>FCICA</td>
<td>Floor Covering Installation Contractors Association</td>
<td>P.O. Box 948, Dalton, GA 30722-0948</td>
<td>706/226-5488</td>
</tr>
<tr>
<td>FM</td>
<td>Factory Mutual</td>
<td>1151 Boston-Providence Turnpike, Norwood, MA 02062-9102</td>
<td>781/255-4300</td>
</tr>
<tr>
<td>FS</td>
<td>Federal Specifications Unit</td>
<td>470 East L'Enfant Plaza, SW, Suite 8100, Washington, DC 20407</td>
<td>202/619-8925</td>
</tr>
<tr>
<td>GA</td>
<td>Gypsum Association</td>
<td>810 First Street NE, Suite 510, Washington, DC 20002</td>
<td>202/289-5440</td>
</tr>
<tr>
<td>GANA</td>
<td>Glass Association of North America</td>
<td>3310 SW Harrison Street, Topeka, KS 66611-2279</td>
<td>913/266-7013</td>
</tr>
<tr>
<td>HMA</td>
<td>Hardwood Manufacturers Association</td>
<td>400 Penn Center Blvd., Suite 530, Pittsburgh, PA 15235-5605</td>
<td>412/828-0770</td>
</tr>
<tr>
<td>HPVA</td>
<td>Hardwood Plywood and Veneer Association</td>
<td>1825 Michael Farraday Drive</td>
<td>703/435-2900</td>
</tr>
<tr>
<td>Organization</td>
<td>Address</td>
<td>Phone Numbers</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronic Engineers 800/678-4333 212/705-7900</td>
<td>345 E. 47th Street New York, NY 10017-2394 <a href="http://www.ieee.org">www.ieee.org</a></td>
<td></td>
</tr>
<tr>
<td>IESNA</td>
<td>Illuminating Engineering Society of North America 212/248-5000 201/664-2700</td>
<td>120 Wall Street, 17th Floor New York, NY 10005-4001 <a href="http://www.iesna.org">www.iesna.org</a></td>
<td></td>
</tr>
<tr>
<td>ITS</td>
<td>Intertek Testing Services 800/345-3851</td>
<td>P.O. Box 2040 607/753-6711 3933 US Route 11 Cortland, NY 13045-7902 <a href="http://www.itsglobal.com">www.itsglobal.com</a></td>
<td></td>
</tr>
<tr>
<td>LMA</td>
<td>Laminating Materials Association 201/664-2700</td>
<td>116 Lawrence Street Hillsdale, NJ 07642-2730 <a href="http://www.lma.org">www.lma.org</a></td>
<td></td>
</tr>
<tr>
<td>MCAA</td>
<td>Mechanical Contractors Association of America 301/869-5800</td>
<td>1385 Piccard Drive Rockville, MD 20850-4329</td>
<td></td>
</tr>
<tr>
<td>ML/SFA</td>
<td>Metal Lath/Steel Framing Association (A Division of the NAAMM) 312/456-5590</td>
<td>8 South Michigan Avenue, Suite 1000 Chicago, IL 60603</td>
<td></td>
</tr>
<tr>
<td>MSS</td>
<td>Manufacturers Standardization Society for the Valve and Fittings Industry 703/281-6613</td>
<td>127 Park Street, NE Vienna, VA 22180-4602</td>
<td></td>
</tr>
<tr>
<td>NAA</td>
<td>National Arborist Association 800/733-2622</td>
<td>P.O. Box 1094603/673-3311 Amherst, NH 03031-1094 <a href="http://www.natlarb.com">www.natlarb.com</a></td>
<td></td>
</tr>
<tr>
<td>Acronym</td>
<td>Organization Name</td>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>NAAMM</td>
<td>National Association of Architectural Metal Manufacturers</td>
<td>312/782-5590</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 South Michigan Avenue, Suite 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chicago, IL 60603</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.gss.net/naamm">www.gss.net/naamm</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAIMA</td>
<td>North American Insulation Manufacturers Association</td>
<td>703/684-0084</td>
<td></td>
</tr>
<tr>
<td></td>
<td>44 Canal Center Plaza, Suite 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alexandria, VA 22314</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.naima.org">www.naima.org</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAPA</td>
<td>National Asphalt Pavement Association</td>
<td>301/731-4748</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NAPA Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5100 Forbes Blvd.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lanham, MD 20706-4413</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCSPA</td>
<td>National Corrugated Steel Pipe Association</td>
<td>202/452-1700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1255 23rd Street, NW, Suite 850</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Washington, DC 20037</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.ncspa.org">www.ncspa.org</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEBB</td>
<td>National Environmental Balancing Bureau</td>
<td>301/977-3698</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8575 Grovemont Circle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gaithersburg, MD 20877-4121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NECA</td>
<td>National Electrical Contractors Association</td>
<td>301/657-3110</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Bethesda Metro Center, Suite 110</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bethesda, MD 20814-5372</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEI</td>
<td>National Elevator Industry</td>
<td>201/944-3211</td>
<td></td>
</tr>
<tr>
<td></td>
<td>185 Bridge Plaza North, Suite 310</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fort Lee, NJ 07024</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers' Association</td>
<td>703/841-3200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1300 N. 17th Street, Suite 1847</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rosslyn, VA 22209</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.nema.org">www.nema.org</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
<td>800/344-3555</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One Batterymarch Park</td>
<td>617/770-3000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P.O. Box 9101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>Address</td>
<td>Phone</td>
<td>Website</td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>NHLA National Hardwood Lumber Association</td>
<td>Quincy, MA 02269-9101</td>
<td>901/377-1818</td>
<td><a href="http://www.nfpa.org">www.nfpa.org</a></td>
</tr>
<tr>
<td>NPA National Particleboard Association</td>
<td>18928 Premiere Court, Gaithersburg, MD 20879-1569</td>
<td>301/670-0604</td>
<td><a href="http://www.pbmdf.com">www.pbmdf.com</a></td>
</tr>
<tr>
<td>NPCA National Paint and Coatings Association</td>
<td>1500 Rhode Island Avenue, NW, Washington, DC 20005-5597</td>
<td>202/462-6272</td>
<td><a href="http://www.paint.org">www.paint.org</a></td>
</tr>
<tr>
<td>NRCA National Roofing Contractors Association</td>
<td>O'Hare International Center, 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018-5607</td>
<td>800/323-9545</td>
<td><a href="http://www.roofonline.org">www.roofonline.org</a></td>
</tr>
<tr>
<td>NRMCA National Ready Mixed Concrete Association</td>
<td>900 Spring Street, Silver Spring, MD 20910</td>
<td>301/587-1400</td>
<td><a href="http://www.nrmca.org">www.nrmca.org</a></td>
</tr>
<tr>
<td>NSF NSF International</td>
<td>P.O. Box 130140, Ann Arbor, MI 48113-0140</td>
<td>313/769-8010</td>
<td><a href="http://www.nsf.org">www.nsf.org</a></td>
</tr>
<tr>
<td>NUSIG National Uniform Seismic Installation Guidelines</td>
<td>12 Lahoma Court, Alamo, CA 94526</td>
<td>510/946-0135</td>
<td></td>
</tr>
<tr>
<td>Acronym</td>
<td>Organization Name</td>
<td>Address</td>
<td>Phone</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NWWDA</td>
<td>National Wood Window and Door Association</td>
<td>1400 E. Touhy Avenue, G-54847/299-5200 Des Plaines, IL 60018</td>
<td>800/223-2301</td>
</tr>
<tr>
<td>SHA</td>
<td>Occupational Safety and Health Administration</td>
<td>(U.S. Department of Labor) 200 Constitution Ave., NW Washington, DC 20210</td>
<td>202/219-8148</td>
</tr>
<tr>
<td>PCA</td>
<td>Portland Cement Association</td>
<td>5420 Old Orchard Road Skokie, IL 60077-1083</td>
<td>847/966-6200</td>
</tr>
<tr>
<td>PDCA</td>
<td>Painting and Decorating Contractors of America</td>
<td>3913 Old Lee Hwy, Suite 33-B Fairfax, VA 22030</td>
<td>800/332-7322</td>
</tr>
<tr>
<td>PDI</td>
<td>Plumbing and Drainage Institute</td>
<td>45 Bristol Drive, Suite 101 South Easton, MA 02375</td>
<td>800/589-8956</td>
</tr>
<tr>
<td>RFCI</td>
<td>Resilient Floor Covering Institute</td>
<td>966 Hungerford Drive, Suite 12-B Rockville, MD 20805-1714</td>
<td>301/340-8580</td>
</tr>
<tr>
<td>RIS</td>
<td>Redwood Inspection Service</td>
<td>c/o California Redwood Association 405 Enfrente Drive, Suite 200 Novato, CA 94949-7206</td>
<td>415/382-0662</td>
</tr>
<tr>
<td>SDI</td>
<td>Steel Deck Institute</td>
<td>P.O. Box 25 Fox River Grove, IL 60012</td>
<td>847/462-1930</td>
</tr>
<tr>
<td>SDI</td>
<td>Steel Door Institute</td>
<td>30200 Detroit Road Cleveland, OH 44145-1967</td>
<td>216/889-0010</td>
</tr>
</tbody>
</table>

NWWDA: National Wood Window and Door Association
SHA: Occupational Safety and Health Administration
PCA: Portland Cement Association
PDCA: Painting and Decorating Contractors of America
PDI: Plumbing and Drainage Institute
RFCI: Resilient Floor Covering Institute
RIS: Redwood Inspection Service
SDI: Steel Deck Institute
SDI: Steel Door Institute
SMA  Stucco Manufacturers Association  213/789-8733
14006 Ventura Blvd.
Sherman Oaks, CA  91403

SMACNA  Sheet Metal and Airconditioning Contractors  703/803-2980
National Association, Inc.
P.O. Box 221230
Chantilly, VA  20151-1209
www.smacna.org
<table>
<thead>
<tr>
<th>Association</th>
<th>Description</th>
<th>Phone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPI</td>
<td>Society of the Plastics Industry, Inc. Spray Polyurethane Division</td>
<td>800/951-2001</td>
</tr>
<tr>
<td></td>
<td>202/974-5200 1801 K Street, NW, Suite 600K Washington, DC 20006</td>
<td><a href="http://www.socplas.org">www.socplas.org</a></td>
</tr>
<tr>
<td>SSPC</td>
<td>Steel Structures Painting Council</td>
<td>412/281-2331</td>
</tr>
<tr>
<td></td>
<td>40 24th Street, 6th Floor Pittsburgh, PA 15222-4643</td>
<td></td>
</tr>
<tr>
<td>TCA</td>
<td>Tile Council of America</td>
<td>864/646-8453</td>
</tr>
<tr>
<td></td>
<td>100 Clemson Research Blvd. Anderson, SC 29625</td>
<td></td>
</tr>
<tr>
<td>TPI</td>
<td>Turfgrass Producers International</td>
<td>800/405-8873 847/705-9898</td>
</tr>
<tr>
<td></td>
<td>1855-A Hicks Road Rolling Meadows, IL 60008</td>
<td></td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratories, Inc.</td>
<td>800/704-4050</td>
</tr>
<tr>
<td></td>
<td>333 Pfingston Road 847/272-8800 Northbrook, IL 60062</td>
<td><a href="http://www.ul.com">www.ul.com</a></td>
</tr>
<tr>
<td>UNI</td>
<td>Uni-Bell PVC Pipe Association</td>
<td>972/243-3902</td>
</tr>
<tr>
<td></td>
<td>2655 Villa Creek Drive, Suite 155 Dallas, TX 75234</td>
<td><a href="http://www.members.aol.com/unibell1">www.members.aol.com/unibell1</a></td>
</tr>
<tr>
<td>USDA</td>
<td>U.S. Department of Agriculture</td>
<td>202/720-8732</td>
</tr>
<tr>
<td></td>
<td>14th St. and Independence Ave., SW Washington, DC 20250</td>
<td></td>
</tr>
<tr>
<td>WA</td>
<td>Wallcoverings Association</td>
<td>312/644-6610</td>
</tr>
<tr>
<td></td>
<td>401 N. Michigan Avenue Chicago, IL 60611-4267</td>
<td></td>
</tr>
<tr>
<td>WCLIB</td>
<td>West Coast Lumber Inspection Bureau</td>
<td>503/639-0651</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 23145 Portland, OR 97281-3145</td>
<td></td>
</tr>
<tr>
<td>WCMA</td>
<td>Window Covering Manufacturers Association</td>
<td>212/661-4261</td>
</tr>
</tbody>
</table>
QUALITY ASSURANCE - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Purchase of Materials and Equipment;

B. Special Conditions;

C. Imported Materials Certification.

1.02 MATERIAL AND EQUIPMENT

A. Only items approved by the County and/or Architect shall be used.

B. Contractor shall submit lists of products and other product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.03 MATERIAL AND EQUIPMENT COLORS

A. The County and/or Architect will provide a schedule of colors.

B. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.
B. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.

C. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

D. Materials are not be acceptable that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled.

E. Contractor shall store material so as to cause no obstructions of sidewalks, roadways, and underground services. Contractor shall protect material and equipment furnished under Contract.

F. Contractor may store materials on Site with prior written approval by the County, all material shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at no cost to County.

G. When any room in Project is used as a shop or storeroom, the Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by County.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.

B. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

2.02 FACILITIES AND EQUIPMENT
A. Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work connected with Contract.

2.03 MATERIAL REFERENCE STANDARDS

A. Where material is specified solely by reference to “standard specifications” and if requested by County, Contractor shall submit for review data on actual material proposed to be incorporated into Work of Contract listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

PART 3 - EXECUTION

3.01 WORKMANSHIP

A. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).

B. Work shall be executed by tradespersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.02 COORDINATION

A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor’s failure to coordinate will be at no additional cost to County.

B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

3.03 COMPLETENESS

A. Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages,
utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.04 APPROVED INSTALLER OR APPLICATOR

A. Installation by a manufacturer’s approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator that does not have other approved applicator work in progress or completed is not approved for this Project.

3.05 MANUFACTURER'S RECOMMENDATIONS

A. All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should Contract Documents differ from recommendations of manufacturer or directions of his representative, Contractor shall analyze differences, make recommendations to the County and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the County and/or the Architect.

END OF DOCUMENT
QUALITY CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;

B. Special Conditions.

1.02 RELATED CODES:

A. The Work is governed by requirements of Title 24, California Code of Regulations (“CCR”), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.

1.03 OBSERVATION AND SUPERVISION:

The County and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations.

1.04 TESTING AGENCIES:

A. Testing agencies and tests shall be in conformance with the General Documents.

B. Testing and inspection in connection with earthwork shall be under the direction of the County's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer."

C. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory, referred to hereinafter as the "Testing Laboratory." The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the County.
1.05 TESTS AND INSPECTIONS:

A. The Contractor shall be responsible for notifying the Construction Manager of all required tests and inspections. Contractor shall notify the Construction Manager forty-eight (48) hours in advance of performing any Work requiring testing or inspection.

B. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.

C. The County will pay for first inspections and tests required by the “CCR”, and other inspections or tests that the County and/or the Architect may direct to have made, including the following principal items:

   (1) Tests and observations for earthwork and paving.
   (2) Tests for concrete mix designs, including tests of trial batches.
   (3) Tests and inspections for structural steel work.
   (4) Field tests for framing lumber moisture content.
   (5) Additional tests directed by the County that establish that materials and installation comply with the Contract Documents.
   (6) Test and observation of welding and expansion anchors.

D. The County may at its discretion, pay and back charge the Contractor for:

   (1) Retests or reinspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.
   (2) Uncovering of work in accordance with Contract Documents.
   (3) Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.
   (4) Testing done off Site.

E. Testing and inspection reports and certifications:
If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.

a. The County;

b. The Construction Manager, if any;

c. The Architect;

d. The Consulting Engineer, if any;

e. Other Engineers on the Project, as appropriate; and

f. The Contractor.

PART 2 - PRODUCTS

2.01 TYPE OF TEST AND INSPECTIONS (As Applies to the Project):

[THE FOLLOWING ARE EXAMPLES ONLY AND SHOULD BE REVISED WITH CONSULTATIONS WITH ARCHITECT.]

A. Slump Test
   ASTM C 143

B. Concrete Tests
   Testing agency shall test concrete used in the work per the following paragraphs:

(1) Compressive Strength:

a. Minimum number of tests required: One (1) set of three (3) cylinders for each 100 cubic yards (Sec. 2604(h) 01) of concrete or major fraction thereof, placed in one (1) day. See Title 24, Section 2605(g).

b. Two cylinders of each set shall be tested at twenty-eight (28) days. One (1) cylinder shall be held in reserve and tested only when directed by the Architect or County.
c. Concrete shall test the minimum ultimate compressive strength in 28 days, as specified on the structural drawings.

d. In the event that the twenty-eight (28) day test falls below the minimum specified strength, the effective concrete in place shall be tested by taking cores in accordance with UBC Standard No. 26-13 and tested as required for cylinders.

e. In the event that the test on core specimens falls below the minimum specified strength, the concrete will be deemed defective and shall be removed and replaced upon such direction of the Architect.

C. Reinforcing, Steel

D. Structural Steel Per Title 24 and as noted:

(1) Material: Steel per Table in Title 24, Section 2712.

(2) Qualification of Welders (UBC Std. 27-6).

(3) Shop fabrication (Section 2712(d). Structural steel only).

(4) Shop and field welding (Section 2712(e)).

END OF DOCUMENT
1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions
B. Special Conditions
C. Site Standards

1.02 TEMPORARY UTILITIES:

A. Electric Power and Lighting

(1) The County will furnish and pay for power during the course of the work to the extent power is available in the building(s) or on the Site. The Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.

(2) Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.

(3) The Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.

B. Heat and Ventilation

(1) Contractor shall provide temporary heat to maintain environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation and curing of materials, and to protect
materials and finishes from damage due to improper temperature and humidity conditions. Portable heaters shall be standard units complete with controls.

(2) Contractor shall provide forced ventilation and dehumidification, as required, of enclosed areas for proper installation and curing of materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.

(3) Contractor shall pay the costs of installation, maintenance, operation, and removal of temporary heat and ventilation, including costs for fuel consumed, required for the performance of the Work.

C. Water

(1) The County will furnish and pay for water during the course of the work to the extent water is then available in the building(s) or on the Site. The Contractor shall be responsible for providing temporary facilities required to deliver such utility service from its existing location in the building(s) or on the Site to point of intended use.

(2) Contractor shall use backflow preventers on water lines at point of connection to County's water supply. Backflow preventers shall comply with requirements of Uniform Plumbing Code.

(3) Contractor shall make potable water available for human consumption.

D. Sanitary Facilities

(1) Contractor shall provide sanitary temporary facilities in no fewer numbers than required by law and such additional facilities as may be directed by the County for the use of all workers. The facilities shall be maintained in a sanitary condition at all times and shall be left at the Site until removal is directed by the County or Contractor completes all other work at the Site.

(2) Use of toilet facilities in the Work under construction shall not be permitted except by consent of the County.

E. Telephone Service

(1) Contractor shall arrange with local telephone service company for telephone service for the performance of the Work. Contractor shall, at a
minimum, provide in its field office one line for telephone and one line for fax machine.

(2) Contractor shall pay the costs for telephone and fax lines installation, maintenance, service, and removal.

F. Fire Protection:

(1) Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshal and/or its designee.

(2) Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.

G. Trash Removal:


[ ADD REQUIREMENTS ]

1.03 CONSTRUCTION AIDS:

A. Plant and Equipment:

(1) Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workmen. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.

(2) Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the County.

B. None of the County's tools and equipment shall be used by Contractor for the performance of the Work

1.04 BARRIERS AND ENCLOSURES:
A. Contractor shall obtain the County's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.

B. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.

C. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.

D. Tree and Plant Protection:
   (1) Contractor shall preserve and protect existing trees and plants on the Premises that are not designated or required to be removed, and those adjacent to the Premises.
   (2) Contractor shall provide barriers to a minimum height of 4'-0" around drip line of each tree and plant, around each group of trees and plants, as applicable, in the proximity of demolition and construction operations.
   (3) Contractor shall not park trucks, store materials, perform Work or cross over landscaped areas. Contractor shall not dispose of paint thinners, water from cleaning, plastering or concrete operations, or other deleterious materials in landscaped areas, storm drain systems, or sewers. Plant materials damaged as a result of the performance of the Work shall, at the option of the County and at Contractor's expense, either be replaced with new plant materials equal in size to those damaged or by payment of an amount representing the value of the damaged materials as determined by the County.
   (4) Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.
   (5) Excavation Around Trees:
(a) Excavation within drip lines of trees shall be done only where absolutely necessary and with written permission from the County.

(b) Where trenching for utilities is required within drip lines, tunneling under and around roots shall be by hand digging and shall be approved by the County. Main lateral roots and taproots shall not be cut. All roots 2 inches in diameter and larger shall be tunnelled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the County. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.

(c) Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.

(d) Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.

(e) Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.

(f) Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

1.05 SECURITY:

A. The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

1.06 TEMPORARY CONTROLS:
A. Noise Control

(1) Contractor acknowledge, that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.

(2) Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the County a minimum of forty-eight (48) hours in advance of their performance.

B. Noise and Vibration

(1) Equipment and impact tools shall have intake and exhaust mufflers.

(2) Contractor shall cooperate with County to minimize and/or seize the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

C. Dust and Dirt

(1) Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.

(2) Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.

(3) Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.

(4) Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

D. Water

Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation
develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

E. Pollution

(1) No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.

(2) Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

F. Lighting:

(1) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

1.07 JOB SIGN(S):

A. General:

(1) Contractor shall provide and maintain a Project identification sign with the design, text, and colors designated by the County and/or the Architect; locate sign as approved by the County.

(2) Signs other than the specified Project sign and or signs required by law, for safety, or for egress, shall not be permitted, unless otherwise approved in advance by the County.

B. Materials:

(1) Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.

(2) Sign Surface: Minimum 3/4-inch exterior grade plywood.

(3) Rough Hardware: Galvanized.

(4) Paint: Exterior quality, of type and colors selected by the County and/or the Architect.
C. Fabrication:

(1) Contractor shall fabricate to provide smooth, even surface for painting.

(2) Size: 4'-0" x 8'-0", unless otherwise indicated.

(3) Contractor shall paint exposed surfaces of supports, framing, and surface material with exterior grade paint: one coat of primer and one coat of finish paint.

(4) Text and Graphics: As indicated.

1.08 PUBLICITY RELEASES:

A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s).

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. Instructions to Bidders;

B. General Conditions, including, without limitation, Substitutions For Specified Items;

C. Special Conditions.

D. LEED™ Requirements Document 01 35 13.23

1.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT:

A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.

B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the County and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.

C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions.

D. If the County and/or Architect, in reviewing proposed substitute materials and equipment, require revisions or corrections to be made to previously accepted
Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the County and/or Architect to be unacceptable, the specified material or equipment shall be provided.

E. Samples may be required. Tests required by the County and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the County.

F. In reviewing the supporting data submitted for substitutions, the County and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the County will deduct the costs from the Contract Price.

END OF DOCUMENT
Highland ATR Make Ready Work

Fairmont Campus – Building C & E  
Project # 2043-02

DOCUMENT 01 65 00

DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Site Access, Conditions and Requirements;

B. Special Conditions.

1.02 PRODUCTS

A. Products are as defined in the General Conditions.

B. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.

C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.03 TRANSPORTATION AND HANDLING

A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.

B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.

C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

A. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate controlled enclosures.
B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.

C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.

D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

E. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.

F. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

G. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Documents on Work;

B. Special Conditions.

PART 2 - RECORD DRAWINGS

2.01 GENERAL:

A. As indicated in the Contract Documents, the County will provide Contractor with one set of reproducible (mylars) plans of the original Contract Drawings.

B. Contractor shall maintain at each Project Site one set of marked-up blueline prints and each month, or as otherwise agreed, shall transfer all changes and information to those marked-up blueline prints. Contractor shall submit to the Project Inspector one set of reproducible vellums of the Project Record Drawings (“As-Builts”) showing all changes incorporated into the Work since the preceding monthly submittal. The Record Drawings shall be available at the Project Site. The Contractor shall submit reproducible vellums at the conclusion of the Project following review of the blueline prints.

C. Label and date each Record Drawing "RECORD DOCUMENT" in legibly printed letters.

D. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, Construction Claim Directives, RFI’s, and Addenda, shall be accurately and legibly recorded by Contractor.

E. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.02 RECORD DRAWING INFORMATION:

A. Contractor shall record the following information:

(1) Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.
Highland ATR Make Ready Work
Fairmont Campus – Building C & E
Project # 2043-02

(2) Actual numbering of each electrical circuit.

(3) Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.

(4) Locations of all items, not necessarily concealed, which vary from the Contract Documents.

(5) Installed location of all cathodic protection anodes.

(6) Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.

(7) Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.

(8) Sufficient information to locate Work concealed in each building with reasonable ease and accuracy. In some instances, this may be by dimension, in others, it may be in relation to the spaces in the building near which it was installed.

B. Contractor shall provide additional drawings as necessary for clarification.

C. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."

D. The County will provide the Contractor with one set of electronic contract drawing files in AutoCAD 14, (or higher version) format for the Contractor to electronically update with record drawings information which is to be submitted to the County.

PART 3 - RECORD SPECIFICATIONS

3.01 GENERAL:

A. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.

PART 4 - MAINTENANCE OF RECORD DOCUMENTS

4.01 GENERAL

A. Contractor shall store Record Documents apart from documents used for construction:

(1) Provide files and racks for storage of Record Documents.

(2) Maintain Record Documents in a clean, dry, legible condition and in good order.
B. Do not use Record Documents for construction purposes.

PART 5 – PRODUCTS Not Used.

END OF SECTION
FIELD ENGINEERING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Site Investigation, and Soils Investigation Report;

B. Special Conditions;

C. Site-Visit Certification.

1.02 REQUIREMENTS INCLUDED:

A. Contractor shall provide and pay for field engineering services by a California-registered engineer, required for the project, including, without limitations:

(1) Survey work required in execution of the Project.

(2) Civil or other professional engineering services specified, or required to execute Contractor's construction methods.

1.03 QUALIFICATIONS OF SURVEYOR OR ENGINEERS:

A. Contractor shall only use a qualified licensed engineer or registered land surveyor, to whom County makes no objection.

1.04 SURVEY REFERENCE POINTS:

A. Existing basic horizontal and vertical control points for the Project are those designated on the Drawings.

B. Contractor shall locate and protect control points prior to starting Site Work and preserve all permanent reference points during construction. In addition Contractor shall:

(1) Make no changes or relocation without prior written notice to County and Architect.
(2) Report to County and Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

(3) Require surveyor to replace Project control points based on original survey control that may be lost or destroyed.

1.05 RECORDS:

A. Contractor shall maintain a complete, accurate log of all control and survey work as it progresses.

1.06 SUBMITTALS:

A. Contractor shall submit name and address of Surveyor and Professional Engineer to County and Architect prior to its/their work on the Project.

B. On request of County and Architect, Contractor shall submit documentation to verify accuracy of field engineering work, at no additional cost to the County.

C. Contractor shall submit a certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance or nonconformance with Contract Documents.

PART 2 – PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 Contractor is responsible for meeting all applicable codes, OSHA, safety and shoring requirements.

3.02 Contractor is responsible for any re-surveying required by correction of nonconforming work.

END OF DOCUMENT
1. PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions;

C. Hazardous Materials Procedures and Requirements;

D. Hazardous Materials Certification;

E. Imported Materials Certification.

1.02 CUTTING AND PATCHING:

A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:

(1) Make several parts fit together properly.

(2) Uncover portions of Work to provide for installation of ill-timed Work.

(3) Remove and replace defective Work.

(4) Remove and replace Work not conforming to requirements of Contract Documents.

(5) Remove Samples of installed Work as specified for testing.

(6) Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

(7) Attach new materials to existing remodeling areas, including painting (or other finishes) to match existing conditions.
B. In addition to Contract requirements, upon written instructions from the County, Contractor shall uncover Work to provide for observations of covered Work in accordance with the Contract Documents; remove samples of installed materials for testing as directed by County; and remove Work to provide for alteration of existing Work.

C. Contractor shall not cut or alter Work, or any part of it, in such a way that endangers or compromises the integrity of the Work, the Project, or work of others.

1.03 SUBMITTALS:

A. Prior to any cutting or alterations that may affect the structural safety of Project, or work of others, and well in advance of executing such cutting or alterations, Contractor shall submit written notice to County pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration, including the following:

- The Work of the County or other trades.
- Structural value or integrity of any element of Project.
- Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.
- Efficiency, operational life, maintenance or safety of operational elements.
- Visual qualities of sight-exposed elements.

B. Contractor's Request shall also include:

- Identification of Project.
- Description of affected Work.
- Necessity for cutting, alteration, or excavations.
- Effects of Work on County, other trades, or structural or weatherproof integrity of Project.
- Description of proposed Work:
(a) Scope of cutting, patching, alteration, or excavation.

(b) Trades that will execute Work.

(c) Products proposed to be used.

(d) Extent of refinishing to be done.

(6) Alternates to cutting and patching.

(7) Cost proposal, when applicable.

(8) The scheduled date the Contractor intends to perform the Work and the duration of time to complete the Work.

(9) Written permission of other trades whose Work will be affected.

1.04 QUALITY ASSURANCE:

A. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.

B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the County's decision shall be final.

1.05 PAYMENT FOR COSTS:

A. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the County, its consultants, including but not limited to the Construction Manager, the Architect, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the County.

B. County shall only pay for cost of Work if it is part of the original Contract Price or if a change has been made to the contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the County,
other than defective or nonconforming Work, will be paid by County on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Contractor shall provide for replacement and restoration of Work removed. Contractor shall comply with the Contract Documents and with the Industry Standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, Contractor shall first recommend a product of a manufacturer or appropriate trade association for approval by the County.

B. Materials to be cut and patched include those damaged by the performance of the Work.

PART 3 – EXECUTION

3.01 INSPECTION:

A. Contractor shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, Contractor shall inspect conditions affecting installation of new products.

B. Contractor shall report unsatisfactory or questionable conditions in writing to County as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by County.

3.02 PREPARATION:

A. Contractor shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.

B. Contractor shall provide devices and methods to protect other portions of Project from damage.

C. Contractor shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation, any work
that may be exposed by cutting and patching Work. Contractor shall keep excavations free from water.

3.03 ERECTION, INSTALLATION AND APPLICATION:

A. With respect to performance, Contractor shall:

(1) Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.

(2) Execute cutting and demolition by methods that will prevent damage to other Work, and provide proper surfaces to receive installation of repairs and new Work.

(3) Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage to settlement.

B. Contractor shall employ original installer or fabricator to perform cutting and patching for:

(1) Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.

(2) Sight-exposed finished surfaces.

C. Contractor shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.

D. Contractor shall fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Contractor shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. Contractor shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.

E. Contractor shall restore Work which has been cut or removed. Contractor shall install new products to provide completed Work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.
F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF DOCUMENT
PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions;

B. Special Conditions.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK:

A. New Materials: As specified in the Contract Documents including, without limitation, in the Specifications, Contractor shall match existing products, conditions, and work for patching and extending work.

B. Type and Quality of Existing Products: Contractor shall determine by inspection, by testing products where necessary, by referring to existing conditions and to the Work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Contractor shall verify that demolition is complete and that areas are ready for installation of new Work.

B. By beginning restoration Work, Contract or acknowledges and accepts the existing conditions.

3.02 PREPARATION:

A. Contractor shall cut, move, or remove items as necessary for access to alterations and renovation Work. Contractor shall replace and restore these at completion.
B. Contractor shall remove unsuitable material not as salvage unless otherwise indicated in the Contract Documents. Unsuitable material may include, without limitation, rotted wood, corroded metals, and deteriorated masonry and concrete. Contractor shall replace materials as specified for finished Work.

C. Contractor shall remove debris and abandoned items from all areas of the Site and from concealed spaces.

D. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.

E. Contractor shall close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Contractor shall insulate ductwork and piping to prevent condensation in exposed areas. Contractor shall insulate building cavities for thermal and/or acoustical protection, as detailed.

3.03 INSTALLATION:

A. Contractor shall coordinate Work of all alternations and renovations to expedite completion and to accommodate County occupancy.

B. Designated Areas and Finishes: Contractor shall complete all installations in all respects, including operational, mechanical work and electrical work.

C. Contractor shall remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.

D. Contractor shall refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.

E. Contractor shall install products as specified in the Contract Documents, including without limitation, the Specifications.

3.04 TRANSITIONS:

A. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work must match existing adjacent work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, Contractor shall terminate existing surface along a straight line at a
natural line of division and make a recommendation for resolution to the County and the Architect for review and approval.

3.05 ADJUSTMENTS:

A. Where removal of partitions or walls results in adjacent spaces becoming one, Contractor shall rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

B. Where a change of plane of 1/4 inch or more occurs, Contractor shall submit a recommendation for providing a smooth transition to the County and the Architect for review and approval.

C. Contractor shall trim existing doors as necessary to clear new floor finish and refinish trim as required.

D. Contractor shall fit Work at penetrations of surfaces.

3.06 REPAIR OF DAMAGED SURFACES:

A. Contractor shall patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

B. Contractor shall repair substrate prior to patching finish.

3.07 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS:

A. Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored by Contractor to their original condition or better, where indicated.

B. Contractor shall protect and replace, if damaged, all existing guard posts, barricades, and fences.

C. Contractor shall give special attention to avoid damaging or killing trees, bushes and/or shrubs on the Premises and/or identified the Contract Documents, including without limitation, the Drawings.

3.08 FINISHES:

A. Contractor shall finish surfaces as specified in the Contract Documents, including without limitations, the provisions of all Divisions of the Specifications.
B. Contractor shall finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, Contractor shall refinish entire surface to nearest intersections.

3.09 CLEANING:

A. Contractor shall continually clean the Site and the Premises as indicated in the Contract Documents, including without limitation, the provisions in the General Conditions and the Specifications regarding cleaning.

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Completion of Work;
B. Special Conditions;
C. Construction Facilities and Temporary Controls.

1.02 CLOSEOUT PROCEDURES

Contractor shall comply with all closeout provisions as indicated in the General Conditions.

1.03 FINAL CLEANING

A. Contractor shall execute final cleaning prior to final inspection.
B. Contractor shall clean interior and exterior glass and surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.
C. Contractor shall clean equipment and fixtures to a sanitary condition.
D. Contractor shall replace filters of operating equipment.
E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.
F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.
G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site.
1.04 ADJUSTING

A. Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

B. Record Documents and Shop Drawings: Contractor shall legibly mark each item to record actual construction, including:
   (1) Measured depths of foundations in relation to finish floor datum.
   (2) Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   (3) Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   (4) Field changes of dimension and detail.
   (5) Details not on original Contract Drawings.
   (6) Changes made by modification(s).
   (7) References to related Shop Drawings and modifications.

C. County will provide one set of reproducible drawings to Contractor.

D. Contractor shall submit all required documents to County and/or Architect prior to or with its final Application for Payment.

1.06 INSTRUCTION OF COUNTY PERSONNEL:

A. Before final inspection, at agreed upon times, Contractor shall instruct County's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six months.

C. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
D. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

E. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS:

A. Contractor shall provide products, spare parts, maintenance, and extra materials in quantities specified in the Specifications and in Manufacturer's recommendations.

B. Contractor shall provide County all required Operation and Maintenance Data.

PART 2 – PRODUCTS Not used.

PART 3 – EXECUTION Not used.

END OF SECTION
PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Completion of the Work;
B. Special Conditions.

1.02 QUALITY ASSURANCE:

A. Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.03 FORMAT:


B. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Contractor shall correlate data into related consistent groupings.

C. Cover: Contractor shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.

D. Contractor shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.

E. Contractor shall provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.
G. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.04 CONTENTS, EACH VOLUME:

A. Table of Contents: Contractor shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and Contractor with name of responsible parties; and schedule of products and systems, indexed to content of the volume.

B. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.

C. Product Data: Contractor shall mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

D. Drawings: Contractor shall supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.

E. Text: The Contractor shall include any and all information as required to supplement product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

F. Warranties and Bonds: Contractor shall bind in one copy of each.

1.05 MANUAL FOR MATERIALS AND FINISHES:

A. Building Products, Applied Materials, and Finishes: Contractor shall include product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Contractor shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture Protection and Weather Exposed Products: Contractor shall include product data listing applicable reference standards, chemical composition, and
details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.

D. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.

E. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.06 MANUAL FOR EQUIPMENT AND SYSTEMS:

A. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.

B. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.

C. Contractor shall include color coded wiring diagrams as installed.

D. Operating Procedures: Contractor shall include start-up, break-in, and routine normal operating instructions and sequences. Contractor shall include regulation, control, stopping, shut-down, and emergency instructions. Contractor shall include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.

G. Contractor shall include manufacturer's printed operation and maintenance instructions.

H. Contractor shall include sequence of operation by controls manufacturer.

I. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Contractor shall provide control diagrams by controls manufacturer as installed.
K. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.

L. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).

O. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.08 SUBMITTAL:

A. Contractor shall submit to the County for review two (2) copies of preliminary draft or proposed formats and outlines of the contents of the Manual within thirty (30) days of Contractor’s start of Work.

B. For equipment, or component parts of equipment put into service during construction and to be operated by County, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.

C. Contractor shall submit two (2) copies of a complete Manual in final form prior to final Application for Payment. Copy will be returned with Architect/Engineer comments. Contractor must revise the content of the Manual as required by County prior to County's approval of Contractor’s final Application for Payment.

D. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after final inspection.

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Warranty/Guarantee Information;

B. Special Conditions.

1.02 FORMAT

A. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.

B. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES” and shall list title of Project.

C. Table of Contents: Contractor shall provide title of Project; name, address, and telephone number of Contractor and equipment supplier, and name of responsible principal. Contractor shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the product or work item is specified.

D. Contractor shall separate each warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. Contractor shall list each applicable and/or responsible subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).

1.03 PREPARATION:

A. Contractor shall obtain warranties, executed in duplicate by each applicable and/or responsible subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or work. Except for items put into use with County's permission, Contractor shall leave date of beginning of time of warranty until the date of completion is determined.
B. Contractor shall verify that documents are in proper form, contain full information, and are notarized, when required.

C. Contractor shall co-execute submittals when required.

D. Contractor shall retain warranties until time specified for submittal.

1.04 TIME OF SUBMITTALS:

A. For equipment or component parts of equipment put into service during construction with County's permission, Contractor shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.

B. Contractor shall submit for County approval all warranties and related documents within ten (10) days after date of completion. Contractor must revise the warranties as required by the County prior to County's approval of Contractor's final Application for Payment.

C. For items of work delayed beyond date of completion, provide updated submittal within ten days after acceptance, listing the date of acceptance as start of warranty period.

END OF DOCUMENT
PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Documents on Work;
B. Special Conditions.

PART 2 - RECORD DRAWINGS

2.01 GENERAL:

A. As indicated in the Contract Documents, the County will provide Contractor with one set of reproducible (Bond) plans of the original Contract Drawings.

B. Contractor shall maintain at each Project Site one set of marked-up prints and each month, or as otherwise agreed, shall transfer all changes and information to those marked-up prints. Contractor shall submit to the Project Inspector one set of the Project Record Drawings (“As-Builts”) showing all changes incorporated into the Work since the preceding monthly submittal. The Record Drawings shall be available at the Project Site. The Contractor shall submit As Built plans at the conclusion of the Project following review of the prints.

C. Label and date each Record Drawing "RECORD DOCUMENT" in legibly printed letters.

D. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, Construction Claim Directives, RFI’s, and Addenda, shall be accurately and legibly recorded by Contractor.

E. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.02 RECORD DRAWING INFORMATION:

A. Contractor shall record the following information:

(1) Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.
(2) Actual numbering of each electrical circuit.

(3) Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.

(4) Locations of all items, not necessarily concealed, which vary from the Contract Documents.

(5) Installed location of all cathodic protection anodes.

(6) Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.

(7) Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.

(8) Sufficient information to locate Work concealed in each building with reasonable ease and accuracy. In some instances, this may be by dimension, in others, it may be in relation to the spaces in the building near which it was installed.

B. Contractor shall provide additional drawings as necessary for clarification.

C. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."

D. The County will provide the Contractor with one set of electronic contract drawing files in AutoCAD 14, (or higher version) format for the Contractor to electronically update with record drawings information which is to be submitted to the County.

PART 3 - RECORD SPECIFICATIONS

3.01 GENERAL:

A. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.

PART 4 - MAINTENANCE OF RECORD DOCUMENTS

4.01 GENERAL

A. Contractor shall store Record Documents apart from documents used for construction:

   (1) Provide files and racks for storage of Record Documents.

   (2) Maintain Record Documents in a clean, dry, legible condition and in good order.
B. Do not use Record Documents for construction purposes.

PART 5 – PRODUCTS Not Used.

END OF SECTION
 document 01 91 13

general commissioning requirements

part 1 - general

1.01 related documents

A. Drawings and general provisions of the Contract, including General and Supplementary
   Conditions and other Division 01 Specification Sections, apply to this Section.

B. OPR and BoD documentation prepared by Owner and Architect contains requirements
   that apply to this Section.

1.02 summary

A. This Section includes general requirements that apply to implementation of commissioning
   without regard to systems, subsystems, and equipment being commissioned.

B. Related Sections include the following:

   1. Division 1 Section "HVAC Commissioning Requirements" for specific
      requirements for commissioning HVAC systems.

1.2 definitions

A. BoD: Basis of Design.

B. CxA: Commissioning Authority.

C. OPR: Owner's Project Requirements.

D. Systems, Subsystems, and Equipment: Where these terms are used together or
   separately, they shall mean "as-built" systems, subsystems, and equipment.

E. TAB: Testing, Adjusting, and Balancing.

1.3 commissioning team

A. Members Appointed by Contractor(s): Individuals, each having authority to act on
   behalf of the entity he or she represents, explicitly organized to implement the
   commissioning process through coordinated actions. The commissioning team shall
   consist of, but not be limited to, representatives of [each ]Contractor, including Project
superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.

B. Members Appointed by Owner:
1. CxA: The designated person, company, or entity that plans, schedules, and coordinates the commissioning team to implement the commissioning process. Owner will engage the CxA under a separate contract.
2. Representatives of the facility user and operation and maintenance personnel.
3. Architect and engineering design professionals.

1.4 OWNER'S RESPONSIBILITIES

A. Provide the OPR documentation to the CxA and [each ]Contractor for use in developing the commissioning plan; systems manual; operation and maintenance training plan; and testing plans and checklists.

B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities including, but not limited to, the following:

1. Coordination meetings.
2. Training in operation and maintenance of systems, subsystems, and equipment.
3. Testing meetings.
4. Demonstration of operation of systems, subsystems, and equipment.

C. Provide utility services required for the commissioning process.

D. Provide the BoD documents, prepared by Architect and approved by Owner, to the CxA and [each ]Contractor for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

1.5 CONTRACTOR'S RESPONSIBILITIES

A. Provide utility services required for the commissioning process.

B. [Each ]Contractor shall assign representatives with expertise and authority to act on behalf of the Contractor and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:

1. Participate in design- and construction-phase coordination meetings.
2. Participate in maintenance orientation and inspection.
3. Participate in operation and maintenance training sessions.
4. Participate in final review at acceptance meeting.
5. Certify that Work is complete and systems are operational according to the Contract Documents, including calibration of instrumentation and controls.
6. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
7. Review and approve final commissioning documentation.

C. Subcontractors shall assign representatives with expertise and authority to act on behalf of subcontractors and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:

1. Participate in design- and construction-phase coordination meetings.
2. Participate in maintenance orientation and inspection.
3. Participate in procedures meeting for testing.
4. Participate in final review at acceptance meeting.
5. Provide schedule for operation and maintenance data submittals, equipment startup, and testing to CxA for incorporation into the commissioning plan. Update schedule on a weekly basis throughout the construction period.
6. Provide information to the CxA for developing construction-phase commissioning plan.
7. Participate in training sessions for Owner's operation and maintenance personnel.
8. Provide updated Project Record Documents to the CxA on a daily basis.
9. Gather and submit operation and maintenance data for systems, subsystems, and equipment to the CxA, as specified in Division 1 Section "Operation and Maintenance Data."
10. Provide technicians who are familiar with the construction and operation of installed systems and who shall develop specific test procedures and participate in testing of installed systems, subsystems, and equipment.

1.6 CxA'S RESPONSIBILITIES

A. Organize and lead the commissioning team.
B. Prepare a construction-phase commissioning plan. Collaborate with [each Contractor and with subcontractors to develop test and inspection procedures. Include design changes and scheduled commissioning activities coordinated with overall Project schedule. Identify commissioning team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task.
C. Review and comment on submittals from [each Contractor for compliance with the OPR, BoD, Contract Documents, and construction-phase commissioning plan. Review and comment on performance expectations of systems and equipment and interfaces between systems relating to the OPR and BoD.
D. Convene commissioning team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes. Responsibilities include arranging for facilities, preparing agenda and attendance lists, and notifying participants. The CxA shall prepare and distribute
minutes to commissioning team members and attendees within [five] <Insert number> workdays of the commissioning meeting.

E. At the beginning of the construction phase, conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for operation and maintenance submittals; operation and maintenance training sessions; TAB Work; and Project completion.

F. Observe and inspect construction and report progress and deficiencies. In addition to compliance with the OPR, BoD, and Contract Documents, inspect systems and equipment installation for adequate accessibility for maintenance and component replacement or repair.

G. Prepare Project-specific test and inspection procedures and checklists.

H. Schedule, direct, witness, and document tests, inspections, and systems startup.

I. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning report.

J. Certify date of acceptance and startup for each item of equipment for start of warranty periods.

K. Review Project Record Documents for accuracy. Request revisions from Contractor to achieve accuracy. Project Record Documents requirements are specified in Division 1 Section "Project Record Documents."

L. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BoD, and Contract Documents. Operation and maintenance documentation requirements are specified in Division 1 Section "Operation and Maintenance Data."

M. Prepare operation and maintenance training program and provide qualified instructors to conduct operation and maintenance training. Operation and maintenance training is specified in Division 1 Section "Demonstration and Training."

N. Videotape and edit training sessions.

O. Videotape construction progress including hidden shafts.

P. Prepare commissioning reports.

Q. Assemble the final commissioning documentation, including the commissioning report and Project Record Documents.
1.7 COMMISSIONING DOCUMENTATION

A. Index of Commissioning Documents: CxA shall prepare an index to include storage location of each document.

B. OPR: A written document, prepared by Owner, which details the functional requirements of Project and expectations of how it will be used and operated. This document includes Project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.

C. BoD Document: A document, prepared by Architect, that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

D. Commissioning Plan: A document, prepared by CxA, that outlines the schedule, allocation of resources, and documentation requirements of the commissioning process, and shall include, but is not limited to the following:

1. Plan for delivery and review of submittals, systems manuals, and other documents and reports. Identification of the relationship of these documents to other functions and a detailed description of submittals that are required to support the commissioning processes. Submittal dates shall include the latest date approved submittals must be received without adversely affecting commissioning plan.

2. Description of the organization, layout, and content of commissioning documentation (including systems manual) and a detailed description of documents to be provided along with identification of responsible parties.

3. Identification of systems and equipment to be commissioned.

4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.

5. Identification of items that must be completed before the next operation can proceed.

6. Description of responsibilities of commissioning team members.

7. Description of observations to be made.

8. Description of requirements for operation and maintenance training, including required training materials.

9. Description of expected performance for systems, subsystems, equipment, and controls.

10. Schedule for commissioning activities with specific dates coordinated with overall construction schedule.

11. Identification of installed systems, subsystems, and equipment, including design changes that occurred during the construction phase.


13. Process and schedule for completing prestart and startup checklists for systems, subsystems, and equipment to be verified and tested.
14. Step-by-step procedures for testing systems, subsystems, and equipment with descriptions for methods of verifying relevant data, recording the results obtained, and listing parties involved in performing and verifying tests.

E. Test Checklists: CxA[, with assistance of Architect,] shall develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. Prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Provide space for testing personnel to sign off on each checklist. Specific checklist content requirements are specified in Division 1 Section "HVAC Commissioning Requirements." Each checklist, regardless of system, subsystem, or equipment being tested, shall include, but not be limited to, the following:

1. Name and identification code of tested item.
2. Test number.
3. Time and date of test.
4. Indication of whether the record is for a first test or retest following correction of a problem or issue.
5. Dated signatures of the person performing test and of the witness, if applicable.
6. Individuals present for test.
7. Deficiencies.
8. Issue number, if any, generated as the result of test.

F. Certificate of Readiness: Certificate of Readiness shall be signed by [each ]Contractor, Subcontractor(s), Installer(s), and CxA certifying that systems, subsystems, equipment, and associated controls are ready for testing. Completed test checklists signed by the responsible parties shall accompany this certificate.

G. Test and Inspection Reports: CxA shall record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate for the application shall be included with data. CxA shall compile test and inspection reports and test and inspection certificates and include them in systems manual and commissioning report.

H. Corrective Action Documents: CxA shall document corrective action taken for systems and equipment that fail tests. Include required modifications to systems and equipment and revisions to test procedures, if any. Retest systems and equipment requiring corrective action and document retest results.

I. Issues Log: CxA shall prepare and maintain an issues log that describes design, installation, and performance issues that are at variance with the OPR, BoD, and Contract Documents. Identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.

1. Creating an Issues Log Entry:
a. Identify the issue with unique numeric or alphanumeric identifier by which the issue may be tracked.
b. Assign a descriptive title of the issue.
c. Identify date and time of the issue.
d. Identify test number of test being performed at the time of the observation, if applicable, for cross-reference.
e. Identify system, subsystem, and equipment to which the issue applies.
f. Identify location of system, subsystem, and equipment.
g. Include information that may be helpful in diagnosing or evaluating the issue.
h. Note recommended corrective action.
i. Identify commissioning team member responsible for corrective action.
j. Identify expected date of correction.
k. Identify person documenting the issue.

2. Documenting Issue Resolution:

a. Log date correction is completed or the issue is resolved.
b. Describe corrective action or resolution taken. Include description of diagnostic steps taken to determine root cause of the issue, if any.
c. Identify changes to the OPR, BoD, or Contract Documents that may require action.
d. State that correction was completed and system, subsystem, and equipment is ready for retest, if applicable.
e. Identify person(s) who corrected or resolved the issue.
f. Identify person(s) documenting the issue resolution.

3. Issues Log Report: On a periodic basis, but not less than for each commissioning team meeting, CxA shall prepare a written narrative for review of outstanding issues and a status update of the issues log. As a minimum, CxA shall include the following information in the issues log and expand it in the narrative:

a. Issue number and title.
b. Date of the identification of the issue.
c. Name of the commissioning team member assigned responsibility for resolution.
d. Expected date of correction.

J. Commissioning Report: CxA shall document results of the commissioning process including unresolved issues and performance of systems, subsystems, and equipment. The commissioning report shall indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BoD, and Contract Documents. The commissioning report shall include, but is not limited to, the following:
1. Lists and explanations of substitutions; compromises; variances in the OPR, BoD, and Contract Documents; record of conditions; and, if appropriate, recommendations for resolution. This report shall be used to evaluate systems, subsystems, and equipment and shall serve as a future reference document during Owner occupancy and operation. It shall describe components and performance that exceed requirements of the OPR, BoD, and Contract Documents and those that do not meet requirements of the OPR, BoD, and Contract Documents. It may also include a recommendation for accepting or rejecting systems, subsystems, and equipment.

2. OPR and BoD documentation.

3. Commissioning plan.

4. Testing plans and reports.

5. Corrective modification documentation.

6. Issues log.

7. Completed test checklists.

8. Listing of off-season test(s) not performed and a schedule for their completion.

K. Systems Manual: CxA shall gather required information and compile systems manual. Systems manual shall include, but is not limited to, the following:

1. OPR and BoD, including system narratives, schematics, and changes made throughout the Project.

2. Project Record Documents as specified in Division 1 Section "Project Record Documents."

3. Final commissioning plan.


5. Operation and maintenance data as specified in Division 1 Section "Operation and Maintenance Data."

1.8 SUBMITTALS

A. Commissioning Plan Prefinal Submittal: CxA shall submit [two] <Insert number> hard copies of prefinal commissioning plan. Deliver one copy to [each] Contractor, one to Owner, and one to Architect. Present submittal in sufficient detail to evaluate data collection and arrangement process. One copy, with review comments, will be returned to the CxA for preparation of the final construction-phase commissioning plan.

B. Commissioning Plan Final Submittal: CxA shall submit [two] <Insert number> hard copies and two sets of electronically formatted information of final commissioning plan. Deliver one hard copy and one set of discs to Owner, and one copy to Architect. The final submittal must address previous review comments. The final submittal shall include a copy of the prefinal submittal review comments along with a response to each item.
C. Test Checklists and Report Forms: CxA shall submit sample checklists and forms to each Contractor quality-control manager and subcontractors for review and comment. Submit [two] <Insert number> copies of each checklist and report form.

D. Certificates of Readiness: CxA shall submit Certificates of Readiness.

E. Test and Inspection Reports: CxA shall submit test and inspection reports.

F. Corrective Action Documents: CxA shall submit corrective action documents.

G. Prefinal Commissioning Report Submittal: CxA shall submit [two] <Insert number> hard copies of the prefinal commissioning report. Include a copy of the preliminary submittal review comments along with CxA's response to each item. CxA shall deliver one copy to Owner and one copy to Architect. One copy, with review comments, will be returned to the CxA for preparation of final submittal.

H. Final Commissioning Report Submittal: CxA shall submit [two] <Insert number> hard copies and [two] <Insert number> sets of electronically formatted information of the final commissioning report. CxA shall deliver one hard copy and one set of discs to Owner, and one copy to Architect. The final submittal must address previous review comments and shall include a copy of the prefinal submittal review comments along with a response to each item.

1.9 QUALITY ASSURANCE

A. Instructor Qualifications: Factory-authorized service representatives, experienced in training, operation, and maintenance procedures for installed systems, subsystems, and equipment.

B. Test Equipment Calibration: Comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately whenever instruments have been repaired following damage or dropping. Affix calibration tags to test instruments. Instruments shall have been calibrated within six months prior to use.

1.10 COORDINATION

A. Coordinating Meetings: CxA shall conduct [weekly] [biweekly] [monthly] <Insert frequency> coordination meetings of the commissioning team to review progress on the commissioning plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities.

B. Pretesting Meetings: CxA shall conduct pretest meetings of the commissioning team to review startup reports, pretest inspection results, testing procedures, testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested.
C. Testing Coordination: CxA shall coordinate sequence of testing activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

D. Manufacturers’ Field Services: CxA shall coordinate services of manufacturers’ field services.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 OPERATION AND MAINTENANCE TRAINING REQUIREMENTS

A. Training Preparation Conference: Before operation and maintenance training, CxA shall convene a training preparation conference to include Owner's operation and maintenance personnel, each Contractor, and subcontractors. In addition to requirements specified in Division 1 Section "Demonstration and Training," perform the following:

1. Review the OPR and BoD.
2. Review installed systems, subsystems, and equipment.
3. Review instructor qualifications.
4. Review instructional methods and procedures.
5. Review training module outlines and contents.
6. Review course materials (including operation and maintenance manuals).
7. Inspect and discuss locations and other facilities required for instruction.
8. Review and finalize training schedule and verify availability of educational materials, instructors, audiovisual equipment, and facilities needed to avoid delays.
9. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

B. Training Modules: Develop an instruction program that includes individual training modules for each system, subsystem, and equipment as specified in Division 1 Section "Demonstration and Training."

END OF SECTION
HIGHLAND ACUTE TOWER REPLACEMENT PROJECT
MAKE-READY IMPROVEMENT WORK AT THE FAIRMONT CAMPUS
GENERAL SERVICES AGENCY
COUNTY OF ALAMEDA, CALIFORNIA

FAIRMONT CAMPUS
15400 FOOTHILL BLVD.
SAN LEANDRO, CA 94578

100 % CONSTRUCTION DOCUMENTS
NOVEMBER 10, 2008

SPECIFICATIONS

PREPARED FOR:
General Services Agency
1401 Lakeside Drive, Suite 800
Oakland, CA 94612-4305

THE KPA GROUP – ENGINEERS ARCHITECTS
ONE KAISER PLAZA, SUITE 445
OAKLAND, CA 94612
PHONE: (510) 271-6701  FAX: (510) 271-6707
<table>
<thead>
<tr>
<th>Division 2</th>
<th>Sitework</th>
<th>02 41 19</th>
<th>Selective Demolition</th>
<th>1 through 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division 3</td>
<td>Concrete</td>
<td>03 10 00</td>
<td>Concrete Formwork</td>
<td>1 through 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03 20 00</td>
<td>Concrete Reinforcement</td>
<td>1 through 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03 30 00</td>
<td>Cast-in-Place Concrete</td>
<td>1 through 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03 30 53</td>
<td>Concrete Tests and Inspections</td>
<td>1 through 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03 54 00</td>
<td>Cementitious Underlayment</td>
<td>1 through 3</td>
</tr>
<tr>
<td>Division 5</td>
<td>Metals</td>
<td>05 50 00</td>
<td>Metal Fabrications</td>
<td>1 through 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>05 52 00</td>
<td>Handrails and Railings</td>
<td>1 through 4</td>
</tr>
<tr>
<td>Division 6</td>
<td>Wood and Plastics</td>
<td>06 10 00</td>
<td>Rough Carpentry</td>
<td>1 through 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06 20 00</td>
<td>Finish Carpentry</td>
<td>1 through 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06 41 00</td>
<td>Architectural Millwork</td>
<td>1 through 3</td>
</tr>
<tr>
<td>Division 7</td>
<td>Thermal and Moisture Protection</td>
<td>07 21 00</td>
<td>Building Insulation</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>07 60 00</td>
<td>Sheet Metal Flashing and Trim</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>07 84 00</td>
<td>Firestopping Systems</td>
<td>1 through 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>07 90 00</td>
<td>Joint Sealers</td>
<td>1 through 5</td>
</tr>
<tr>
<td>Division 8</td>
<td>Doors and Windows</td>
<td>08 11 13</td>
<td>Metal Doors and Frames</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>08 14 00</td>
<td>Wood Doors</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>08 31 13</td>
<td>Access Doors</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>08 71 00</td>
<td>Door Hardware</td>
<td>1 through 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>08 80 00</td>
<td>Glass and Glazing</td>
<td>1 through 5</td>
</tr>
<tr>
<td>Division 9</td>
<td>Finishes</td>
<td>09 21 16</td>
<td>Gypsum Board Systems</td>
<td>1 through 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 22 00</td>
<td>Metal Support Systems</td>
<td>1 through 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 23 00</td>
<td>Gypsum Plaster</td>
<td>1 through 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 24 00</td>
<td>Portland Cement Plaster</td>
<td>1 through 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 30 00</td>
<td>Ceramic Tile</td>
<td>1 through 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 65 00</td>
<td>Resilient Flooring</td>
<td>1 through 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 68 13</td>
<td>Carpet</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 72 00</td>
<td>Wall Coverings</td>
<td>1 through 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09 90 00</td>
<td>Paint</td>
<td>1 through 8</td>
</tr>
</tbody>
</table>
### Division 10: Specialties

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 14 00</td>
<td>Signage</td>
<td>1 through 3</td>
</tr>
<tr>
<td>10 21 13</td>
<td>Toilet Partitions</td>
<td>1 through 4</td>
</tr>
<tr>
<td>10 26 13</td>
<td>Corner Guards</td>
<td>1 through 2</td>
</tr>
<tr>
<td>10 28 00</td>
<td>Toilet and Bathroom Accessories</td>
<td>1 through 4</td>
</tr>
<tr>
<td>10 44 00</td>
<td>Fire Extinguishers, Cabinets, and Accessories</td>
<td>1 through 2</td>
</tr>
</tbody>
</table>

### Division 12: Furnishings

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 21 13</td>
<td>Horizontal Louver Blinds</td>
<td>1 through 3</td>
</tr>
</tbody>
</table>

### Division 22: Plumbing

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 05 17</td>
<td>Sleeves And Sleeve Seals For Piping</td>
<td>1 through 4</td>
</tr>
<tr>
<td>22 05 53</td>
<td>Identification For Plumbing, Piping, and Equipment</td>
<td>1 through 3</td>
</tr>
<tr>
<td>22 07 00</td>
<td>Plumbing Insulation</td>
<td>1 through 11</td>
</tr>
<tr>
<td>22 11 16</td>
<td>Domestic Water Piping</td>
<td>1 through 10</td>
</tr>
<tr>
<td>22 11 19</td>
<td>Domestic Water Piping Specialties</td>
<td>1 through 6</td>
</tr>
<tr>
<td>22 11 13</td>
<td>Sanitary Waste and Vent Piping</td>
<td>1 through 6</td>
</tr>
<tr>
<td>22 13 19</td>
<td>Sanitary Waste Piping Specialties</td>
<td>1 through 5</td>
</tr>
<tr>
<td>22 14 29</td>
<td>Sump Pumps</td>
<td>1 through 4</td>
</tr>
<tr>
<td>22 40 00</td>
<td>Plumbing Fixtures</td>
<td>1 through 11</td>
</tr>
</tbody>
</table>

### Division 23: HVAC

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 05 13</td>
<td>Common Motor Requirements for HVAC Equipment</td>
<td>1 through 3</td>
</tr>
<tr>
<td>23 05 19</td>
<td>Meters And Gauges For HVAC Piping</td>
<td>1 through 11</td>
</tr>
<tr>
<td>23 05 23</td>
<td>General Duty Valves For HVAC Piping</td>
<td>1 through 16</td>
</tr>
<tr>
<td>23 05 29</td>
<td>Hangers and Supports for HVAC Piping and Equipment</td>
<td>1 through 11</td>
</tr>
<tr>
<td>23 05 53</td>
<td>Identification for HVAC Piping and Equipment</td>
<td>1 through 5</td>
</tr>
<tr>
<td>23 05 93</td>
<td>Testing, Adjusting, and Balancing for HVAC</td>
<td>1 through 16</td>
</tr>
<tr>
<td>23 07 00</td>
<td>HVAC Insulation</td>
<td>1 through 8</td>
</tr>
<tr>
<td>23 21 13</td>
<td>Hydronic Piping</td>
<td>1 through 14</td>
</tr>
<tr>
<td>23 21 23</td>
<td>Hydronic Pumps</td>
<td>1 through 5</td>
</tr>
<tr>
<td>23 31 13</td>
<td>Metal Ducts</td>
<td>1 through 9</td>
</tr>
<tr>
<td>23 33 00</td>
<td>Air Duct Accessories</td>
<td>1 through 6</td>
</tr>
<tr>
<td>23 34 23</td>
<td>HVAC Power Ventilators</td>
<td>1 through 5</td>
</tr>
<tr>
<td>23 37 13</td>
<td>Diffusers, Registers, and Grilles</td>
<td>1 through 3</td>
</tr>
<tr>
<td>23 82 33</td>
<td>Convectors</td>
<td>1 through 4</td>
</tr>
</tbody>
</table>

### Division 26: Electrical

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 00 00</td>
<td>General Electrical Requirements</td>
<td>1 through 5</td>
</tr>
<tr>
<td>26 05 19</td>
<td>Low Voltage Electrical Power Conductors and Cables</td>
<td>1 through 3</td>
</tr>
<tr>
<td>26 05 26</td>
<td>Grounding and Bonding</td>
<td>1 through 2</td>
</tr>
<tr>
<td>26 05 29</td>
<td>Hangers and Supports</td>
<td>1 through 5</td>
</tr>
<tr>
<td>26 05 33</td>
<td>Raceway and Boxes</td>
<td>1 through 9</td>
</tr>
<tr>
<td>26 05 48</td>
<td>Vibration and Seismic Controls</td>
<td>1 through 3</td>
</tr>
<tr>
<td>26 05 53</td>
<td>Electrical Systems Identification</td>
<td>1 through 3</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Pages</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>26 22 00</td>
<td>Low-Voltage Transformers</td>
<td>1 through 2</td>
</tr>
<tr>
<td>26 24 16</td>
<td>Panel Boards</td>
<td>1 through 3</td>
</tr>
<tr>
<td>26 27 26</td>
<td>Wiring Devices</td>
<td>1 through 3</td>
</tr>
<tr>
<td>26 28 16</td>
<td>Enclosed Switches and Circuit Breakers</td>
<td>1 through 2</td>
</tr>
<tr>
<td>26 51 00</td>
<td>Interior Lighting</td>
<td>1 through 3</td>
</tr>
<tr>
<td>Division 28</td>
<td>Fire Detection and Alarm Systems</td>
<td>1 through 2</td>
</tr>
<tr>
<td>28 31 13</td>
<td>Fire Detection and Alarm Systems</td>
<td>1 through 2</td>
</tr>
<tr>
<td>Division 31</td>
<td>Earthwork</td>
<td>1 through 3</td>
</tr>
<tr>
<td>31 23 16</td>
<td>Excavating, Backfilling and Compacting</td>
<td>1 through 3</td>
</tr>
<tr>
<td>31 23 17</td>
<td>Trenching</td>
<td>1 through 3</td>
</tr>
</tbody>
</table>
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 00 01 05

CERTIFICATIONS PAGE

ARCHITECT OF RECORD:

MECHANICAL ENGINEER:

ELECTRICAL ENGINEER:
SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Removal of designated building equipment and fixtures.

B. Removal of designated construction as indicated on Contract Documents.

C. Disposal of materials.

D. Identification of utilities.

E. Remodeling Work and patching is included within related Sections of these Specifications.

F. Salvage of items indicated.

G. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 01 31 00 – Project Management and Coordination

B. Section 01 51 00 - Temporary Facilities and Controls

C. Section 01 74 19 – Construction Waste Management

D. Section 01 74 20 – Recycled Content Certification

E. Section 01 77 00 – Closeout Procedures

1.03 SUBMITTALS

A. Comply with requirements of Section 01 33 00 - Submittal Procedures.

B. Submit demolition procedures and operational sequence for review and acceptance by County.

C. Project Record Documents: Accurately record actual locations of known capped utilities and subsurface obstructions.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

1.04 QUALITY CONTROL


B. All Work shall be accomplished with a constant effort to eliminate unnecessary noise, dust, obstructions, and other annoyances.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.

B. Do not disable or disrupt building fire or life safety systems without 5 days prior written notice to County.

C. Conform to procedures applicable when hazardous or contaminated materials are discovered.

1.06 SCHEDULING

A. Section 01 33 00 - Submittal Procedures: Work schedule.

B. Schedule Demolition Work to facilitate the Work and to permit maximum protection of public.

1.07 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with occupied building areas and surrounding areas.

B. Cease operations immediately if structure appears to be in danger and notify County. Do not resume operations until directed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PREPARATION

A. Provide, erect, and maintain temporary barriers at locations indicated and additional as required to control access to the work.

B. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued County occupancy in the adjacent building. Comply with County and Municipal Noise and Dust restrictions.

C. Protect existing materials and items which are not to be demolished. Cover and protect equipment and fixtures to remain when demolition work is performed in rooms or areas where such items have not been removed.

D. Prevent movement of structure; provide bracing and shoring as required.
E. Notify Plant Operations regarding affected utilities before starting work and comply with their requirements. Mark location and termination of utilities.

F. Notify County at least seven (7) days prior to any scheduled interruption of utility services.

G. Provide appropriate temporary signage including signage for exit or building egress for adjacent building.

H. Seal off all demolition work areas and/or new work areas from other parts of the floor or building. Perform all demolition work under negative air conditions. Discharge air free of demolition materials in a manner such that demolished materials cannot re-enter the occupied parts of the floor or other parts or floors of the building.

I. Comply at all times with all aspects of the Hospital’s Infection Control requirements.

3.02 DEMOLITION

A. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws and ordinances concerning removal, handling and protection against exposure or environmental pollution. Immediately notify County.

B. Disconnect, remove, cap, and identify designated utilities within demolition areas. Note location of capped utilities on as-built drawings.

C. Demolish material and equipment in an orderly, systematic and careful manner. Protect existing supporting structural members.

D. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict.
   1. Submit report to County in written, accurate detail.
   2. Pending receipt of directive from County rearrange selective demolition schedule as necessary to continue overall job progress without delay.

F. Salvage items as indicated on the drawings and in Section 01 35 16 Alteration Project Procedures and deliver to County.

G. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

H. Remove materials as work progresses. Transport and dispose of demolished materials off County’s property in a legal manner.

I. Remove temporary Work. Upon completion of Work, leave areas in clean condition.

3.03 CLEAN-UP AND REPAIR
A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work.

C. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

D. Clean and sanitize all areas within limits of work to comply with County’s requirements and the Hospital’s Infection control requirements.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 03 10 00
CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the requirements for furnishing and placing concrete formwork including formwork for architectural finish concrete. All exposed concrete surfaces that are to receive paint are architectural finish concrete.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

C. Related Sections:

1. Section 03 30 00 - Cast-in-Place Concrete: For finishes of formed concrete.

1.02 SUBMITTALS

A. Shop Drawings: Indicate details of form construction including jointing,

1.03 QUALITY ASSURANCE:

A. Design Criteria: Unless otherwise shown, noted, or specified, formwork shall be in conformance with ACI 347.

B. Allowable Tolerances:

1. Tolerance for elements shall not be cumulative; actual overall dimensions to be within plus-or-minus 1/8 inch of the overall dimension shown.

1.04 STANDARDS

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ACI 318 - Building Code Requirements for Reinforced Concrete.

C. ACI 347R - Guide to Formwork for Concrete


1.06 DELIVERY, STORAGE, AND HANDLING
A. Deliver, store, and handle materials subject to damage from dirt and moisture maintaining them clean and dry, off the ground, and suitably protected.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. General: Form materials shall be new at start of work.

B. Form Lumber: Douglas Fir, Construction Grade, S1S2E.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clean form surfaces and reseal before each use. The use of form oil will not be permitted.

3.02 CONSTRUCTION

A. Construct forms of sufficient strength and rigidity to produce finished concrete of the size, shape, and location shown, without exceeding specified tolerances. Form assembly shall permit removal in proper sequence without damaging concrete.

3.03 FORM REMOVAL

A. Do not remove forms until concrete has attained sufficient strength to support its own weight and anticipated construction live loads without damage, but in no case less than the following:

1. Walls: Four (4) days.

2. Footings, Curbs, Walks, Paving: Side forms may be removed 24 hours after concrete placement.

END OF SECTION
SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the requirements for furnishing and installing concrete reinforcement.

B. The requirements for tests and inspections are specified in Section 03 30 53 - Concrete Tests and Inspections and Section 01 45 29 Testing Laboratory Services.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 SUBMITTALS

A. Shop Drawings: Show complete bending and placing details of reinforcement.

1. Details of reinforcement not shown on Drawings shall be in conformance with ACI 315 and ACI 318.

2. Detailing, fabricating, and spacing of reinforcement shall be in conformance with ACI 315, unless otherwise shown or noted.

B. Test Reports: Certified copies of mill tests showing chemical and physical analyses of each heat or melt from which reinforcement was made.

1.03 QUALITY ASSURANCE

A. Standards:

1. ACI 301 - Specifications for Structural Concrete for Buildings.

2. ACI 318 - Building Code Requirements for Reinforced Concrete.


D. Allowable Tolerances: Fabricating/placing tolerances shall be in conformance with ACI 301.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reinforcing Bars: ASTM A706, Grade 60 for all bars.
B. Spacers, Bar Supports, and Other Accessories: In conformance with ACI 315. Where portions of accessories will be within 1/2 inch of concrete surfaces which will be exposed to the elements in the finished work, such accessories shall be of non-corrosive material or shall be corrosion-resistant treated; aluminum products will not be acceptable.

2.02 FABRICATION

A. Fabricate reinforcement in accordance with the requirements of ACI 315, where specific details are not shown or where Contract Documents are not more restrictive.

B. Bend reinforcing steel cold; do not re-bend.

PART 3 - EXECUTION

3.01 INSTALLATION

A. At time of concrete placement, reinforcement shall be free of dirt, oil, scale, loose rust, and other foreign material that could adversely affect the bond with concrete.

END OF SECTION
SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the requirements for furnishing and placing cast-in-place concrete, curing and finishing.

B. The requirements for tests and inspections are specified in Section 03 30 53 - Concrete Tests and Inspections.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

D. Related Sections:

1. Section 01 31 00 – Project Management and Coordination:

2. Section 02 41 19 – Selective Demolition.

3. Section 03 10 00 – Concrete Formwork.

4. Section 03 30 53 – Concrete Tests and Inspections

5. Section 03 54 00 – Cementitous Underlayment.

1.02 SUBMITTALS

A. Mix design for each class of concrete proposed for use.

B. Laboratory test reports for concrete mixes. Compression test data (field experience method) or results of testing (trial batch method) used to establish mix proportions.

C. Product Data: Manufacturers' and suppliers' proprietary information on materials.

D. Submit delivery ticket to County’s Testing Laboratory for each batch of concrete delivered,

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Materials, equipment, and work of this Section shall conform to the requirements of the CBC 2001.

B. Quality Control: Retain the services of a qualified testing organization as specified in Testing Laboratory Services
Section, unless concrete supplier furnishes equivalent services acceptable to the County.

C. Standards: Comply with provisions of the following specifications and standards, except where more stringent requirements are indicated or specified.

1. ACI 301 - “Specification for Structural Concrete for Buildings.”

2. ACI 318 - “Building Code Requirements for Reinforced Concrete.”

1.05 PROJECT CONDITIONS:

A. Environmental Requirements for Concrete Placement:

1. Hot Weather: In conformance with ACI 305.

2. Cold Weather: In conformance with ACI 306.

3. During Precipitation: Do not place unless adequate protection is provided.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Concrete, ready-mixed, ASTM C94.

1. Cement: ASTM C150, Type I or Type II, Portland cement.

2. Aggregate:
   b. Coarse Aggregate: ASTM C33
   c. Source of aggregate shall remain constant for the duration of the work.

3. Water: Clean, clear, and potable.

B. Curing Materials:

1. Liquid Membrane: ASTM C309, Type 1.


C. Admixtures:
1. Unspecified Admixtures: Only with the prior written approval of the County, and under the condition that the Contractor's testing agency modifies the mix design accordingly, and that each such modification is approved by the County's Testing Laboratory.

2. Hydrogen Chloride: None will be permitted.

D. Nonshrink Grout: Premixed, requiring only addition of specified water; Master Builders "Masterflow 928," or approved equal. Type and strength suitable for the specific conditions of use.
   1. Nonmetallic Type: For all uses.
   2. Metallic Type: Will not be permitted.


G. Wax Sealer: Heavy penetrating type, from same manufacturer as hardener.


I. Moisture Barrier: Minimum 10-mils thick polyethylene sheeting, in longest and widest roll sizes available to minimize or eliminate joints. Furnish with plastic adhesive tape recommended by manufacturer for making repairs and sealing joints.

J. Epoxy Grout for Reinforcement and Bolt Installation: Master Builders "Concrese Liquid (LPL)" or "Concrese Paste (LPL)", Hilti "HIT Adhesive Anchor System" or equal.

2.02 MIXES

A. Design Criteria:
   1. Concrete shall develop the minimum compressive strength noted on the Drawings at 28 days on cylinders made and tested in accordance with referenced ASTM standards.
   2. The average of the sets of three consecutive strength tests shall be equal to or greater than the specified strength, and no individual strength test results shall fall below the specified strength by more than 500 psi.

B. General:
   1. Mix designs shall be in conformance with CBC Section 1905, based on materials tested and approved by the County's Testing Laboratory.
   2. Concrete mixes designed for either pneumatic or conventional placement. If concrete will be pneumatically
placed, mixes shall be specifically so designed and designated.

C. Nonshrink Grout: Mix in accordance with the manufacturer's printed instructions.

D. Dry Pack: Mix, in proportions by volume, one-part cement to two-and-one-half parts fine aggregate, screening out materials retained on a No. 4 sieve. Mix with water to a consistency so that when a ball of mixture is compressed in the hand, it will show finger marks but maintain its shape and not show any surface water.

E. Patching Mortar: Mix in proportion by volume, one part cement to two parts fine aggregate.

2.03 MIXING

A. Batch Plant:

1. Equipment and plant shall be capable of weighing, segregating, and efficiently handling materials. Automatic metering capable of determining moisture content of sand shall be utilized.

2. Equipment and plant shall be subject to the approval of the County's Testing Laboratory; equipment and processes not so approved shall not be used for the work.

B. General:


2. Mix cement, fine and coarse aggregate, admixtures, and water to exact proportions of approved mix designs.

3. Measure fine and coarse aggregates separately according to approved method which affords accurate control and checking.

4. Adjust grading to improve workability; do not add water unless otherwise recommended by the County.

5. Site mixing of concrete will be permitted only with the prior written approval of the County.

C. Admixtures: Use automatic metering dispenser to incorporate admixtures into mix.

2.04 CONCRETE CLASSES

A. Definitions:

1. Strength: Minimum compressive strength after 28 days, when tested in accordance with ASTM C39.

2. Aggregate: Maximum size.

3. Weight: Pounds per cubic foot, air dry.
4. Slump: When tested in accordance with ASTM C143.

B. Concrete Classes and Uses:

<table>
<thead>
<tr>
<th>Class</th>
<th>Weight (pcf)</th>
<th>Strength (psi)</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>145</td>
<td>3000</td>
<td>Cast-In-Place Concrete, Concrete Foundations, Concrete Slabs, Concrete Walls, Equipment Pads, Ramps, etc.</td>
</tr>
</tbody>
</table>

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to concrete placement, determine finishes required to accommodate the work of other sections, and make preparations for such finishes. Where determination for such finishes may be in question, refer to the County for resolution.

B. Remove loose dirt/foreign material from excavations and forms and standing and saturated soil from excavations and cavities. Placing concrete in standing water is not permitted.

C. Thoroughly clean reinforcement and other items to be embedded in concrete of loose rust and other foreign matter which could inhibit bond with concrete.

D. Thoroughly wet wood forms, except coated plywood, and adjacent concrete a minimum of one hour prior to placing concrete; securely close cleanout and inspection ports; repeat wetting as required to keep forms damp.

E. Work form release agent into all areas of form liner as recommended by form manufacturer.

F. Apply form release agent to form liners before each use and within the same day that concrete is placed.

G. Sub-grade and forms shall have been checked for line and grade, and work areas shall have been inspected by the County and observed by the County prior to starting concrete placement.

H. Roughen surfaces at all joints +/- ¼” amplitude. Provide shear keys and prepare joints as per Drawings and Specifications. Apply bonding agent between existing and new concrete pours.

3.02 TRANSPORTING
A. Transport concrete from the mixer to the place of final deposit as quickly as possible, and by methods which prevent the separation and loss of ingredients. Concrete shall be of uniform density when placed.

B. Concrete shall not be freely dropped where reinforcement will cause segregation. Spouts, elephant trunks, or other approved means shall be utilized to prevent segregation.

C. In no case shall concrete be freely dropped more than six (6) feet.

D. Concrete may be pumped from the mixer to the place of deposit, provided that information on mix design adjustments, equipment, and procedures have received the County's Laboratory's prior review and written approval.

3.03 PLACING

A. General:

1. Notify the County a minimum of 48 hours prior to each major concrete placement.

2. Place concrete in a continuous operation until a section of approved size and shape has been completed.

3. For horizontal surfaces, maintain a plastic surface essentially horizontal until completion of placement of the section.

4. Prevent displacement of reinforcement and other items to be embedded.

5. Before concrete sets, completely remove concrete spilled on forms and reinforcement in sections where concrete is not to be immediately installed.

6. An interruption of more than 60 minutes in concrete placement will be cause for shutting down the work and disposing of remaining mixed concrete. If such interruption occurs, provide construction joints where and as instructed, and cut concrete back to such line, cleaning forms and reinforcement as specified.

7. Record the date and time of concrete placement in each section. Retain records until completion of the work, and make available at all times to the review of the County.

B. Consolidation:

1. Thoroughly consolidate concrete by puddling with suitable tools during placement, and by thoroughly working around reinforcement and other embedded items, and into corners of forms.

2. In addition to manual spading and tamping, internally vibrate concrete with high-speed mechanical vibrators of sufficient amplitude for thorough consolidation.

3. Vertically insert and remove hand-held vibrators at points 18 to 30 inches apart, vibrating concrete the minimum amount required for consolidation. Do not use vibrators to transport concrete in forms.
1. Verify location and conformance with details; provide only where shown on the Drawings or approved in advance by the County.

2. Horizontal construction joints shall be in conformance with Contract Documents.

3. Clean and roughen surfaces of construction joints by removing the entire surface and exposing clean aggregate solidly embedded in mortar matrix, as follows:
   a. Thoroughly clean contact surfaces by sandblasting or chipping the entire surface a minimum of five days after the initial placement, or by an approved method that will ensure equal bond, such as a thorough hose washing of surfaces not less than two or more than four hours after concrete placement.
   b. Thoroughly clean wash water and chalky material from surfaces.
   c. Sandblast vertical construction joints in suspended slabs.
   d. Prior to continuing concrete placement, deposit on horizontal construction joints slurry mix containing the same proportion of cement and fine aggregate used in concrete mix plus a maximum of 50 percent of the coarse aggregate.

4. Prevent formation of shoulders and ledges.

5. Provide keys across vertical joints as shown on Drawings. Place dowels across joints.

6. Joints for Slabs on Grade: Construct interior slabs on grade in checkerboard manner with no dimension exceeding 30 feet or 600 square feet in total area. Locate construction joints under partitions, whenever possible.

3.04 FINISHING

A. General:
   1. Concrete surfaces to receive an applied material, such as a water repellent coating, or other applied finish, finish concrete surface to the condition required for the application of such work.
   2. Concrete which will receive the application of paint or other work shall be water-cured only, and maintained free from other formwork and curing materials, unless otherwise approved in advance by the County.

B. Formed Surfaces:
   1. General:
      a. Remove fins, projections, and loose and foreign material.
      b. Patch honeycombs, aggregate pockets, voids, and holes as follows:
         1) Chip out until sound concrete is exposed to minimum depth of 1”.
         2) Prepare patching mortar with approximately 2 parts normal Portland cement, 1 part white cement and 9 parts fine aggregate; vary proportions as required to match color of adjacent concrete.
         3) Saturate surfaces to be patched with water. Fill cavities with patching mortar.
4) Cure patched areas as specified for concrete.

c) Types of finishes shall be as shown or noted on Drawings.

2. Architectural Formed Surface Finishes:

a. Smooth Finish: Achieve by the use of plywood, sheet metal, or lined wood forms; no fins, pockmarks (“bug holes”), and other irregularities shall be present in the concrete surfaces which will be exposed to view in the finished work.

b. “Board Formed” Finish: Same requirements as for smooth finish.

c. Scored Finish: Roughen concrete in an approved manner, or etch with sharp-pointed steel tools to key or otherwise improve the mechanical bond of the surface. Scoring or roughing shall disturb or otherwise roughen a minimum of ten percent of the area so scored.

d. Grout-Cleaned Finish:

1) Prepare grout of two parts normal Portland cement, one part white cement, and four-and-one-half parts fine aggregate mixed with water to the consistency of thick paint.

2) Wet surfaces and rub grout on surfaces using rubber or cork float to fill small voids and imperfections.

3) Allow surfaces to dry for approximately one hour, scrape off excess grout with trowel, then rub surfaces with burlap sacks.

4) Keep surfaces continuously damp for 24 hours.

5) Exposed wall surfaces: Use vertical surfaces of equipment foundations/other vertical surfaces for which no other is specified.

3. Unformed Surface Finishes:

a. Steel Trowel Finish:

1) Using finishing machines or steel trowels, trowel surfaces to produce a dense, hard, smooth finish.

2) Begin trowelling in one pass just sufficiently to flatten floated surface.

3) After concrete has set sufficiently, resume steel troweling; continue and repeat as necessary to obtain a dense, hard, smooth, steel trowel finish, free of blemishes, ripples, and trowel marks.

4) Cement or sand dusting to absorb or otherwise remove surface water will not be permitted.

5) Work out lips, uneven levels and other surface irregularities prior to final troweling.

6) Neatly tool exposed edges, expansion joints, curbs, arises, and other details.

7) Surfaces across joints shall be level and free from off-sets.

8) Provide for interior surfaces not otherwise specified.

b. Broom Finish: Draw a soft-bristled push broom over an initially trowel-finished surface. When coarser surfaces are desired, use a stiffer-bristled broom. Broom finish shall afford a non-slip surface, even when exposed to rain.
3.05 PROTECTION AND CURING

A. Protection:

1. Maintain concrete temperature above 50 degrees F during curing.

2. Protect concrete from sun and rain.

3. Do not subject concrete to loads until it has completely cured and attained minimum 28-day strength.

4. Water cure concrete continuously for minimum duration specified, including Saturdays, Sundays, and holidays; do not permit it to dry out until it has cured for the specified time.

5. Protect concrete during/after curing from damage from construction operations.

B. Curing: Curing shall immediately follow finishing, and shall be performed as follows:

1. Wall Surfaces: Cure for a minimum of seven days by form-curing with forms thoroughly wetted a minimum of four times a day until forms are removed; if for less than seven days, immediately follow with membrane curing.

2. Flatwork Surfaces: Membrane cure for a minimum of seven days.

3.06 DEFECTIVE CONCRETE

A. Repair or replace defective concrete as instructed by the County, and at no additional expense to the County. Repair materials shall include, as necessary, cements, aggregates, admixtures, and epoxy.

B. With written approval of the County, some minor defective work may be repaired by use of cement mortar; however, if the defects affect the strength of the structure, its appearance, or are otherwise detrimental, the County may require the removal and replacement of that portion of the structure.

C. Immediately after form removal, inspect concrete surfaces for poor joints, voids, rock pockets, tie holes, and other defects. Prior to starting patching, the County will examine the defects, following which such defects shall be immediately patched upon the County's written approval of patching mixture and method proposed for use.

D. Finish: Finish to match adjacent surfaces with no discernable or visible difference in appearance.

3.07 PATCHING TIE HOLES
A. No metal will be accepted within one inch (1”) of the face of exposed concrete. Cut nails and tie wires flush with the face of concrete to remain concealed and leave surfaces clean and smooth.

3.08 DRY PACKING

A. Provide for setting steel plates and bolts on concrete.

B. Completely fill voids, thoroughly compacting dry packing in place

C. Bolts and inserts which have been dry packed or grouted shall be in place for a minimum of seven days, prior to their being tensioned.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the requirements for tests and inspections for concrete work specified in the following Sections:

1. Concrete Reinforcement: Section 03 20 00.
2. Cast-in-Place Concrete: Section 03 30 00.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 SUBMITTALS

A. Submit for County for review and approval:

1. Design Data: Certified copies of mix designs for each concrete class specified.
2. Certifications:
   a. That materials comply with requirements specified.
   b. Compliance with welding qualifications.
3. Samples: As requested by the County.
4. Test Reports:
   a. Mill test reports for reinforcement.
   b. Reports from Contractor's testing organization.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Materials, equipment, and work of this Section shall conform to the requirements of CBC 2001.

B. See Section 01 45 29 for the services of a qualified testing organization.

PART 2 - PRODUCTS

1.
2. Inspect welding, including prior fit-up, welding equipment, weld quality, and welders' certifications according to AWS D1.4-92.

2.02 CAST-IN-PLACE CONCRETE

A. The County's Testing Laboratory will:

1. Review mix designs, compliance certificates and samples of materials proposed for use.

2. Test and inspect materials according to CBC 1903A for compliance with requirements specified in Section 03 30 00 - Cast-in-Place Concrete.

3. Inspect batch plant prior to concrete being furnished to verify that:
   a. Plant is equipped with approved metering devices for determining moisture content of fine aggregate.
   b. Other plant quality controls are satisfactory.

PART 3 - EXECUTION

3.01 GENERAL

A. Notify the County's Representative a minimum of 72 hours prior to start of fabricating, field welding, mixing, and placement to allow time for the County's Testing Laboratory to be contacted to perform testing and inspecting without delaying the work.

B. The County's Testing Laboratory will inspect field welds in conformance with CBC 1903 and CBC 1701.

3.02 CAST-IN-PLACE CONCRETE

A. The County's Testing Laboratory will:

1. Perform testing in accordance with ACI 318.

2. Test concrete slump in accordance with ASTM C143.

3. Test concrete for required compressive strength in conformance with CBC Section 1905, as follows:
   a. Make and cure a minimum of five specimen cylinders according to ASTM C31 for each 150 cubic yards, or fraction thereof, of each class of concrete placed each day.
   b. As a minimum, one set of five specimen cylinders shall be made for each 5,000 square feet of slab or wall surface area or fraction thereof placed each day.
   c. Retain one cylinder for 7-day test, one for 14-day test, and two for 28-day test. Hold one or more cylinders for subsequent testing, if necessary.
   d. Number each cylinder; date each set of cylinders; and record placement represented by each set of cylinders.
e. Transport specimen cylinders from jobsite to laboratory.
f. Test specimen cylinders according to ASTM C39 for specified strength after cylinders have aged for 7 days, 14 days, and 28 days.

B. Furnish to the County's Testing Laboratory the ready-mix delivery tickets for each batch of concrete delivered to the jobsite, each ticket bearing the following:

1. Design mix number.
2. Time of batching.
3. Weight of cement, type and maximum size of aggregates, water, and admixtures in each batch.
4. Total volume of concrete in each batch.

C. When laboratory tests of specimen cylinders show compressive strengths below the minimum specified, the Contractor will be back-charged for costs of the County's Testing Laboratory taking and testing core specimens of hardened concrete according to ASTM C42.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E  
MAKE READY IMPROVEMENTS

SECTION 03 54 00
CEMENTITIOUS UNDERLAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Liquid applied self-leveling cementitious underlayment for patchwork over new or existing concrete floor slabs.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 09 65 00 - Resilient Flooring.

1.03 REFERENCES


1.04 QUALITY CONTROL

A. Manufacturer: Company specializing in manufacturing of cementitious underlayment for minimum of five years.

B. Applicator: Company specializing in application of cementitious underlayment with documented experience and approved by manufacturer.

1.05 SUBMITTALS

A. Product Data: Submit manufacturer's mix and installation instructions.

B. Moisture test results.

1.06 DELIVERY, STORAGE AND HANDLING

A. Store in cool dry area, do not expose to sunlight.
1.07 ENVIRONMENTAL REQUIREMENTS

A. Perform work at ambient temperature at or above 50 degrees F.

B. Protect from freezing for a minimum of 48 hours after installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Ardex, Inc., (415)397-5285.

B. Dayton Superior Corp.

C. Or approved equal.

2.02 MATERIALS

A. Portland cement base, acrylic polymer compound, manufactured specifically for resurfacing and leveling concrete floors.

1. Self Leveling interior flooring underlayment; K-15; or equal;

2. Compressive strength per ASTM C109/mod. 4100 psi.

3. Density - 1.9

4. Flame Spread: Less than 25 in accordance with ASTM E84

5. Smoke Density: Less than 450 in accordance with ASTM E84.

6. Gypsum concrete or latex underlayments are not acceptable.

B. Product capable of being applied in layers up to 2 inches thick, being brought to a feather-edge, and being troweled to a smooth finish.

C. Water: Drinkable and not detrimental to underlayment.

D. Primer: As recommended by underlayment manufacturer.

E. Joint and Crack Filler: As recommended by underlayment manufacturer.

2.03 ACCESSORIES

A. Primer: Manufacturer’s approved material compatible with leveling compound.

B. Sealer: Manufacturer’s approved material compatible with leveling compound.

C. Joint and Crack Filler: Latex based material or as recommended by manufacturer.

D. Additives: Only those products specifically approved by the manufacturer.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

2.04 MIXING

A. Site mix materials in accordance with manufacturer's instructions.

B. Mix to consistency to achieve a trowelable mixture.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify substrate surface is ready to receive work of this Section.

B. Perform moisture test by taping a 12 inch x 12 inch sheet of clear polyethylene to the floor prior to installing cementitious underlayment, leave in place for 24 hours, if any moisture condenses on sheet, do not install cementitious underlayment until no moisture appears on sheet.

C. Perform moisture tests with electronic moisture meter in presence of County Inspector, submit results with manufacturer's certification.

3.02 PREPARATION

A. Substrate surface shall be solid, clean and free from oil, wax, grease, curing compounds, latex compounds, gypsum, asphalt or any other foreign matter.

B. Mechanically clean surfaces by shot blasting, scarifying to create a rough concrete surface. Saw cut 1/2 inch deep or more to create depth boundaries for each patch.

C. Fill voids, cracks and irregularities with filler.

D. Broom and vacuum clean surfaces.

E. Prime floors as recommended by manufacturer.

F. Protect adjacent work from damage.

3.03 INSTALLATION

A. Install underlayment in accordance with manufacturer's instructions.

B. Install cementitious underlayment where existing floor covering is removed, or to level floor surfaces that are scheduled to receive new floor coverings, or where indicated on Drawings.

C. Install to tolerance of plus or minus 1/8 inch in 10 feet.

3.04 CURING AND PROTECTION

A. Air cure in accordance with manufacturer's instructions.

B. Prohibit traffic until cementitious underlayment has attained final set.
C. Restore damaged finishes as approved.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated ferrous metal items, galvanized and prime painted as indicated.
B. Hardware and miscellaneous structural items.
C. Refer to Schedule at end of this Section for partial list of items.
D. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish metal fabrications to be cast in concrete to Section 033000 - Cast-In-Place Concrete.

1.03 RELATED SECTIONS

A. Section 32 13 13 - Portland Cement Concrete Paving.
B. Section 03 30 00 - Cast-in-Place Concrete.
C. Section 07 90 00 - Joint Sealers.
D. Section 08 51 13 - Aluminum Windows
E. Section 09 90 00 - Painting: Paint finish.

1.04 REFERENCES

A. ASTM A36 - Specification for Structural Steel.
B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
E. ASTM A312 - Seamless and Welded Austenitic Stainless Steel Pipes.
F. ASTM A354 - Quenched and Tempered Alloy Steel Bolts, Studs, and Other externally Threaded Fasteners.
G. ASTM A500 - Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Squares.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

I. AWS D1.1 - Structural Welding Code.
J. FS TT-P-645 - Primer, Paint, Zinc Chromate, Alkyd Type.
L. NFPA Standard #312, #327, and #51B

1.05 SUBMITTALS

A. Comply with requirements of Section 01 33 00 – Submittal Procedures.
B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
   1. Include erection drawings, elevations, and details where applicable.
C. Product Data: Submit for all products provided in this section.

1.06 QUALITY ASSURANCE

A. Reference Standards apply to this Section and shall be the most current edition of the following:
   4. Steel Structures Painting Council (SSPC), "Painting Manual".
B. Certifications: Submit certificates of compliance with welding qualifications. Costs of certifying qualifications shall be included in the work of this Section.

1.07 SEQUENCING AND SCHEDULING

A. Comply with requirements of Section 01 31 00
B. Submit information describing installation/erection procedures, including sequencing and temporary shoring
PART 2 - PRODUCTS

2.01 MATERIALS

A. A Steel Rolled Shapes to conform to ASTM A982, Fy = 50ksi.

B. Steel Tubing ASTM A500, Grade B; use seamless tubing at exposed locations.

C. Steel Plate, bars and Structural Shapes: ASTM A572, Fy = 50ksi., hot-dip galvanized for exterior use in accordance with ASTM A123.

D. Steel Pipe: ASTM A53 Grade B, Schedule 40; hot-dip galvanized after fabrication.

E. Unless otherwise noted, all bolts, thru concrete parts shall be ASTM A325”X” bolts, with no threaded portion in the shear plate (between existing and/or new concrete). Provide all bolts with matching hardened washers and heavy hex nuts unless noted otherwise.

F. Galvanizing: ASTM A123 or A153, as applicable, unless otherwise indicated.

G. Fasteners: Non-corrosive, suitable for service intended.
   2. Expansion Anchors: Type 316 stainless steel, wedge type; same as Hilti Fastening Systems, "Kwik-Bolt II"; Wej-It Expansion Products, Inc., "Ankr-Tite Stud Anchor"; or ITW Ramset/Redhead "Trubolt Wedge Anchor".
   3. Concrete Screws: Screw type anchors, Powers “Wedge-Bolt”, or approved equal.
   4. Sheet metal, 20 gage or less: Provide self-drilling “TEK” screws; ASTM C954.Bolts,

H. Welding Materials: AWS D1.1; type required for materials being welded.

I. Primer for Galvanized Surfaces: FS TT-P-641; Galvalloy or Galweldalloy.

J. Primer: Tnemec, 99 Special Red Primer; Rust-o-leum, 1069 Heavy Duty Rust Inhibitor Red Primer; or Sherwin Williams, Kem Kromik Primer.


L. Grout for Post Sleeves: Holemite, Por-Rok; Master Builders Co., 713 Grout, Embeco; Sonneborn, Ferrolith; or W. R. Grace, Vibra-Foil.

M. Non-Shrink Grout: As specified in Section 03300 - Cast-in-Place Concrete.
N. Expansion Anchors: Hilti Co. “Kwikbolt 3,” Simpson flung – 7ic “Wedge-All” or approved equal. BSLP sizes, embedment, spacing, capacities and inspection requirement shall be as noted.

O. Epoxied Anchors: Hilti Co. H17 HY-150 Max injection adhesive anchor, Simpson Strong-Tie SET High strength Epoxy, or approved equal. Sizes and spacing and details shall be as noted.

2.02 FABRICATION

A. Verify dimensions on site prior to shop fabrication.

B. Fabricate items with joints tightly fitted and secured.

C. Fit and shop assemble in largest practical sections, for delivery to site.

D. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius.

E. All exposed metal shall be bare-hand tested for eased edges, transitions, and intersections over the entire length of all edges before delivered to the site.

F. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of structure, except where specifically noted otherwise.

G. Make exposed joints butt tight, flush, and hairline.

H. Supply components required for anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, except where specifically noted otherwise.

I. Threaded Rods, couplers and compression plates: Fabricate rods in accordance with ASIC “Specifications for Design, Fabrication and Erection of Structural Steel for Buildings,” including associated supplements and commentaries, and as indicated on approved shop drawings.

2.03 FINISH

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Do not prime surfaces in direct contact bond with concrete or where field welding is required.

C. Prime paint items scheduled with one shop coat of primer in accordance with SSPC SP-2 for material to receive cementitious fireproofing, or to be enclosed by other construction in the completed work.

D. Galvanizing: Hot-dip galvanize all items fabricated from ferrous metals that will be in contact with concrete, or exposed to weather, moist conditions, etc. in the final installation.

   1. Shapes, Plates, Bars, Strips: Comply with ASTM A123.

3. Sequence: Conform to requirements of ASTM A384, A385, A386. All exterior metal work shall be heavy hot dip galvanized after fabrication; no field welding is permitted.

4. Pressure Relief: Provide holes in closed ends of tube or pipe for relief of pressure during galvanizing process, fill when no longer need, or propose concealed locations to remain on shop drawings for approval, grind smooth prior to priming.

5. Touch-up: Where galvanizing is removed by welding or other assembly procedure, touch-up abraded areas with molten zinc or zinc-rich paint.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

B. Coordinate installation of threaded rods with installation of work in other Sections.

3.02 PREPARATION

A. Clean and strip site primed steel items to bare metal where site welding is scheduled.

B. Make provision for erection loads with temporary bracing. Keep work in alignment.

C. Supply items required to be cast into concrete or embedded in walls with setting templates, to appropriate Sections specified herein.

D. Obtain County’s specific approval prior to site cutting or making adjustments not scheduled.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects, and as indicated on approved shop drawings.

B. Perform field welding in accordance with AWS D1.1.

C. All hot work on site shall be permitted by the California County Fire Marshal prior to commencement of work.

D. After installation, touch-up field welds, scratched or damaged surfaces with primer.

E. Install guardrails and handrails in locations indicated.
3.04 TOLERANCES

A. Installation/erection tolerances shall be in conformance with AISC “Code of Standard Practice for Steel Buildings and Bridges” unless otherwise indicated.

3.05 SCHEDULE

A. Provide and install items listed in Schedule and shown on Drawings with anchorage and attachments necessary for installation.

B. This Schedule is a list of principal items only; refer to Drawing details for items not specifically scheduled:

1. Miscellaneous structural shapes, angles, plates, clips, etc. ASTM A572, prime coat, galvanized if exposed to exterior.

2. Hardware as indicated on Structural Drawings.

END OF SECTION
SECTION 05 52 00
HANDRAILS AND RAILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES
   A. Aluminum handrail and fittings

1.2 RELATED SECTIONS
   A. Section 05 50 00 – Metal Fabrications

1.3 REFERENCES
   B. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
   D. ASTM E985 - Permanent Metal Railing Systems and Rails for Buildings.
   E. SSPC (Steel Structures Painting Council) - Steel Structures Painting Manual.

1.4 DESIGN REQUIREMENTS
   A. Handrail and wall rail assemblies and attachments shall withstand a minimum point load of 250 pounds applied horizontally or vertically down at any point on the top rail.

1.5 SUBMITTALS FOR REVIEW
   A. Section 01 33 00 - Submittals: Procedures for submittals.
   B. Manufacturer’s Literature and Data: Submit manufacturer’s installation instructions.

PART 2 PRODUCTS
2.1 MANUFACTURERS

A. Manufacturers:
   1. Julius Blum & Company, Inc.
   3. Or Approved Equal.

2.2 ALUMINUM RAILING SYSTEM

A. Rails: 1-1/2” diameter, extruded tubing or as noted on drawings.
B. Fittings: Elbows, T-shapes, wall brackets, escutcheons; machined aluminum.
C. Mounting: Brackets and flanges
D. Splice Connectors: Welding collars; machined aluminum.
E. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
F. Interior Aluminum Surfaces: Anodized to clear color, to 0.0007 inch (0.018 mm) thickness.
G. Apply one coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

2.3 FABRICATION

A. Fit and shop assemble components in largest practical sizes for delivery to site.
B. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
C. Provide anchors, plates, angles and other components required for connecting railings to structure.
D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
F  Interior Components: Continuously seal joined pieces by continuous welds.

G  Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

H.  Accurately form components to suit stairs and landings, to each other and to building structure.

I.  Accommodate for expansion and contraction of members and building movement without damage to connections or members.

PART 3 EXECUTION

3.1 EXAMINATION

A  Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

A  Clean and strip aluminum where site welding is required.

B  Supply items required to be embedded in masonry with setting templates, to appropriate sections.

3.3 INSTALLATION

A  Install in accordance with manufacturer's instructions.

B  Install components plumb and level, accurately fitted, free from distortion or defects.

C  Anchor railings to structure with anchors, plates, angles and other components required for connecting railings to structure.

D  Field weld anchors as indicated on Drawings. Touch-up welds with primer. Grind welds smooth.

E  Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

F  **Assemble with spigots** and sleeves to accommodate tight joints and secure installation.

END OF SECTION
SECTION 06 10 00
ROUGH CARPENTRY

1.1 SUMMARY

Work included: Rough Carpentry includes, but is not necessarily limited to:

A. All wood framing indicated on the drawings and otherwise required for a complete and operable facility.

B. All blocking, backing, bracing, framing, sheathing and other rough carpentry work required by other work in this project.

1.2 QUALITY ASSURANCE

A. Governing Specifications: Materials and installation of Rough Carpentry shall comply with pertinent provisions of the following:


2. Plywood or Oriented Strand Board: Product Standard PS-1-83 of the U.S. Department of Commerce, Bureau of Standards, and shall be APA Rated Sheathing or Sturd-I-Floor panels, American Plywood Association.


B. Standards: All work shall conform to the latest edition of the California Building Code and the American Institute of Timber Construction requirements.

C. Conflicting Requirements: In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.

1.3 PRODUCT HANDLING

A. Use all means necessary to protect lumber materials before, during and after delivery to the job site, and to protect the installed work and materials of other trades.

B. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic, and shored off the ground surface to insure proper ventilation and drainage.

C. Store all grades separately from other grades.
D. Protect all metal products with adequate weatherproof outer wrappings.

E. Use care in the off-loading of lumber to prevent damage, splitting and breaking of materials.

1.4 COORDINATION

A. Coordinate Rough Carpentry work with other Sections to insure that all blocking, backing, bracing, framing, sheathing and other rough Carpentry work required by design or implication is installed where shown on the Drawings and where required.

PART 2 - PRODUCTS

2.1 IDENTIFICATION

A. Framing Lumber: Identify each piece with the grade stamp of the West Coast Lumber Inspection Bureau.

B. Plywood: Identify each piece with the grade stamp and span rating of the American Plywood Association.

C. Other: Identify all other materials of this section by the appropriate stamp of the Agency listed in the reference standards, or by such other means as are acceptable in the advance by the Architect.

2.2 LUMBER

A. General:

   1. Moisture content shall be 19% maximum.
   2. Finish shall be S4S.

B. Schedule: (See general notes on drawings for required grades)

   1. Sills on Concrete: Foundation Grade Redwood, Grade marked at the mill.
   2. Structural Light Framing: 2" to 4" thick; 2" to 4" wide: Douglas Fir.

2.3 PLYWOOD

A. Interior Plywood Shear Walls: C-D Structural I, Douglas Fir plywood, exterior glue, 5/8" thick unless noted otherwise on Drawings.

B. Exterior Plywood Wall Sheathing: C-D Structural I, Douglas Fir plywood, with exterior glue, 5/8" thick unless otherwise noted on Drawings. Provide on all exterior wall surfaces.

2.4 FASTENERS

A. Nails: Domestic Common (unless noted otherwise on Drawings) Federal Specification FF-N-1-1. Hot-dipped galvanized at exterior locations.


2.5 METAL FRAMING DEVICES

A. Steel Hardware: ASTM A36. Hot-dipped galvanized at exterior locations. Welds per A.W.S. requirements.

B. Framing Hangers, Straps and Other Connectors: Simpson Strong Tie hot-dipped galvanized.

2.6 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation as shown on Drawings, shall be new, suitable for the intended use and subject to the acceptance by the Architect.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. General: All rough carpentry shall produce joints true, tight and well nailed with all members assembled in accordance with the Drawings and with all pertinent codes and regulations. Framing shall be straight, true and plumb.

B. Selection of Lumber Pieces:

1. Carefully select all members; select individual pieces so that knots and obvious defects will not interfere with placing for proper nailing or making proper connections.

2. Cut out and discard all defects which will render a piece unable to serve its intended function; lumber may be rejected by the Architect whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus or mold, as well as for improper cutting and fitting.

3. Shimming: Do not shim sills, joints, short studs, trimmers, headers, lintels or other framing components.

3.2 LUMBER TREATED WITH WOOD PRESERVATIVE

A. General: Wood preservative, non-pressure, shall be applied as follows to all lumber other than Foundation Grade Redwood:

1. All wood embedded in or placed against concrete.

B. Treatment: Perform all treatment in strict accordance with the published recommendations of the manufacturer of the treatment preservative, and a minimum of two hours before installation but after all cutting is completed on the members.

3.3 PRESSURE TREATED LUMBER

A. General: Provide pressure treatment for all lumber other than Foundation Grade Redwood located within 1-1/2" of concrete.

B. Treatment: Perform all pressure treatment in strict accordance with the published recommendations of the
manufacturer of the treatment preservatives. Kiln dry to 19% maximum moisture content after treatment. Handle treated lumber and treat penetration damage in accordance with AWPA M-4.

3.4 GENERAL FRAMING

A. General:

1. In addition to all framing operations normal to the fabrication and erection shown on the Drawings, install all backing required for the work of other trades. Install furring, stripping, grounds, curbs, cants, etc. indicated, specified or required.

2. Set all horizontal or sloped members with crown up.

3. Do not notch, bore or cut members for pipes, ducts, conduits or other reasons except as shown on the Drawings or as specifically approved in advance by the Architect.

B. Bearings:

1. Make all bearings full unless otherwise indicated on the Drawings. Set headers on edge, supported on each end by cripples.

2. Finish all bearing surfaces on which structural members are to rest so as to give sure and even support; where framing members slope, cut or notch the ends as required to give uniform bearing surface.

3.5 BLOCKING AND BRIDGING

A. Blocking:

1. Install all blocking as required by governing codes and as required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas.

2. Install 2 x blocking at all intersections and edges of finished surfaces for bearing, and at all points where required to support fixtures, cabinets, hardware and equipment of any other trade. Blocking to receive fixtures shall be secured to framing with steel clips.

3. Fire-blocks, when of wood, shall be two inches (nominal) in thickness by the full width of the opening being blocked.

4. Fire-block in the following specific locations:

   a. In all stud walls at ceiling and floor levels.

   b. In all stud walls, including stairs and furred spaces, so that the maximum dimension of each concealed space is not more than eight feet.

   c. All other locations where openings could afford passage for rodents or flames.

5. Install solid blocking between joists at all points of support and wherever sheathing or flooring is discontinuous.

B. Bridging:
1. Install wood solid-block bridging between joists where the span exceeds eight feet.

2. The distance between a line of bridging and a bearing shall not exceed eight feet.

3. Bridging may be omitted for roof and ceiling joists eight inches (nominal) in depth, and less where the omission is permitted by code, except where otherwise indicated on the Drawings.

3.6 ALIGNMENT

A. On all framing members to receive a finished wall or ceiling, align the finish subsurface to vary not more than 1/8 inch from the plane of surfaces of adjacent framing and furring members.

3.7 INSTALLATION OF PLYWOOD SHEATHING

A. Placement:

1. Place all plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise noted on the Drawings.

2. Center joints accurately over supports; unless noted otherwise on the Drawings, stagger the end joints of plywood panels to achieve a minimum of continuity of joints.

3. Nail all panel edges to framing members or blocking at least 1-1/2" thick. Space nails at panel edges as indicated on Drawings or if not shown, in accordance with U.B.C. requirements. Place nails not less than 3/8" from panel edges and driven solidly into the support.

B. Glued Plywood: Install in accordance with APA recommendations. Apply a bead of adhesive to joints and to edges at floor joists and beams. Apply a bead in a snake-like manner to joists at plywood butt edges.

C. Protection of Plywood: Protect all plywood from moisture by use of all required waterproof coverings until the plywood has in turn been covered with the next succeeding component or finish.

3.9 FASTENING

A. Nailing:

1. Use only common wire nails or spikes of the dimensions shown on the Nailing Schedule, except where noted otherwise on the Drawings.

2. All nailing to conform to minimum requirements shown on the Drawings.

3. For conditions not covered on the Drawings, provide penetration into the piece receiving the point of the nail not less than 1/2 the length of the nail or spike provided, however, 16d nails may be used to connect two pieces of two inch (nominal) thickness.

4. In diaphragms, the minimum penetration shall be 1-1/2" for 8d nails and 1-5/8" for 10d nails.

5. Do all nailing without splitting wood, preboring as required; replace all split members.

B. Bolting:

1. Drill holes 1/16 inch larger in diameter than the bolts being used; drill straight and true from one side.
2. Bolt threads must not bear on wood; use washers under head and nut where both bear on wood; use washers under all nuts.

C. Lag Screws:

1. Anchorage embedment in piece lagged to shall not be less than 0.6 lag screw length nor less than eight times lag screw diameter.

2. Prebore holes for lag screws same diameter as root of thread; enlarge holes to shank diameter for length of shank.

3. Screw, do not drive, all lag screws.

D. Washers:

1. Washers on bolts in shear shall have a thickness not less than 1/10 the length of the washer's longest side, or of malleable iron having a thickness of not less than 1/2 the bolt of screw diameter. Use malleable iron washers in all exposed locations.

2. Washers shall have a bearing surface for the nut or head which is not less than equal in diameter to the long diameter of the nut or head.

E. Anchor Bolts:

1. Anchor sills on concrete with 5/8" diameter x 12" anchor bolts @ 48" o.c. maximum spacing, minimum 2 each piece and one within 9" of each end, unless noted otherwise on the Drawings.

2. Provide one anchor 9" of each side of holes or notches 1-1/8" or larger in sills.

3.10 CLEANING UP

A. General: Keep the premises in a neat, safe and orderly condition at all times during the execution of this portion of the Work, free from accumulation of sawdust, cut-ends and debris.

B. Sweeping:

1. At the end of each working day, or more often if necessary, thoroughly sweep all surfaces where refuse from this portion of the Work has settled.

2. Remove the refuse to the area of the job site set aside for its storage.

3. Upon completion of this portion of the Work, thoroughly broom clean all surfaces.

END OF SECTION
PART 1 GENERAL

1.1 SECTION INCLUDES
A. Finish carpentry items.
B. Hardware and attachment accessories.

1.2 RELATED SECTIONS
A. Section 09 90 00 - Painting: Painting and finishing of finish carpentry items.

1.3 REFERENCES
A. AHA A135.4 - Basic Hardboard; American Hardboard Association.
B. ANSI A208.1 - Wood Particleboard.
F. AWI P-200 - Architectural Woodwork Quality Standards; Architectural Woodwork Institute.
G. AWPA C2 - Lumber, Timbers, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes; American Wood Preservers Association.
H. NWWDA I.S.4 - Industry Standard for Water-Repellent Preservative Non-Pressure Treatment for Millwork; National Wood Window and Door Association.
I. NIST PS 1 - Construction and Industrial Plywood.
K. WIC - Manual of Millwork; Woodwork Institute of California.

1.4 QUALITY ASSURANCE
A. Perform work in accordance with WIC Manual of Millwork, Custom Grade.
B. Fabricator: Company specializing in fabricating the products specified in this section with minimum three years experience.

1.5 DELIVERY, STORAGE, AND PROTECTION
A. Protect work from moisture damage.

1.6 PROJECT CONDITIONS
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

A. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS
A. Hardwood Lumber: Graded in accordance with WIC Custom; of quality suitable for transparent finish. Match existing panel materials in species and finish.

2.2 FASTENERS
A. Fasteners: Of size and type to suit application; painted finish in concealed locations and transparent finish in exposed locations.
B. Concealed Joint Fasteners: Threaded steel.

2.3 ACCESSORIES
B. Primer: Alkyd primer sealer type.
C. Wood Filler: Solvent base, tinted to match surface finish color.

2.4 WOOD TREATMENT
A. Water Repellant Preservative Treatment by Dipping Method: NWWDA I.S.4, with 0.25 percent retainage.

2.5 FABRICATION
A. Fabricate to WIC Custom standards.
B. Shop assemble work for delivery to site, permitting passage through building openings.
C. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.6 SHOP FINISHING
A. Sand work smooth and set exposed nails and screws.
B. Apply wood filler in exposed nail and screw indentations.
C. On items to receive transparent finishes, use wood filler, which matches surrounding surfaces and of types recommended for applied finishes.
D. Stain, seal, and varnish exposed to view surfaces. Brush apply only.
E. Seal internal surfaces and semi-concealed surfaces. Brush apply only.
F. Prime paint surfaces in contact with cementitious materials.

PART 3 EXECUTION

3.1 EXAMINATION
A. Verify adequacy of backing and support framing.
B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.2 INSTALLATION
A. Install work in accordance with WIC Custom quality standard.
B. Set and secure materials and components in place, plumb and level.
C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.3 SITE APPLIED WOOD TREATMENT
A. Apply preservative treatment in accordance with manufacturer's instructions.
B. Brush apply one coat of preservative treatment on wood in contact with cementitious materials.
C. Allow preservative to dry prior to erecting members.

3.4 PREPARATION FOR SITE FINISHING
A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.5 ERECTION TOLERANCES
A. Maximum Variation from True Position: 1/16 inch.
B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 06 41 00

ARCHITECTURAL MILLWORK (CASEWORK & COUNTERTOPS)

PART 1. GENERAL

1.01 SUMMARY

A. Section Includes, Special Fabricated
   1. casework
   2. countertops
   3. Hardware, typically furnished by the woodwork manufacturer

B. Related Sections
   1. Rough carpentry, wood blocking and grounds within finished walls and above finished ceiling
   2. Wood doors

1.02 REFERENCES

A. Minimum standards for work within this section shall be in conformity with the MANUAL OF MILLWORK, latest edition, Standards of the Architectural Millwork Industry as adopted by the WOODWORK INSTITUTE.

1.03 SUBMITTALS

A. Submit shop drawings in conformance to MANUAL OF MILLWORK - SECTION 1, "Basic Requirements for Architectural Millwork Shop Drawings".

B. Furnish a WOODWORK INSTITUTE - CERTIFIED COMPLIANCE LABEL on the first page of shop drawings.

C. Shop drawings:
   1. Submit three copies, one of which will be returned with reviewed notations, make corrections noted (if any) and distribute required copies prior to commencement of work.

D. Finish samples:
   1. Submit four samples of each cut and species of wood to be used, minimum size of 6" x 12" for lumber and 12" x 12" for plywood.
   2. Submit four additional samples of what will be used to painting trade for preparation of paint samples.
   3. Submit a sample of each item of cabinet hardware, in the job specified finish, visible at exposed surfaces when the cabinet doors and drawers are closed.

1.04 QUALITY ASSURANCE

A. Performance shall be in accordance with Custom GRADE of the WOODWORK INSTITUTE - MANUAL OF MILLWORK, latest edition.
1. If provisions for the GRADE specified are in conflict with, or modified by the drawings and/or specifications, the modifications shall govern.

B. Qualifications:

1. Contractors and their personnel engaged in the work shall be able to demonstrate successful experience with work of comparable extent, complexity and quality to that shown and specified.

2. Fabricator shall be a member/licensee in good standing of the WOODWORK INSTITUTE.

3. Installer shall be a member/licensee in good standing of the WOODWORK INSTITUTE.

1.05 DELIVERY, STORAGE and HANDLING

A. Deliver all materials only when the project is ready for installation and the general contractor has provided a clean storage area as defined in the MANUAL OF MILLWORK.

1.06 SEQUENCING and SCHEDULING

A. Coordinate all fabrication, delivery and installation work with the general contractor and other applicable trades.

PART 2. PRODUCTS

2.01 COMPONENTS

A. Lumber shall be in accordance with MANUAL OF MILLWORK - SECTION 3

B. Plywood shall be in accordance with the MANUAL OF MILLWORK - SECTION 4

C. Fabrication shall comply to First Class Workmanship, as defined in the MANUAL OF MILLWORK.

D. Casework shall be MANUAL OF MILLWORK - Construction Style A – Frameless and Construction Type I - Multiple Self Supporting Units.

E. Semi-exposed surfaces shall be In Accordance With MANUAL OF MILLWORK Requirement. Interior surfaces in open cabinets shall be In Accordance With MANUAL OF MILLWORK Requirements.

F. Adjustable shelves shall be in accordance with MANUAL OF MILLWORK requirements subject to a 40 pound per square foot uniformly spaced load not to exceed 200 pounds per shelf.

G. WOOD CASEWORK - Exposed surfaces are intended for Transparent finish of species and cut. Wood grain shall run and match in Accordance with the MANUAL OF MILLWORK.

H. COUNTERTOPS

1. Plastic laminate shall be selected from Nevamar, Wilsonart, Formica or approved equal, in their Solid Color, Wood Grain, or Special Finish selections
PART 3. EXECUTION

3.01 EXAMINATION

A. Verify the adequacy and proper location of any required backing or support framing.

B. Verify that mechanical, electrical, plumbing and other building items (supplied by others) effecting work in this section are in place and ready.

3.02 INSTALLATION

A. Install all work in conformance with MANUAL OF MILLWORK Custom GRADE.

B. All work shall be secured in place, square, plumb and level.

C. All work abutting other components shall be properly scribed.

D. Mechanical fasteners at exposed and semi-exposed surfaces, excluding installation attachment screws and screws used for attaching cabinets end to end, shall be countersunk.

E. Equipment cut-outs within countertops indicated on plans shall be cut by installer.

F. Method of attachment, including the type, size, frequency, and/or spacing of anchoring devices and fasteners shall comply to MANUAL OF MILLWORK minimum requirements or be as indicated in the plans or specifications.

G. All installation including attachment of casework and countertops shall be in compliance with MANUAL OF MILLWORK minimum requirements.

H. This job shall comply with the requirements of the STATE OF CALIFORNIA ADMINISTRATIVE CODE and CBC, TITLE 24.

3.03 ADJUSTING

A. Before completion of the installation, the installer shall adjust all moving or operating parts to function smoothly and correctly.

3.04 CLEANING

B. Upon completion of the installation, the installer shall clean all items installed of pencil or ink marks and broom clean the area of his operations, depositing debris in containers provided by the general contractor.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 07 21 00
BUILDING INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Batt insulation for acoustical purposes in interior partitions.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 07 84 00 - Firestopping

B. Section 09 22 00 - Metal Support Systems: Supportive Construction.

1.03 REFERENCES

A. ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.


1.04 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data and installation instructions.

   1. Insulation; each type used.

   2. Accessories; each type used.

C. Certificates: Stating the type, thickness and ratings of the insulation to be installed indicating the flame spread and smoke developed.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements: Provide concealed insulation material and surfacing materials that when tested in accordance with requirements of ASTM E84, comply with the following as a minimum:

   1. Flame Spread: 25 or less.

   2. Smoke Developed: 450 or less.
1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver and store packaged materials in original containers bearing identification of manufacturer’s name, ratings and fiber materials. Maintain seals unbroken and labels intact until time of use.

B. Keep materials dry by storing off ground under watertight covers.

PART 2 PRODUCTS

2.01 MANUFACTURERS - INSULATION MATERIALS

A. Owens-Corning Fiberglass Corp.

B. Celotex Building Products Division, The Celotex Corp.

C. Building Marketing Division, Johns Manville Roofing Systems Corp.

D. Or, approved equal.

2.02 MATERIALS

A. Batt Insulation (acoustical): ASTM C665, Type I, preformed mineral wool batts without membrane coverings conforming to the following:

1. Thickness: 3-1/2”.

2. Facing: None.

3. Flame Spread/Smoke Developed: 25/75.

C. Safing Insulation: ASTM C612, Class 1, preformed mineral fiberboard, density 4.0 pcf.

1. Thickness and density as required to suit conditions.

2. Facing: None.


2.03 ACCESSORIES

A. Insulation Support: Stringwire, staples or nails as required; galvanized or otherwise corrosion resistant.

B. Stick Pins and Washers:
1. Self stick insulation anchors with 2 inches by 2 inches solid plate and 12-gage spindle of varying length as required to secure placement of insulation, with washers designed such that no sharp points or edges are permitted.


C. Acoustical Pads for Electrical Junction Boxes:

1. Electrical Box Sealer (Non-Fire-Rated Partitions): Lowry’s "Electrical Box Pads" ; Kinetics Model IsoBacker; or approved equal. 6” x 8” x 1/8” thick, resilient sealer pads. Use to seal back and sides of all junction boxes recessed in acoustically rated partitions.


D. Adhesive: As recommended by insulation manufacturer.

E. Tape: Polyethylene self-adhering type, 2 inch wide.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify adjacent materials are dry and ready to receive insulation.

B. Verify mechanical and electrical services within walls have been installed and tested.

3.02 INSTALLATION - THERMAL INSULATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior walls and ceiling spaces without gaps or voids.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids

D. Fit insulation tight within spaces and tight to and behind mechanical and/or electrical services within the plane of the insulation.

E. Install with factory applied vapor retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.

F. Staple facing flanges in place at minimum 6 inches o.c.

3.03 INSTALLATION - ACOUSTICAL INSULATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in interior walls to maintain continuous and added acoustical protection for building spaces specially noted on drawings.
C. Cut and trim insulation neatly to fit spaces. Use batts free of ripped backs and/or edges.

D. Fit insulation tight within spaces and tight to and behind mechanical and/or electrical services within the plane of the insulation. Leave no gaps or voids.

3.04 INSTALLATION - SAFING INSULATION

A. Install safing in compliance with requirements essential to obtaining fire-rated assembly as recommended by safing insulation manufacturer.

B. Install safing insulation to fill gap between edge of concrete floor slab and back of exterior curtain wall system on safing clips spaced as needed to support insulation.

C. Do not cover safing insulation until inspected by authorities having jurisdiction.

3.05 PROTECTION

A. General: Protect installed insulation and accessories from harmful weather exposures and from possible physical abuse.

B. Replace any insulation damaged or unsuitable for use.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Counter flashings over bituminous base flashings.
B. Roof, eave and rake strip protection.
C. Counter flashings for roof mounted mechanical equipment/services.
D. Reglets and counter flashing.

1.02 RELATED SECTIONS

A. Section 07 90 00 - Joint Sealers.
B. Section 08 11 13 - Metal Doors and Frames
C. Section 09 90 00 - Painting.
D. Division 23 - Flashing sleeves, collars for mechanical items projecting through membrane roofing.
E. Division 26 - Electrical Requirements: Flashing sleeves and collars for electrical items projecting through roof.

1.03 REFERENCES

A. ASTM A446 - Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Structural (Physical) Quality.
B. ASTM A527 - Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip-Process, Lock-Forming Quality.
C. ASTM C920 - Elastomeric Joint Sealant.
D. FS QQ-L-201 F(2) - Sheet Lead.
E. FS SS-C-00153a - Cement, Bituminous, Plastic - Type 1.

1.04 SHOP DRAWINGS
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

A. Section 01 33 00 - Submittal Procedures.

B. Shop Drawing: Indicate material profile, jointing pattern, jointing details, fastening methods, flashing terminations, and installation details.

C. Samples: Submit 3 representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual.

B. Fabricator and Installer: Company specializing in sheet metal flashing work with documented experience.

C. Use experienced craftsmen for installation.

1.06 DELIVERY, STORAGE AND PROTECTION

A. Section 01 60 00 - Product Requirements: Transport, handle, store, and protect products.

B. Stack preformed material to prevent twisting, bending, or abrasion, and to provide ventilation.

C. Prevent contact with materials which may cause discoloration or staining.

1.07 GUARANTEE/WARRANTY

A. Provide the County with a guarantee stating that the metal flashings will properly shed water and protect felts from physical damage for a minimum period of two (2) years from date of Completion, and that any and all damage resulting from failure to provide above Countyd performances will be repaired to the satisfaction of the County at no additional cost.

PART 2 - PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A446; Grade A, G90 zinc coating, 20 gage minimum core steel.

B. Sheet Lead: FS QQ-L-201, grade B, four pounds per square foot minimum weight.

2.02 ACCESSORY MATERIALS AND COMPONENTS

A. Fasteners: Concealed hook strip and continuous cleat type; of same material as flashings; sized to suit application.

B. Reglets: Fry Reglet Corporation Springlok Flashing Systems, Type ST; or equal; galvanized steel.

C. Solder and Flux: Of type recommended for materials being used.

D. Plastic Cement: Cutback asphaltic type conforming to FS SS-C-00153a.
E. Bituminous Paint: Acid and alkali resistant type; black color.

F. Sealant: Two component polyurethane, conforming to requirements of ASTM C920, Type M, Grade NS, Class 25, non-staining; non-bleeding; non-sagging; Vulkem 922; or equal; color as selected by Architect.

2.03 FABRICATION

A. Fabricate metal flashing, coping, scuppers and gutters as indicated on drawings, and in accordance with SMACNA Architectural Sheet Metal Manual.

B. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

C. Form sections in 10 foot lengths or as required to prevent oil canning at radius areas. Make allowances for expansion at joints.

D. All seams are to be butt type with back-up sleeve sealed with sealant except at corners. Fabricate corners minimum 18 inches x 18 inches mitered, soldered or welded, and sealed as one piece.

E. Wipe and wash clean, all soldered joints, to remove traces of flux immediately after soldering.

F. Hem exposed edges of flashings on underside 1/2 inch.

G. Fabricate flashings and sheet metal items to allow for expansion and contraction in accordance with SMANCA recommendations.

H. Backpaint flashings with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals and bituminous roofing.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that substrate is ready to receive flashing and sheet metal.

B. Verify that conditions are in accordance with shop drawings.

3.02 INSTALLATION

A. Install flashings and trim in accordance with SMACNA Architectural Sheet Metal Manual and as indicated on drawings.

B. Supply reglets to respective trade for installation. Coordinate their correct placement.

C. Secure flashings in place using specified type fasteners. Use exposed fasteners in locations approved by Architect only. When using exposed fasteners, they are to be of same finish as flashings.

D. Apply sealant at junction of metal flashings and asphalt felt flashings.

E. Lock seams and end joints. Fit flashings tight in place. Make corners square, surfaces true and straight in all
planes, and all lines accurate to profiles.

F. Isolate dissimilar materials and allow for expansion of materials.

G. Counter-flash all mechanical and electrical items projecting through membrane roofing.

H. Restore damaged components and finishes. Clean and protect work from damage.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Provide labor, material, equipment and services to furnish and install firestopping systems required for the work as shown on the drawings, as specified herein and as required for a complete and proper installation, including, but not limited to, the following:

1. Closures of openings in walls, floors, and roof decks against penetration of flame, heat, and smoke or gases in fire resistant rated construction.

2. Closure of openings in walls against penetration of gases or smoke in smoke partitions.

3. Sealants around penetrations in non-rated smoke barriers where indicated on Drawings.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED WORK

A. Section 07 21 00 - Building Insulation: Safing insulation.

B. Section 07 92 00 - Interior Joint Sealants: Sealants and application.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00 - Submittals. All fire stopping materials shall be reviewed by County Fire Marshal

B. Manufacturers literature, data, and installation instructions for types of firestopping and smoke stopping used.

C. List of FM, UL, or WH classification number of systems installed.

D. Certified laboratory test reports for ASTM E814 tests for systems not listed by FM, UL, or WH proposed for use.

1.04 DELIVERY AND STORAGE

A. Deliver materials in their original unopened containers with manufacturer’s name and product identification.

B. Store in a location providing protection from damage and exposure to the elements.

1.05 QUALITY ASSURANCE

A. FM, UL, or WH or other approved laboratory tested products will be acceptable.
1.06 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

A. American Society for Testing and Materials (ASTM):
   E84 Surface Burning Characteristics of Building Materials
   E136 Behavior of Material in a Vertical Tube Furnace
   E814 Fire Tests of Through-Penetration Fire Stops

B. Factory Mutual Engineering and Research Corporation (FM):
   Annual Issue Approval Guide Building Materials

C. Underwriters Laboratories, Inc. (UL):
   Annual Issue Building Materials Directory
   Annual Issue Fire Resistance Directory

D. Warnock Hersey (WH):
   Annual Issue Certification Listings

PART 2 - PRODUCTS

2.01 FIRESTOP SYSTEMS

A. Metallic Pipe of Conduits: Firestop systems shall comply with the following:

1. Classified for use with the particular type of penetrating material used.

2. Use either factory built (Firestop Devices) or field erected (through-Penetration Firestop Systems) to form a specific building system maintaining required integrity of the fire barrier and stop the passage of gases or smoke.

3. Tested through-penetration firestop systems and firestop devices in accordance with ASTM E814 using the "T" rating to maintain the same rating and integrity as the fire barrier being sealed.

4. Products requiring heat activation to seal an opening by its intumescence shall exhibit a demonstrated ability to function as designed to maintain the fire barrier.

5. Firestop sealants used for firestopping or smoke sealing shall have following properties:
   a. Contain no flammable or toxic solvents.
   b. Have no dangerous or flammable outgassing during the drying or curing of products.
c. Water-resistant after drying or curing and unaffected by high humidity, condensation or transient water exposure.

d. When used in exposed areas, shall be capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.

6. Maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E84.

7. FM, UL, or WH rated or tested by an approved laboratory in accordance with ASTM E814.

8. Materials to be asbestos free.

B. Glass pipe, plastic pipe or conduits, unenclosed cables, or other non-metallic materials: Comply to requirements for metallic pipe and as follows:

1. Penetrations containing loose electrical cables, computer data cables, and communications cables protected using firestopping systems that allow unrestricted cable changes without damage to the seal.

2. Intumescent products which expand to seal the opening and act as fire, smoke, toxic fumes, and, water sealant.

C. One-Hour Fire Barrier Sealant: One-component neutral-cure silicone rubber sealant.

1. Manufacturers:
   a. 3M “Fire Barrier 2000 or 2003 Sealant, Caulk Type CP25 or No. 303 Putty”;
   b. International Protective Coatings “Flame-Safe FS500 or FSP1000 Putty”;
   c. Fipro “A/D Silicone Firebarrier Sealant-SL”; 
   d. Or equal.

2. Two Hour Fire Barrier Sealant: 3M CP25 Sealant.

2.02 SMOKE STOPPING IN SMOKE PARTITIONS

A. Non-Fire-rated Smoke Stop Partitions: Sealants around penetrations in smoke stop partitions or barriers not identified on the plans as part of a rated assembly shall comply as follows:

1. Use silicone sealant in smoke partitions as specified in Section 07 90 00, Joint Sealers.

2. Use mineral fiber filler and bond breaker behind sealant.

3. Sealants shall have a maximum flame spread of 25 and smoke developed of 50 when tested in accordance with E84.

4. When used in exposed areas capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.
B. Fire-rated Smoke Stop Partitions: Sealants around penetrations in smoke stop partitions or barriers that are identified on the plans as part of a rated assembly shall comply as follows:

1. Use listed firestop system specified above.

2.03 ACCESSORIES

A. Stuffing Material: Mineral fiber matting, permanent.

B. Retainers: Clips to support mineral fiber matting.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Submit product data and installation instructions, as required by article, submittals, after an on site examination of areas to receive firestopping.

B. Examine substrates and conditions for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping.

3.02 PREPARATION

A. Remove dirt, grease, oil, loose materials, or other substances that prevent adherence and bonding or application of the firestopping or smoke stopping materials.

B. Remove insulation on insulated pipe for a distance of six inches (150 mm) on either side of the fire rated assembly prior to applying the firestopping materials unless the firestopping materials are tested and approved for use on insulated pipes.

C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

A. Do not begin work until the specified material data and installation instructions of the proposed firestopping systems have been submitted and approved.

B. Install firestopping systems with smoke stopping in accordance with FM, UL, WH, or other approved system details and installation instructions.

C. Install smoke stopping seals in smoke partitions.

3.04 FIELD QUALITY CONTROL

A. County’s Fire Marshal will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Do not proceed to enclose firestopping with other construction until reports of County Fire Marshal’s examinations are issued.
C. Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

3.05 CLEANING

A. As work is completed, remove materials, litter, and debris.

B. Clean up spills of liquid type materials.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 07 90 00
JOINT SEALERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Preparing substrate surfaces.

B. Sealant and joint backing.

1.02 RELATED SECTIONS

A. Section 05 50 00 - Metal Fabrications.

B. Section 07 62 00 - Sheet Metal Flashing and Trim: Sealants used in conjunction with flashing.

C. Section 07 84 00 - Firestopping Systems: Sealants used in conjunction with fire and smoke barriers.

D. Section 08 11 13 - Metal Doors and Frames: Sealants used in conjunction with doorframes.

E. Section 08 31 13 - Access Doors: Sealants used in conjunction with access doors.

F. Section 08 80 00 - Glass and Glazing: Sealants used in conjunction with glass and glazing.

G. Section 09 90 00 - Painting: Sealants used in conjunction with painting.

1.03 REFERENCE STANDARDS

A. ASTM C804 - Use of Solvent Release Type Sealants.

B. ASTM C920 - Elastomeric Joint Sealants.


D. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.

E. FS PPP-T-42C - Tapes, Packaging/Masking Paper.

1.04 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitation and color available.

C. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention.
1.05 QUALITY ASSURANCE

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Manufacturer: Company specializing in manufacturing the product specified in this section with documented experience.

C. Applicator: Company specializing in performing the work of this section with documented experience approved by manufacturer.

D. Provide field-constructed mock-ups of each joint type in location approved by County.

1.06 COORDINATION

A. Section 01 31 00 - Project Management and Coordination.

B. Coordinate the work with all sections referencing this section.

1.07 WARRANTY

A. Section 01 77 00 - Closeout Procedures.

B. Warranty: Include coverage for installed sealants and accessories which fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure, for a period of five (5) years after Completion of the Work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Mameco International;

B. Vulkem 921;

C. Pecora Corporation;

D. Or approved equal.

2.02 JOINT SEALANTS MATERIALS

A. Exterior Sealant: Polyurethane, ASTM C920, Type M, Grade NS, Class 25, Use NT, two component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, color as selected by Architect; Vulkem 922; or approved equal.

1. Elongation Capability: 25 percent.

2. Service Temperature Range: -40 to 80 degrees F.

4. Location:
   a. Exterior Door Frames.
   b. Exterior Window Frames.
   c. Flashing and Sheet Metal termination.
   d. Fixed Metal Wall Louvers.
   e. All other exterior locations.

B. Interior Sealant: Polyurethane, ASTM C920, Type S, Grade NS, Class 25, Use NT, one component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, color as selected by Architect.
   1. Elongation Capability: 25 percent.
   2. Service Temperature Range: -10 to 80 degrees F.
   4. Location:
      a. Interior Windows.
      b. Interior Door Frames.
      c. Access Door Frames.
      d. Gypsum Board termination.
      e. Resilient Flooring.
      f. All other interior locations; and interior locations where indicated.

C. Interior Sealant: Silicone, ASTM C920, Type S, Grade NS, Class 25, Use NT, one component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, color as selected by Architect; Dow Corning 786; or approved equal.
   1. Elongation Capability: 25 percent.
   2. Service Temperature Range: -10 to 120 degrees F.
   4. Location:
a. Access Door Frames in Toilet Rooms.

b. Gypsum Board termination.

c. Plumbing Fixtures.

d. All other interior wet locations.

D. Horizontal Joint Sealant: Polyurethane, ASTM C920, Type S, Grade P, Class 25, Use T, M, and O, one component, chemical curing, non-staining, non-bleeding, self-leveling, color as selected by Architect; Tremco “THC-900”; or approved equal.

1. Elongation Capability: 25 percent.

2. Service Temperature Range: -40 to 80 degrees F.


4. Location:
   a. Under Thresholds.
   b. Floor Expansion Joints.

2.03 ACCESSORIES

A. Primer: Non-staining type recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive type recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Filler: ASTM D1056 and D1565 round closed cell polyethylene or foam rod; oversized 30 to 50 percent larger than joint width as recommended by sealant manufacturer.

D. Bond Breaker: Pressure sensitive type recommended by sealant manufacturer to suit application.

E. Masking Tape: Conforming to PPP-T-42.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrate surfaces and joint openings, with installer present, to verify that surfaces are ready to receive work.

B. Verify that joint size, joint backing and release tapes are compatible with sealant.

3.02 PREPARATION
A. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.
   1. Metal Surfaces: Free of lacquer, rust, mill scale, etc.
   2. Concrete Surfaces: Free of form release agents, bond breakers, and curing compounds

C. Perform preparation in accordance with ASTM C804 and manufacturer's instructions.

D. Protect adjacent metal surfaces with masking tape.

3.03 INSTALLATION

A. Install sealant in accordance with manufacturer's written instructions and recommendations of ASTM C1193 whichever is more stringent for the conditions under concern.

B. Measure joint dimensions and size materials to achieve required width/depth ratios.

C. Use joint filler to achieve a neck dimension no greater than 1/3 of the joint width.

D. Install bond breaker where joint backing is not used.

E. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.

F. Tool joints concave in conformance with Figure 5A in ASTM C1193, free of air pockets, embedded matter, ridges and sags.

3.04 FIELD QUALITY CONTROL

A. Sealant Manufacturer: Conduct periodic on-site inspections of mixing, preparation and application operations to ensure that recommended procedures are being followed.

B. County’s Testing Agency will examine completed sealant installation to determine, in general, if it is being installed in compliance with requirements.

C. Where deficiencies are found, repair or replace sealant so that it complies with requirements.

3.05 CLEANING

A. Section 0174 23 - Cleaning: Final cleaning.

B. Clean adjacent soiled surfaces using methods approved by sealant manufacturer and by manufacturer of products in which joints occur.

3.06 PROTECTION OF FINISHED WORK

A. Section 01 60 00 - Product Requirements.
B. Protect sealants until cured.
SECTION 08 11 13
METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior non-rated and fire-rated welded steel doors and frames.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 07 90 00 - Joint Sealants.

B. Section 08 71 00 - Door Hardware.

C. Section 08 80 00 - Glazing.

D. Section 09 90 00 - Painting.

1.03 REFERENCES

A. Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.

B. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

C. ANSI/SDI 100 - Standard Steel Door and Frames.

D. ASTM A366 - Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.

E. ASTM A525 - Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process.

F. ASTM C976 - Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box.


H. ASTM E413 - Classification for Rating Sound Insulation.

I. SFM Standard 12-7-4

1.04 SUBMITTALS

A. Section 01 33 00 - Submittals: Submittal Procedures.

B. Shop Drawings: Indicate door and frame configuration, anchor types and spacings, location of cut-outs for
hardware, glazing and louvers, reinforcement, and finish.

C. Product Data: Fire rated doors and frames, showing conformance with CBC and Underwriters Laboratory, Inc., or Warnock Hersey or Factory Mutual fire rating requirements.

D. Instructions: Submit manufacturer's installation instructions.

E. Manufacturer's Certification: Certify that Products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Conform to the requirements of ANSI/SDI-100 and Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.

B. Verify that field measurements are as indicated on approved shop drawings.

C. Performance Standards:
   1. Fire-Rated Assemblies: SFM Standard 12-7-4, and acceptable testing agency listing.
   2. Sound-Rated Assemblies at Mechanical Rooms: ASTM E1408 and ASTM E413.

1.06 REGULATORY REQUIREMENTS

A. Fire rated doors and frames construction to conform to SFM Standard 12-7-4.

B. Installed door and frame assemblies to conform to CBC for fire rated class indicated on schedule.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Prior to shipment label each door and frame to show location, size, door swing and other pertinent information.

B. Accept doors and frames on site in manufacturer's packaging. Inspect for damage.

1.08 WARRANTY

A. Provide five-year warranty against defects in manufacture and materials.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Ceco Door Products;

B. Curries, “747 Series”;

A. Republic, “DS Series”;

B. Steelcraft, “Series B”;

METAL DOORS AND FRAMES

08 11 13 - 2

KPA 443
C. Or approved equal.

2.02 DOORS AND FRAMES

A. Interior Flush Doors: SD1-100, Heavy Duty, Grade 2, Model 1.

B. Interior Frames: Welded 16 gage thick material, core thickness to suit model and grade of doors. Knockdown frames not permitted.

C. Inserts, Bolts, and Fasteners: Manufacturer's standard units for the required application; hot-dip-galvanize items to be embedded in or in contact with concrete foundation wall or slab-on-grade.

D. Exterior Flush Doors: Thermally Isolated: SDI-100 Heavy-duty 1-¾ inches. Insulation value of R6, measured in accordance with ASTM C 236.

E. Exterior Frames: Grade III for Door Type 1, 1-3/4 inch door. Fabricate frame to suit masonry wall.

2.03 DOOR CORES

A. Core: Vertical steel stiffeners at flush doors.
   1. Interior Doors Hollow
   2. Exterior Doors – Foam Core.

2.04 ACCESSORIES

A. Rubber Silencers: Resilient rubber.

B. Glass: As specified in Section 08 81 00 - Glass and Glazing.

C. Glazing Stops: Rolled steel channel shape, butted corners, prepared for countersink style tamperproof screws.

2.05 PROTECTIVE COATINGS

A. Primer: Manufacturer's standard red-oxide/zinc-chromate primer for interior surfaces.

B. Paint galvanized surfaces with zinc-dust/zinc-oxide primer.

2.06 FABRICATION

A. Fabricate frames and doors in accordance with requirements of the Steel Door Institute specification SDI-100, and as indicated on drawings. Provide welded frames at interior doors.

B. Fabricate doors and frames with hardware reinforcement plates welded in place. Drill and tap for surface-applied finish hardware. Provide mortar guard boxes where indicated.

C. Accurately form and cut mitered corners of welded type frames. Weld on inside surfaces. Sand-welded joints to a smooth uniform finish. Use welded frames at all interior locations. Use of splice plates at corners is not acceptable.
D. Fabricate frames of pairs of doors wider than 3’-6” of 12 gage steel.

E. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.

F. Prepare frame for silencers. Provide three single silencers for single doors on strike side, and two single silencers on frame head at double doors.

G. Provide jamb and floor anchors in accordance with SDI-100.

H. Attach channel or angle spreaders at bottom of welded type doorframes to ensure proper alignment while shipping.

I. Fill surface depressions with metallic paste filler and sand to a smooth uniform finish.

J. Provide prime coat on doors and frames, including backs of frames.

K. Touch up areas with zinc rich paint where galvanized coating has been removed due to welding, sanding or handling.

L. Attach fire rated label to each frame and door unit scheduled to be labeled.

2.07 FINISH

A. Shop primer, compatible with finish paint specified in Section 09 90 00.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Section 01 31 00 - Project Management and Coordination.

B. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION

A. Install frames in accordance with SDI-100.

B. Install adjustable frames in accordance with manufacturer’s instructions.

C. Install doors in accordance with DHI.

D. Coordinate installation of glass and glazing.

E. Install door louvers plumb and level.

F. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.03 ADJUSTING
A. Adjust doors for smooth operation and balanced door movement.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 08 14 00
WOOD DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors, flush and glazed configuration; fire rated and non-rated.
B. Factory finished on new wood doors.
C. Refurbishing, refinishing and reusing existing doors.
D. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 08 11 13 - Metal Doors and Frames: Steel doorframes and steel doors.
B. Section 08 71 00 - Door Hardware.
C. Section 08 80 00 - Glazing.
D. Section 09 90 00 - Painting.

1.03 REFERENCES

B. ASTM E152 - Methods of Fire Tests of Door Assemblies.
D. SFM Standard 12-7-4 - Fire Tests of Door Assemblies
E. Warnock-Hersey - Certification Listings for fire doors.

1.04 SUBMITTALS

A. Comply with requirements of Section 01 33 00 - Submittal Procedures.
B. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, identify cutouts for glazing and louvers, blocking for hardware attachment.
C. Product Data: Indicate door core materials and construction, veneer species, type and characteristics.
D. Samples: Submit two samples of door construction, 8 x 8 inch in size, cut from bottom corner of door.
E. Manufacturer's Installation Instructions: Indicate special installation instructions.

F. Manufacturer's Certification: Certify that doors meet or exceed specified fire rated requirements.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with W.I.C, Section 20, Custom Grade.

B. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

A. Fire Door Construction: Conform to SFM Standard 12-7-4 and Warnock-Hersey.

B. Installed Doors: Conform to CBC for fire rated class indicated.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with W.I.C. Section 20.

1.08 COORDINATION

A. Section 01 31 00 - Project Management and Coordination.

B. Coordinate work with door opening construction, doorframe and door hardware installation.

1.09 WARRANTY

A. Provide manufacturer’s written standard lifetime warranty for full, unlimited, replacement for the life of the original installation for new interior doors and a two (2) year warranty for new exterior doors.

B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, telegraphing core construction.

C. Replacement of doors includes finishing of new door, replacement of hardware damaged by malfunction of original door, and installation of new door so that the door and hardware operate successfully.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Algoma Hardwoods, Inc.;

B. Eggers Industries;

C. Weyerhauser Architectural Doors;

D. Or approved equal.
2.02 DOOR TYPES

A. Flush Interior Doors: 1-3/4 inches thick x size indicated on Drawings, solid core, 5-ply construction, particleboard core, with Medium Density Overlay faces, fire rated where indicated.

B. Factory Finish: Shop prime with polyurethane opaque finish; color as selected by Architect.

C. Existing Doors: Refurbish and refinish as specified in Section 09 90 00 - Painting.

2.03 ACCESSORIES

A. Metal Louvers:
   1. The Airolete Co., “Type 685M”.
   2. The Ventilouver Co., Inc., “#224K”.
   3. Anemostat West, “#CHDL-2F”.

B. Or, door manufacturer's equivalent louver, size as scheduled.

2.04 FABRICATION

A. Fabricate wood doors in accordance with requirements of the Woodwork Institute of California (WIC).

B. Fabricate fire rated doors in accordance with CBC and label doors to fire rating indicated.

C. Make cut-outs and provide stops for glass and louvers. Refer to Drawings for size of openings required.

D. Bevel strike edge of single acting doors 1/8 inch in 2 inches. Radius strike edge of double acting swing doors 2-1/8 inches.

E. Prepare doors to receive hardware. Refer to Section 08 71 00 for hardware requirements.

F. Fabricate door frames in accordance with requirements of Woodwork Institute of California (WIC).

G. Refurbish existing doors where required by installing hardwood dowels or blocking in holes and openings that will not be required by new hardware.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Section 01 31 00 - Project Management and Coordination.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out of tolerances for size or alignment.
3.02 INSTALLATION


B. Trim door width by cutting equally on both jamb edges.

C. Trim door height by cutting bottom edges to a maximum of 3/4 inch.

D. Pilot drill screw and bolt holes.

E. Machine cut for hardware. Core for hardware and cylinders.

F. Coordinate the installation of glass and glazing in wood doors.

G. Install door louvers plumb and square.

H. Install fire rated doors in accordance with manufacturer's instructions.

I. Prime and/or seal all factory-made cutouts prior to delivery.

J. Finishing: All four edges and both faces of doors shall be finished as specified in Section 099000 prior to installation of hardware.

3.03 INSTALLATION TOLERANCES

A. Coordinate to W.I.C. requirements for fit and clearance tolerances.

B. Conform to W.I.C. requirements for maximum diagonal distortion.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 08 31 13
ACCESS DOORS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish labor, materials, equipment and services to install access doors and frames and related components as shown on the Drawings, as specified herein and as required for a complete and proper installation, including, but not limited to, the following:

1. Interior access doors

1.2 RELATED SECTIONS

A. Section 08 71 00 - Door Hardware
B. Section 08 33 23 – Rolling Grilles – access to motor
C. Division 21 – Fire Suppression for access to valves
D. Division 22 – Plumbing for access to control valves, etc
E. Division 23 – HVAC for access to control dampers, resets, etc
F. Division 26 – Electrical for code required access points
G. Division 28 – Electronic Safety and Security for code required access to devices

1.3 QUALITY ASSURANCE

A. Provide standard commercial product of a manufacturer regularly presently manufacturing items of type specified.
B. Each product type made by same manufacturer.

1.4 SUBMITTALS

A. Procedures: In accordance with Section 01 30 00 – Submittals
B. Shop Drawings:

1. Access doors, each type, showing construction, location and installation details.
C. Manufacturer's Literature and Data:
   1. Access doors, each type

1.5 APPLICABLE STANDARDS: The most recent edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

A. American Society For Testing and Materials (ASTM):
   A167 ......................... Stainless and Heat-Resisting Chromium-Nickel Steel
   .................................. Plate, Sheet and Strip
   A366/A366MF ............. Steel, Carbon, Cold-Rolled Sheet, Commercial
PART 2 - PRODUCTS

2.1 FABRICATION, GENERAL

A. Fabricate components to be straight, square, flat and in same plane where required.
   1. Slightly round exposed edges without burrs, snags and sharp edges.
   2. Exposed welds: continuous and ground smooth.
   3. Weld in accordance with AWS D 1.3.

B. Number of locks and non-continuous hinges as required to maintain alignment of panel with frame. For fire rated doors, use hinges and locks as required by fire test.

C. Provide anchors or make provisions in frame for anchoring to adjacent construction. Provide size, number and location of anchors on four sides to secure access door in opening. Provide anchors as required by fire test.

2.2 ACCESS DOORS, FIRE RATED

A. Bear label of testing laboratory for 60 minute rating with maximum temperature rise of (250 degrees F (121 degree C).

B. Comply with NFPA 80 and have Underwriters Laboratories Inc., or other nationally recognized laboratory label for 60 minute opening.

C. Door Panel: Form of 0.0359 inch (0.9 mm) thick steel or stainless steel sheet, insulated sandwich type construction.

D. Frame: Form of 0.0598 inch (1.5 mm) thick steel sheet of depth and configuration to suit material and type of construction where installed.
   1. Weld exposed joints in flange and grind smooth.
   2. Provide frame flange at perimeter where installed in concrete, masonry or gypsum board.

E. Automatic Closing Device: Provide automatic closing device for door.

F. Hinge: Continuous steel hinge with stainless steel pin.

G. Lock:
   1. Self-latching, with provision for fitting flush a standard screw-in type lock cylinder. Lock cylinder specified in Section 08 71 00 – Door Hardware.
   2. Provide latch release device operable from inside of door. Mortise case in door.
2.3 ACCESS DOORS, FLUSH PANEL

A. Door Panel:
   1. Form of 0.0747 inch (1.9 mm) thick steel or 0.0598 inch (1.5 mm) thick stainless steel sheet.
   2. Reinforce to maintain flat surface.

B. Frame:
   1. Form of 0.0598 inch (1.5 mm) thick steel or stainless steel sheet of depth and configuration to suit material and type of construction where installed.
   2. Provide surface mounted units having frame flange at perimeter where installed in concrete, masonry, or gypsum board construction.
   3. Weld exposed joints in flange and grind smooth.

C. Hinge:
   1. Concealed spring hinge to allow panel to open 175 degrees.
   2. Provide removable hinge pin to allow removal of panel from frame.

D. Lock:
   1. Flush, screwdriver operated cam lock.

2.4 FINISH

A. Provide in accordance with NAAMM AMP 500 series on exposed surfaces.

B. Steel Surfaces: Baked-on prime coat over a protective phosphate coating, AMF 504.

C. Stainless Steel: No. 4 for exposed surfaces, AMP 503.

2.5 SIZE

A. Minimum 24 inches (610 mm) square door, unless otherwise noted.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine construction to receive access doors and verify correctness of dimensions and other supporting or adjoining conditions.

B. Do not install doors until unsatisfactory conditions have been corrected.

C. Verify that locations will serve portion of work to which access is required.

3.2 LOCATION
A. Provide access panels or doors wherever any valves, traps, dampers, ductwork and fire/smoke damper access doors, cleanouts, and other control items of mechanical, electrical and conveyor work concealed in wall or partition, or ceiling construction of gypsum board or plaster.

B. Use fire rated doors in fire resistive rated partitions and ceilings.

C. Use flush panels in partitions and gypsum board or plaster ceilings, except lay-in acoustical panel ceilings or upward access acoustical tile ceilings.

D. Use stainless steel access doors in showers, toilet room and other wet or damp locations.

3.3 INSTALLATION, GENERAL

A. Install access doors in openings to have sides vertical in wall installations, and parallel to ceiling suspension grid or side walls when installed in ceiling.

B. Set frames so that edge of frames without flanges will finish flush with surrounding finish surfaces.

C. Set frames with flanges to overlap opening and so that face will be uniformly spaced from the finish surface.

3.4 ANCHORAGE

A. Secure frames to adjacent construction using anchors attached to frames or by use of bolts or screws through the frame members.

B. Type, size and number of anchoring device suitable for the material surrounding the opening, maintain alignment, and resist displacement during normal use of access door.

C. Anchors for fire rated access doors as required by fire test.

3.5 ADJUSTMENT

A. Adjust hardware so that door panel will open freely.

B. Adjust door when closed so door panel is centered in the frame.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 DESCRIPTION
A. Furnish labor, material, equipment and services to install Door hardware and related components as shown on the Drawings, as specified herein and as required for a complete and proper installation, including, but not limited to the following:
   1. Hinges
   2. Locksets / Latchsets
   3. Panic Hardware
   4. Door Closer / Coordinators
   5. Door Stops
   6. Door Protection Plates
   7. Thresholds
   8. Acoustic seals, weather stripping, and smoke seals
   9. Cylinders
   10. Keys

1.2 RELATED SECTIONS
A. Section 01 30 00 – Submittal Procedures
B. Section 07 92 00 - Sealants, Caulking and Seals
C. Section 08 10 00 - Metal Doors and Frames
D. Section 08 20 00 - Wood Doors
E. Section 09 90 00 - Paint

1.3 QUALITY CONTROL
A. Manufacturer: Obtain each type of hardware (latchset, closer, etc.) from same manufacturer, except as otherwise specified.

B. Supplier: Recognized architectural finish hardware supplier who has furnished hardware in the project vicinity for not less than five years, and who is, or employs, an experienced architectural consultant who is available, at reasonable times during the course of the work, for consultation on the project’s hardware requirements, to County, Architect and Contractor.

C. Hardware for Labeled Fire Doors and Exit Doors: conform to requirements of NFPA 80 for labeled fire doors, as well as to other requirements specified. Provide hardware listed by UL, except where heavier materials, larger sized, or better grades are specified herein. In lieu of UL labeling and listing, test reports from a nationally recognized testing agency may be submitted showing that hardware has been tested in accordance with UL test methods and that it conforms to NFPA requirements.

D. Hardware for application on metal and wood doors and frames shall be made to standard templates. Furnish templates to the fabricator of these items in sufficient time so as not to delay the construction.

1.4 SUBMITTALS: Submit in accordance with Section 01 30 00 – Submittal Procedures.

A. Hardware Schedule: Prepare and submit hardware schedule with the minimum following information
1. Type, style, function, size and finish of each item.
2. Name and Manufacturer of each item.
3. Fastening and other pertinent information.
4. Location of hardware, cross-referenced to floor plans and door schedule.
5. Explanation of all abbreviations, symbols, codes, etc. in schedule.
6. Mounting locations of hardware.
7. Door and Frame sized and materials.

B. Samples and Manufacturers' Literature:

1. Samples: All hardware items (proposed for the project) that have not been previously approved by Builders Hardware Manufacturers Association shall be submitted for approval. Tag and mark all items with manufacturer's name, catalog number and project number.

2. Samples are not be required for hardware listed in the specifications by manufacturer's catalog number if the contractor proposes to use the manufacturer's product specified.
C. Certificate of Compliance and Test Reports: Submit certificates that hardware conforms to the requirements specified herein. Certificates shall be accompanied by copies of reports as referenced. The testing shall have been conducted either in the manufacturer's plant and certified by an independent testing laboratory or conducted in an independent laboratory, within four years of submittal of reports for approval.

1.5 DELIVERY AND MARKING

A. Deliver items of hardware to job site in their original containers, complete with necessary appurtenances including screws, keys, and instructions.

B. Tag one of each different item of hardware and deliver to County’s Representative for reference purposes. Tag shall identify item by Project Specification type or number and manufacturer's catalog number. These items shall remain on file with County’s Representative until all other similar items have been installed in project, at which time he or she will deliver items on file to Contractor for installation in predetermined locations on project.

C. Provide secure lock-up for hardware delivered to the site but not yet installed. Control handling and installation of hardware items which are not immediately replaceable so that completion of the work will not be delayed by hardware losses.

D. Provide 2 keys cut per cylinder, 1 HPC Key Kab Storage box and Key Tracking Software.

E. Provide 10 (ten) additional Schlage large format interchangeable core cylinders.

F. Provide 20(twenty) uncut construction core key blanks uncut.

1.6 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only. In text, hardware items are referred to by series, types, etc., listed in such specifications and standards, except as otherwise specified.

A. American Society for Testing and Materials (ASTM):

ASTM E283 .........................Padlocks
B. Builders Hardware Manufacturers Association Inc. (ANSI/BHMA)

A156.1 ......................... Butts and Hinges (BHMA 101)
A156.2 ......................... Bored and Pre-assembled Locks and Latches (BHMA 601)
A156.3 ......................... Exit Devices (BHMA 701)
A156.4 ......................... Door Controls (Closers)
A156.5 ......................... Auxiliary Locks and Associated Products
A156.6 ......................... Architectural Door Trim
A156.8 ......................... Door Controls-Overhead Holders (BHMA 311)
A156.13 ......................... Mortise Locks and Latches (BHMA 621)
A156.15 ......................... Closer Holder Release Devices (BHMA 321)
A156.16 ......................... Auxiliary Hardware (BHMA 1201)
A156.18 ......................... Materials and Finishes (BHMA 1301)
A156.21 ......................... Thresholds

C. Steel Door Institute (SDI)

ANSI/SDI 100 ................ Standard Steel Doors and Frames

D. National Fire Protection Association (NFPA):

80 .......................... Standard for Fire Doors and Windows

E. Underwriters Laboratories, Inc. (UL):

Building Materials Directory
PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers:

1. Hinges .............................................. Stanley, McKinney, Hager
2. Latchset/Locksets......................... Schlage
3. Panic (Exit) Devices ......................... Von Duprin Impact, Russwin, Precision
4. Keying (cylinders) ...................... Schlage interchangeable core “E”
5. Deadbolts ......................... Same as Locksets
6. Push/Pulls.......................... BBW, Quality, Hager
7. Surface Closers ......................... LCN
8. Gaskets ............................................ Pemco, Reese, Zero
9. Thresholds.............................. Pemco, Reese, Zero
10. Cypher Lock ......................... as specified

2.2 HINGES, BUTTS, AND PIVOTS

A. General: Hinges shall conform to the following unless otherwise noted.

1. Hinges Required Per Door:

   Doors over 5 feet (1500 mm) high and not

   over 7 feet 6 inches (2280 mm) high 3 butts

2. Hinge Height Requirements:

   a. 1-3/4 inch (45 mm) thick door, 3 feet (900 mm) wide and less: 4-1/2 inches (113 mm)

   3. Hinge leaves shall be sufficiently wide to allow doors to swing clear of door frame trim.

2.3 LOCK CYLINDERS AND KEYING
A. Provide coordinating parts or accessories as required and install Schlage cylinders into both existing locksets and new locks.

B. Comply with security requirements of County and key cylinder system manufacturer (Schlage). Unless otherwise directed in security plan, at a minimum provide the following:
1. All lock and cylinders shall be keyed at the factory of the lock manufacturer (Schlage) where permanent records are maintained.
2. When requested, construction master key all cylinders or provide temporary interchangeable core cylinders during the construction phase of the project. Furnish ten or more construction keys upon request.

C. Equip locks with manufacturer’s special 6-pin tumbler cylinder, interchangeable core. Lock manufacturer to master key locks with construction core to match existing Alameda County’s key system

D. Construct lock cylinder from brass/bronze, stainless steel or nickel silver

E. Provide key blanks of nickel silver only marked “ALAMEDA COUNTY DO NOT DUPLICATE”

2.4 DEVICES

A. Locksets And Latchsets: All doors, except those receiving special devices such as panic hardware, shall have latchsets or locksets meeting the following requirements
1. Cylindrical Lock and Latchsets: Cylindrical locksets shall be ANSI A156.2, series 4000, Grade I and shall be UL listed for 3 hour “A” label.
3. When locked, outside lever shall move freely without operating latchbolt.
4. Latchbolt projection shall be a minimum of 9/16 inch.
5. Locksets and Latchsets shall have lever handles that meet ADA (Americans with Disabilities Act) and California accessibility requirements. Levers shall accept interchangeable cores, provide all required adapters or extra parts.
6. Locksets shall fit doors from 1-3/4 inch to 2-1/4 inch thickness without modification.
7. Latchsets and locksets shall be non-handed and shall not require field disassembly for re-handing.
8. Roses shall be a minimum 3-1/2 inch diameter with material thickness of at least 0.040 inch and reinforcement insert of 0.070 inch.
10. Auxiliary locks shall be as specified under hardware sets and conform to ANSI A156.5.
B. Panic Devices: ANSI Standard A156.3. Exit devices shall be Grade 1 unless otherwise noted. Exit devices for fire doors shall comply with Underwriters Laboratories, Inc., requirements for Fire Exit Hardware. Submit proof of compliance.

1. Unless otherwise noted, provide single rim or mortise device for single doors.

C. Door Closers: Closing devices shall be products of one manufacturer for each type specified.

1. Closer devices, including those with hold-open features, shall be equipped and mounted to provide maximum door opening permitted by building construction or equipment. Closers shall be mounted regular arm. Where closers are mounted on doors they shall be mounted with hex nuts and bolts; foot shall be fastened to frame with machine screws.

2. Substitute parallel arm or top jamb mounting for regular arm mounting where the following conditions occur:
   
   a. Where door swing, in full open position, would be limited to less than 90 degrees due to partition construction and closer location.
   
   b. Where door to room opens outward into corridor.
   
   c. Where exterior doors open outward.

3. The closer shall have 50 percent adjustable closing force over minimum value for that closer and have adjustable hydraulic back check effective at 70 degrees of door opening.

4. Where specified, closer shall have hold-open feature.

5. Size Requirements: Closer size shall be 2 through 6. No multi-sized closers will be accepted.

6. Material of closer shall be forged or cast iron.

7. Arm and brackets for closers shall be steel, malleable iron or high strength ductile cast iron.

8. Closers shall have full size cover.

9. Closers shall have adjustable hydraulic back-check and separate valves for closing and latching speed.

10. Inside door opening force shall be no greater than 5 pounds.
2.5 FINISHES

A. Exposed surfaces of hardware shall have BHMA Standard 1301, finishes as specified below generally corresponding to satin or brushed stainless steel. Finishes on all hinges, pivots, closers, thresholds, etc., shall be as specified below under "Miscellaneous Finishes." For field painting (final coat) of ferrous hardware, see Section 09 90 00 PAINTING.

B. All interior surfaces, except where other finishes are specified: 626 on brass or bronze, 652 on steel, 682 on zinc, or 630 on stainless steel.

C. All exterior surfaces, except where other finishes are specified: 630 on stainless steel.

D. Miscellaneous Finishes:
   2. Hinges (interior doors): 652
   3. Pivots: Match door trim.
   5. Thresholds: Mill finish aluminum.
   6. Cover plates for floor hinges and pivots: 630
   7. Other primed steel hardware: 652

PART 3 - EXECUTION

3.1 HARDWARE HEIGHTS

A. Mount hardware units at heights indicated in the “Recommended Locations for Builders Hardware for Custom Steel Doors and Frames” by the Door and Hardware Institute, and as required by CCR Title 24 and ADA for accessibility by people with physical disabilities, except as specifically required to comply with governing regulations and except as otherwise directed by the Architect. Typical hardware heights from finished floor are as follows:

1. Locks and Latches: 38 inches to center of lever
2. Exit Devices: 38 inches to center of bar
3. Push Bar: 44 inches to center of bar, coordinate with attaching pull
3.2 INSTALLATION

A. Install each hardware item in compliance with the manufacturer’s instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which will later be painted or finished in another way, coordinate removal, storage and reinstallation and application of surface protections with finishing work specified in the Division 9. Do not install surface mounted items until finishes have been completed on the substrate.

B. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

C. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

D. Adjust and check each operating item of hardware and each door to ensure proper operation and function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

E. Clean adjacent surfaces soiled by hardware installation.

F. Final Adjustment: Wherever hardware installation is made more than one month prior to States final acceptance of occupancy of the space or area, return to the work one week prior to States scheduled acceptance and make final check and adjustment of all hardware and doors. Adjust control devices to compensate for operation of heating and ventilating equipment. Clean hardware and adjacent surfaces soiled by work.

G. Instruct State’s personnel in adjustment and maintenance of hardware and finishes during the final adjustment of hardware.

H. Continued Maintenance Service: Approximately one year after acceptance of the hardware in each area, the Installer, accompanied by the representative of the latch and lock manufacturer, shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware. Consult with and instruct the State’s personal in recommended additions to the maintenance procedures. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation. Prepare a written report of current and predictable future problems in the performance of the hardware and submit to the State.

3.3 HARDWARE SETS

Hardware is specified on the Drawings in the Hardware schedule which refers to the schedule of items below. Although the schedule is intended to cover all doors and establish a standard of quality, it is specifically the responsibility of the contractor to examine the contract documents and furnish the proper hardware for all openings, whether scheduled or not.
3.4 MAINTENANCE

A. All maintenance kits, including pin kits and replacement parts from manufacture of hardware, and key punch for key creation to be delivered to the County.

B. Hardware installation must be inspected by an architectural hardware consultant hired by the County during and after installation.

C. All tools and unused parts from original hardware packaging shall be delivered to the County.

3.5 HARDWARE GROUPS

A. OFFICE

A. Item 101 - Typical Interior Doors - Butt Hinges: ANSI A156.1, Type A8111, plated steel. Out swing corridor doors and locked doors with exposed hinges shall have non-removable pins.
   1. Hager, BB1168
   2. McKinney, T4B3786
   3. Stanley, FBB168

B. Item 202: ANSI F05, mortise “classroom” set.
   1. Deadlocking latch bolt.
   2. Either handle operates latch bolt unless outside handle is locked by key.
   3. Inside handle always active.
   4. Manufacturer and Model:
      a. Schlage L9070R-06L 626 with interchangeable core.

C. Item 701 - Mutes: ANSI A156.16. Provide door mutes or door silencers on each steel door frame, except frames for sound-resistant doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

D. Item 801 – Room signage

B. RESTROOM w/ KEYPAD

A. Item 101 - Typical Interior Doors - Butt Hinges: ANSI A156.1, Type A8111, plated steel. Out swing corridor doors and locked doors with exposed hinges shall have non-removable pins.
DOOR HARDWARE

FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

1. Hager, BB1168
2. McKinney, T4B3786
3. Stanley, FBB168

B. Item 204: Cypher / Keypunch lock and latch.
   1. Deadlocking latch bolt.
   2. Outside handle always rigid, keypunch sequence required to release latch, key override.
   3. Inside handle always active.

C. Item 301 - Overhead Closer for single door.
   1. LCN 4010/4110

D. Item 601 - Marble Threshold – Ceramic Tile to Vinyl Composition Tile.

E. Item 702 - Smoke Gasket: extruded silicone compression bulb tested and certified in accordance with UL 1784-90 and meeting the requirements of NFPA 105-1993.
   1. Pemko S88 BL
   2. Reese 797B
   3. Or approved equal

F. Item 800 - Toilet Room Signage

C. RESTROOM w/o KEYPAD

A. Item 101 - Typical Interior Doors - Butt Hinges: ANSI A156.1, Type A8111, plated steel. Out swing corridor doors and locked doors with exposed hinges shall have non-removable pins.
   1. Hager, BB1168
   2. McKinney, T4B3786
   3. Stanley, FBB168

B. Item 205: ANSI F22, Privacy Function Mortise Lock with "Occupied" Indicator.
   1. Either handle operates latch bolt unless outside handle is locked by inside push-button.
   2. Inside push-button automatically releases when inside handle is turned or door is closed.
   3. Outside handle emergency slot provided to unlock door with coin or flat tool.
   4. Inside handle is always active.
   5. Manufacturer and Model:
      a. Schlage L9040-06L 626 with "Occupied" Indicator

C. Item 301 - Overhead Closer for single door.
   1. LCN 4010/4110
D. Threshold - Item 602 – Vinyl molding:
   1. Roppe #168 underslung reducer
      Or approved equal.

E. Item 701 - Mutes: ANSI A156.16. Provide door mutes or door silencers on each steel door frame, except frames for sound-resistant doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

F. Item 800 - Toilet Room Signage

D. STORAGE

A. Item 101 - Typical Interior Doors - Butt Hinges: ANSI A156.1, Type A8111, plated steel. Out swing corridor doors and locked doors with exposed hinges shall have non-removable pins.
   1. Hager, BB1168
   2. McKinney, T4B3786
   3. Stanley, FBB168

B. Item 203: ANSI F07, mortise “storeroom or closet” set.
   1. Deadlocking latch bolt.
   2. Outside handle always rigid, key required to release latch.
   3. Inside handle always active.
   4. Manufacturer and Model:
      a. Schlage L9080R-06L 626 with interchangeable core

C. Item 301 - Overhead Closer for single door.
   1. LCN 4010/4110

D. Item 701 - Mutes: ANSI A156.16. Provide door mutes or door silencers on each steel door frame, except frames for sound-resistant doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

E. Item 801 – Room signage

E. CLASSROOM

A. Item 101 - Typical Interior Doors - Butt Hinges: ANSI A156.1, Type A8111, plated steel. Out swing corridor doors and locked doors with exposed hinges shall have non-removable pins.
   1. Hager, BB1168
   2. McKinney, T4B3786
B. Item 202: ANSI F05, mortise “classroom” set.
   1. Deadlocking latch bolt.
   2. Either handle operates latch bolt unless outside handle is locked by key.
   3. Inside handle always active.
   4. Manufacturer and Model:
      a. Schlage L9070R-06L 626 with interchangeable core

C. Item 301 - Overhead Closer for single door.
   1. LCN 4010/4110

D. Item 701 - Mutes: ANSI A156.16. Provide door mutes or door silencers on each steel door frame, except frames for sound-resistant doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

E. Item 801 – Room signage

F. ENTRANCE

A. Item 101 - Typical Interior Doors - Butt Hinges: ANSI A156.1, Type A8111, plated steel. Out swing corridor doors and locked doors with exposed hinges shall have non-removable pins.
   1. Hager, BB1168
   2. McKinney, T4B3786
   3. Stanley, FBB168

B. Item 206: ANSI F04, mortise “entrance” set.
   1. Deadlocking latch bolt.
   2. Either handle operates latch bolt unless outside handle is locked from inside.
   3. Inside turn-button locks outside handle. Push-button automatically releases by turning inside handle or by turning key in outside handle.
   4. Inside handle always active.
   5. Manufacturer and Model:
      a. Schlage L9050R-06L 626 with interchangeable core.

C. Item 301 - Overhead Closer for single door.
   1. LCN 4010/4110

D. Item 701 - Mutes: ANSI A156.16. Provide door mutes or door silencers on each steel door frame, except frames for sound-resistant doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames.
for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact
door frame.

E. Item 801 – Room signage

D. Threshold - Item 602 – Vinyl molding:
   1. Roppe #168 underslung reducer
      Or approved equal.

G. EXTERIOR
   A. Item 102 - Typical Exterior Doors - Butt Hinges: ANSI 156.1, Type A8111, Stainless Steel,
      non-removable pins.
      1. Hager
      2. McKinney
      3. Stanley
      4. Ives

B. Item 220 - Panic Device
   1. Provide Mortise device. Outside trim to be F08/09 – Key access with active lever
      Von Duprin w/99L trim. Provide manufacturer’s standard latch side strike.
   2. Manufacturer and Model:
      a. Von Duprin 9447-LBR-F “less bottom rod” CA Fire Marshal listing 3725-0139:119
         –exit device x 02, breakaway trim, US32D finish, with Schlage LFIC
         interchangeable core and housing (if required), model to suit exit device.

C. Item 301 - Overhead Closer for single door.
   1. LCN 4010/4110

D. Item 703: Weatherstrip: extruded silicone compression bulb tested and certified in accordance
   with ASTM E-283; Pemko 303DS, National Guard Products, or approved equal.

E. Item 601 - Exterior Metal Threshold with seal:
   1. Pemko 2005AT – extruded aluminum threshold with silicone seal
   2. Or approved equal

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 08 80 00
GLASS AND GLAZING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Glass and glazing for sections referencing this Section for products and installation.
B. Glass and glazing for steel and aluminum windows.
C. Glass and glazing for Glazed Aluminum Storefront and Sliding Entrance Doors
D. Solar control window film
E. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 07 90 00 - Joint Sealers.
B. Section 08 41 13 - Aluminum Entrance and Storefront
C. Section 08 42 29 – Sliding Automatic Entrances

1.03 REFERENCES

B. ASTM C920 - Elastomeric Joint Sealants.
C. ASTM C1036 - Flat Glass.
D. ASTM C1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
E. ASTM D1044 - Resistance of Transparent Panels to Abrasion.
F. ASTM E152 - Methods of Fire Tests of Door Assemblies.
H. ASTM E774 - Standards Specifications for Sealed Insulating Glass Units.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

J. Flat Glass Marketing Association (FGMA).

1.04 PERFORMANCE REQUIREMENTS

A. Glass and glazing materials of this Section shall provide continuity of building enclosure.
   1. In conjunction with materials described in Section 07 90 00.
   2. Maintain continuous air and vapor barrier throughout glazed assembly from glass pane to heel bead of
      glazing sealant.

B. Size glass to withstand dead loads and positive and negative live loads acting normal to plane of glass as
   calculated in accordance with California Building Code to a design pressure of 20 lb./sq. ft. as measured in
   accordance with ASTM E330.

C. Limit glass deflection to 1/240 and flexure limit of glazing with full recovery of glazing materials, whichever
   is less.

D. Glass glazing shall meet requirements of Section 5406(b) CBC and indicate safety glazing class.

E. Solar control film

1.05 SUBMITTALS

A. Section 01 33 00 – Submittal Procedures.

B. Product Data on Glass Types Specified: Provide structural, physical and environmental characteristics, size
   limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics,
   limitations, special application requirements. Identify available colors.

D. Samples: Submit 6-inch long bead of glazing sealant, color as selected, 12” x 12” window film sample

E. Manufacturer's Installation Instructions: Indicate special precautions required.

1.06 QUALITY ASSURANCE


B. Perform solar control film application per manufacturer requirements

C. Tempered Glass: Identify type and thickness, permanently etched in the glass surface and located on a corner
   so as to be visible after the glass is installed.

D. Insulating Glass Certification Program: Provide insulation glass units permanently marked with appropriate
   label of IGCC.
1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not install glazing when ambient temperature is less than 50 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

C. Do not install solar control film when conditions are not within manufacturer requirements.

1.08 WARRANTY

A. Section 01 77 00 – Closeout Procedures.

B. Provide ten (10) year limited warranty against abrasion, coating failure, loss of vacuum seal, and breakage due to improper installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. PPG Industries;

B. Ford Motor Co.;

C. Libby-Owens-Ford;

D. 3M (solar control film)

E. Lumar (solar control film)

F. Or, approved equal.

2.02 GLAZING

A. Glazing Type 1: Clear Glass, ASTM C1036, Type 1, clear flat, double strength glass, glazing quality q3, 1/4 inch thick, PPG; or equal.

B. Glazing Type 2: Wire glass; ASTM C1036, Type 1, clear, polished both sides, Class 1, Form 1, quality q8, mesh M2, square, 1/4-inch thick.
2.04 GLAZING COMPOUNDS

A. Sealant: Silicone type, as recommended by glazing manufacturer.

B. Glazing compounds and accessories shall be compatible with sealants and paints used in conjunction with window trim.

2.05 GLAZING ACCESSORIES

A. Glazing Tape: Preformed butyl compound, 10-15 Shore A durometer hardness, coiled on release paper, black color; Percora, “D-55”, or equal.

B. Setting Blocks: Neoprene, EPDM or silicone blocks, 80-90 Shore A durometer hardness, length of 0.1 inch for each square foot of glazing or minimum 4 inch long x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

C. Spacer Shims: Neoprene, 50-60 Shore A durometer hardness, 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

D. Glazing Splines: Polyvinyl chloride, extruded shape to suit glazing channel retaining slot; black color.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Section 013010 - Project Management and Coordination.

B. Verify that openings for glazing are correctly sized and within tolerance as recommended by glazing manufacturer.

C. Verify that rabbet depth and expansion allowances are in accordance with manufacturer's recommendations.

D. Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive sealant.

3.02 PREPARATION

A. Comply with GANA “Glazing Manual” and manufacturer’s printed instructions.

B. Clean contact surfaces with solvent and wipe clean.

C. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

E. Prime surfaces scheduled to receive sealant.

F. Prepare glazing for solar control film per manufacturer’s specifications

3.03 GLAZING
A. Install glazing tape continuous but not in one continuous length; install against permanent stops projecting 1/16 inch above sight line.

B. Use manufacturer’s recommended spacers, blocks, primers, sealers, gaskets and accessories.

C. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.

D. Rest glazing on setting blocks, and push against fixed stop with sufficient pressure to attain full contact.

E. Install removable stops, with spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.

F. Fill gaps between pane and applied stop with sealant to depth equal to depth equal to bite on glazing, to uniform and level line.

G. Trim protruding tape edge.

3.04 CLEANING

A. Section 017700 - Closeout Procedures.

B. Remove glazing materials from finish surface.

C. Remove labels after work is completed.

D. Clean and polish glass and mirrors.

3.05 PROTECTION OF FINISHED SURFACES

A. Section 015000 - Construction Facilities and Temporary Controls: Protection of installed work.

B. After installation, mark pane with an "X" by using removable plastic tape or paste.

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish labor, materials, equipment and services to install gypsum board system as shown on the Drawings, as specified herein and as required for a complete and proper installation, including, but not limited to, the following:

1. Interior gypsum board wall finish.

2. Modifications to and/or repair of existing gypsum board surfaces.

3. Related accessories and finish.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED WORK

A. Section 07 22 00 - Building Insulation: Sound attenuation blankets and batt insulation.

B. Section 07 92 00 - Joint Sealers: Acoustical Sealants.

C. Section 08 11 13 - Metal Doors and Frames.

D. Section 09 22 00 - Metal Support Systems.

E. Section 09 90 00 - Painting.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00 – Submittal Procedures.

B. Manufacturer's Literature and Data:

1. Corner bead and edge trim.

2. Finishing materials.

3. Laminating adhesive.

4. Gypsum board, each type.

C. Test Results:

1. Fire rating test, each fire rating required for each assembly.
1.04 DELIVERY, IDENTIFICATION, HANDLING AND STORAGE

A. In accordance with the requirements of ASTM C840.

1.5 ENVIRONMENTAL CONDITIONS

A. In accordance with the requirements of ASTM C840.

1.06 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

A. American Society For Testing And Materials (ASTM):
   
   C11 Standard Definitions of Terms Relating to Gypsum and Related Building Materials
   C36 Gypsum Wallboard
   C442 Gypsum Backing Board and Coreboard
   C475 Joint Compound and Joint Tape for Finishing Gypsum Board
   C630 Water Resistant Gypsum Backing Board
   C840 Application and Finishing of Gypsum Board
   C1047 Accessories for Gypsum Wallboard and Gypsum Veneer Base

B. Gypsum Association:
   
   GA 201 - Gypsum Board for Walls and Ceilings.
   GA 214 - Recommended Levels of Gypsum Board Finish.
   GA 216 - Recommended Specifications for the application and Finishing of Gypsum Board.

C. Factory Mutual Engineering and Research Corp. (FM):
   
   Annual: Specification Tested Product Guide

D. Underwriters Laboratories Inc. (UL):
   
   Annual: Resistance Directory

E. Warknock Hersey (HW):
   
   Annual: Certification Listings

1.07 QUALITY ASSURANCE

A. Perform gypsum wallboard systems work in accordance with ASTM C840, GA 214, and GA 216 unless otherwise specified in this Section.

B. Maintain one copy of each document in field office for duration of project.
C. Comply with regulatory requirements for fire-rated partitions as listed by UL or GA.

PART 2 - PRODUCTS

2.01 GYPSUM BOARD

A. Gypsum Board: ASTM C36, Type X, 5/8-inch (16 mm) thick unless shown otherwise.

B. Cementitious Backer Units: ANSI A118.9, high density, glass fiber reinforced Portland cement panels, ½ inch thick “Duroc” as manufactured by U.S. Gypsum, or approved equal.

2.02 ACCESSORIES

A. ASTM C1047, except form of 0.015-inch (0.39 mm) thick zinc coated steel sheet complying with ASTM D3678.


C. Exposed Edge Trim: U.S. Gypsum Co., “Series #200A or B”; Gold Bond, “#200 or #500”; Beadex; Domtar; or equal.


G. Horizontal Reveal: Fry Reglet, “DC-62-299”; or approved equal.

H. Electrical Box Sealer: Lowery, “Electrical Box Pads”; or equal.

I. Joint Materials: ASTM C475; GA 201 and GA 216; reinforcing tape, joint compound, adhesive and water.

J. Glass Fiber Tape: USG Duroc, or approved equal; 2 inches wide, self adhering woven mesh.

K. Acoustical Sealant: Non-hardening, non-staining, for use in conjunction with gypsum board; Pecora, “AC-20”; Tremco; U.S. Gypsum Co.; or equal.

2.03 FASTENERS

A. ASTM C1002 and ASTM C840, except as otherwise specified.

B. Select screws at wood framing, in accordance with ASTM C1002, Type S-12, and GA 216.
C. For fire rated construction, type and size same as used in fire rating test.

D. Clips: Zinc-coated (galvanized) steel; gypsum board manufacturer's standard items.

2.04 FINISHING MATERIALS AND LAMINATING ADHESIVE

A. Comply with recommended standards of ASTM C475 and ASTM C840.

PART 3 - EXECUTION

3.01 GYPSUM BOARD HEIGHTS

A. Extend all layers of gypsum board from floor to underside of structure overhead on following partitions and furring and as noted on the drawings:

1. Two sides of partitions:
   a. Fire resistive partitions.
   b. Smoke partitions.
   c. Sound rated partitions.
   d. Full height partitions shown (FHP).
   e. Corridor partitions.

2. One side of partitions or furring:
   a. Inside of exterior wall furring or stud construction.
   b. Room side of room without suspended ceilings.
   c. Furring for pipes and duct shafts, except where fire rated shaft wall construction is shown.

B. In locations other than those specified, extend gypsum board from floor to heights as follows:

1. Not less than 4-inches above suspended acoustical ceilings.

2. At ceiling of suspended gypsum board ceilings.

3. At existing ceilings.

3.02 INSTALLING GYPSUM BOARD

A. Coordinate installation of gypsum board with other trades and related work.

B. Install gypsum board in accordance with GA 201 and GA 216, and manufacturer's instructions. Comply with applicable UL or ICBO Design installation requirements for rated construction.
C. Use gypsum boards in maximum practical lengths to minimize number of end joints.

D. Erect single layer standard gypsum board horizontal, with ends and edges occurring over firm bearing.

E. Double Layer Application: Use gypsum backing board for first layer, placed perpendicular to framing, use fire rated backing board at fire resistive partitions.

F. Place second layer parallel to first layer. Offset vertical joints 16 inches o.c. each layer and side.

G. Hold back gypsum board edges 1/4 inch at all intersecting vertical surfaces.

H. Use screws when fastening gypsum board to wood or metal furring or framing.

I. Install moisture resistant gypsum board on walls of Toilets and other wet locations. Use exterior gypsum soffit board at ceilings.

J. Treat cut edges and holes in moisture resistant gypsum board with sealant.

K. Place corner beads at external corners. Use longest practical lengths. Place edge trim where gypsum board abuts dissimilar materials.

3.03 CEILING INSTALLATION

A. Coordinate location of hangers with other work.

B. Install ceiling framing independent of walls, columns, and above ceiling work.

C. Space main carrying channels at maximum 48 inches on center, not more than 6 inches from perimeter walls. Lap splices minimum 12 inches and secure together 2 inches from each end of splice.

D. Place furring channels perpendicular to carrying channels at 16 inches on center not more than 2 inches from perimeter walls. Lap splices minimum 8 inches and secure together 1 inch from each end of splice.

E. Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 24 inches past each end of openings.

F. Laterally brace entire suspension system as detailed.

G. Install acoustical isolators for exhaust enclosure ceilings and where shown in accordance with manufacturer's instructions.

3.04 WALL INSTALLATION (EXCEPT SHAFT WALLS)

A. When gypsum board is installed parallel to framing members, space fasteners 12 inches on center in field of the board, and 8 inches on center along edges, unless otherwise required by fire assembly.

B. When gypsum board is installed perpendicular to framing members, space fasteners 12 inches on center in field and along edges, unless otherwise required by fire assembly.

C. Stagger screws on abutting edges or ends.
D. For single-ply construction, apply gypsum board with long dimension either parallel or perpendicular to framing members as required to minimize number of joints except gypsum board shall be applied vertically over "Z" furring channels.

E. For two-ply gypsum board assemblies, apply base ply of gypsum board to assure minimum number of joints in face layer. Apply face ply of wallboard to base ply so that joints of face ply do not occur at joints of base ply with joints over framing members.

F. No offset in exposed face of walls and partitions will be permitted because of single-ply and two-ply application requirements.

G. Control Joints ASTM C840 and as follows:
   1. Locate at both side jambs of openings if gypsum board is not "yoked." Use one system throughout.
   2. Not required for wall lengths less than 30 feet.
   3. Extend control joints the full height of the wall or length of soffit/ceiling membrane.

H. Acoustical or Sound Rated Partitions, Fire and Smoke Partitions:
   1. Cut gypsum board for a space approximately 1/8 to 1/4-inch wide around partition perimeter.
   2. Coordinate for application of caulking or sealants to space prior to taping and finishing.
   3. Follow ASTM E497 for sound rated partitions. STC minimum values as shown.

3.05 ACCESSORIES

A. Set accessories plumb, level and true to line, neatly mitered at corners and intersections, and securely attach to supporting surfaces as specified.

B. Install in one piece, without the limits of the longest commercially available lengths.

C. Corner Beads:
   1. Install at all vertical and horizontal external corners and where shown.
   2. Use screws only. Do not use crimping tool.

D. Edge Trim (casings Beads): Install at the following conditions:
   1. At both sides of expansion and control joints unless shown otherwise.
   2. Where gypsum board terminates against dissimilar materials and at perimeter of openings, except where covered by flanges, casings or permanently built-in equipment.
   3. Where gypsum board surfaces of non-load bearing assemblies abut load-bearing members.
4. Where indicated on Drawings.

3.06 FINISHING OF GYPSUM BOARD

A. Finish joints, edges, corners, and fastener heads in accordance with ASTM C840.

B. Before proceeding with installation of finishing materials, assure the following:

1. Gypsum board is fastened and held close to framing or furring.
2. Fastening heads in gypsum board are slightly below surface in dimple.

C. Tape, fill, and sand exposed joints, edges, corners, openings and fixings, to produce surface ready to receive surface finishes.

D. Finish gypsum board surfaces to Level 4, as defined by GA 214, unless otherwise indicated.

E. Finish joints, fasteners, and all openings, including openings around penetrations, on that part of the gypsum board extending above suspended ceilings to seal surface of non-decorated smoke barrier, fire rated and/or sound rated gypsum board construction.

3.07 TOLERANCES

A. Maximum variation of finished gypsum board surface from true flatness not to exceed 1/8 inch in ten feet in any direction.

3.08 REPAIRS

A. After taping and finishing has been completed, and before decoration, repair all damaged and defective work, including non-decorated surfaces.

B. Patch holes or openings 1/2-inch or less in diameter, or equivalent size, with a setting type finishing compound or patching plaster.

C. Repair holes or openings over 1/2-inch diameter, or equivalent size, with 5/8-inch thick gypsum board secured in such a manner as to provide solid substrate equivalent to undamaged surface.

D. Tape and refinish scratched, abraded or damaged finish surfaces including cracks and joints in non-decorated surface to provide smoke tight construction fire protection equivalent to the fire rated construction and/or STC equivalent to the sound rated construction.

3.09 CLEAN-UP

A. Section 01 74 23 - Cleaning.

B. As work proceeds clean up and remove excess materials, rubbish, and splash.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 09 22 00
METAL SUPPORT SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION
A. Furnish labor, materials, equipment and services to install non-load bearing framing systems as shown on the Drawings, as specified herein and as required for a complete and proper installation, including, but not limited to, the following:

1. Non-load bearing steel stud wall systems.
2. Supports fabricated from steel stud components for anchorage of wall-mounted items.
3. Miscellaneous modifications to existing non-load bearing support systems.
4. Related fasteners and accessories.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 SUBMITTALS
A. Submit in accordance with Section 01 33 00 - Submittal Procedures.

B. Manufacturer's Literature and Data:
   1. Studs, runners and accessories.
   2. Screws, clips and other fasteners.

C. Shop Drawings: Typical metal stud and furring construction system including details around openings and corner details.

D. Test Results:
   1. Fire rating test designation, each fire rating required for each assembly.

1.03 QUALITY ASSURANCE
A. Perform work in accordance with ASTM C841, ASTM C1063 and WLPDIA Plaster and Lathing Manual.

1.04 DELIVERY, IDENTIFICATION, HANDLING AND STORAGE
A. In accordance with the requirements of ASTM C754.
1.05 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

A. American Society For Testing And Materials (ASTM)
   A123 Zinc (Hot-dip Galvanized) Coatings on Iron and Steel Products
   A525 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
   A641 Zinc-Coated (Galvanized) Carbon Steel Wire
   C645 Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board
   C754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board or Water-Resistant Backing Board
   C954 Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
   C1002 Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases

B. International Conference of Building Officials (ICBO):
   Evaluation Reports Drilled Concrete Expansion Anchors

C. California Building Code (CBC): Chapter 25A, Section 2501A and Table A-A.

PART 2 - PRODUCTS

2.01 PROTECTIVE COATING

A. Galvanize steel studs, runners (track), rigid (hat section) furring channels, "Z" shaped furring channels, and resilient furring channels, ASTM A123, G-60 minimum.

2.02 STEEL STUDS AND RUNNERS (TRACK): All materials galvanized, ASTM A123, G-60 minimum.

A. ASTM C645, modified for thickness specified and sizes and shown.
   1. Use ASTM A525 steel, 0.0359-inch (0.9 mm) thick bare metal (20 gauge) unless otherwise noted.
   2. Runners same thickness as studs unless otherwise noted on plans.

B. Provide not less than two cutouts in web of each stud, approximately 12 inches (300 mm) from each end, and intermediate cutouts on approximately 24-inch (600 mm) centers.

C. Doubled studs for openings and studs for supporting cement backer-board.

D. Studs 12 feet (3600 mm) or less in length shall be in one piece.
2.03 FURRING CHANNELS: All materials galvanized, ASTM A123, G-60 minimum.

A. Rigid furring channels (hat shape): ASTM C645.

B. Resilient furring channels:
   1. Not less than 0.0179-inch (0.45 mm) thick bare metal.
   2. Semi-hat shape, only one flange for anchorage with channel web leg slotted on anchorage side, channel web leg on other side stiffens fastener surface but shall not contact anchorage surface other channel leg is attached to.

C. "Z" Furring Channels:
   1. Not less than 0.0179-inch (0.45 mm)-thick bare metal, with 1-1/4 inch (32 mm) and 3/4-inch (19 mm) flanges.
   2. Web furring depth to suit thickness of insulation with slotted perforations.

D. Rolled Steel Channels: ASTM C754, cold rolled; or, ASTM C841, cold rolled.

2.04 METAL LATH

A. Provide metal lath, diamond mesh, ASTM A847, 3.4 lbs./sq. yd. for gypsum plaster.

B. Mesh to have manufacturer’s standard galvanized coating.

2.05 FASTENERS, CLIPS, AND OTHER METAL ACCESSORIES

A. ASTM C754, except as otherwise specified.

B. For fire rated construction: Type and size same as used in fire rating test.

C. Fasteners for steel studs thicker than 0.033-inch (0.84 mm) thick. Use ASTM C954 steel drill screws of size and type recommended by the manufacturer of the material being fastened.

D. Clips: ASTM C841 (paragraph 6.11), manufacturer’s standard items. Clips used in lieu of tie wire shall have holding power equivalent to that provided by the tie wire for the specific application.

E. Drilled Concrete Expansion Anchors: ICBO acceptance for anchor type and size in conditions encountered.

PART 3 - EXECUTION

3.01 INSTALLATION CRITERIA

A. Where fire rated construction is required for walls, partitions, columns, beams and floor-ceiling assemblies, the construction shall be same as that used in fire rating test.

B. Construction requirements for fire rated assemblies and materials shall be as shown and specified,
provisions of the Scope paragraph (1.2) of ASTM C754 and ASTM C841 regarding details of construction shall not apply.

3.02 INSTALLING STUDS

A. Install studs in accordance with ASTM C754, except as otherwise indicated.

B. Space studs as noted on drawings but not more than 24 inches (610 mm) on center.

C. Cut studs 1/4 to 3/8-inch (6 mm to 9 mm) less than floor to underside of structure overhead when extended to underside of structure overhead unless otherwise detailed.

D. Where studs are shown to terminate above suspended ceilings, provide bracing as shown or extend studs to underside of structure overhead.

E. Extend studs to underside of structure overhead for fire rated partitions, smoke partitions, shafts, and sound rated partitions and insulated exterior wall furring.

F. Openings:

1. Frame jambs of openings in stud partitions and furring with two studs placed back-to-back or as shown.
2. Fasten back to back studs together with 3/8-inch (9 mm) long Type ‘S’ pan head screws at not less than 24 inches (600 mm) on center, staggered along webs.
3. Studs fastened flange to flange shall have splice plates on both sides approximately 2 x 3 inches (50 X 75 mm) screwed to each stud with two screws in each stud. Locate splice plates at 24 inches (600 mm) on center between runner tracks.

G. Fastening Studs:

1. Fasten studs located adjacent to partition intersections, corners and studs at jambs of openings to flange of runner tracks with either two screws through each end of each stud and flange of runner.
2. Do not fasten studs to top runner track when studs extend to underside of structure overhead.

H. Chase Wall Partitions:

1. Locate cross braces for chase wall partitions to permit the installation of pipes, conduits, carriers and similar items.
2. Use studs or runners as cross bracing not less than 2-1/2 inches (63 mm) wide.

3.03 INSTALLING WALL FURRING FOR FINISH APPLIED TO ONE SIDE ONLY

A. In accordance with ASTM C754, or ASTM C841 except as otherwise specified or shown.

B. Wall furring on Stud System:
1. Framed with 4 inch (100 mm) or narrower studs, 24 inches (600 mm) on center unless otherwise noted.

2. Brace as specified in ASTM C754 for Wall Furring-Stud System or brace with sections of runners or studs placed horizontally at not less than three-foot vertical intervals.

3. Securely fasten braces to each stud with two Type S pan head screws at each bearing.

3.04 INSTALLING SUPPORTS REQUIRED BY OTHER TRADES

A. Provide for attachment and support of electrical outlets, plumbing, laboratory or heating fixtures, recessed type plumbing fixture accessories, access panel frames, wall bumpers, toilet stall partitions, urinal screens, marker boards, tack boards, wall-hung casework, handrail brackets, recessed fire extinguisher cabinets, shelving and other items supported by stud construction.

B. Provide additional studs where required. Install metal backing plates, or special metal shapes as indicated on drawings or as required to securely fasten items to metal studs.

3.05 TOLERANCES

A. Fastening surface for application of subsequent materials shall not vary more than 1/8-inch (3 mm) from the layout line.

B. Plumb and align vertical members within 1/8-inch (3 mm).

END OF SECTION
SECTION 09 23 00

GYPSUM PLASTER

PART 1 - GENERAL

1.01 SUMMARY

A. Provide patching and repair of existing gypsum plaster walls and ceilings as required for new construction and as shown on the Drawings.

B. Related Sections:
   1. Section 07 90 00 - Joint Sealers.
   2. Section 09 90 00 - Painting.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 SUBMITTALS

A. Comply with requirements of Section 01 33 00 - Submittal Procedures.

B. Product Data: Submit manufacturer’s product data on plaster materials, characteristics and limitations of products specified.

C. Certificates: Submit certificates signed by manufacturer for each kind of plaster aggregate certifying that materials comply with requirements.

1.03 QUALITY ASSURANCE

A. Applicator Qualifications: Company experienced and specializing in gypsum plaster with documented experience.

B. Standards: Install lathing and furring in accordance with ASTM C841 “Installation of Interior Lathing and Furring,” except as detailed otherwise.

C. Standards: Apply gypsum plaster in accordance with ASTM C842 “Application of Interior Gypsum Plaster,” except where more detailed or more stringent requirements are indicated.

D. Standards: Comply with requirements of ASTM C847 “Metal Lath”.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Except for aggregate, deliver materials for the site in sealed containers or bags fully identified with manufacturer’s name, brand, type and grade.

B. Store materials in a dry, well-ventilated space, under cover, and off the ground.
1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not apply plaster when substrate or ambient air temperature is less than 50 degrees F nor more than 80 degrees F.

B. Maintain minimum ambient temperature of 50 degrees F during and after installation of plaster.

PART 2 - PRODUCTS

2.01 PLASTER MATERIALS


C. Finishing Hydrated Lime: ASTM C206, Type S.

D. Sand Aggregate for Base Coat Plaster: ASTM C35, graded in accordance with ASTM C842, sand aggregate.

E. Water: Clean, fresh, portable and free of mineral or organic matter which can affect plaster.

2.02 PLASTER ACCESSORIES

A. General: Comply with material provisions of ASTM C841. Coordinate depth of accessories with thicknesses and number of plaster coats required.

B. Metal Lath: ASTM C847, galvanized steel, having a G60 galvanized coating in accordance with ASTM A525, self-furring type, expanded metal, 3.4 pound per square yard, diamond mesh.

C. External Corner Bead: 26-gage zinc-coated steel, small-nose, expanded steel corner bead, with rigid nose, not exceeding 3-16-inch and expanded flanges at least 2-1/2-inches wide.

D. Casing Beads: 26-gage zinc-coated steel. Where plaster abuts dissimilar construction, provide modified or semi-square edge metal casing bead.

E. Base Screed (Parting Screeds): Metal screeds designed to act as ground and dividers between plaster and other base materials.

F. Corner Reinforcing (Cornerite): Expanded metal lath strips 6-inch wide, bent to form 3-inch wings, fabricated from copper bearing steel, and weighing not less than 2.5 pounds per square yard.

G. Strip Reinforcing: Expanded, self-furring metal lath, fabricated from copper-bearing steel and weighing not less than 2.5 pounds per square yard.

H. Control Joints: Prefabricated, 26-gage galvanized steel, two-piece type, consisting of pair of casing beads with back flanges formed to provide slip-joint action, adjustable for joint widths from 1/8- to 5/8-inch.
I. Bonding Agent: Liquid bonding agent specifically formulated for bonding new plaster to existing plaster and structurally sound interior surfaces; complying with ASTM C631.

2.03 GYPSUM PLASTER MIXES

A. Mix and proportions gypsum plaster coats in accordance with ASTM C842, and the manufacturer’s directions.

B. Base Coat: Gypsum neat plaster, with job-mixed sand.

C. Finish Coat: Proportion materials for finish coats to comply with ASTM C842 for the appropriate type of finish and texture required. Provide gypsum plaster finish coat to match existing plaster walls and ceilings.

   1. Smooth Finish: Mix a minimum of 2, and maximum of 4 parts plaster to 1 part lime.

D. Protect mixtures from contamination and evaporation. Do not retemper mixes after initial set has occurred.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive gypsum plaster, including grounds and other accessories which acts as grounds or screeds, and conditions which may affect the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Verify items within walls for other Sections of work have been installed, and have been tested and approved.

3.02 PREPERATION

A. Protect contiguous work form damage, disfiguration, or moisture deterioration and soiling which might result from plastering operations.

B. Clean concrete surfaces of foreign matter. Thoroughly dampen surfaces before using acid solutions, solvent, or detergents to perform cleaning. Wash surface with clean water.

C. Roughen smooth concrete surfaces. Apply bonding agent in accordance with manufacturer’s instructions.

3.03 INSTALLATION – METAL LATH ACCESSORIES

A. Install metal lathing materials indicated for gypsum plaster in accordance with ASTM C841, and as specified.

   1. Apply metal lath as a base for conventional three-coat plasterwork over wood framing as indicated.

   2. Apply metal lath taut, with long dimension perpendicular to supports.

   3. Lap horizontal edges and ends of lath one inch. Lap horizontal edges spanning 16 inches or more a minimum of 2 inches. Nail or wire securely and rigidly in place. Secure end laps with tie wire where they occur between supports.

   4. Where lathing abuts building structure horizontally and where partition/wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the GYPSUM PLASTER

09 23 00 - 3         KPA 443
plasterwork from the building structure. Install slip-or cushion-type joints to absorb deflections but maintain lateral support.

B. Attach plaster accessories to substrates with galvanized screw spaced not more than 8 inches on center.

C. Place casing beads at terminations of plaster finish. Use single length of beads and trim wherever length of run does not exceed longest standard stock length available. Distribute butt joints in single run uniformly for best function and appearance. Miter or cope at corners.

D. Set beads and trim level, plumb, and true to line with a tolerance of not more than 1/8 inch in 8-feet from plumb or level. Shim as required and align joints with concealed splices or tie plates.

E. At all external corners, install corner beads.

F. Place 4-inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.

G. Where plaster abuts other finishes and plaster termination is not covered by other finish or applied trim, provide casing bead.

3.04 INSTALLATION

A. Apply gypsum plaster materials, composition, mixes, and finishes to comply with ASTM C842.

B. Apply gypsum lath using two-coat work over lath, except for ceiling installations requiring 3-coat work.

C. Apply finish coats to a smooth troweled finish to match existing plaster finish.

D. Sand smooth-troweled finishes lightly to remove trowel marks and arises.

3.05 PATCHING AND REPAIRS TO EXISTING

A. Preparation: Scrape and sand existing plaster surfaces to be repaired, removing all loose and peeling paint.

B. Removals: Carefully remove all existing plaster that is loose, flake, bubbled, crumbling or otherwise deteriorated or unsuitable to remain. Make clean, sharp edges beveled inward to insure firm bond of new plaster.

C. Cracks Less Than 1/16-inch Wide: To pre-wetted surface, apply a thin slurry coat consisting of finish coat ingredients. Smooth and match texture of adjacent surface.

D. Cracks 1/16-inch to ¼-inch Wide: Wide crack slightly, then fill with approved basecoat plaster mix. Work the coat to match texture of adjacent surfaces.

E. Small Holes (Less Than 4-inch in Diameter): Use two-coat system, consisting of one layer of basecoat, allowed to set but not dry, followed by one layer of finish coat troweled to a smooth, level surface. Finish coat to match existing adjacent surface.

F. Large Cracks (Greater Than ¼-inch) and Large Holes (Greater Than 4-inches in Diameter): Remove unsound or unkeyed plaster to sound plaster to sound plaster on either side of crack or hole. Apply metal lath to cleared
area if existing substrate includes lath. Apply plaster base and finish flush with adjacent surfaces. Finish coat to match existing adjacent surface.

3.06 TOLERANCES

A. Maximum Variation from True Flatness: 1/8-inch in 10-feet.

3.07 REPAIRING AND CLEANING

A. Defective Work: Plaster which is cracked or crazed as a result of improper timing and curing will not be accepted. Remove and replace unacceptable plaster, including plaster base materials, if damaged during removal of defective plaster.

B. Cleaning: Promptly remove plaster from surfaces which are not to be plastered. Repair floors, walls, and other surfaces that have been stained, marred, or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, and equipment; clean areas of all plaster debris; and leave broom clean.

C. Patching: Prior to Final Acceptance of the Project, cut out to full depth all damage, cracks, checks, discolorations, and other imperfections in the work, including damage caused by other trades and damage as a result of shrinkage and minor structure movements of the building. Patch to match adjoining surfaces.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Three coat cement plaster with finish coat.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 07 90 00 - Joint Sealants.

B. Section 08 11 13 - Metal Doors and Frames.

C. Section 08 51 13 - Aluminum Windows.

D. Section 09 21 16 - Gypsum Board Systems.

E. Section 09 90 00 - Painting.

1.03 REFERENCES

A. ASTM C39 - Compressive strength of Cylindrical Concrete.

B. ASTM C150 - Portland Cement.

C. ASTM C206 - Finishing Hydrated Lime.


E. ASTM C927 - Application of Portland Cement Based Plaster.


1.04 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittals.

B. Product Data: Provide data on plaster materials, characteristics and limitations of products specified.

C. Samples: Submit two samples 16 x 16 inches in size illustrating finish.
1.05 QUALITY ASSURANCE
   A. Perform work in accordance with WLPDIA, Plaster and Lathing System Manual.
   B. Maintain one copy of each document on site.

1.06 ENVIRONMENTAL CONDITIONS
   A. Do not apply plaster when substrate or ambient air temperature is less than 50 degrees F, nor more than 80 degrees F.
   B. Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until cured.
   C. Do not apply plaster when prevailing wind will result in excessive evaporation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
   A. La Habre;
   B. U. S. Gypsum;
   C. Or approved equal.

2.02 CEMENT PLASTER BASECOAT MATERIALS
   A. Cement: ASTM C150, Type I Portland, gray color.
   B. Hydrated Lime: ASTM C206, Type S.
   C. Aggregate: In accordance with ASTM C35; graded per WLPDIA Article 6.6.4.
   D. Glass Fiber: Type AR (Alkali Resistant) chopped 1/2 inch lengths, Barol Hardness 64, fibers specifically designated to be compatible with alkaline environment of Portland Cement based composites.
   E. Water: Clean, potable fresh and free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances.

2.03 CEMENT PLASTER FINISHING MATERIALS
   A. Cement: As specified for plaster base coat, gray color.
   B. Lime: As specified for plaster base coat.
   C. Aggregate: As specified for plaster base coat.
   D. Water: Clean, potable fresh and free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

PORTLAND CEMENT PLASTER
09 24 00 - 3
KPA 443
2.04 ACCESSORIES

A. Manufacturers:

1. Casings-Western;
2. Fry Reglet;
3. Milcor;
5. Western Metal Lath Co.;
6. Or approved equal.

B. Corner Beads, Casing Beads, Drip Screeds, Control Joints, and similar Accessories: Provide 24 gage galvanized steel shapes in accordance with ANSI A42.3 and as indicated on the Drawings.

C. Metal Lath: Type SFB, self-furring, welded wire fabric base with backing.

D. Bonding Agent: Larsen Products Corp., “Weld-Crete”; or equal.

E. Building paper: two layers 15# felt paper.

2.05 CEMENT PLASTER MIXES

A. Mix and proportion cement plaster in accordance with good trade practice and as follows:

1. Scratch and Brown Coats: 1 part cement, minimum 3-1/2 and maximum 4 parts aggregate and minimum 15% and maximum 25% hydrated lime; glass fiber additive (1-1/2 lbs./sack of cement for scratch coat.)

2. Finish Coat: Per WLPDIA Article 7.4.4.2, 1 part standard Portland Cement, not more than 1/2 part dry hydrated/and or equivalent unit of lime putty, and not more than 3 parts of graded aggregate.

B. Mix only as much plaster as can be applied prior to initial set.

C. Mix together all materials dry, to a uniform color and consistency, before adding water.

D. Protect mixes from frost, dust and evaporation.

E. Do not re-temper mixes after initial set has occurred.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Section 013100 - Project Management and Coordination.

B. Verify that site is ready to receive plasterwork.
3.02 PREPARATION

A. Prior to application ensure mechanical and electrical services behind surfaces to receive plaster have been tested and approved.

B. Verify metal lath has been properly installed and rigidly secured.

C. Place metal accessories true to lines and levels.

3.03 APPLICATION OF CEMENT PLASTER

A. Apply cement plaster in accordance with WLPDIA's Plaster and Lathing Systems Manual and as indicated on drawings.

B. Apply cement plaster using three-coat system.

C. Apply each basecoat to minimum thickness of 3/8 inch moist cure and allow each coat to slowly dry for a minimum period of 48 hours. Prevent accelerated drying by protecting from wind.

D. Allow basecoats to cure for a minimum of 7 days prior to application of finish coat. Protect work from uneven and excessive evaporation during hot, dry and windy weather.

E. After curing, evenly dampen basecoat prior to applying finish coat.

F. Apply finish coat to thickness sufficient to secure required texture but in no case less that 1/8 inch. Apply finish coat in accordance with manufacturer's recommendations.

G. Provide surfaces with finish to match approved sample panel.

H. Finish to be a light dash coat texture to match approved sample panel.

I. Moist cure finish coat for minimum period of 48 hours.

3.04 FIRE RATED ASSEMBLIES

A. Perform cement plasterwork for fire rated assemblies in accordance with drawings and as recommended by Underwriter's Laboratories (UL).

B. Provide thickness as required to meet 1-hour rating where indicated.

3.05 PATCHING EXISTING CEMENT PLASTER

A. Cut back plaster and apply bonding agent to edge of plaster.

1. Install metal lath as required and tie metal lath to existing lath.

2. Apply scratch, and brown coat as for new plastering.

3. Install finish coat and feather out to a smooth finish over existing plaster.
3.06 TOLERANCES

A. Maximum Variation From True Flatness: 1/8 inch in 10 feet.

END OF SECTION
SECTION 09 30 00
CERAMIC TILE

PART 1 - GENERAL

1.1 DESCRIPTION
A. This Section describes the requirements for furnishing and installing ceramic tile, accessories and related materials as indicated on the Drawings and as specified herein.

1.2 RELATED SECTIONS
A. Section 01 33 00 – Submittal Procedures.

1.3 REFERENCES
   1. ANSI A108.4: Installation of ceramic tile with Water-Resistant Organic Adhesive.
   2. ANSI A108.5: Installation of ceramic tile, with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
   4. ANSI A118.1: Dry-Set Portland Cement Mortar.
   5. ANSI A118.4: Latex Portland Cement Mortar.
   6. ANSI A118.6: Ceramic Tile Grout.
   7. ANSI A137.1: Standard Specifications for Ceramic Tile.
B. Tile Council of America (TCA): “Handbook for Ceramic Tile Installation”.

1.4 SYSTEM DESCRIPTION
A. Design Requirements: Floor tile tested both wet and dry shall have minimum static coefficient of friction of 0.60 in accordance with ASTM C1028.

1.5 SUBMITTALS
A. Procedure: In accordance with Section 01 30 00 – Submittals.

B. Samples:
   1. Tile: Submit three full-size samples of each color, size and type of tile specified.
   2. Trim Shapes: Each color, type, and shape.

C. Product Data:
   1. Pictorial information or samples showing manufacturer's full line of standard patterns and colors.
   2. Upon completion of ceramic tile Work, submit two copies of a list of recommended maintenance products and procedures.
1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver tile in manufacturer's original cartons, grade-sealed by manufacturer in accordance with ANSI A137.1, and with grade seals unbroken.

B. Deliver dry-set mortar in moisture-proof containers.

C. Manufactured mortars and grouts shall be from one manufacturer for each system, shall contain hallmarks certifying compliance with specified TCA and other referenced standards and shall be recommended by tile manufacturer for the application intended.

D. Organic adhesive containers shall bear hallmark of either Adhesive and Sealant Council or Tile Contractors of America certifying compliance with ANSI A136.1.

E. Store materials in accordance with manufacturer's directions and under cover in manner to prevent damage or contamination.

F. Handle materials carefully to avoid chipping and breakage.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Ambient Temperature: At least 50 degrees F and rising, when setting and grouting with Portland-cement mortar for at least 7 days after completion of installation.

B. Follow manufacturer's requirements for ambient temperature when setting and grouting with other than Portland-cement mortar.

D. Moisture Conditions: In accordance with tile and installation materials manufacturers' requirements.

E. Protect adjoining work surfaces before tile work begins.
   1. Close spaces in which tile is being set to traffic and other work; keep closed until firmly set.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Tile, General:
   1. Tile shall conform to ANSI A137.1, Standard Grade, and shall be the product of Daltile Company or approved equal.
   2. Patterns as shown on Contract Documents and color as approved by the Architect.
   3. Units shall be factory made. Furnish bases, caps, stops, returns, trimmers, and other shapes for a complete installation within limits of selected manufacturer’s type group. Vertical internal corners shall be square and external corners shall be bullnosed; color and finish shall match that of wall tile.

B. Ceramic Tile Type (as scheduled on Drawings, color subject to change):
   1. CT-1: Daltile, Vitrestone VS07 Graystone – 8x8x5/16
   2. CT-2: Daltile, Semi-Gloss, Group 1, D-X114 Desert Gray – 4x4x1/4
   3. CT-3: Daltile, Semi-Gloss, Group 1, 1469 Galaxy - 4x4x1/4

CERAMIC TILE
09 30 00 - 2

KPA 443
C. Trim Shapes and Bases:
   1. Ceramic Tile Base for CT-1: 6-inch coved base to match floor tile.
   2. Provide bullnose, returns, trimmers, and other shapes, both standard and special, to finish installation and as specified and indicated on the Drawings.

2.2 SETTING MATERIALS

A. Concrete Primer: As recommended by waterproofing membrane manufacturer.

B. Waterproofing Membrane: Elastomeric-based, polyurethane coating, 3M Company "Scotch-Clad Brand Deck Coating Base Coat," or accepted equal.

C. Dry-Set Mortar: Conforming to ANSI A118.1.

D. Latex Portland Cement Mortar: Conforming to ANSI A118.4.

E. Organic Adhesive: In conformance with ANSI A136.1, Type I.

F. Water: Clean and potable.

2.3 GROUTING MATERIALS

A. Latex-Portland Cement Grout, or accepted equal, mastic grout: Special latex emulsions with commercial Portland cement grout, replacing all or part of water according to directions specified by latex manufacturer.

B. Grout: Custom Building Products, Polyblend #165 Delorean Gray, sanded grout at floor (1/8 inch joints), non-sanded grout at walls (1/8 inch joints).

C. Grout Sealants: As recommended by the grout manufacturer.

D. Sealant: As specified in Section 07 92 00 – Sealants and Caulking.

PART 3 – EXECUTION

3.1 INSPECTION

A. Verify that conditions are satisfactory for the installation of ceramic tile and does not adversely affect the quality and execution of tile installation.

B. Condition of surfaces to receive tile:
   1. Surfaces shall be firm, dry, clean and free of oily or waxy films.
   2. Grounds, anchors, plugs, hangers, bucks, and electrical and mechanical work in or behind tile shall be installed prior to proceeding with tile Work.
C. Do not commence the installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:
   1. Install tile in accordance with the requirements of the specified TCA Method from the TCA "Handbook for Ceramic Tile Installation" appropriate to the tile and surface specified herein.
   2. Joint Width: Approximately 1/8 inch for ceramic tile.
   3. Set tile in a manner to produce solid bedding, smooth even surfaces, and uniform joints, accurately aligned and symmetrically arranged. Avoid use of tile less than half size. Cut and drill tile neatly without marring the tile and grind rough exposed edges.
   4. Whenever possible, turn cut to inside corner. Terminate tile at center lines of doors, unless otherwise indicated.
   5. Establish lines of borders where applicable, prior to spreading setting bed, centering field work in both directions. Lay tile from center line of wall or floor surface outward, with adjustments made at junction with other floor or wall surfaces.
   6. Omit tile where floor or wall area is covered by permanently built-in equipment such as toilet fixtures and recessed accessories.
   7. Patch existing tilework, layout shall match existing tile pattern. Align joints vertically and horizontally.

B. Waterproofing Membrane for Thin-Set Tile: Install in accordance with manufacturer's instructions and details. Extend up walls at least 4 inches.


E. Curing: Apply non-staining laminated and reinforced Kraft paper having a bituminous or latex binder over floor tile as soon as pointing, grouting and cleaning are completed.
   1. Lap the sheets at least 4 inches, and seal the laps against the escape of moisture.
   2. Leave curing paper in place until job is ready for final cleaning.
   3. Keep traffic off floors during the curing period (7 days).
   4. Do not permit cement grouts to dry out until cured a minimum of 72 hours.

F. Expansion Joints: Layout shall continue existing expansion joint.

3.3 CLEANING

A. Clean surfaces after installation and grouting as recommended by tile manufacturer.

B. Remove grout haze, observing grout manufacturer’s recommendations as to use of acid and chemical cleaners.

C. Rinse tile work thoroughly with clean water before and after using chemical cleaners. Do not use acids or abrasive soaps on tile, except as approved by tile manufacturer.

D. Replace damaged, cracked, stained, or broken surfaces before time of final acceptance.

3.4 PROTECTION
A. Apply a protective coat of neutral cleaner solution, one part cleaner to one part water, to clean, completed tile walls and floors.

B. Maintain curing paper cover on floor tile to protect from construction dirt.

C. Place board walkways on newly tiled floors for at least 7 days where floors must be used as passageways by workmen.

D. Just before final acceptance of tile work, remove paper and rinse protective coat of neutral cleaner from tile surfaces.

END OF SECTION
SECTION 09 65 00
RESILIENT FLOORING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Vinyl Composition Tile flooring.

B. Resilient base.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

B. Section 03 54 00 - Cementious Underlayment: Concrete patching.

C. Section 09 68 13 - Carpet

D. Section 09 97 00 - water vapor emission control

1.03 QUALITY ASSURANCE

A. Furnish each style and color of resilient flooring from a single mill run. Submit manufacturer's certified compliance.

B. Maintain complete manufacturer's installation directions for all products at the job site throughout installation.

C. Qualifications of Installer: Minimum of three project installations of extent comparable to proposed Project.

D. Regulatory Requirements:

1. Materials shall have the following flammability ratings, according to ASTM E84:

   a. Flame Spread: 75 or less.

   b. Smoke Density: 450 or less.

2. Slip Resistance: In accordance with ADA Section A4.5 recommendations, flooring shall have a minimum static coefficient of friction of 0.6 for floors ASTM D2047 “Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine”.

1.04 SUBMITTALS

A. Comply with requirements of Section 01 33 00 – Submittal Procedures.

B. Manufacturer's Literature and Data:
1. Description of each product.

2. Resilient material manufacturers recommendations for adhesives, underlayment, primers and polish.

3. Application and installation instructions.

C. Samples:

1. Tile: Three 12 inches by 12 inches (300 mm by 300 mm) tile for each type, pattern and color.

2. Base: Three 6 inch (150 mm) long pieces for each type and color.

D. Extra Material: Deliver to the County at completion of work extra materials as listed below. Furnish all products from same mill runs as the installed products. Deliver in original wrappings, properly identified.

1. Each type and color of flooring: 5%.

2. Each type and color of rubber top-set: 5%.

E. Upon completion of work, submit three (3) copies of manufacturer's maintenance and installation

1.05 DELIVERY, STORAGE AND HANDLING

A. Delivery and Storage: Deliver material to the job site and store in their original unopened containers with all labels intact and legible at time use. Store materials at not less than 70 degrees F. for not less than 24 hours immediately before installation.

B. Store in strict accordance with the manufacturers' recommendations.

C. Protection: Use all means necessary to protect materials of the section before, during and after installation and to protect installed work and material of all other trades.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary for approval by the County and at no additional cost to the County.

1.06 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

A. American Society for Testing and Materials (ASTM):

D4078 Water Emulsion Floor Finish
D3564 Application of Floor Polishes to Maintain Vinyl Asbestos Tile or Flooring
F510 Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grit Feed Method
F710 Preparing Concrete Floors and other Monolithic Floors to Receive Resilient Flooring
F1066 Vinyl Composition Floor Tile
B. Federal Specifications (Fed. Spec):

   SS-T-312B    Tile, Floor: Asphalt, Rubber, Vinyl, and Vinyl
   SS-W-40A    Wall Base; Rubber, And Vinyl Plastic
   INT AMD 2   Composition
   MMM-A-115C-79  Adhesive, Asphalt, Water Emulsion Type (For Asphalt And Vinyl Composition Tiles)

C. National Fire Protection Association (NFPA):


D. Resilient Floor Covering Institute (RFCI):

   ADH-1    Vinyl Composition Tile Adhesive
   ADH-2    Wall Base Adhesive
   ID-2    Concrete Treating Compounds Installation Specifications for Vinyl Composition, Solid Vinyl and Asphalt Tile Floorings
   CL-1    Cleaners for Use on Resilient Floor Coverings (Revised 1988)
   TM-6    Determination of Quality of Cut (Joint Tightness and Corner Openings) of Resilient Tile

1.07 GUARANTEE/WARRANTY

A. Section 01 77 00 - Closeout Procedures.

B. Provide County with a guarantee, signed by the Contractor and cosigned by the installer, stating that resilient base will stay fully adhered to substrate for a minimum period of two (2) years after Completion Date, and that any resulting failures will be repaired at no additional cost to the County.

C. Failures include any and all delamination of the resilient base from the substrate other than for causes of excessive abuse.

PART 2 - PRODUCTS

2.01 VINYL COMPOSITION TILE MANUFACTURERS

A. Armstrong World Industries

B. Azrock Industries

C. Tarkett

D. Or, approved equal.
2.02 GENERAL

A. Furnish product type, materials of the same production run.

B. Use adhesives, underlayment, primers and polish recommended by the floor resilient material manufacturer.

C. Interior Floor Finishes For Corridors, Stairs, and Halls: Flame spread not to exceed 25, Smoke developed not to exceed 450 per ASTM E84.

D. Interior Floor Finishes For Remaining Areas: Flame spread not to exceed 75, Smoke developed not to exceed 450 per ASTM E84.

2.03 VINYL COMPOSITION TILE - SPECIFIC TYPES

A. Vinyl Composition Tile: Armstrong Excelon Series, colors to be selected; or approved equal.

1. ASTM F1066, Class 2, Type IV, Composition 1, non-asbestos, 12 inches (300 mm) square, 1/8-inch (3.2 mm) thick.

2. Colors and pattern to be uniformly distributed throughout thickness.

2.05 RESILIENT BASE: Burke, Roppe or approved equal.

A. Tile Base: Fed. Spec. SS-W-40, 1/8 inch (3 mm) thick, 4 inches (100 mm) high unless otherwise noted on Plans, Type I (rubber); Type II, Class 1 or 2 (vinyl plastic); with molded top.

1. Style A (straight) at carpet or carpet tiles.

2. Style B (coved) at concrete and resilient flooring.

B. Provide pre-molded outside corners.

C. Match existing adjacent base in color, height and style.

2.06 ACCESSORIES

A. Adhesives: There is a project requirement for LEED Indoor Environmental Quality Credit 4.1 pertaining to adhesives and sealants. Verify VOC content meets these requirements.


2. Latex type adhesives RFC ADH-1, Type III, Water based latex as recommended by tile manufacturer.

3. Use only adhesive approved for flooring material applied to concrete floor slab.

4. Base: RFC1-ADH2, TYPE II.

B. Primer (For Concrete Subfloors): Asphalitic type as recommended by the adhesive and tile manufacturer.
C. Leveling Compound:
   1. Provide products with latex or polyvinyl acetate resins in the mix.
   2. Determine the type of underlayment selected for use by the condition to be corrected.

D. Polish and Cleaners:
   1. Cleaners RFCI CL-1.

E. Transition Strips:
   1. 1-1/8 inch (28 mm) wide unless shown otherwise.
   2. Bevel from maximum thickness to minimum thickness for flush joint unless shown otherwise.

PART 3 - EXECUTION

3.01 PROJECT CONDITIONS

A. Maintain temperature of materials a minimum of 70 degrees F (22 degrees C,) for 48 hours before installation.

B. Maintain temperature of rooms where work occurs between 70 degrees and 80 degrees F (21 degrees and 27 degrees C), for at least 48 hours, before, during and after installation.

C. Do not install flooring until building is permanently enclosed and wet construction in or near areas to receive tile materials is complete, dry and cured.

3.02 SUBFLOOR PREPARATION

A. Examine surfaces on which resilient flooring is to be installed.

B. Correct conditions which will impair proper installation.

C. Fill cracks, joints and other irregularities in concrete with leveling compound and level floors for a maximum wave variation of 1/8-inch in 10 feet (1:1000) (non-accumulative).
   1. Do not use adhesive for filling or leveling purposes.
   2. Do not use leveling compound to correct imperfections which can be corrected by spot grinding.
   3. Trowel to smooth surface free of trowel marks, pits, dents, protrusions, cracks or joints.

D. Clean floor of oil, paint, dust, and deleterious substances: Leave floor dry and cured free of residue from
existing curing or cleaning agents.

E. Concrete Subfloor Testing:

1. Apply a 1-meter (three foot) square test patch to the prepared concrete subfloor in room or area to be tiled in accordance with RFCI ID-2.

2. After the test patches have remained on the floor for a period of 72 hours, check adherence to surface by scraping test patches for ease of removal.

F. Perform additional subfloor preparation to obtain satisfactory adherence of flooring if subfloor test patches allows easy remove of tile.

G. Prime the concrete subfloor if the primer will seal slab conditions that would inhibit bonding, or if priming is recommended by the tile or adhesive manufacturers.

H. Conduct and Comply with all manufacturer required testing prior to installation.

3.03 INSTALLATION

A. Install in accordance with RFCI INS and manufacturer's instructions for application and installation unless specified otherwise.

B. Mix tile from at least two containers. An apparent line either of shades or pattern variance will not be accepted.

C. Tile Layout:

1. If layout is not shown on drawings, lay tile symmetrically about center of room or space with joints aligned.

2. No tile shall be less than 6-inches and of equal width at walls.

3. Place tile pattern in the same direction; do not alternate tiles.

D. Trim tiles to touch for the length of intersections at pipes and vertical projections, seal joints at pipes with waterproof cement.

E. Application:

1. Apply adhesive uniformly with no bare spots.

   a. Conform to RFC1-TM-6 for joint tightness and for corner intersection unless layout pattern shows random corner intersection.

   b. More than 5 percent of the joints not touching or any joint more than 0.005-inch wide will not be accepted.

2. Roll tile floor with a minimum 100-pound roller. No exceptions.
3. The County Representative may have test tiles removed to check for non-uniform adhesion, spotty adhesive coverage, and ease of removal. Install new tile for broken removed tile.

F. Installation of Transition Strips:
   1. Locate transition strips under centerline of doors unless otherwise shown.
   2. Set resilient edge strips in adhesive. Anchor metal edge strips with anchors and screws specified.
   3. Where tile edge is exposed, butt edge strip to touch along tile edge.
   4. Where thin set ceramic tile abuts resilient tile, set edge strip against floor file and against the ceramic tile edge.

3.04 TILE LOCATION

A. Unless otherwise specified or shown, install tile on floor under areas where casework and other equipment occurs, except where mounted in wall recesses.

B. Extend tile and sheet vinyl flooring for room into adjacent closets and alcoves.

3.05 BASE INSTALLATION

A. Location:
   1. Unless otherwise specified or shown, where base is scheduled, install base over toe space of base of casework, lockers, laboratory, pharmacy furniture island cabinets and where other equipment occurs.
   2. Extend base scheduled for room into adjacent closet, alcoves, and around columns.

B. Application:
   1. Apply adhesive uniformly with no bare spots.
   2. Set base with joints aligned and tightly butted to touch for entire height. Joints not to exceed 5 mils (0.005 inch) as measured in accordance with RFCI TM-6.
   3. Before starting installation, layout base material to provide the minimum number of joints with no strip less than 24 inches (600 mm) length.
      a. Short pieces to save material will not be permitted.
      b. Locate joints as remote from corners as the material lengths or the wall configuration will permit.

C. Form corners and end stops as follows:
   1. Use pre-molded corners for external corners
   2. Score face of inside corner and notch cove.
D. Roll base for complete adhesion.

3.06 CLEANING AND PROTECTION

A. Clean adhesive marks on exposed surfaces during the application of resilient materials before the adhesive sets. Exposed adhesive is not acceptable.

B. Keep traffic off resilient material 72 hours after installation.

C. Clean and polish materials in the following order:
   1. For the first two weeks sweep and damp mopped only.
   2. After two weeks, scrub resilient materials with a minimum amount of water and a mild detergent. Leave surface clean and free of detergent residue.
   3. Apply wax polish to the floors in accordance with the polish manufacturer's instructions.

D. When construction traffic occurs over tile, cover resilient materials with reinforced craft paper. At entrances and where wheeled vehicles or carts are used, cover tile with plywood, hardboard, or particleboard over paper. All protective surfaces are to be properly secured and maintained.

E. When protective materials are removed and immediately prior to acceptance, replace any damage tile, re-clean resilient materials, lightly re-apply polish and buff floors.

END OF SECTION
SECTION 09 68 13

CARPET

PART 1 - GENERAL

1.01  SUMMARY

A. Provisions of Division 01 apply to this section.

B. Section Includes:

   1. Carpet as indicated.

C. Related Sections:

   1. Section 03300: Cast-In-Place Concrete.
   2. Section 03331: Lightweight Architectural Concrete.

1.02  SUBMITTALS

A. Shop Drawings: Submit dimensioned layout of carpet seaming and details for binder bars.

B. Samples:

   1. Submit 3 labeled minimum 27-inch square with proper backing, Samples from each dye lot of carpet required for the Work.
   2. Trim and accessories: Submit 12-inch long Samples of each type trim proposed for the Work.

C. Product Data: Submit the following:

   2. Technical data and installation instructions for each adhesive and sealer material.
   3. Carpet manufacturer's published instructions for maintenance, care, cleaning and repair of carpet.

D. Certificate: Submit a certificate from carpet manufacturer that materials supplied comply with fire hazard resistance standards specified.

1.03  QUALITY ASSURANCE

A. Comply with the following as a minimum requirement:

   1. All materials shall comply with CCR, Title 24, CBC, Section 1124 B.3 and 1124 B.2.
B. Requirements of Regulatory Agencies: Carpeting shall meet requirements of federal, state and local regulatory agencies for flammability, static control, or other properties as specified.

C. Carpet Installation: Comply with CRI 104 - Standard for Installation of Textile Floor Covering Materials.

D. Each color of carpet shall be of the same dye lot.

1.04 DELIVERY, STORAGE AND HANDLING

A. Full or cut rolls of carpeting shall be cut, packaged and identified by the factory. Distributor, dealer, or vendor cutting, re-packaging, and re-labeling is not permitted.

B. Store material at least 24 hours at room temperature prior to installation.

C. Deliver fire-rated materials with testing agency labels and required fire classification numbers attached and legible.

1.05 JOB CONDITIONS

A. Ventilation and Temperature: Verify areas to be carpeted are ventilated to remove fumes from installation materials, and areas are within temperature range recommended by the various material manufacturers for Project site installation conditions.

B. Protection: Prohibit traffic on carpet or at least 12 hours after installation. Cover carpet with heavy non-staining kraft paper in areas where the Work of other trades is to be performed and/or traffic and passage areas. Protect carpet from damage or soiling. Maintain protection in place until Substantial Completion.

1.06 WARRANTY

A. Provide a 2 year labor warranty.

B. Provide a 20 year material warranty.

C. Provide a 10 year material warranty for colorfastness and texture retention.

1.07 MAINTENANCE

A. Extra Materials: Provide minimum 36 inches in any one dimension of extra materials for each color, pattern and dye lot of carpet.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS AND PRODUCTS

A. Administration Area Carpet:
   1. Endeavor with U.P.S. Backing / Heavy Commercial Traffic 20 year warranty, Mohawk Carpet Co., or equal.

B. Library, Classroom and/or Corridor Carpet:
   1. Entry SD-26 Woven interlock / Heavy Commercial Traffic 30-year warranty, Mohawk Carpet Co., or equal.
2.02 MATERIALS

A. Carpet shall meet the following minimum standards:

Pile: ½” maximum height with level loop or cut pile.

Dye Method: 100 percent Solution Dyed Method

Construction: Type A: Tufted level loop with UPS backing (no cut or cut loop accepted)

Type B: Woven Interlock (no cut or cut loop is permitted.)

Pile / Yarn weight: Minimum 26 oz per square yard.

Anti-Microbial Protection Required both and top bottom.

Moisture impermeable: Carpet shall be unaffected by water and moisture.

Static Protection: The manufacturer warrants that the carpet will not static discharge in excess of 3.5 KV or under when tested under the AATCC Test Method 134 for the life of the carpet.

Calcium Chloride: Carpets shall be able to be installed with 5 lbs. hydrostatic pressure or better (pounds) per 1000 square feet per 24 hours with a written documentation from manufacturer, per CRI-104.

Stain and Soil Protection: BASF Zeftron 2000, 10 year stain removal guarantee.

Fluorochemical Treatment: Minimum of 500 parts per million: per CRI-102; after two hot extractions (AATCC171), minimum 400 Parts Per Million per CRI TM-102.

Zippering Warranty: Carpet will not zipper or develop continuous pile yarn runners in the body of the carpet for a minimum of 20 years from the date of Substantial Completion.

Edge Ravel: Carpet will not have continuous pile yarn coming out at seams for a minimum of 20 years from the date of Substantial Completion.
Texture Retention Warranty: The manufacturer warrants that the carpet will substantially maintain its physical surface texture against crushing, matting and walking out for 10 years from the date of Substantial Completion.

Color fastness to light: Carpet will not fade for 10 years due to exposure to sunlight.

Color fastness to atmospheric contaminants: Carpet will not fade for 5 years due to atmospheric contaminants.

Traffic Classification: Class III – Extra Heavy Commercial Traffic (more than 1000-foot traffic per day).

GSA Certification: All carpet shall meet or exceed the General Services Administration requirements.

Flammability:

Flooring Radiant Panel: Class I- per ASTM E 648

NBS Smoke Density: Less than 450 per test ASTM E 662; NFPA-258

Flame Resistant: Shall pass Methenamine pill test ASTM E 662.

Run Resistant Strength: Not less than 25 lbs., in accordance with the Loop Pile Run Resistance test (TP 155-86), wet or dry for a minimum of 20 years.

Indoor Air Quality: Carpet shall meet or exceed CRI & EPA guidelines (green label certified and labeled).

Recycling Program: Carpet shall be eligible to qualify for a close-loop recycling program (close-loop is a carpet that upon recycling is turned back into carpet and no part of the reclaimed carpet enters a landfill) either through the carpet manufacturer or fiber manufacturer.

B. Carpets shall be from one dye lot, unless otherwise reviewed by the Architect.

C. Full and cut rolls of carpet shall be cut, packaged, and identified by the factory. Distributors, dealers and vendor cutting, re-packaging, and re-labeling is not permitted.
D. Carpet Edge Strips: A-600-SH Silver Clamp Down manufactured by Universal Metals, or equal.

E. Stair Nosing: Universal Moldings # A-544-BA 1 commercial (butt to nosing) type or equal, installed with recommended sized screws.

F. Adhesive: Water-resistant latex-based adhesive recommended by carpet manufacturer for direct glue-down carpet installation. Where primers or sealers are furnished, verify their compatibility with adhesive.

G. Patching Compounds: Cementitious type, Ardex SD-F, Durabond’s Webcrete #95, or equal, as recommended by carpet manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Before installation is started, examine surfaces to receive carpet. Deficiencies shall be corrected before starting Work of this section.

B. Field verify dimensions and other conditions affecting this Work before commencing carpet installation.

3.02 PREPARATION

A. Testing of Subfloors: Verify concrete is dry with electronic tester or sealed rubber-mat test, number of tests as needed to ensure that slabs are dry but at least one test per floor and for every 2500 square feet of floor area. Allow floor slabs with excessive moisture to dry; test until dried to tolerance permitted by floor adhesive manufacturer. Test floors for alkalinity. Acceptable range is pH 5 to pH 9. Excessive alkalinity shall be neutralized prior to installation of carpet.

B. Cleaning and Drying: Clean concrete floor slabs of all oil, grease, waxes, curing compounds, dust, dirt, debris, paint, and other deleterious substances. Provide a commercial vacuum cleaner to remove dust and dirt. Damp mop to remove dust that may remain after first vacuuming, allow surface to dry, and again vacuum; repeat procedure if necessary to eliminate all dust. Do not furnish oiled or chemical treated sawdust or any similar product for dust removal.

C. Leveling: Verify floor slabs true to level and plane within a tolerance of 1/8 inch in 10-feet. Test floor areas both ways with a 10-foot straightedge and repair all high and low areas exceeding allowable tolerance. Pop ups shall be hammered out and floor filled with a cementitious leveling compound. Remove high areas by power sanding, stone rubbing or grinding, chipping off and filling with cementitious leveling compound, or equivalent method. Fill all low areas with cementitious leveling compound. Repair and level the surfaces having abrupt changes in plane, such as trowel marks or ridges, whether or not within the allowable tolerance. Again clean areas where repairs are performed. Do not sand, stone rub grind or power chip floor adhesives that contain asbestos.

D. Wood subfloors: Clean wood subfloors of all oil, grease, waxes, dust, dirt, debris, paint, and other deleterious substances. Do not furnish oiled or chemical treated sawdust or any similar product for dust removal. Sand off projecting ridges. If recommended by carpet manufacturer, seal floors with a recommended wood sealer, compatible with adhesives to be installed.
E. Conditioning of Materials: Carpet and adhesives shall be conditioned at the Project site at not less than 65 degrees F and relative humidity between 10 percent and 65 percent for 48 hours prior to installation.

3.03 CARPET INSTALLATION

A. General: Install carpet in accordance with requirements of CRI 104, except where more stringent requirements are specified herein or recommended by carpet materials manufacturers.

B. Install carpet rolls in each dye lot in the number sequence as furnished by manufacturer. Roll out carpet in one direction and do not reverse direction at any locations. Align carpet with centerline of room or space, and adjust at edges for wall variations.

C. Color Control: Install dye lot in the number sequence at locations indicated to prevent shading variations. Install only one dye lot for each area of building unless otherwise reviewed. If more than one dye lot is required, obtain prior review of color match between dye lots.

D. Carpet Runs: Install carpet in one-piece lengths between permanent walls unless otherwise required. Seams are permitted only where shown on the layout Shop Drawings. Install corridor carpet in one-piece sizes for full length and width, cross seaming only where corridors change direction.

E. Laying and Seaming: Cut carpet for seams between tuft rows and prevent damage to tufts or loops, prevent edge ravels, and preserve uniform tuft row alignment and spacing on both sides and across seams. Install carpet with tuft or loop rows in straight lines both ways, free of offsets, waviness, distortion, or misalignment. Cut seam edges straight and square with backing. Trim carpet at walls, columns, and penetrations for a compressed fit.

F. Doorways: Extend carpet into doorways without piecing in and seam to the carpet on other side of door under door centerline except where metal thresholds occur; no small filler pieces of carpet will be permitted at doorways.

G. Adhesive Installation: Do not power stretch carpet during installation. Provide notched trowel as required by adhesive manufacturer. Evenly spread adhesive free of excess or thin areas. Place and roll carpet within open time of adhesive. Roll carpet in both directions with a 75 lbs. to 100 lbs. towards open seams or edges to expel trapped air and assure that 100 percent of the adhesive transfers to the carpet backing while maintaining full coverage on the floor.

H. Binder Bars: Provide bars at all edges of carpet not abutting walls or other construction, securely fastened in place. Precisely align splices and tightly miter angles.

3.04 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.05 CLEANING

A. As each carpeted area is completed, clean up all dirt and debris, remove spots and soiling with proper cleaner, trim off loose threads with sharp scissors, and vacuum entire area clean.
3.06 CLEAN-UP
   A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

3.07 INSTRUCTION
   A. Before Substantial Completion of the Work, provide a 4 hour Owner instruction period for proper maintenance of carpeting. Instructions shall be provided by technical representative of manufacturer.

END OF SECTION
PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the following types of wall protection systems:
   1. PVC-free wall coverings for corridors, hallways, Grant and Lee lower walls, and where noted on drawings

B. Related Sections: The following sections contain requirements related to this section:
   1. Handrails, Corner Guards, Wall Panels, Door Protection
   2. Section 09 21 16 – Gypsum Board Systems

1.02 REFERENCES

A. National codes (UBC, ADA)

B. American Society for Testing and Materials (ASTM)

C. Underwriters Laboratories (UL)

1.03 SUBMITTALS

A. General: Submit the following in accordance with conditions of contract and Division 1 specification section 01 33 00 “Submittal Procedures”.

B. Product data and detailed specifications for each system component and installation accessory required, including installation methods for each type of substrate.

C. Shop drawings showing locations, extent and installation details of wall covering products.

D. Samples for verification purposes: Submit the following samples, as proposed for this work, for verification of color, texture, pattern and thickness:
   1. Sample of each product specified.

E. Product test reports from a qualified independent testing laboratory showing compliance of each component with requirements indicated.

F. Maintenance data for wall protection system components for inclusion in the operating and maintenance manuals specified in Division 1.

1.04 QUALITY ASSURANCE

A. Installer qualifications: Engage an installer who has no less than 3 years experience in installation of systems similar in complexity to those required for this project.
B. Manufacturer’s qualifications: Not less than 5 years experience in the production of specified products and a record of successful in-service performance.
C. Code compliance: Assemblies should conform to all applicable codes including UBC and ADA.

D. Fire performance characteristics: Provide wall protection system components with UL label indicating that they are identical to those tested in accordance with ASTM-E84 for Class 1 characteristics listed below:
   1. Flame spread: 25 or less
   2. Smoke developed: 450 or less

E. Impact Strength: Provide assembled wall protection units that have been tested in accordance with the applicable provisions of ASTM F476.

F. Chemical and stain resistance: Provide wall protection system components with chemical and stain resistance in accordance with ASTM D-1308.

G. Color match: Provide wall protection components that are color matched in accordance with the following:
   1. Delta E difference of no greater than 1.5 using the Hunter (Lab) Scale.

H. Single source responsibility: Provide all components of the wall protection system manufactured by the same company to ensure compatibility of color, texture and physical properties.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the project site in unopened original factory packaging clearly labeled to show manufacturer.

B. Store materials in original, undamaged packaging in a clean, dry place out of direct sunlight and exposure to the elements. A minimum room temperature of 40ºF (4ºC) and a maximum of 100ºF (38ºC) should be maintained.

C. Materials must be stored flat.

1.06 PROJECT CONDITIONS

A. Materials must be acclimated in an environment of 65-75ºF (18-24ºC) for at least 24 hours prior to beginning the installation.

B. Installation areas must be enclosed and weatherproofed before installation commences.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Construction Specialties, Inc., Muncy, PA

B. Korogard ETS
2.02 MATERIALS

A. Vinyl/Acrylic: Rigid sheet should be high impact Acrovyn with pebblette grain, suede or matte texture, nominal .060” (1.52mm) thickness. Supplied in 4’ x 8’ (1.22m x 2.44m) or 4’ x 10’ (1.22m x 3.05m) sheet sizes. PVC-free. Colors selected from manufacturer’s standard colors.

2.03 FABRICATION

A. General: Fabricate wall covering to comply with requirements indicated for design, dimensions, detail, finish and sizes.

2.04 ACCESSORIES

A. Acrovyn Wall Covering shall be furnished as a complete packaged system, containing all primers and adhesive. Primer and adhesive materials shall be water based and non-hazardous.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
   1. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.

B. Protection: Take all necessary steps to prevent damage to material during installation as required in manufacturer's installation instructions.

3.03 INSTALLATION

A. Install the work of this section in strict accordance with the manufacturer's recommendations, using approved adhesive.

B. Temperature at the time of installation must be between 65-75°F (18-24°C) and be maintained for at least 48 hours after the installation to allow for proper adhesive set up.

C. Relative humidity shall not exceed 80%.

D. Do not expose wall covering to direct sunlight during or after installation. This will cause the surface temperature to rise, which in turn will cause bubbles and delamination.
3.04 CLEANING

A. General: Immediately upon completion of installation, clean wall covering and accessories in accordance with manufacturer's recommended cleaning method.

B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

3.05 PROTECTION

A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

END OF SECTION
PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. Painting and finishing of exposed exterior and interior surfaces as required to complete finishing of the Work as indicated on the Drawings including the following items:
   1. Mechanical diffusers.
   2. Visible interior of ductwork.
   3. Electrical Sub-panels painted to match adjacent wall surface.

B. The Work includes painting and finishing of new and existing interior and exterior exposed items and surfaces throughout project, except as otherwise indicated.
   1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.

C. Surfaces Not to be Painted:
   1. Factory pre-finished items as specified in various Sections.
   2. Pre-finished wall, ceiling, and floor coverings.
   3. Painting specified elsewhere and included in respective Sections, including but not necessarily limited to, shop priming.
   5. Surfaces concealed in walls and above ceilings except as specifically indicated otherwise.
   6. Ducts, piping, conduit, and equipment concealed in walls and ceilings, unless specifically indicated otherwise.

D. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

E. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint same as adjacent similar materials or areas. If color of finish is not designated, Architect will select these from standard colors available for materials systems specified.

1.2 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures

B. Section 02 83 00 – Lead-Related Construction and Remediation

C. Shop priming of ferrous metal items is included under various specification sections.

1.3 SUBMITTALS
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

A. Procedures: In accordance with Section 01 30 00 – Submittals.

B. Product Data:
   1. Not less than 30 days before beginning work, submit a complete list of materials proposed for use, together
      with manufacturer’s specifications.
   2. Paint materials and products shall be subject to the Architect’s acceptance.

C. Samples:
   1. Custom and Stock Colors: Submit 8x8 inch brush-out samples for Architect's review of each color and
      texture. Provide a listing of material and application for each coat of each finish sample.
   2. Samples shall be resubmitted as requested until required sheen, color, and texture is achieved.
   3. Label and identify each sample as to location and application.

D. Field Samples: On actual wall surfaces and other exterior and interior building components in areas designated
   by Architect, duplicate painted finishes of prepared samples in 4 ft. sq. areas. Simulate finished lighting
   conditions for Architect’s and County’s review of in-place Work. Colors may require adjustment at no
   additional cost to County.

1.4 QUALITY ASSURANCE

A. Include on label of containers:
   1. Manufacturer’s name.
   2. Type of paint.
   3. Manufacturer’s stock number.
   5. Instructions for reducing, where applicable.

B. Field Quality Control:
   1. Request review by the Architect of first finished room, space, or item of each color scheme required for
      color, texture, and workmanship.
   2. Use first acceptable room, space, or item as the Project standard for each color scheme.

C. Regulatory Requirements:
   1. Comply with the regulations of the Bay Area Air Quality Management District (BAAQMD) for Volatile
      Organic Contents (VOC’s).
   2. Paint shall be certified by the manufacturer as “non-lead” (less than 0.06 percent lead by weight in the
   3. Work to be painted may contain excessive levels of lead-based paint. Contractor shall retain and pay for
      the services of a Testing Agency to perform and report on tests for such suspected material

1.5 DELIVERY AND STORAGE

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's
   name and label, and following information:
   1. Name or title of material.
   2. Manufacturer's stock number and date of manufacturer.
   3. Manufacturer's name.
   4. Contents by volume, for major pigment and vehicle constituents
   5. Thinning instructions.

PAINT
09 90 00 - 2
KPA 443
6. Application instructions.
7. Color name and number.

B. Storage of Materials:
1. Store only acceptable Project materials on Project site.
2. Store in a suitable location.
3. Restrict storage to paint materials and related equipment.
4. Comply with health and fire regulations.

1.6 PROJECT CONDITIONS

A. Environmental Requirements:
1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be stored and applied.
2. Do not apply paint in rain, fog or mist; or when relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.
3. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

1.7 WARRANTY

A. Color and Life of Film:
1. At the end of 1 year, colors of surfaces shall have remained free from serious fading, and variations (if any) shall be uniform.
2. Materials shall have their original adherence at end of 1 year and there shall be no evidence of blistering, running, peeling, scaling, chalking, streaking, or stains at end of this period.

1.8 MAINTENANCE

A. Extra Materials:
1. At completion of the Work, deliver to the County extra stock of paint equaling approximately 5 percent of each color used in each coating material used.
2. Stock shall be in tightly sealed and clearly labeled containers.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Product numbers specified in Article 3.6, “Paint Systems”, are as manufactured by Sherwin Williams, unless otherwise indicated. Equivalent products manufactured by Sinclair Paint Co., Benjamin Moore, Dunn-Edwards, ICI Paints, Fuller O’Brien or Glidden are acceptable.

B. Materials selected for coating system of each type of surface shall be the product of a single manufacturer.

C. Thinner: As recommended by each manufacturer for his respective product for use only within recommended limits.
2.2 MATERIAL QUALITY

A. Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

B. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

2.3 COLORS

A. Colors: colors to be selected by Architect from manufacturer’s color chart. Exterior color scheme is to mimic existing, interior to be generally light colors.

B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

C. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish material proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.4 MIXING AND TINTING

A. Deliver paints ready mixed to jobsite.

B. Accomplish job mixing and job tinting only when acceptable to the Architect.

C. Mix only in mixing pails placed in suitable sized nonferrous or oxide-resistant metal pans.

D. Use tinting colors recommended by manufacturer for specific type of finish.

3.1 EXAMINATION

A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.
B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

B. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

C. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

D. Gypsum Board (New and Existing):

1. Fill narrow, shallow cracks and small holes with spackling compound.
2. Rake deep, wide cracks and deep holes.
   a. Dampen with clear water.
   b. Fill with thin layers of drywall joint cement.
3. Allow to dry.
4. Sand Smooth after drying; do not raise nap of paper on gypsum board.
5. See Section 09 2116 for requirements for gypsum board finishing.
6. If existing, fill all cracks and blemishes, thoroughly clean, remove all stains, oil and dirt prior to primer coat and paint.

E. Cement Plaster (New and Existing):

1. New plaster: to be applied to match adjoining surfaces, shall be allowed to cure to dry prior to the application of primer and paint.
2. Existing cement plaster: shall be cleaned and free of stains, oil and dirt prior to primer coat and paint.
3. Cracks, blemishes and imperfections shall be stripped to bare plaster, moistened, bonding agent applied and finished to match adjoining surfaces.
4. Allow to cure and dry.
5. Prime and paint per manufacturer’s recommendations.
6. See Section 90 23 00 for requirements for cement plaster finishing.

F. Ferrous Metals (New and Existing): Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
1. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.
G. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.

H. Concrete (New and Existing):
1. Cure: Concrete must be cured prior to coating application. Cured is defined as concrete poured and aged at a material temperature of 75 degree F for at least 30 days. The pH of the surface should be between 6 and 9.
2. Moisture: Material must be free of moisture as much as possible. Test per ASTM D4263.
3. Temperature: Air, surface and material temperature must be at least 50 degrees F (10 deg C) during the application and until the coating is cured.
4. Surface cleaning: Remove all contaminants, grease, dirt, loose paint, oil, tar, glaze, laitance, efflorescence, loose mortar, and cement. Broom cleaning, vacuum cleaning, air blast cleaning, water cleaning, and steam cleaning are considered suitable as outlined in ASTM D4258. Concrete curing compounds, form release agents, and concrete hardeners may not be compatible with recommended coatings. Check for compatibility by applying a test patch of the recommended coating system, covering at least 2 to 3 square feet. Allow to dry one week before testing adhesion per ASTM D3359. If the coating system is incompatible, surface preparation per methods outlined in ASTM D4259 are required.
5. Surface imperfections may require filling with a material compatible with the coating product.

I. Doors and Frames (New and Existing) shall be painted:
1. Existing Doors: shall be cleaned and free of stains, oil and dirt. All dents. Holes and blemishes shall be repaired and sanded smooth prior to priming and painting, per manufacturer’s recommendations.
2. New doors shall be free of dust and dirt prior to the application of primer and paint.

J. Surfaces which cannot be prepared or painted as specified shall be immediately brought to the attention of the Architect in writing.
1. Starting of work without such notification will be considered acceptance by the Contractor of surface involved.
2. Contractor shall replace unsatisfactory work caused by improper or defective surfaces, as directed by the Architect, at no additional cost to the County.

3.3 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.4 APPLICATION

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
3. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces. otherwise indicated.

B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

D. Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.
1. Re-coat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.

E. Stipple Eggshell Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

F. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

3.5 CLEAN-UP AND PROTECTION

A. Clean-up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.
1. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
2. At the completion of work of other trades, touchup and restore all damaged or defaced painted surfaces.

3.6 PAINT SYSTEMS

A. General:
1. Exterior paint systems are specified and identified by number and interior paint systems by letter.
2. Only major areas are scheduled, but miscellaneous and similar items and areas within room or space shall be treated with suitable system.
3. Number of coats scheduled is minimum.
a. Additional coats shall be applied at no additional cost if necessary to completely hide base material, produce uniform color, and provide satisfactory finish result.

4. This specification shall serve as a guide and is meant to establish procedure and quality.

B. Acceptance of Final Colors: Final coat of paint for both exterior and interior shall not be applied until colors have been accepted by the Architect based on field samples noted in 1.3.D above.

C. Interior Coating Systems: Provide the following finish coating systems for the various substrates, as shown on the Finish Plan. Provide coats as indicated and sufficient to cover.

1. Gypsum Wallboard:
   a. Flat: (ceilings, except as noted)
      2) Second Coat: One coat 209-00 Alkyd Wall Primer Sealer.
      3) Finish Coat: One coat 202-XX Flat Latex Wall Finish.
   b. Stipple Eggshell: (walls, except as noted)
      1) Prime Coat: One coat 220-22 PVA Sealer.
      3) Finish Coat: One coat 212-XX Eggshell Latex Enamel.

2. Galvanized Metal (doors and frames, trim and access doors, except structural steel, etc.):
   a. Semi-gloss:
      1) Prime Coat (delete if shop primed): One coat 621-04 BLOX-RUST Alkyd Metal Primer.
      2) Two coats 619-6X Ultra-Color Alkyd Semi-Gloss Enamel.

3. Ferrous Metal or Aluminum (miscellaneous)
   a. Semi-gloss:
      1) Prime Coat (delete if shop primed): 15 Red Oxide Primer
      2) Second Coat: 1790 Latex Enamel Undercoater
      3) Finish Coat: 4000 Acrylic Latex Enamel

D. Exterior Coating Systems:

1. Concrete and Plaster
   a. Semi-gloss:
      1) Prime Coat: 18 Epoxy Water-Base Primer
      2) Finish Coat: 4400 Acrylic Emulsion

2. Galvanized Metal (Doors and Frames)
   a. Semi-gloss Aliphatic Polyurethane:
      1) Prime Coat: Shop primed.
      2) Second Coat: Tnemec 69 Series
      3) Finish Coat: Tnemec 75 Series Endura-Shield at 3.0-5.0 DFT

END OF SECTION
SECTION 10 14 00
SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Interior signs.

B. Installation of signage.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 09 90 00 – Painting

1.03 REFERENCES

A. Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.


1.04 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures.

B. Shop Drawings: Provide listing of type of signs, materials, thickness, lettering, method of attachments, and locations to be attached along with overall dimension of each sign.

C. Product Data: Include manufacturer’s construction details relative to materials, dimensions of individual components, profiles, finishes, installation and maintenance instructions for each type of sign required.

D. Samples: Provide one full-size sample sign of type style and color specified including method of attachment and manufacturer’s standard color chart.

E. Installation: Submit supplier’s installation instructions.

F. Closeout Submittals:

1. Submit operation and maintenance data for installed products, including precautions against harmful cleaning materials and methods.

2. Submit warranty documents specified herein.
1.05 DELIVERY, STORAGE, AND PROTECTION

A. Section 01 60 00 - Product Requirements: Transport, store, handle and protect product.

B. Package separately or in like groups of names, labeled as to names enclosed. Include installation template, hardware or adhesive specified and Installation instructions.

C. Store components and materials in a clean, dry location and exercise care to avoid damaging surfaces.

1.06 QUALITY ASSURANCE

A. Supplier: Obtain all products in this section from a single supplier.

B. Regulatory Requirements: Products shall meet requirements of the Americans With Disabilities Act Accessibility Guidelines (ADAAG) and local amendments and modifications.

C. Installer: Installation shall be performed by installer specialized and experienced in work similar to that required for this project.

1.07 WARRANTY

A. Project Warranty: Comply with requirements of Division 1.

B. Manufacturer's Warranty: Submit manufacturer's standard warranty document executed by authorized company official.

1. Warranty Period: One year from Completion Date of Work.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. ASI Sign Systems,
   Local Representative: Kristy Port: 1-916-924-1939, x522

B. Innerface Architectural Signage,
   Local Representative: Rebecca Redmon, 1-415-255-8522

C. Or approved equal.

2.02 SIGN MATERIALS

A. Sign Face: High impact polyester acrylate resins, pressure molded into a single polymerized component, using manufacturer’s co-molding process.

B. Tactile Graphics and Text: Provide tactile copy and grade 2 Braille raised 1/32 inch minimum from plaque surface using manufacturer’s co-molding process.

1. Provide lettering and graphics precisely formed, uniformly opaque to comply with relevant ADA regulations and requirements indicated for size, style, spacing, content, position, and colors.
C. Colors: High contrast semi-matte integral colors for graphics. All integral resins are U.V. stabilized resins utilizing automotive grade pigments.

2.03 FINISHES

A. Depth: 0.25 inch thickness.

B. Panel Appearance: Colors to be selected by the Architect.

C. Surface Texture: Matte Non-Glare.

D. Letter Style: Sans Serif.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Site Verification of Conditions: Verify installation conditions previously established under other sections are acceptable for product installation in accordance with manufacturer's instructions.

B. Scheduling of installation by the client implies that substrate and conditions are prepared and ready for product installation. Proceeding with installation implies installer’s acceptance of substrate and conditions.

3.02 INSTALLATION

A. Install product in accordance with supplier’s instructions.

B. Install product in locations indicated using mounting methods recommended by sign manufacturer and free from distortion, warp, or defect adversely affecting appearance.

C. Install product level, plumb, and at heights indicated.

D. Install product at heights to conform to Americans with Disabilities Act Accessibility Guidelines (ADAAG) and applicable local amendments and regulations.

E. Install signs within the following tolerances and in accordance with manufacturer's recommendations:

   1. Interior Signs: Within 1/4 inch vertically and horizontally of intended location.

3.03 CLEANING AND PROTECTION

A. Repair scratches and other damage which might have occurred during installation. Replace components where repairs were made but are still visible to the unaided eye from a distance of 5 feet.

B. Remove temporary coverings and protection to adjacent work areas. Clean installed products in accordance with manufacturer's instructions prior to County's acceptance. Remove construction debris from project in accordance with provisions in Division 1.
SECTION 10 21 13
TOILET PARTITIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish labor, materials, equipment and services to install ceiling and floor anchored toilet partitions, post-
to-ceiling urinal screens and related components as shown on the Drawings, as specified herein and as
required for a complete and proper installation.

1.2 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures.
B. Section 09 30 00 – Ceramic Tile
C. Section 10 80 00 - Toilet and Bath Accessories

1.3 SUBMITTALS

A. Procedure: In accordance with Section 01 30 00 – Submittals.
B. Samples: Twelve inch square powder coated steel panel sample.
C. Manufacturer's Literature and Data: Specified items indicating all hardware and fittings, material, finish,
   and latching.
D. Shop Drawings: Construction details at 1/2 scale, showing installation details, anchoring and leveling
devices.
E. Manufacturer's certificate, attesting that zinc-coatings conform to specified requirements.

1.4 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification
to the extent referenced. The publications are referenced in the text by basic designation only.

A. Federal Specifications (Fed. Spec.):
   FF-B-575C ................. Bolt, Hexagon and Square
   FF-B-588(1) ............... Built, Toggle; And Expansion Sleeve Screw
   FF-S-325 .................... Shield, Expansion; Nail, Expansion; And Nail
   INT AMD 3............... Drive Screw (Devices, Anchoring, Masonry)

B. International Conference of Building Officials (ICBO):
   Evaluation Reports ...... Drilled Concrete Expansion Anchors
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. General: Global “Glo-Gard” is specified to establish a standard of quality for design function, materials, workmanship and appearance. Mills Company Series 700, Knickerbocker “Gramercy”, or accepted equal may also be submitted for evaluation of substitution.

B. Toilet Compartment:
   1. “Glo-Gard” – floor and ceiling anchored pilaster.

C. Urinal Screens:
   1. “Post-to-Ceiling” screens.

2.2 COMPONENTS/MATERIALS

A. Stiles, Panels, Doors, and Screens:
   1. Material: 22 gage galvanized, stretcher leveled.
      a. Doors and Panels: 1” thick with two sheets of 22 gage.
      b. Pilasters: 1-1/4” thick with two sheets 22 gage.
      c. Formed Edges: 22 gage steel interlocking molding.
      d. Cores: Honeycomb core.

B. Hardware:
   1. Chromium plated.
   2. Hardware shall be concealed inside compartments with the exception of out-swinging doors.
   3. Provide vandal resistant one-way mounting screws.

C. Latch:
   1. Sliding Door Latch: 16 gage.
      a. Latch shall require less than 5-pound force to operate.
      b. Twisting latch operation will not be acceptable.
   2. Latch Track: Attached to door by theft resistant one-way stainless steel machine screws into factory installed metal inserts.
   3. Latch handle shall have rubber bumper to act as door stop.
   4. Latch shall allow door to be lifted over 11-gage keeper for emergency access.
   5. Metal to metal connection shall withstand a direct pull of over 940 pounds per screw.

D. Hinges:
   1. Stainless steel hinges shall have self-lubrication Dupont “Delrin” cams to ensure noise-free operation.
   2. Cam shall be adjustable in the field to permit door to be fully closed or partially open when compartment is unoccupied.
   3. Hinges shall be attached to door and stile by theft resistant one-way stainless steel machine screws into factory installed metal inserts.
      a. Fasteners secured directly into the core are not acceptable.
   4. Metal to metal connection shall withstand a direct pull of over 540 pounds per screw.
E. Coat Hook: Stainless steel coat hook shall project no more than 1-1/8 inch from face of door and shall be secured by theft resistant one-way stainless steel screws.

F. Mounting Brackets: Stainless steel mounting brackets shall be mounted inside compartment.
   1. Mounting brackets exposed on the exterior of the compartment will not be acceptable.

G. Leveling Devices: 3/8 inch x 1 inch steel bar welded to 11 gage steel reinforcing core. Leveling devices shall be chromate treated and double zinc plated.

H. Pilaster Shoe: One piece, 4 inch high, type 304, 22 gage stainless steel with #4 finish. Top shall have 90 degree return to pilaster.

2.3 FABRICATION

A. Pilaster, Panels, Doors, and Screens:
   1. Bond steel to core material with adhesive specially formulated to prevent de-lamination.
   2. Steel edge channels shall interlock with door, pilaster, and panel surfaces. Corners shall be mitered.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Check areas scheduled to receive compartments for correct dimensions, plumbness of walls and soundness of surfaces that would affect installation of mounting brackets.

B. Verify spacing of plumbing fixtures to assure compatibility with installation of compartments.

C. Do not begin installation of compartments until conditions are satisfactory.

3.2 INSTALLATION

A. General:
   1. Install in rigid manner, straight, plumb and with all horizontal lines level.
   2. Conceal evidence of drilling, cutting and fitting in finish work.
   3. Use sex-bolts for through-bolting.
   4. Adjust hardware and leave in freely working order.
   5. Clean finished surfaces and leave free of imperfections.

B. Panels and Pilasters:
   1. Support panels and pilaster abutting building walls near top and bottom by stirrup supports secured to partitions with through-bolts.
   2. Secure stirrups to walls with two suitable anchoring devices for each stirrup.
   3. Secure panels to faces of pilaster near top and bottom with stirrup supports, through-bolted to panels and machine screwed to each pilaster.
   4. Secure edges of panels to edges of pilasters near top and bottom with "U" shaped brackets.
3.3 ADJUSTING AND CLEANING

A. Adjust hardware for proper operation.

B. Set hinges on in-swinging doors to hold doors approximately 15 degrees from closed position when unlatched.

C. On accessible compartment, out-swinging door shall be self-closing.

D. After completion of installation, clean and polish exposed compartments and screen surfaces.

END OF SECTION
SECTION 10 26 13
CORNER GUARDS

PART 1 - GENERAL

1.1 DESCRIPTION
A. Furnish labor, materials, equipment and services to install stainless steel corner guards and related components as shown on the Drawings, as specified herein and as required for a complete and proper installation.

1.2 RELATED SECTIONS
A. Section 01 33 00 – Submittal Procedures.
B. Section 09 21 16 – Gypsum board systems
C. Section 09 72 00 – Wall covering

1.3 SUBMITTALS
A. Procedures: In accordance with Section 01 30 00 – Submittals.
B. Product Data: Manufacturer’s catalog cuts and data sheets, including installation details and instructions for specified item.

1.4 DELIVERY, STORAGE, AND HANDLING
A. Deliver and store corner guards and fasteners in manufacturer’s original packaging, identified with manufacturer’s name and type of product, and size.
B. Store indoors, protected from moisture and other sources of damage.

PART 2 – PRODUCTS

2.1 MANUFACTURERS
A. Corner Guards: Pawling Corporation, CG-51 16 gage, 304 alloy stainless steel with #4 satin finish.surface mounted corner guard with 2” legs; Koroseal Wall Protection Systems; Construction Specialties, Inc.; or approved equal.
B. Fasteners: Manufacturer’s standard, removable, corrosion-resistant fasteners of size and length suitable for the conditions of installation.

2.2 FABRICATION
A. General: Fabricate wall protection systems to comply with requirements indicated for design, dimensions, detail, finish and member sizes.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

B. Preassemble components in shop as much as possible to minimize field assembly.

2.3 FINISHES

A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applications and designations of finishes.

PART 3 – EXECUTION

3.1 EXAMINATION

A. After application of wall base and finish painting of walls is complete, examine areas and conditions under which corner guards are to be installed.

B. If unsatisfactory conditions exist, do no proceed with the Work until such conditions have been corrected.

3.2 PREPARATION

A. Prior to application, clean side of corner guards that will be in contact with wall surface. Perform additional preparation procedures as required by manufacturer’s instructions.

3.3 INSTALLATION

A. Install corner guards in strict accordance with manufacturer’s instructions, using only approved mounting hardware, and locating all components firmly into position, level and plumb.

B. Install corner guards at locations shown on Drawings.

C. Install corner guards with bottom edge at top of wall base, extending to underside of ceiling.

3.4 ADJUSTING AND CLEANING

A. Prior to time of final acceptance, strip corner guards of protective coverings, and clean in accordance with manufacturer’s instructions.

B. Remove and replace any defective, misaligned, or damaged units, at no additional cost to County.

END OF SECTION
SECTION 10 28 00
TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish labor, materials, equipment and services to install toilet and bath and related accessories and components as shown on the Drawings, as specified herein and as required for a complete and proper installation, including, but not limited to the following:
   1. Restroom accessories.
   2. Locker room accessories.
   3. Shower accessories

1.2 RELATED SECTIONS

A. Section 01 31 00 – Project Management and Coordination.
B. Section 01 33 00 – Submittal Procedures.
C. Section 09 30 00 – Ceramic Tile
D. Section 10 21 13 – Toilet Partitions

1.3 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies: Accessories and their installation shall conform to applicable requirements for the handicapped.

B. Design Criteria: Grab bars shall be capable of withstanding a force of 900 pounds, minimum, when installed in accordance with the manufacturer's instructions.

C. Accessories shall be the product of a single manufacturer unless otherwise specified.

1.4 SUBMITTALS

A. Procedures: In accordance with Section 01 30 00 – Submittals.

B. Product Data: Manufacturer's descriptive and technical data and illustrations, marked to indicate specific product types, variations, and materials.

C. Shop Drawings: Indicate layouts and installation details necessary for proper preparation of toilet partitions and other construction supporting grab bars or other accessory items.

D. Test data or certification that grab bars meet the specified design criteria.

E. Maintenance data, operating instructions, and keys required for each type of accessory and lock.
1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Quality designation and guarantee label shall be attached to each mirror, or manufacturer's certification that mirrors meet specified requirements shall be submitted.

B. Protection:
   1. Maintain protective coatings or coverings on units until installation is complete.
   2. Remove protective coverings at final cleanup of installation.

C. Handle so as to prevent damage to finished surfaces.

D. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.

1.6 PROJECT CONDITIONS

A. Coordinate submission of installation instructions so that backing, blocking, framing and formwork can be properly installed and work of other trades will not be delayed.

1.7 WARRANTY

A. Warrant mirrors for 5 years against silver spoilage.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stainless Steel Sheet: ASTM A167, commercial grade, Type 304, standard gage.

B. Stainless Steel Tubing: ASTM A269, commercial grade, seamless welded.

C. Sheet Steel: ASTM A366, cold rolled stretcher leveled; with G90 galvanized coating.

D. Mirrors: ¼ inch thick polished float glass, silver-coated and electrolytically copper-plated.
   1. Protect edges with vinyl tape or other protective coating.

E. Adhesive: Epoxy type contact cement.

F. Attachment Devices: Hot dip galvanized; furnish backing plates, brackets, and hardware required for a complete installation as recommended by accessory manufacturer for component and substrate.
   1. Fastening shall be concealed and theft-proof when available.

G. Locks: Provide locks and furnish keys for standard lockable items.

H. Grab Bars: 1-1/4 to 1-1/2 inches O.D., mandrel bent, with welded end flanges, exposed mounting, and peened or other approved safety-grip finish; anchor plates for each bar.

2.2 FINISHES

A. Provide manufacturer’s finish for each item indicated in accessory schedule, stainless steel where available.

TOILET AND BATH ACCESSORIES
10 28 00 - 2

KPA 443
1. Where there are choices of available finishes, not including satin stainless steel, provide chart for Architect’s selection.

B. Exposed Finishes: Stainless steel No. 4, satin finish; satin chrome finish acceptable where stainless steel not available for accessory item scheduled.

2.3 ACCESSORY SCHEDULE

A. Model numbers indicated in the Schedule below are those of Bobrick Washroom Equipment, Inc. (unless noted otherwise) and are used to establish a standard of quality, utility. Equivalent products of other manufacturers may also be acceptable, subject to conformance with the requirements specified herein and indicated. All accessories brushed stainless steel, unless otherwise noted.

1. Provide one item for each location indicated on Drawings.
2. All items shall be satin finish, unless otherwise specified or indicated.

B. Schedule (itemized below as referenced on Drawings):

1. B-357 - Partition Mounted Toilet-Seat-Cover Dispenser, Sanitary Napkin Disposal, and Toilet Tissue Dispenser (serves two toilet compartments)
4. B-347 - Partition Mounted Toilet-Seat-Cover Dispenser and Toilet Tissue Dispenser (serves two toilet compartments)
5. B-3474 - Recessed Toilet-Seat-Cover Dispenser and Toilet Tissue Dispenser
6. B-3471 - Partition Mounted Toilet-Seat-Cover Dispenser and Toilet Tissue Dispenser (serves two toilet compartments)
7. B-221 – Surface Mounted Toilet-Seat-Cover Dispenser
8. B-2888 – Surface Mounted Multi-Roll Toilet Tissue Dispenser
9. B-5806 – 1-1/4 inch (32mm) Diameter Stainless Steel Grab Bars with Snap-Flange Cover
10. B-287 – Folding Utility Shelf
11. Georgia-Pacific F195SS, Lever Stainless Steel Roll Towel Dispenser
12. B-165 – Mirror with Stainless Steel Channel Frame
13. B-2800 – Surface-Mounted Napkin/Tampon Vendors
14. Proline Cartridge Soap Dispensers – Proline Gallon Cartridge 98104
15. Mipro Metal Receptacles 1646 Stainless Steel Swing Tops
16. B-985 – Surface Mounted Maximum-Security Clothes Hook Strip (secured from front)
17. B-5191 – Solid Phenolic Folding Shower Seat
18. B-680 – Surface Mounted Soap Dish

2.4 FABRICATION

A. Corners: Weld and grind smooth; leave no open miters.

B. Form exposed surfaces from one sheet of stock, free of joints.

C. Provide steel anchor plates and anchor components for installation on building finish.

D. Form surfaces flat without distortion; maintain flat surfaces without scratches or dents.
E. Back paint components where contact is made with building finishes, to prevent electrolysis
F. Hot dip galvanize components; package complete with anchors and fittings.
G. Locked Dispensing Units: Key alike for all accessories.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Check openings scheduled to receive recessed units for correct dimensions, plumbness of blocking or frames, and preparation that would affect installation of accessories.
B. Check areas to receive surface mounted units for conditions that would affect quality and execution of Work.
C. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected.

3.2 INSTALLATION
A. Install accessories in locations and at heights indicated.
B. Install true, plumb and level, securely and rigidly anchor accessories to substrate in accordance with manufacturer's instructions.
C. Use tamper-proof, security type fasteners.
D. Attach grab bars to backing installed in wall to withstand loads prescribed by California Code of Regulation (CCR), Title 24, Section 3105A(b)3C(iii).

3.3 ADJUSTMENT AND CLEANING
A. Remove protective coatings in accordance with the manufacturer's instructions.
B. Adjust accessories for proper operation.
C. After completion of installation, clean and polish all exposed surfaces.
D. Deliver keys and instruction sheets to Owner.

3.4 COMPLETION
A. When complete, accessories shall be set plumb and level, accurately aligned, and securely attached.
B. Exposed surfaces shall be clean and free from scratches, dents, tool marks, stains, discoloration, and other defects and damage.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 10 44 00

FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION
A. Furnish labor, materials, equipment and services to install fire extinguishers, hangers, cabinets and related components as shown on the Drawings, as specified herein and as required for a complete and proper installation.

1.2 RELATED SECTIONS
A. Section 01 33 00 – Submittal Procedures.
B. Section 09 21 16 – Gypsum Board Systems

1.3 SUBMITTALS
A. Procedure: In accordance with Section 01 30 00.
B. Product Data: Manufacturer’s specifications and installation instructions for fire extinguishers and cabinets required.

1.4 QUALITY ASSURANCE
A. Furnish fire extinguishers from only one manufacturer.
B. Furnish fire extinguisher cabinets from only one manufacturer.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHERS
A. Model numbers indicated in the Schedule below are those of Ansul Incorporated (One Stanton Road; Marionette, WI 54143-2542, or approved equal
1. Provide one item for each location indicated on Drawings.

B. Schedule (itemized below as referenced on Drawings):
   1. FE-1: SY262, 2.5 gallon, water.
   2. FE-2: SY1024, 10 lb. Purple K, dry chemical.
   3. FE-3: SY1571, 15 lb., carbon dioxide.
   4. FE-4: NOT USED
   5. FE-5: Clean Guard 14 CA1481, 2A: 10BC rated.

2.2 FIRE EXTINGUISHER CABINETS
A. Semi-recessed, cold-rolled steel with electrostatically applied, thermally-fused polyester coating with recoatable white finish for interior gypsum board partition locations (to match existing). Potter-Roemer or approved equal.
   1. FEC-1: semi-recessed: Potter-Roemer, Inc. “FRC 7027-DV-6-VB”. FEC-1 is used in all locations unless noted otherwise on the drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the conditions under which fire extinguishers and cabinets are to be installed, Notify the Architect, in writing, of conditions detrimental to the proper and timely completion of the Work.
   1. Ensure adequate support will be available at time of installation.

B. Do not proceed with the Work until unsatisfactory conditions have been satisfactorily corrected.

3.2 INSTALLATION

A. Install cabinets and extinguishers where indicated on the Drawings.

B. Securely fasten to structure, square and plumb, in accordance with manufacturer’s instructions.
   1. Typical Fastenings: Use machine screws or bolts to metal backing. Toggle bolts will not be permitted.
   2. Drill and tap mounting surfaces for mounting hardware as required.

C. Wherever exact location of surface-mounted units is not shown, locate as directed by the Architect.

D. Determine the date of Substantial Completion of the Work.
   1. Inspect, charge and tag the fire extinguishers within 10 days before the Substantial Completion date.

END OF SECTION
SECTION 12 21 13
HORIZONTAL LOUVER BLINDS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Horizontal mini-blinds on exterior windows in all rooms within the designated limits of work.

B. Furnish labor, materials, equipment and services to install aluminum blinds and related components as specified herein and as required for a complete and proper installation.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 SYSTEM DESCRIPTION

A. Horizontal mini-blinds, including hardware, accessories, mounting brackets, and fastenings, shall be from one manufacturer.

1.03 SUBMITTALS

A. Procedures: in accordance with Section 01 30 00.

B. Product Data: Manufacturer’s descriptive literature and installation instructions for each type of blind used.

C. Shop Drawings: Show filed-measured dimensions of openings scheduled to receive blinds.

D. Samples: Two 6-inch samples of slats indicating full color range.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Levolor Lorentzen, Inc. “Monaco”

B. Hunter Douglas “Commercial Celebrity”

C. Springs Window Fashions “Bali Classics”

D. Or, approved equal.

2.02 MATERIALS

A. Slats: Spring-tempered aluminum.

1. Minimum Thickness: 0.01 inch.

2. Slat Width: 1 inch, nominal.
B. Head Rail:
   1. Material: Steel.
   2. Shape: Manufacturer’s standard “U” channel.
   3. Minimum Thickness: 0.02 inch.
   5. Equipped with top brace, end braces, top cradle, and accessories for installation.

C. Bottom Rail:
   1. Material: Steel.
   2. Shape: Manufacturer’s standard top surface contoured to mat slat.
   3. Reinforced to prevent twisting or sagging.
   4. End Caps: Manufacturer’s standard metal or plastic.

D. Tapes:
   1. Type: Manufacturer’s standard braided ladder.
   2. Size and rung spacing to match slats.

E. Tilter:
   1. Manufacturer’s standard enclosed lubricated mechanism with 180-degree tilt range, designed to hold slats at set angle.
   2. Worm-and-gear drive actuated by wand.
   3. Wand length shall be sized in accordance with sill height.

F. Lift Cord: Braided polyester-rayon of sufficient length to control raising and lowering of blind.

G. Equalizers: Self-aligning, nylon, designed to maintain blind slats in horizontal position.

H. Finish:
   1. Steel parts shall be galvanized, bonderized, and painted.
   2. Finish: Manufacturer’s standard color, to be selected by the Architect.
PART 3 - EXECUTION

3.01 EXAMINATION

A. Section 01 31 00 - Project Management and Coordination.

B. Verify that surfaces are ready to receive the work.

C. Do not commence fabrication until field measurements are confirmed.

D. Ensure structural supports are correctly placed.

3.02 INSTALLATION

A. Install at windows and doors as shown on the Drawings.

B. Mounting: Top-mount at windows; side mount at doors.

C. Install blinds in accordance with manufacturer’s installation procedures.

D. Assure adequate clearance to permit unencumbered operation.

E. Position units plumb and true, and securely anchor in place with brackets, clips, and fasteners.

F. Divisions between blinds shall occur only at mullions of continuous windows or openings where more than one blind for one opening occurs.

G. Install intermediate support brackets and extension brackets as needed to prevent deflection in headrail.

3.03 ADJUSTING

A. Adjust clearances and overlaps to ensure free operation.

B. Replace damaged items with new material.

C. Repair surfaces damaged by improper installation.

3.04 CLEANING

A. Remove protective coverings and devices.

B. Clean soiled blind surfaces and components in accordance with manufacturer’s recommendations, and leave work site free of debris.

END OF SECTION
SECTION 31 23 16
EXCAVATING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Excavating for footings, slabs-on-grade, trenches, curbs, and paving.

B. Backfill and compaction of sub-grade, base and trenches.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

A. Section 01 41 00 - Quality Requirements

B. Section 01 51 00 - Temporary Facilities and Controls

1.03 SUBMITTALS

A. Submit list and source of materials to be used in the Work.

1.04 QUALITY ASSURANCE

A. Verify that survey benchmark and intended elevations for the Work are as indicated.

B. Comply with State of California Construction Safety Orders (CAL/OSHA).

1.05 UTILITY DISCONNECTS

A. Coordinate directly with the County and with Plant Operations for any utility disconnects.

B. Notify Plant Operations prior to excavation

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Fill material will be subject to approval of the State’s Geotechnical Engineer.

B. Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any
dimension, debris, waste, vegetation, and other unsuitable materials. Local and import fill should have less
than 15% fines and a plasticity index (PI) of less than 20.

C. Aggregate Base: Class 2 conforming to Caltrans Specification Section 26, maximum size 3/4 inches; compact
to minimum of 95 percent.

PART 3 - EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities that remain from damage.

C. Notify utility company to remove and relocate utilities if required.

D. Protect plant life, lawns, and other features remaining as a portion of final landscaping.

E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from
excavating equipment and vehicular traffic.

3.02 EXCAVATING AND COMPACTING

A. Saw cut all cuts into asphalt and/or concrete surfaces.

B. Excavate subsoil to accommodate building foundations, paving and site structures, construction operations,
and as indicated on Drawings.

C. Compact disturbed load-bearing soil in direct contact with foundations to original bearing capacity as noted in
a State provided soils report; perform compaction as directed by Geotechnical Engineer.

D. Support trench excavations in compliance with local codes and safety regulations.

E. Sheet pile or shore all excavations as required.

F. Do not interfere with 45 degree bearing splay under foundations except at pile foundations or where shoring is
designed to resist earth and foundation pressures without permitting any settlements of foundations, slabs, or
similar structures

G. Grade top perimeter of excavation to prevent surface water from draining into excavation.

H. Hand trim excavation. Remove loose matter.

I. Remove lumped subsoil, boulders, and rock larger than 2 inches in diameter.

J. Correct areas over-excavated. Procedure as directed by Geotechnical Engineer.

K. Do not backfill trenches until tests and inspections have been made.
L. Compact to minimum of 90 percent dry density (ASTM 1557) in planted areas and a minimum of 95 percent dry density (ASTM 1557) in paved areas.

M. Footing bottoms should be free of loose debris and should be firm and unyielding as approved by the project Geotechnical Engineer prior to placement of steel and concrete.

3.03 FIELD QUALITY CONTROL

A. Section 01 45 29 - Quality Requirements

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E  
MAKE READY IMPROVEMENTS

SECTION 31 23 17
TRENCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES
   A. Excavating trenches for utilities from building to utility points of connection.
   B. Compacted fill from top of utility bedding to subgrade elevations.
   C. Backfilling and compaction.

1.02 RELATED SECTIONS
   A. Section 31 23 16 - Excavating.
   B. Section 03 30 00 - Cast-in-Place Concrete.
   C. Section 22 05 01 - Plumbing.
   D. Section 26 05 43 – Underground Ducts and Raceways for Electrical Systems

1.03 REFERENCES
   B. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
   C. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
   D. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   E. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.04 DEFINITIONS
   A. Utility: Any buried pipe, duct, conduit, or cable.

1.05 FIELD MEASUREMENTS
   A. Verify that survey bench mark, control point, and intended elevations for the Work are as shown on drawings.
1.06 COORDINATION
   A. Verify work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS
2.01 FILL MATERIALS
   A. Use only selected natural fill materials entirely free of organic debris.
   B. Limit size of granular materials to 3” maximum.
   C. Not more than 12% of fill materials shall be fines passing No.200 sieve.

2.02 ACCESSORIES
   A. Geotextile Fabric: Non-biodegradable, woven.

PART 3 EXECUTION
3.01 PREPARATION
   A. Identify required lines, levels, contours, and datum locations.
   B. Protect plant life, lawns and other features remaining as a portion of final landscaping.
   C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
   D. Maintain and protect above and below grade utilities, which are to remain.
   E. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type S and compact to density equal to or greater than requirements for subsequent backfill material.

3.02 EXCAVATING
   A. Excavate subsoil required for utilities
   B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
   C. Do not interfere with 45 degree bearing splay of foundations.
   D. Support trench excavations in compliance with local codes and safety regulations.
   F. Remove excavated material from site.
3.03 BACKFILLING
A. Backfill trenches to contours and elevations with unfrozen fill materials in maximum 8” lifts.
B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
C. Employ placement and compaction methods that do not disturb or damage foundation perimeter drainage and utilities in trench.
D. Maintain optimum moisture content of fill materials to attain required compaction density.
E. Compact each lift to 95% of maximum density except landscaped areas to be 90% of maximum density.
F. Remove surplus fill materials from site.

3.04 TOLERANCES
A. Top Surface of Backfilling under Paved Areas: Plus or minus 1” (.08 feet) from required elevations.
B. Top Surface of General Backfilling: Plus or minus 1” (.08 feet) from required elevations.

3.05 FIELD QUALITY CONTROL
A. Section 01 41 00 - Quality Requirements
B. Compaction testing will be performed in accordance with ASTM D1556.
C. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.06 PROTECTION OF FINISHED WORK
A. Protect finished Work under provisions of Section 01 51 00.
B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 220517
SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Sleeves.
   2. Stack-sleeve fittings.
   3. Sleeve-seal systems.
   4. Sleeve-seal fittings.
   5. Grout.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 SLEEVES
A. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.
B. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.

2.2 STACK-SLEEVE FITTINGS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Zurn Specification Drainage Operation; Zurn Plumbing Products Group.
   2. Or approve equal.
B. Description: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring, bolts, and nuts for membrane flashing.
1. Underdeck Clamp: Clamping ring with setscrews.

2.3 SLEEVE-SEAL SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advance Products & Systems, Inc.
2. CALPICO, Inc.
3. Metraflex Company (The).
4. Pipeline Seal and Insulator, Inc.
5. Proco Products, Inc.

B. Description: Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.

1. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Carbon steel.
3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating of length required to secure pressure plates to sealing elements.

2.4 SLEEVE-SEAL FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following

1. Presealed Systems.
2. Or approved equal.

B. Description: Manufactured plastic, sleeve-type, waterstop assembly made for imbedding in concrete slab or wall. Unit has plastic or rubber waterstop collar with center opening to match piping OD.

2.5 GROUT


B. Characteristics: Nonshrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.
3.1 SLEEVE INSTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.
   1. Sleeves are not required for core-drilled holes.

C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
   1. Permanent sleeves are not required for holes in slabs formed by molded-PE or -PP sleeves.
   2. Cut sleeves to length for mounting flush with both surfaces.
      a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.
   3. Using grout, seal the space outside of sleeves in slabs and walls without sleeve-seal system.

D. Install sleeves for pipes passing through interior partitions.
   1. Cut sleeves to length for mounting flush with both surfaces.
   2. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
   3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint. Comply with requirements for sealants specified in Division 07 Section "Joint Sealants."

E. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.

3.2 STACK-SLEEVE-FITTING INSTALLATION

A. Install stack-sleeve fittings in new slabs as slabs are constructed.
   1. Install fittings that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
   2. Secure flashing between clamping flanges for pipes penetrating floors with membrane waterproofing. Comply with requirements for flashing specified in Division 07 Section "Sheet Metal Flashing and Trim."
   3. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level.
   4. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.
5. Using grout, seal the space around outside of stack-sleeve fittings.

B. Fire-Barrier Penetrations: Maintain indicated fire rating of floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Division 07 Section "Penetration Firestopping."

3.3 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at service piping entries into building.

B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.4 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

3.5 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. Use sleeves and sleeve seals for the following piping-penetration applications:

1. Concrete Slabs-on-Grade:

   a. Piping Smaller Than NPS 6: Cast-iron wall sleeves with sleeve-seal system or Galvanized-steel-pipe sleeves with sleeve-seal system.

      1) Select sleeve size to allow for 1-inch (25-mm) annular clear space between piping and sleeve for installing sleeve-seal system.


2. Interior Partitions:


SECTION 220553

IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Pipe labels.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

1.4 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full circumference of pipe and to attach to pipe without fasteners or adhesive.

C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.

   1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
   2. Lettering Size: At least 1-1/2 inches high.

PART 3 - EXECUTION

3.1 PREPARATION

   A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION

   A. Install or permanently fasten labels on each major item of mechanical equipment.
   B. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION

   A. Piping Color-Coding: Painting of piping is specified in Division 09 Section "Interior Painting."
   B. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
      1. Near each valve and control device.
      2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
      3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
      4. At access doors, manholes, and similar access points that permit view of concealed piping.
      5. Near major equipment items and other points of origination and termination.
      6. Spaced at maximum intervals of 25 feet along each run. Reduce intervals to 10 feet in areas of congested piping and equipment.
   C. Pipe Label Color Schedule:
      1. Domestic Water Piping:
         a. Background Color: Green.
      2. Sanitary Waste Piping:
a. Background Color: Black.

END OF SECTION 220553
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Insulation Materials:
   a. Mineral fiber.
2. Adhesives.
3. Mastics.
4. Lagging adhesives.
5. Sealants.
6. Factory-applied jackets.
7. Tapes.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).

B. Shop Drawings:

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.

C. Samples: For each type of insulation and jacket indicated. Identify each Sample, describing product and intended use. Sample sizes are as follows:

   1. Sample Sizes:
      a. Sheet Form Insulation Materials: 12 inches square.
      c. Sheet Jacket Materials: 12 inches square.
      d. Manufacturer's Color Charts: For products where color is specified, show the full range of colors available for each type of finish material.

D. Qualification Data: For qualified Installer.
E. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

F. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment."

B. Coordinate clearance requirements with piping Installer for piping insulation application and equipment Installer for equipment insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

C. Coordinate installation and testing of heat tracing.

1.7 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.
B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type I. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. CertainTeed Corp.; Duct Wrap.
   b. Johns Manville; Microlite.
   c. Knauf Insulation; Duct Wrap.
   d. Manson Insulation Inc.; Alley Wrap.
   e. Owens Corning; All-Service Duct Wrap.

2.2 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

1. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-82.
   c. ITW TACC, Division of Illinois Tool Works; S-90/80.
   d. Marathon Industries, Inc.; 225.
   e. Mon-Eco Industries, Inc.; 22-25.
2. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).


1. Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-82.
   c. ITW TACC, Division of Illinois Tool Works; S-90/80.
   d. Marathon Industries, Inc.; 225.
   e. Mon-Eco Industries, Inc.; 22-25.

2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

B. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-10.
   b. Foster Products Corporation, H. B. Fuller Company; 35-00.
   c. ITW TACC, Division of Illinois Tool Works; CB-05/15.
   e. Mon-Eco Industries, Inc.; 55-50.
   f. Vimasco Corporation; WC-1/WC-5.

2. Water-Vapor Permeance: ASTM F 1249, 3 perms at 0.0625-inch dry film thickness.
3. Service Temperature Range: Minus 20 to plus 200 deg F (Minus 29 to plus 93 deg C).
4. Solids Content: 63 percent by volume and 73 percent by weight.

2.4 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C, Class I, Grade A, and shall be compatible with insulation materials, jackets, and substrates.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-52.
   b. Foster Products Corporation, H. B. Fuller Company; 81-42.
   c. Marathon Industries, Inc.; 130.
   d. Mon-Eco Industries, Inc.; 11-30.
   e. Vimasco Corporation; 136.
2. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over equipment and pipe insulation.
3. Service Temperature Range: Minus 50 to plus 180 deg F.

2.5 SEALANTS

A. Joint Sealants:
1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Permanently flexible, elastomeric sealant.
3. Service Temperature Range: Minus 100 to plus 300 deg F.
5. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. ASJ Flashing Sealants, and Vinyl, PVDC, and PVC Jacket Flashing Sealants:
1. Products: Subject to compliance with requirements, provide one of the following:
   a. Childers Products, Division of ITW; CP-76.
   b. Or approved equal.
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
6. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.6 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:
1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.

2.7 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.
1. Products: Subject to compliance with requirements, provide one of the following:
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0835.
b. Compac Corp.; 104 and 105.
c. Ideal Tape Co., Inc., an American Biltrite Company; 428 AWF ASJ.
d. Venture Tape; 1540 CW Plus, 1542 CW Plus, and 1542 CW Plus/SQ.

2. Width: 3 inches.
3. Thickness: 11.5 mils.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.
   b. Compac Corp.; 110 and 111.
   c. Ideal Tape Co., Inc., an American Biltrite Company; 491 AWF FSK.
   d. Venture Tape; 1525 CW, 1528 CW, and 1528 CW/SQ.

2. Width: 3 inches.
3. Thickness: 6.5 mils.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

PART 3 - EXECUTION

3.1 EXAMINATION
A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

1. Verify that systems and equipment to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION
A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
3.3 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
   1. Install insulation continuously through hangers and around anchor attachments.
   2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:
   1. Draw jacket tight and smooth.
   2. Cover circumferential joints with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
   3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
   4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
   5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.
M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. For above ambient services, do not install insulation to the following:
   1. Vibration-control devices.
   2. Testing agency labels and stamps.
   3. Nameplates and data plates.

3.4 PENETRATIONS

A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

B. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
   1. Comply with requirements in Division 07 Section "Penetration Firestopping" and fire-resistive joint sealers.

C. Insulation Installation at Floor Penetrations:
   1. Pipe: Install insulation continuously through floor penetrations.
   2. Seal penetrations through fire-rated assemblies. Comply with requirements in Division 07 Section "Penetration Firestopping."

3.5 GENERAL PIPE INSULATION INSTALLATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
   1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
   2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
   3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt
each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.

4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.

5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below ambient services, provide a design that maintains vapor barrier.

6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.

7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.

8. Stencil or label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.

3.6 MINERAL-FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.

2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.

3. For insulation with factory-applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.

4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available.

2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

C. Insulation Installation on Valves and Pipe Specialties:
1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
4. Install insulation to flanges as specified for flange insulation application.

3.7 FIELD-APPLIED JACKET INSTALLATION

A. Where glass-cloth jackets are indicated, install directly over bare insulation or insulation with factory-applied jackets.
   1. Draw jacket smooth and tight to surface with 2-inch overlap at seams and joints.
   2. Embed glass cloth between two 0.062-inch-thick coats of lagging adhesive.
   3. Completely encapsulate insulation with coating, leaving no exposed insulation.

B. Where FSK jackets are indicated, install as follows:
   1. Draw jacket material smooth and tight.
   2. Install lap or joint strips with same material as jacket.
   3. Secure jacket to insulation with manufacturer's recommended adhesive.
   4. Install jacket with 1-1/2-inch laps at longitudinal seams and 3-inch-wide joint strips at end joints.
   5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

3.8 FINISHES

A. Equipment and Pipe Insulation with ASJ, Glass-Cloth, or Other Paintable Jacket Material:
   Paint jacket with paint system identified below and as specified in Division 09 painting Sections.
   1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.

B. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.

C. Do not field paint aluminum or stainless-steel jackets.

3.9 FIELD QUALITY CONTROL

A. Perform tests and inspections.
B. Tests and Inspections:
   1. Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.

C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.10 PIPING INSULATION SCHEDULE, GENERAL

A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
   1. Drainage piping located in crawl spaces.
   2. Underground piping.
   3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.11 INDOOR PIPING INSULATION SCHEDULE

A. Domestic Hot and Recirculated Hot Water:
   1. NPS 1-1/4 and Smaller: Insulation shall be the following:
      a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 ½ inch thick.
   2. NPS 1-1/2 and Larger: Insulation shall be the following:
      a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 ½ inch thick.

END OF SECTION 220700
SECTION 221116
DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary
      Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. Section Includes:
      1. Under-building slab and aboveground domestic water pipes, tubes, fittings, and
         specialties inside the building.
      2. Flexible connectors.

1.3 PERFORMANCE REQUIREMENTS
   A. Seismic Performance: Domestic water piping and support and installation shall withstand
      effects of earthquake motions determined according to ASCE/SEI 7.

1.4 SUBMITTALS
   A. Product Data: For the following products:
      1. Transition fittings.
      2. Dielectric fittings.
      3. Flexible connectors.
   B. LEED Submittal:
      1. Product Data for Credit EQ 4.1: For solvent cements and adhesive primers, including
         printed statement of VOC content.
   C. Water Samples: Specified in "Cleaning" Article.
   D. Field quality-control reports.

1.5 QUALITY ASSURANCE
   A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
   B. Comply with NSF 61 for potable domestic water piping and components.
1.6 PROJECT CONDITIONS

A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Owner no fewer than seven days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Owner's written permission.

1.7 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 COPPER TUBE AND FITTINGS

A. Hard Copper Tube: ASTM B 88, Type L (ASTM B 88M, Type B) water tube, drawn temper.

4. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

2.3 PIPING JOINING MATERIALS

A. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

B. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

2.4 TRANSITION FITTINGS

A. General Requirements:

1. Same size as pipes to be joined.
2. Pressure rating at least equal to pipes to be joined.
3. End connections compatible with pipes to be joined.
2.5 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Zurn Plumbing Products Group; Wilkins Water Control Products.
   b. Central Plastics Company.
   c. EPCO Sales, Inc.
   d. Hart Industries International, Inc.
   e. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Description:
   a. Pressure Rating: 150 psig at 180 deg F.
   b. End Connections: Solder-joint copper alloy and threaded ferrous.

C. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   b. Central Plastics Company.
   c. EPCO Sales, Inc.
   d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Description:
   a. Factory-fabricated, bolted, companion-flange assembly.
   b. Pressure Rating: 150 psig minimum.
   c. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

2.6 FLEXIBLE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Flex-Hose Co., Inc.
2. Flexicraft Industries.
3. Flex Pression, Ltd.
4. Flex-Weld, Inc.
5. Hyspan Precision Products, Inc.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

7. Metraflex, Inc.
8. Proco Products, Inc.
10. Unaflex, Inc.
11. Universal Metal Hose; a Hyspan company

B. Stainless-Steel-Hose Flexible Connectors: Corrugated-stainless-steel tubing with stainless-steel wire-braid covering and ends welded to inner tubing.

2. End Connections NPS 2’ and Smaller: Threaded steel-pipe nipple.
3. End Connections NPS 2-1/2 and Larger: Flanged steel nipple.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Comply with requirements in Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

C. Install shutoff valve immediately upstream of each dielectric fitting.

D. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.

E. Install seismic restraints on piping. Comply with requirements in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment" for seismic-restraint devices.

F. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

G. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

H. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

I. Install piping adjacent to equipment and specialties to allow service and maintenance.
J. Install piping to permit valve servicing.

K. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than system pressure rating used in applications below unless otherwise indicated.

L. Install piping free of sags and bends.

M. Install fittings for changes in direction and branch connections.

N. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

O. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

3.3 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

C. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook," "Brazed Joints" Chapter.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

E. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

F. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.4 VALVE INSTALLATION

A. General-Duty Valves: Comply with requirements in Division 22 Section "General-Duty Valves for Plumbing Piping" for valve installations.

B. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball or gate valves for piping NPS 2 and smaller. Use butterfly or gate valves for piping NPS 2-1/2 and larger.

C. Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping. Drain valves are specified in Division 22 Section "Domestic Water Piping Specialties."

1. Hose-End Drain Valves: At low points in water mains, risers, and branches.

3.5 TRANSITION FITTING INSTALLATION
A. Install transition couplings at joints of dissimilar piping.

3.6 DIELECTRIC FITTING INSTALLATION
A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.
B. Dielectric Fittings for NPS 2 and Smaller: Use dielectric unions.
C. Dielectric Fittings for NPS 2-1/2 to NPS 4: Use dielectric flanges.

3.7 FLEXIBLE CONNECTOR INSTALLATION
A. Install flexible connectors in suction and discharge piping connections to each domestic water pump.
B. Install bronze-hose flexible connectors in copper domestic water tubing.
C. Install stainless-steel-hose flexible connectors in steel domestic water piping.

3.8 HANGER AND SUPPORT INSTALLATION
A. Comply with requirements in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment" for seismic-restraint devices.
B. Comply with requirements in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment" for pipe hanger and support products and installation.
   1. Vertical Piping: MSS Type 8 or 42, clamps.
   2. Individual, Straight, Horizontal Piping Runs:
      a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
      b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
      c. Longer Than 100 Feet If Indicated: MSS Type 49, spring cushion rolls.
   3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls.
      Support pipe rolls on trapeze.
   4. Base of Vertical Piping: MSS Type 52, spring hangers.
C. Support vertical piping and tubing at base and at each floor.
D. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch.
E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
3. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
4. NPS 2-1/2: 108 inches with 1/2-inch rod.

F. Install supports for vertical copper tubing every 10 feet.

G. Support piping and tubing not listed in this article according to MSS SP-69 and manufacturer's written instructions.

3.9 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment and machines to allow service and maintenance.

C. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:
   1. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Comply with requirements in Division 22 plumbing fixture Sections for connection sizes.
   2. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.10 IDENTIFICATION

A. Identify system components. Comply with requirements in Division 22 Section "Identification for Plumbing Piping and Equipment" for identification materials and installation.

B. Label pressure piping with system operating pressure.

3.11 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Piping Inspections:
   1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
   2. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
      a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
      b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
3. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.

4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

C. Piping Tests:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.

2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.

3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.

4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.

5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.

6. Prepare reports for tests and for corrective action required.

D. Domestic water piping will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.12 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.

2. Open shutoff valves to fully open position.

3. Open throttling valves to proper setting.

4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.

   a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide flow of hot water in each branch.

   b. Adjust calibrated balancing valves to flows indicated.

5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.


7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.

8. Check plumbing specialties and verify proper settings, adjustments, and operation.
3.13 CLEANING

A. Clean and disinfect potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
   a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
   b. Fill and isolate system according to either of the following:
      1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
      2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
   c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
   d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.14 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

C. Under-building-slab, domestic water piping, NPS 2 and smaller, shall be the following:
   1. Hard copper tube, ASTM B 88, Type L (ASTM B 88M, Type B); wrought-copper solder-joint fittings; and brazed joints.

D. Aboveground domestic water piping, NPS 2 and smaller, shall be the following:
   1. Hard copper tube, ASTM B 88, Type L (ASTM B 88M, Type B); wrought-copper solder-joint fittings; and soldered joints.

E. Aboveground domestic water piping, NPS 2-1/2 to NPS 4, shall be the following:
   1. Hard copper tube, ASTM B 88, Type L (ASTM B 88M, Type B); wrought-copper solder-joint fittings; and soldered joints.
3.15 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use ball or gate valves for piping NPS 2 and smaller. Use butterfly, ball, or gate valves with flanged ends for piping NPS 2-1/2 (DN 65) and larger.
2. Throttling Duty: Use ball or globe valves for piping NPS 2 and smaller. Use butterfly or ball valves with flanged ends for piping NPS 2-1/2 and larger.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

C. Iron grooved-end valves may be used with grooved-end piping.

END OF SECTION 221116
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes the following domestic water piping specialties:
   1. Vacuum breakers.
   2. Temperature-actuated water mixing valves.
   3. Strainers.
   4. Hose bibbs.
   5. Drain valves.
   7. Air vents.
   8. Trap-seal primer valves.
B. Related Sections include the following:
   1. Division 22 Section "Domestic Water Piping" for water meters.
   2. Division 22 Section "Drinking Fountains and Water Coolers" for water filters for water coolers.

1.3 PERFORMANCE REQUIREMENTS
A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.4 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Shop Drawings: Diagram power, signal, and control wiring.
C. Field quality-control test reports.
D. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.
1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. NSF Compliance:
   2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

PART 2 - PRODUCTS

2.1 VACUUM BREAKERS

A. Pipe-Applied, Atmospheric-Type Vacuum Breakers:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Zurn Plumbing Products Group; Wilkins Div.
      b. Cash Acme.
      c. Conbraco Industries, Inc.
      d. FEBCO; SPX Valves & Controls.
      e. Rain Bird Corporation.
      f. Toro Company (The); Irrigation Div.
      g. Watts Industries, Inc.; Water Products Div.
      h. Zurn Plumbing Products Group; Wilkins Div.
   3. Size: NPS 1/4 to NPS 3, as required to match connected piping.
   5. Inlet and Outlet Connections: Threaded.
   6. Finish: Chrome plated.

B. Hose-Connection Vacuum Breakers:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Zurn Plumbing Products Group; Light Commercial Operation.
      b. Plumbing Products Group; Wilkins Div.
      c. Conbraco Industries, Inc.
      d. Legend Valve.
      e. MIFAB, Inc.
      f. Prier Products, Inc.
      g. Watts Industries, Inc.; Water Products Div.
      h. Woodford Manufacturing Company.
5. Finish: Chrome or nickel plated.

2.2 TEMPERATURE-ACTUATED WATER MIXING VALVES

A. Primary, Thermostatic, Water Mixing Valves <Insert drawing designation if any>:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
3. Basis-of-Design Product: Subject to compliance with requirements, provide [the product indicated on Drawings] <Insert manufacturer's name; product name or designation> or a comparable product by one of the following:
   b. Lawler Manufacturing Company, Inc.
   c. Leonard Valve Company.
   d. Powers; a Watts Industries Co.
   e. Symmons Industries, Inc.
   f. <Insert manufacturer's name.>
6. Type: [Exposed-mounting] [Cabinet-type], thermostatically controlled water mixing valve.
7. Material: Bronze body with corrosion-resistant interior components.
9. Accessories: Manual temperature control, check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.
10. Valve Pressure Rating: 125 psig (860 kPa) minimum, unless otherwise indicated.
12. Tempered-Water Design Flow Rate: <Insert gpm (L/s).>
13. Selected Valve Flow Rate at 45-psig (310-kPa) Pressure Drop: <Insert gpm (L/s).>
14. Pressure Drop at Design Flow Rate: <Insert psig (kPa).>
15. Valve Finish: [Chrome plated] [Polished, chrome plated] [Rough bronze].
16. Piping Finish: [Chrome plated] [Copper].
17. Cabinet: Factory-fabricated, stainless steel, for [recessed] [surface] mounting and with hinged, stainless-steel door.

B. Individual-Fixture, Water Tempering Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Zurn Plumbing Products Group; Wilkins Div.
   b. Conbraco Industries, Inc.
   c. Honeywell Water Controls.
d. Lawler Manufacturing Company, Inc.
e. Leonard Valve Company.
f. Powers; a Watts Industries Co.
g. Watts Industries, Inc.; Water Products Div.

3. Pressure Rating: 125 psig minimum, unless otherwise indicated.
5. Temperature Control: Adjustable.
6. Inlets and Outlet: Threaded.
7. Finish: Rough or chrome-plated bronze.
8. Tempered-Water Setting: 85 deg F.>

2.3 HOSE BIBBS

A. Hose Bibbs:
5. Outlet Connection: Garden-hose thread complying with ASME B1.20.7.
7. Vacuum Breaker: Integral or field-installation, nonremovable, drainable, hose-connection vacuum breaker complying with ASSE 1011.
8. Finish for Equipment Rooms: Rough bronze, or chrome or nickel plated.
9. Finish for Service Areas: Chrome or nickel plated.
10. Finish for Finished Rooms: Chrome or nickel plated.
11. Operation for Equipment Rooms: Wheel handle or operating key.
12. Operation for Service Areas: Operating key.
14. Include operating key with each operating-key hose bibb.
15. Include integral wall flange with each chrome- or nickel-plated hose bibb.

2.4 DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves:
2. Pressure Rating: 400-psig (minimum CWP.
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
8. Inlet: Threaded or solder joint.
2.5 WATER HAMMER ARRESTERS

A. Water Hammer Arresters:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. AMTROL, Inc.
   b. Zurn Plumbing Products Group; Specification Drainage Operation.
   c. MIFAB, Inc.
   d. PPP Inc.
   e. Sioux Chief Manufacturing Company, Inc.
   g. Tyler Pipe; Wade Div.
   h. Watts Drainage Products Inc.

3. Type: Metal bellows or Copper tube with piston.
4. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

2.6 AIR VENTS

A. Bolted-Construction Automatic Air Vents:
1. Body: Bronze.
2. Pressure Rating: 125-psig minimum pressure rating at 140 deg F.
3. Float: Replaceable, corrosion-resistant metal.
5. Size: NPS 1/2 minimum inlet.

2.7 TRAP-SEAL PRIMER VALVES

A. Supply-Type, Trap-Seal Primer Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. PPP Inc.

5. Inlet and Outlet Connections: NPS 1/2 threaded, union, or solder joint.
6. Gravity Drain Outlet Connection: NPS 1/2 threaded or solder joint.
7. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

PART 3 - EXECUTION

3.1 INSTALLATION

A. Refer to Division 22 Section "Common Work Results for Plumbing" for piping joining materials, joint construction, and basic installation requirements.

B. Install temperature-actuated water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.
   1. Install thermometers and water regulators if specified.
   2. Install cabinet-type units recessed in or surface mounted on wall as specified.

C. Install water hammer arresters in water piping according to PDI-WH 201.

D. Install air vents at high points of water piping.

E. Install supply-type, trap-seal primer valves with outlet piping pitched down toward drain trap a minimum of 1 percent, and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping and specialties.

3.3 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
   1. Supply-type, trap-seal primer valves.

B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Division 22 Section "Identification for Plumbing Piping and Equipment."

3.4 ADJUSTING

A. Set field-adjustable pressure set points of water pressure-reducing valves.

B. Set field-adjustable flow set points of balancing valves.

C. Set field-adjustable temperature set points of temperature-actuated water mixing valves.

END OF SECTION 221119
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 221316
SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes the following for soil, waste, and vent piping inside the building:
   1. Pipe, tube, and fittings.

1.3 DEFINITIONS
A. EPDM: Ethylene-propylene-diene terpolymer rubber.
B. NBR: Acrylonitrile-butadiene rubber.
C. PE: Polyethylene plastic.
D. PVC: Polyvinyl chloride plastic.
E. TPE: Thermoplastic elastomer.

1.4 PERFORMANCE REQUIREMENTS
A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:
B. Seismic Performance: Soil, waste, and vent piping and support and installation shall be capable of withstanding the effects of seismic events determined according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures

1.5 SUBMITTALS
A. Product Data: For pipe, tube, fittings, and couplings.
B. LEED Submittal:
1. Product Data for Credit EQ 4.1: For solvent cements and adhesive primers, including printed statement of VOC content.

C. Shop Drawings:

1. Design Calculations: Signed and sealed by a qualified professional engineer for selecting seismic restraints.

D. Field quality-control inspection and test reports.

1.6 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping; "NSF-drain" for plastic drain piping; "NSF-tubular" for plastic continuous waste piping; and "NSF-sewer" for plastic sewer piping.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 HUBLESS CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 888 or CISPI 301.

B. Sovent Stack Fittings: ASME B16.45 or ASSE 1043, hubless, cast-iron aerator and deaerator drainage fittings.

C. Shielded Couplings: ASTM C 1277 assembly of metal shield or housing, corrosion-resistant fasteners, and rubber sleeve with integral, center pipe stop.


   a. Manufacturers:
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

1) ANACO.
2) Clamp-All Corp.
3) Ideal Div.; Stant Corp.
4) Mission Rubber Co.
5) Tyler Pipe; Soil Pipe Div.

PART 3 - EXECUTION

3.1 EXCAVATION
A. Refer to Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS
A. Aboveground, soil and waste piping NPS 4 and smaller shall be the following:
1. Hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
B. Aboveground, vent piping NPS 4 and smaller shall be the following:
1. Hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.
C. Underground, soil, waste, and vent piping NPS 4 and smaller shall be the following:
1. Hubless cast-iron soil pipe and fittings; heavy-duty shielded, stainless-steel couplings; and hubless-coupling joints.

3.3 PIPING INSTALLATION
A. Basic piping installation requirements are specified in Division 22 Section "Common Work Results for Plumbing."
B. Install seismic restraints on piping. Seismic-restraint devices are specified in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment."
C. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
   1. Install encasement on underground piping according to ASTM A 674 or AWWA C105.
D. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
E. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

F. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

G. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.

H. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

I. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

J. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

K. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Division 22 Section "Escutcheons for Plumbing Piping."

3.4 JOINT CONSTRUCTION

A. Basic piping joint construction requirements are specified in Division 22 Section "Common Work Results for Plumbing."

B. Join hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints.

3.5 HANGER AND SUPPORT INSTALLATION

A. Seismic-restraint devices are specified in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment."

B. Pipe hangers and supports are specified in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment." Install the following:

1. Vertical Piping: MSS Type 8 or Type 42, clamps.
2. Install individual, straight, horizontal piping runs according to the following:
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
c. Longer Than 100 Feet, if Indicated: MSS Type 49, spring cushion rolls.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

C. Install supports according to Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment."

D. Support vertical piping and tubing at base and at each floor.

E. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch (10-mm) minimum rods.

F. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.
2. NPS 3: 60 inches with 1/2-inch rod.
3. NPS 4 and NPS 5: 60 inches with 5/8-inch rod.

G. Install supports for vertical cast-iron soil piping every 15 feet.

3.6 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect drainage and vent piping to the following:

1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.
4. Equipment: Connect drainage piping as indicated. Provide shutoff valve, if indicated, and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 and larger.

3.7 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.

3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.

4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1-inch wg. Use U-tube or manometer inserted in trap of water closet to measure this pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.

5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.

6. Prepare reports for tests and required corrective action.

3.8 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION 221316
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes the following sanitary drainage piping specialties:
   1. Cleanouts.
   2. Floor drains.
   3. Air-admittance valves.
   4. Through-penetration firestop assemblies.
   5. Miscellaneous sanitary drainage piping specialties.
B. Related Sections include the following:
   1. Division 22 Section "Plumbing Fixtures" for hair interceptors.

1.3 DEFINITIONS
B. HDPE: High-density polyethylene plastic.
C. PE: Polyethylene plastic.
D. PP: Polypropylene plastic.
E. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS
A. Field quality-control test reports.
B. Operation and Maintenance Data: For drainage piping specialties to include in emergency, operation, and maintenance manuals.
1.5 QUALITY ASSURANCE

A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

1.6 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate size and location of roof penetrations.

PART 2 - PRODUCTS

2.1 CLEANOUTS

A. Exposed Metal Cleanouts:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Zurn Plumbing Products Group; Specification Drainage Operation.
   2. Standard: ASME A112.36.2M for cast iron for cleanout test tee.
   3. Size: Same as connected drainage piping.
   4. Body Material: Hubless, cast-iron soil pipe test tee as required to match connected piping.
   5. Closure: Countersunk, brass plug.
   6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.

B. Metal Floor Cleanouts:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Zurn Plumbing Products Group; Specification Drainage Operation.
      b. Zurn Plumbing Products Group; Specification Drainage Operation.
   2. Standard: ASME A112.36.2M for cast-iron soil pipe with cast-iron ferrule cleanout.
   3. Size: Same as connected branch.
   4. Type: Cast-iron soil pipe with cast-iron ferrule.
   5. Body or Ferrule: Cast iron.
   6. Clamping Device: Not required.
   7. Outlet Connection: Threaded.
   8. Closure: Brass plug with straight threads and gasket.
   9. Adjustable Housing Material: Cast iron with threads.
   11. Frame and Cover Shape: Round.
   13. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.
C. Cast-Iron Wall Cleanouts:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Zurn Plumbing Products Group; Specification Drainage Operation.

   2. Standard: ASME A112.36.2M. Include wall access.
   3. Size: Same as connected drainage piping.
   4. Body: Hubless, cast-iron soil pipe test tee as required to match connected piping.
   5. Closure: Countersunk plug.
   6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.

2.2 FLOOR DRAINS

A. Cast-Iron Floor Drains:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Zurn Plumbing Products Group; Light Commercial Operation.
      b. Zurn Plumbing Products Group; Specification Drainage Operation.

   2. Standard: ASME A112.6.3.
   5. Seepage Flange: Required.
   6. Anchor Flange: Required.
   7. Clamping Device: Required.
   8. Outlet: Bottom.
   9. Top or Strainer Material: Bronze.
  11. Top Shape: Round.
  13. Inlet Fitting: Gray iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.

2.3 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. Through-Penetration Firestop Assemblies:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. ProSet Systems Inc.

   2. Standard: UL 1479 assembly of sleeve and stack fitting with firestopping plug.
   3. Size: Same as connected soil, waste, or vent stack.
4. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast-in-place concrete slabs.


6. Special Coating: Corrosion resistant on interior of fittings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Refer to Division 22 Section "Common Work Results for Plumbing" for piping joining materials, joint construction, and basic installation requirements.

B. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
2. Locate at each change in direction of piping greater than 45 degrees.
3. Locate at minimum intervals of 50 feet (15 m) for piping NPS 4 and smaller and 100 feet for larger piping.
4. Locate at base of each vertical soil and waste stack.

C. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.

D. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

E. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.

1. Position floor drains for easy access and maintenance.
2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:
   a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
   b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.
   c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.
3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.
F. Install through-penetration firestop assemblies in plastic conductors and stacks at floor penetrations.

G. Install deep-seal traps on floor drains and other waste outlets, if indicated.

H. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.
   1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
   2. Size: Same as floor drain inlet.

I. Install sleeve flashing device with each riser and stack passing through floors with waterproof membrane.

J. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

3.3 FLASHING INSTALLATION

A. Set flashing on floors and roofs in solid coating of bituminous cement.

B. Secure flashing into sleeve and specialty clamping ring or device.

3.4 FIELD QUALITY CONTROL

A. Tests and Inspections:
   1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
   2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221319
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Submersible sump pumps.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
B. Wiring Diagrams: For power, signal, and control wiring.
C. Operation and Maintenance Data: For pumps and controls, to include in operation and maintenance manuals.

1.4 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
B. UL Compliance: Comply with UL 778 for motor-operated water pumps.

1.5 DELIVERY, STORAGE, AND HANDLING
A. Retain shipping flange protective covers and protective coatings during storage.
B. Protect bearings and couplings against damage.
C. Comply with pump manufacturer's written rigging instructions for handling.
PART 2 - PRODUCTS

2.1 SUBMERSIBLE SUMP PUMPS

A. Submersible, Fixed-Position, Single-Seal Sump Pumps:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
      a. Little Giant Pump Co.
      b. Grundfos Pumps Corp.
      c. Goulds Pumps; ITT Corporation.
   2. Description: Factory-assembled and -tested sump-pump unit.
   3. Pump Type: Submersible, end-suction, single-stage, close-coupled, overhung-impeller, centrifugal sump pump as defined in HI 1.1-1.2 and HI 1.3.
   4. Pump Casing: Cast iron, with strainer inlet, legs that elevate pump to permit flow into impeller, and vertical discharge for piping connection.
   5. Impeller: Statically and dynamically balanced, ASTM A 48/A 48M, Class No. 25 A cast iron design for clear wastewater handling, and keyed and secured to shaft.
   7. Seal: Mechanical.
   8. Motor: Hermetically sealed, capacitor-start type; with built-in overload protection; lifting eye or lug; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.
      a. Motor Housing Fluid: Air.
   9. Controls:
      a. Enclosure: NEMA 250, Type 4X; wall-mounted.
      b. Switch Type: Mechanical-float type, in NEMA 250, Type 6 enclosures with mounting rod and electric cables.
      c. High-Water Alarm: Rod-mounted, NEMA 250, Type 6 enclosure with mechanical-float, mercury-float, or pressure switch matching control and electric bell; 120-V ac, with transformer and contacts for remote alarm bell.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for plumbing piping to verify actual locations of storm drainage piping connections before sump pump installation.

3.2 INSTALLATION

A. Pump Installation Standards: Comply with HI 1.4 for installation of sump pumps.
3.3 CONNECTIONS

A. Comply with requirements for piping specified in Division 22 Section "Facility Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection.
2. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Pumps and controls will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports.

3.5 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.6 ADJUSTING

A. Adjust pumps to function smoothly, and lubricate as recommended by manufacturer.

B. Adjust control set points.

3.7 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain controls and pumps.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 224000
PLUMBING FIXTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following conventional plumbing fixtures and related components:
   1. Faucets for lavatories and sinks.
   2. Laminar-flow faucet-spout outlets.
   3. Flushometers.
   4. Toilet seats.
   5. Protective shielding guards.
   6. Fixture supports.
   7. Water closets.
   8. Urinals.
   9. Lavatories.

B. Related Sections include the following:
   1. Division 22 Section "Domestic Water Piping Specialties" for backflow preventers, floor drains, and specialty fixtures not included in this Section.
   2. Division 22 Section "Drinking Fountains and Water Coolers."

1.3 DEFINITIONS


B. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.

C. Cast Polymer: Cast-filled-polymer-plastic material. This material includes cultured-marble and solid-surface materials.

D. Cultured Marble: Cast-filled-polymer-plastic material with surface coating.

E. Fitting: Device that controls the flow of water into or out of the plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, shower heads and tub spouts, drains and tailpieces, and traps and waste pipes. Piping and general-duty valves are included where indicated.
F. FRP: Fiberglass-reinforced plastic.

G. PMMA: Polymethyl methacrylate (acrylic) plastic.

H. PVC: Polyvinyl chloride plastic.


1.4 SUBMITTALS

A. Product Data: For each type of plumbing fixture indicated. Include selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.

D. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.

1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.


E. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

F. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.
G. Comply with the following applicable standards and other requirements specified for plumbing fixtures:

1. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
2. Porcelain-Enameled, Formed-Steel Fixtures: ASME A112.19.4M.
4. Vitreous-China Fixtures: ASME A112.19.2M.
5. Water-Closet, Flushometer Tank Trim: ASSE 1037.

H. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:

8. Thermostatic-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.

I. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:

2. Brass and Copper Supplies: ASME A112.18.1.

J. Comply with the following applicable standards and other requirements specified for miscellaneous components:

2. Floor Drains: ASME A112.6.3.

1.6 WARRANTY

A. Special Warranties: Manufacturer's standard form in which manufacturer agrees to repair or replace components of whirlpools that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Structural failures of unit shell.
   b. Faulty operation of controls, blowers, pumps, heaters, and timers.
   c. Deterioration of metals, metal finishes, and other materials beyond normal use.
2. Warranty Period for Commercial Applications: Three year(s) from date of Substantial Completion.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Faucet Washers and O-Rings: Equal to 10 percent of amount of each type and size installed.
2. Faucet Cartridges and O-Rings: Equal to 5 percent of amount of each type and size installed.
3. Flushometer Valve, Repair Kits: Equal to 10 percent of amount of each type installed, but no fewer than 12 of each type.
4. Provide hinged-top wood or metal box, or individual metal boxes, with separate compartments for each type and size of extra materials listed above.
5. Toilet Seats: Equal to 5 percent of amount of each type installed.

PART 2 - PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets, :

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

   a. Zurn Plumbing Products Group; Commercial Brass Operation.

2. Description: Single-control mixing valve. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.

   b. Finish: Polished chrome plate.
   c. Maximum Flow Rate: 0.5 gpm.
   d. Centers: Single hole.
   e. Mounting: Deck, concealed.
   f. Valve Handle(s): Not applicable.
   g. Inlet(s): NPS 1/2 male shank.
   h. Spout: Rigid, gooseneck type.
   i. Spout Outlet: Aerator.
   k. Drain: Grid.
   l. Tempering Device: Thermostatic.
2.2 SINK FAUCETS

A. Sink Faucets, :
   1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
      a. Zurn Plumbing Products Group; Commercial Brass Operation.
   2. Description: Kitchen faucet with spray, three-hole fixture. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
      b. Finish: Polished chrome plate.
      c. Maximum Flow Rate: 2.5 gpm, unless otherwise indicated.
      d. Mixing Valve: Two-lever handle.
      e. Centers: 4 inches (102 mm).
      f. Mounting: Deck, exposed.
      g. Handle(s): Wrist blade, 4 inches.
      h. Inlet(s): [NPS 1/2 (DN 15) male shank.
      i. Spout Type: Swivel gooseneck.
      j. Spout Outlet: Aerator.
      k. Vacuum Breaker: Not required.
      m. Drain: Grid.

2.3 LAMINAR-FLOW FAUCET-SPOUT OUTLETS

A. Laminar-Flow Faucet-Spout Outlets, :
   1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
      a. Chronomite Laboratories, Inc.
      b. NEOPERL, Inc.
   2. Description: Chrome-plated-brass faucet-spout outlet that produces non-aerating, laminar stream. Include male or female thread that mates with faucet outlet for attachment to faucets where indicated and flow-rate range that includes flow of faucet.

2.4 FLUSHOMETERS

A. Flushometers, :
   1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
      a. Zurn Plumbing Products Group; Commercial Brass Operation.
   2. Description: Flushometer for urinal and water-closet-type fixture. Include brass body with corrosion-resistant internal components, non-hold-open feature, control stop with
check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.

a. Internal Design: Diaphragm operation.

b. Style: Exposed.

c. Inlet Size: NPS 3/4 for urinal and NPS 1 for water closet.

d. Trip Mechanism: Battery-operated sensor actuator.

e. Consumption: 0.25 gal./flush for urinal and 1.25 gal./flush for water closet.

f. Tailpiece Size: NPS 3/4 for urinal and NPS 1-1/4 for water closet and standard length to top of bowl.

2.5 TOILET SEATS

A. Toilet Seats, :

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Zurn.

2. Description: Toilet seat for water-closet-type fixture.

   a. Material: Molded, solid plastic with antimicrobial agent.

   b. Configuration: Open front without cover.

   c. Size: Elongated.

   d. Hinge Type: SC, self-sustaining, check.

   e. Class: Standard commercial.


2.6 PROTECTIVE SHIELDING GUARDS

A. Protective Shielding Pipe Covers, :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Zurn Plumbing Products Group; Tubular Brass Plumbing Products Operation.

2. Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

2.7 FIXTURE SUPPORTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Zurn Plumbing Products Group; Specification Drainage Operation.

B. Water-Closet Supports, :

1. Description: Combination carrier designed for accessible and standard mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or
horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.

C. Urinal Supports, :

1. Description: Type I, urinal carrier with fixture support plates and coupling with seal and fixture bolts and hardware matching fixture for wall-mounting, urinal-type fixture. Include steel uprights with feet.


D. Lavatory Supports, :

1. Description: Type II, lavatory carrier with concealed arms and tie rod for wall-mounting, lavatory-type fixture. Include steel uprights with feet.


2.8 WATER CLOSETS

A. Water Closets, :

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Zurn.

2. Description Accessible, wall-mounting, back-outlet, vitreous-china fixture designed for flushometer valve operation.
   a. Style: Flushometer valve.
      1) Bowl Type: Elongated with siphon-jet design.
      2) Design Consumption: 1.25 gal./flush.
   
   b. Flushometer: .
   c. Toilet Seat: .
   d. Fixture Support: Water-closet support combination carrier.

2.9 URINALS

A. Urinals, :

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Zurn

2. Description Accessible, wall-mounting, bottom-outlet, vitreous-china fixture designed for flushometer valve operation.
   a. Type: Washout.
   b. Strainer or Trapway: Integral cast strainer.
c. Design Consumption: 0.25 gal./flush.
f. Outlet Size: NPS 1-1/2.
g. Drain Piping: NPS 1-1/2 chrome-plated, cast-brass P-trap; 0.045-inch-thick tubular brass waste to wall; and wall escutcheon.
h. Flushing Device: Fixture manufacturer's standard matching fixture.
i. Flushometer:

2.10 LAVATORIES

A. Lavatories, :
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Zurn.
2. Description: Accessible, wall-mounting, vitreous-china fixture.
   a. Type: With backSlab.
   b. Size: 20 by 18 inches rectangular.
   c. Faucet Hole Punching: One hole.
   d. Faucet Hole Location: Top.
   e. Pedestal: Not required.
   g. Faucet: Lavatory for separate drain.
   h. Supplies: NPS 3/8 chrome-plated copper with stops.
   i. Drain: Grid.
   j. Drain Piping: NPS 1-1/4 by NPS 1-1/2 thick tubular brass waste to wall; and wall escutcheon.
   k. Protective Shielding Guard(s):
   l. Fixture Support: Lavatory <

2.11 KITCHEN SINKS

A. Kitchen Sinks, :
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Elkay Manufacturing Co.
   b. Just Manufacturing Company.
   c. Kohler Co.
2. Description: One-bowl, residential, counter-mounting, stainless-steel kitchen sink.
   a. Overall Dimensions:
   b. Metal Thickness: 0.050 inch.
   c. Bowl:
FAIRMONT CAMPUS BUILDING C & E  
MAKE READY IMPROVEMENTS

1) Dimensions: .  
2) Drain: 3-1/2-inch grid.  
   a) Location: Near back of bowl.  

d) Sink Faucet: .  
e) Supplies: NPS 1/2 chrome-plated copper with stops.  
f) Drain Piping: NPS 1-1/2 chrome-plated, cast-brass P-trap; 0.045-inch- (1.1-mm-) thick tubular brass waste to wall; continuous waste; and wall escutcheon(s).  
g) Disposer: Not required.  
h) Dishwasher Air-Gap Fitting: Not required.  
i) Hot-Water Dispenser: Not required.  

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing fixture installation.  
B. Examine cabinets, counters, floors, and walls for suitable conditions where fixtures will be installed.  
C. Proceed with installation only after unsatisfactory conditions have been corrected.  

3.2 INSTALLATION

A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.  
B. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.  
   1. Use carrier supports with waste fitting and seal for back-outlet fixtures.  
   2. Use carrier supports without waste fitting for fixtures with tubular waste piping.  
   3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.  
C. Install back-outlet, wall-mounting fixtures onto waste fitting seals and attach to supports.  
D. Install wall-mounting fixtures with tubular waste piping attached to supports.  
E. Install fixtures level and plumb according to roughing-in drawings.  
F. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.  
   1. Exception: Use ball, gate, or globe valves if supply stops are not specified with fixture. Valves are specified in Division 22 Section "General-Duty Valves for Plumbing Piping."
G. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

H. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.

I. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

J. Install toilet seats on water closets.

K. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

L. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.

M. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

N. Install traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.

2. Exception: Omit trap on indirect wastes, unless otherwise indicated.

O. Install escutcheons at piping wall ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings. Escutcheons are specified in Division 22 Section "Escutcheons for Plumbing Piping."

P. Seal joints between fixtures and walls, floors, and countertops using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Sealants are specified in Division 07 Section "Joint Sealants."

3.3 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.

C. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

D. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
3.4 FIELD QUALITY CONTROL

A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.

B. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.

C. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.

D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

E. Install fresh batteries in sensor-operated mechanisms.

3.5 ADJUSTING

A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.

B. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.

C. Replace washers and seals of leaking and dripping faucets and stops.

D. Install fresh batteries in sensor-operated mechanisms.

3.6 CLEANING

A. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
2. Remove sediment and debris from drains.

B. After completing installation of exposed, factory-finished fixtures, faucets, and fittings, inspect exposed finishes and repair damaged finishes.

3.7 PROTECTION

A. Provide protective covering for installed fixtures and fittings.

B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224000
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general requirements for single-phase and polyphase, general-purpose, horizontal, small and medium, squirrel-cage induction motors for use on ac power systems up to 600 V and installed at equipment manufacturer's factory or shipped separately by equipment manufacturer for field installation.

1.3 COORDINATION

A. Coordinate features of motors, installed units, and accessory devices to be compatible with the following:

1. Motor controllers.
2. Torque, speed, and horsepower requirements of the load.
3. Ratings and characteristics of supply circuit and required control sequence.
4. Ambient and environmental conditions of installation location.

PART 2 - PRODUCTS

2.1 GENERAL MOTOR REQUIREMENTS

A. Comply with requirements in this Section except when stricter requirements are specified in HVAC equipment schedules or Sections.

B. Comply with NEMA MG 1 unless otherwise indicated.

C. Comply with IEEE 841 for severe-duty motors.

2.2 MOTOR CHARACTERISTICS

A. Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet above sea level.
2.3 POLYPHASE MOTORS

A. Description: NEMA MG 1, Design B, medium induction motor.

B. Efficiency: Energy efficient, as defined in NEMA MG 1.

C. Service Factor: 1.15.

D. Multispeed Motors: Variable torque.
   1. For motors with 2:1 speed ratio, consequent pole, single winding.
   2. For motors with other than 2:1 speed ratio, separate winding for each speed.

E. Multispeed Motors: Separate winding for each speed.

F. Rotor: Random-wound, squirrel cage.

G. Bearings: Regreasable, shielded, antifriction ball bearings suitable for radial and thrust loading.

H. Temperature Rise: Match insulation rating.

I. Insulation: Class F.

J. Code Letter Designation:
   1. Motors Smaller than 15 HP: Manufacturer's standard starting characteristic.

K. Enclosure Material: Cast iron for motor frame sizes 324T and larger; rolled steel for motor frame sizes smaller than 324T.

2.4 SINGLE-PHASE MOTORS

A. Motors larger than 1/20 hp shall be one of the following, to suit starting torque and requirements of specific motor application:
   1. Permanent-split capacitor.
   2. Split phase.
   3. Capacitor start, inductor run.
   4. Capacitor start, capacitor run.

B. Multispeed Motors: Variable-torque, permanent-split-capacitor type.

C. Bearings: Prelubricated, antifriction ball bearings or sleeve bearings suitable for radial and thrust loading.

D. Motors 1/20 HP and Smaller: Shaded-pole type.
E. Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device shall automatically reset when motor temperature returns to normal range.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Bimetallic-actuated thermometers.
2. Filled-system thermometers.
4. Thermowells.
5. Dial-type pressure gages.
7. Test plugs.
8. Test-plug kits.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Wiring Diagrams: For power, signal, and control wiring.
C. Product Certificates: For each type of meter and gage, from manufacturer.
D. Operation and Maintenance Data: For meters and gages to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 BIMETALLIC-ACTUATED THERMOMETERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Ashcroft Inc.
2. Ernst Flow Industries.
3. Marsh Bellofram.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

8. REOTEMP Instrument Corporation.
10. Trerice, H. O. Co.
11. Watts Regulator Co.; a div. of Watts Water Technologies, Inc.
12. Weiss Instruments, Inc.
13. WIKA Instrument Corporation - USA.
14. Winters Instruments - U.S.


C. Case: Liquid-filled and sealed type(s); stainless steel with 3-inch nominal diameter.

D. Dial: Nonreflective aluminum with permanently etched scale markings and scales in deg F.

E. Connector Type(s): Union joint, adjustable angle and rigid, bottom, with unified-inch screw threads.

F. Connector Size: 1/2 inch, with ASME B1.1 screw threads.

G. Stem: 0.25 or 0.375 inch in diameter; stainless steel.

H. Window: Plain glass.

I. Ring: Stainless steel.

J. Element: Bimetal coil.

K. Pointer: Dark-colored metal.

L. Accuracy: Plus or minus 1 percent of scale range.

2.2 THERMOWELLS

A. Thermowells:

2. Description: Pressure-tight, socket-type fitting made for insertion into piping tee fitting.
3. Material for Use with Copper Tubing: CNR or CUNI.
4. Material for Use with Steel Piping: CRES.
5. Type: Stepped shank unless straight or tapered shank is indicated.
6. External Threads: NPS 1/2, NPS 3/4, or NPS 1, ASME B1.20.1 pipe threads.
7. Internal Threads: 1/2, 3/4, and 1 inch, with ASME B1.1 screw threads.
8. Bore: Diameter required to match thermometer bulb or stem.
9. Insertion Length: Length required to match thermometer bulb or stem.
10. Lagging Extension: Include on thermowells for insulated piping and tubing.
11. Bushings: For converting size of thermowell's internal screw thread to size of thermometer connection.

B. Heat-Transfer Medium: Mixture of graphite and glycerin.

2.3 PRESSURE GAGES

A. Direct-Mounted, Metal-Case, Dial-Type Pressure Gages:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
      a. AMETEK, Inc.; U.S. Gauge.
      b. Ashcroft Inc.
      c. Ernst Flow Industries.
      d. Flo Fab Inc.
      e. Marsh Bellofram.
      f. Miljoco Corporation.
      g. Noshok.
      h. Palmer Wahl Instrumentation Group.
      i. REOTEMP Instrument Corporation.
      j. Tel-Tru Manufacturing Company.
      k. Trerice, H. O. Co.
      l. Watts Regulator Co.; a div. of Watts Water Technologies, Inc.
      m. Weiss Instruments, Inc.
      n. WIKA Instrument Corporation - USA.
      o. Winters Instruments - U.S.

   3. Case: [Liquid-filled type(s); cast aluminum or drawn steel; 4-1/2-inch nominal diameter.
   4. Pressure-Element Assembly: Bourdon tube unless otherwise indicated.
   5. Pressure Connection: Brass, with NPS 1/4, ASME B1.20.1 pipe threads and bottom-outlet type unless back-outlet type is indicated.
   6. Movement: Mechanical, with link to pressure element and connection to pointer.
   7. Dial: Nonreflective aluminum with permanently etched scale markings graduated in psi and kPa.
   10. Ring: Metal.
   11. Accuracy: Grade A, plus or minus 1 percent of middle half of scale range.

2.4 GAGE ATTACHMENTS

A. Snubbers: ASME B40.100, brass; with NPS 1/4, ASME B1.20.1 pipe threads and piston-type surge-dampening device. Include extension for use on insulated piping.

B. Siphons: Loop-shaped section of brass pipe with NPS 1/4 pipe threads.

C. Valves: Brass ball, with NPS 1/4, ASME B1.20.1 pipe threads.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

2.5 TEST PLUGS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Flow Design, Inc.
4. Peterson Equipment Co., Inc.
5. Sisco Manufacturing Company, Inc.
6. Trerice, H. O. Co.
7. Watts Regulator Co.; a div. of Watts Water Technologies, Inc.
8. Weiss Instruments, Inc.

B. Description: Test-station fitting made for insertion into piping tee fitting.

C. Body: Brass or stainless steel with core inserts and gasketed and threaded cap. Include extended stem on units to be installed in insulated piping.

D. Thread Size: NPS 1/4, ASME B1.20.1 pipe thread.

E. Minimum Pressure and Temperature Rating: 500 psig at 200 deg F.

F. Core Inserts: Chlorosulfonated polyethylene synthetic and EPDM self-sealing rubber.

2.6 TEST-PLUG KITS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Flow Design, Inc.
4. Peterson Equipment Co., Inc.
5. Sisco Manufacturing Company, Inc.
6. Trerice, H. O. Co.
7. Watts Regulator Co.; a div. of Watts Water Technologies, Inc.
8. Weiss Instruments, Inc.

B. Furnish one test-plug kit(s) containing two thermometer(s), one pressure gage and adapter, and carrying case. Thermometer sensing elements, pressure gage, and adapter probes shall be of diameter to fit test plugs and of length to project into piping.

C. High-Range Thermometer: Small, bimetallic insertion type with 1- to 2-inch-diameter dial and tapered-end sensing element. Dial range shall be at least 0 to 220 deg F.

D. Pressure Gage: Small, Bourdon-tube insertion type with 2- to 3-inch-diameter dial and probe. Dial range shall be at least 0 to 200 psig.

E. Carrying Case: Metal or plastic, with formed instrument padding.
PART 3 - EXECUTION

3.1 INSTALLATION

A. Install thermowells with socket extending a minimum of 2 inches into fluid and in vertical position in piping tees.

B. Install thermowells of sizes required to match thermometer connectors. Include bushings if required to match sizes.

C. Install thermowells with extension on insulated piping.

D. Fill thermowells with heat-transfer medium.

E. Install direct-mounted thermometers in thermowells and adjust vertical and tilted positions.

F. Install remote-mounted thermometer bulbs in thermowells and install cases on panels; connect cases with tubing and support tubing to prevent kinks. Use minimum tubing length.

G. Install duct-thermometer mounting brackets in walls of ducts. Attach to duct with screws.

H. Install direct-mounted pressure gages in piping tees with pressure gage located on pipe at the most readable position.

I. Install remote-mounted pressure gages on panel.

J. Install valve and snubber in piping for each pressure gage for fluids (except steam).

K. Install valve and syphon fitting in piping for each pressure gage for steam.

L. Install test plugs in piping tees.

M. Install flow indicators in piping systems in accessible positions for easy viewing.

N. Assemble and install connections, tubing, and accessories between flow-measuring elements and flowmeters according to manufacturer's written instructions.

O. Install thermometers in the following locations:

1. Inlet and outlet of each hydronic zone.
2. Two inlets and two outlets of each hydronic heat exchanger.

P. Install pressure gages in the following locations:

1. Discharge of each pressure-reducing valve.
2. Suction and discharge of each pump.
3.2 CONNECTIONS

A. Install meters and gages adjacent to machines and equipment to allow service and maintenance of meters, gages, machines, and equipment.

3.3 ADJUSTING

A. After installation, calibrate meters according to manufacturer's written instructions.
B. Adjust faces of meters and gages to proper angle for best visibility.

3.4 THERMOMETER SCHEDULE

A. Thermometers at inlet and outlet of each hydronic zone shall be one of the following:
   1. Liquid-filled, bimetallic-actuated type.
   4. Test plug with chlorosulfonated polyethylene synthetic self-sealing rubber inserts.

B. Thermometers at inlets and outlets of each hydronic heat exchanger shall be one of the following:
   1. Liquid-filled, bimetallic-actuated type.
   4. Direct plug with chlorosulfonated polyethylene synthetic self-sealing rubber inserts.

C. Thermometer stems shall be of length to match thermowell insertion length.

3.5 THERMOMETER SCALE-RANGE SCHEDULE

A. Scale Range for Heating, Hot-Water Piping: 0 to 250 deg F.
B. Scale Range for Steam and Steam-Condensate Piping: 0 to 250 deg F.

3.6 PRESSURE-GAGE SCHEDULE

A. Pressure gages at discharge of each pressure-reducing valve shall be one of the following:
   1. Liquid-filled, direct-mounted, metal case.
   2. Test plug with chlorosulfonated polyethylene synthetic self-sealing rubber inserts.

B. Pressure gages at suction and discharge of each pump shall be one of the following:
   1. Liquid-filled, direct-mounted, metal case.
   2. Test plug with chlorosulfonated polyethylene synthetic self-sealing rubber inserts.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

3.7 PRESSURE-GAGE SCALE-RANGE SCHEDULE

A. Scale Range for Heating, Hot-Water Piping: 0 to 30 psi.

B. Scale Range for Steam Piping: 0 to 30 psi.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Bronze ball valves.
   2. Bronze swing check valves.

1.3 DEFINITIONS

A. CWP: Cold working pressure.

B. EPDM: Ethylene propylene copolymer rubber.

C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

D. NRS: Nonrising stem.

E. OS&Y: Outside screw and yoke.

F. RS: Rising stem.

G. SWP: Steam working pressure.

1.4 SUBMITTALS

A. Product Data: For each type of valve indicated.

1.5 QUALITY ASSURANCE

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:
1. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
2. ASME B31.1 for power piping valves.
3. ASME B31.9 for building services piping valves.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:
   1. Protect internal parts against rust and corrosion.
   2. Protect threads, flange faces, grooves, and weld ends.
   3. Set angle, gate, and globe valves closed to prevent rattling.
   4. Set ball and plug valves open to minimize exposure of functional surfaces.
   5. Block check valves in either closed or open position.

B. Use the following precautions during storage:
   1. Maintain valve end protection.
   2. Store valves indoors and maintain at higher than ambient dew point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

A. Refer to HVAC valve schedule articles for applications of valves.

B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

C. Valve Sizes: Same as upstream piping unless otherwise indicated.

D. Valve Actuator Types:
   1. Handwheel: For valves other than quarter-turn types.
   2. Handlever: For quarter-turn valves NPS 6 and smaller.

E. Valves in Insulated Piping: With 2-inch stem extensions and the following features:
   1. Gate Valves: With rising stem.
   2. Ball Valves: With extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.

F. Valve-End Connections:
   1. Flanged: With flanges according to ASME B16.1 for iron valves.
   2. Threaded: With threads according to ASME B1.20.1.
G. Valve Bypass and Drain Connections: MSS SP-45.

2.2 BRONZE BALL VALVES

A. Two-Piece, Full-Port, Bronze Ball Valves with Bronze Trim:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. American Valve, Inc.
   b. Conbraco Industries, Inc.; Apollo Valves.
   c. Crane Co.; Crane Valve Group; Crane Valves.
   d. Hammond Valve.
   e. Lance Valves; a division of Advanced Thermal Systems, Inc.
   f. Legend Valve.
   g. Milwaukee Valve Company.
   h. NIBCO INC.
   i. Red-White Valve Corporation.
   j. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Description:
   b. SWP Rating: 150 psig.
   c. CWP Rating: 600 psig.
   d. Body Design: Two piece.
   e. Body Material: Bronze.
   f. Ends: Threaded.
   g. Seats: PTFE or TFE.
   h. Stem: Bronze.
   i. Ball: Chrome-plated brass.
   j. Port: Full.

2.3 BRONZE SWING CHECK VALVES

A. Class 150, Bronze Swing Check Valves with Bronze Disc:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. American Valve, Inc.
   b. Crane Co.; Crane Valve Group; Crane Valves.
   c. Crane Co.; Crane Valve Group; Jenkins Valves.
   d. Crane Co.; Crane Valve Group; Stockham Division.
   e. Kitz Corporation.
   f. Milwaukee Valve Company.
   g. NIBCO INC.
   h. Red-White Valve Corporation.
   i. Zy-Tech Global Industries, Inc.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

2. Description:
   a. Standard: MSS SP-80, Type 3.
   b. CWP Rating: 300 psig.
   c. Body Design: Horizontal flow.
   e. Ends: Threaded.
   f. Disc: Bronze.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove
      special packing materials, such as blocks, used to prevent disc movement during shipping and
      handling.

   B. Operate valves in positions from fully open to fully closed. Examine guides and seats made
      accessible by such operations.

   C. Examine threads on valve and mating pipe for form and cleanliness.

   D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper
      size, length, and material. Verify that gasket is of proper size, that its material composition is
      suitable for service, and that it is free from defects and damage.

   E. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE INSTALLATION
   A. Install valves with unions or flanges at each piece of equipment arranged to allow service,
      maintenance, and equipment removal without system shutdown.

   B. Locate valves for easy access and provide separate support where necessary.

   C. Install valves in horizontal piping with stem at or above center of pipe.

   D. Install valves in position to allow full stem movement.

   E. Install check valves for proper direction of flow and as follows:
      1. Swing Check Valves: In horizontal position with hinge pin level.

3.3 ADJUSTING
   A. Adjust or replace valve packing after piping systems have been tested and put into service but
      before final adjusting and balancing. Replace valves if persistent leaking occurs.
3.4 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

A. If valve applications are not indicated, use the following:

1. Shutoff Service: Ball, butterfly, or gate valves.
3. Throttling Service except Steam: Globeor ball valves.
4. Throttling Service, Steam: Globe or angle valves.
5. Pump-Discharge Check Valves:
   a. NPS 2 (DN 50) and Smaller: Bronze swing check valves with bronze disc.

B. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP classes or CWP ratings may be substituted.

C. Select valves, except wafer types, with the following end connections:

1. For Copper Tubing, NPS 2 and Smaller: Threaded ends except where solder-joint valve-end option is indicated in valve schedules below.

3.5 HEATING-WATER VALVE SCHEDULE

A. Pipe NPS 2 (DN 50) and Smaller:

1. Bronze Valve: May be provided with solder-joint ends instead of threaded ends.
2. Ball Valves: Two piece, full port, bronze with brass trim.
3. Bronze Swing Check Valves: Class 150, bronze disc.
4. Bronze Gate Valves: Class 150, RS.
5. Bronze Globe Valves: Class 150, bronze disc.

3.6 LOW-PRESSURE STEAM VALVE SCHEDULE (15 PSIG OR LESS)

A. Pipe NPS 2 and Smaller:

1. Ball Valves: Two piece, full port, bronze with brass trim.
2. Bronze Swing Check Valves: Class 150, bronze disc.
3. Bronze Gate Valves: Class 150, RS.

3.7 STEAM-CONDENSATE VALVE SCHEDULE

A. Pipe NPS 2 and Smaller:

1. Ball Valves: Two piece, full port, bronze with brass trim.
2. Bronze Swing Check Valves: Class 150, bronze disc.
3. Bronze Gate Valves: Class 150, RS.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 230529
HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Metal pipe hangers and supports.
   2. Trapeze pipe hangers.
   3. Fastener systems.
   4. Equipment supports.

B. Related Sections:
   1. Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment" for vibration isolation devices.
   2. Division 23 Section(s) "Metal Ducts" for duct hangers and supports.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society of The Valve and Fittings Industry Inc.

1.4 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design trapeze pipe hangers and equipment supports, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Hangers and supports for HVAC piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

   1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
   2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
   3. Design seismic-restraint hangers and supports for piping and equipment.
1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following; include Product Data for components:
   1. Trapeze pipe hangers.
   2. Equipment supports.

C. Delegated-Design Submittal: For trapeze hangers indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
   1. Detail fabrication and assembly of trapeze hangers.
   2. Design Calculations: Calculate requirements for designing trapeze hangers.

D. Welding certificates.

1.6 QUALITY ASSURANCE

A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

PART 2 - PRODUCTS

2.1 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:
   1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
   2. Galvanized Metallic Coatings: Pregalvanized or hot dipped.
   3. Nonmetallic Coatings: Plastic coating, jacket, or liner.
   4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.

2.2 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural carbon-steel shapes with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.
2.3 THERMAL-HANGER SHIELD INSERTS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Carpenter & Paterson, Inc.
3. ERICO International Corporation.
5. PHS Industries, Inc.
6. Pipe Shields, Inc.; a subsidiary of Piping Technology & Products, Inc.
7. Piping Technology & Products, Inc.
8. Rilco Manufacturing Co., Inc.
9. Value Engineered Products, Inc.

B. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate with 100-psig minimum compressive strength.

C. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

D. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

E. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.4 FASTENER SYSTEMS

A. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

2.5 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT INSTALLATION

A. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

B. Fastener System Installation:
   1. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
C. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.


E. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

F. Install lateral bracing with pipe hangers and supports to prevent swaying.

G. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

H. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

I. Insulated Piping:
   1. Attach clamps and spacers to piping.
      a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
      b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
      c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
   2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
      a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
   3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
   4. Shield Dimensions for Pipe: Not less than the following:
      a. NPS 1/4 to NPS 3-1/: 12 inches long and 0.048 inch thick.
   5. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.2 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make bearing surface smooth.

C. Provide lateral bracing, to prevent swaying, for equipment supports.
3.3 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.4 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
   1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.

B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Division 09 painting Sections.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

3.6 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.
C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports and attachments for general service applications.

F. Use copper-plated pipe hangers and copper or stainless-steel attachments for copper piping and tubing.

G. Use padded hangers for piping that is subject to scratching.

H. Use thermal-hanger shield inserts for insulated piping and tubing.

I. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.

J. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
   2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.

K. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
   2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.

L. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
   2. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
   3. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
   4. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
   5. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
   6. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
   7. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
   8. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
9. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:
   a. Light (MSS Type 31): 750 lb.
   b. Medium (MSS Type 32): 1500 lb.

10. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.

M. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
   1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
   2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
   3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

N. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.

O. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system Sections.

P. Use mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 230553
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Equipment labels.
   2. Pipe labels.
   3. Duct labels.
   4. Stencils.
   5. Valve tags.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

D. Valve numbering scheme.

E. Valve Schedules: For each piping system to include in maintenance manuals.

1.4 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.
2.1 EQUIPMENT LABELS

A. Metal Labels for Equipment:
   1. Material and Thickness: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
   2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
   3. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
   5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified.

C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to partially cover circumference of pipe and to attach to pipe without fasteners or adhesive.

C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
   1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
   2. Lettering Size: At least 1-1/2 inches high.

2.3 DUCT LABELS

A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
B. Letter Color: Black.

C. Background Color: Blue.

D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

G. Fasteners: Stainless-steel rivets or self-tapping screws.

H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

I. Duct Label Contents: Include identification of duct service using same designations or abbreviations as used on Drawings, duct size, and an arrow indicating flow direction.
   1. Flow-Direction Arrows: Integral with duct system service lettering to accommodate both directions, or as separate unit on each duct label to indicate flow direction.
   2. Lettering Size: At least 1-1/2 inches high.

2.4 STENCILS

A. Stencils: Prepared with letter sizes according to ASME A13.1 for piping; minimum letter height of 1-1/4 inches for ducts; and minimum letter height of 3/4 inch for equipment labels and similar operational instructions.
   2. Stencil Paint: Exterior, gloss, alkyd enamelblack unless otherwise indicated. Paint may be in pressurized spray-can form.
   3. Identification Paint: Exterior, alkyd enamelin colors according to ASME A13.1 unless otherwise indicated.

2.5 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers.
   1. Tag Material: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
   2. Fasteners: Brass wire-link or beaded chain; or S-hook.
PART 3 - EXECUTION

3.1 PREPARATION
A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION
A. Install or permanently fasten labels on each major item of mechanical equipment.
B. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION
A. Piping Color-Coding: Painting of piping is specified in Division 09 Section "Interior Painting."
B. Stenciled Pipe Label Option: Stenciled labels may be provided instead of manufactured pipe labels, at Installer's option. Install stenciled pipe labels with painted, color-coded bands or rectangles on each piping system.
   1. Identification Paint: Use for contrasting background.
C. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
   1. Near each valve and control device.
   2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
   3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
   4. At access doors, manholes, and similar access points that permit view of concealed piping.
   5. Near major equipment items and other points of origination and termination.
   6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
D. Pipe Label Color Schedule:
   1. Heating Water Piping:
      a. Background Color: Red.
      b. Letter Color: Black.
   2. Low-Pressure Steam Piping:
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

a. Background Color: Yellow.
b. Letter Color: Black.

3. Steam Condensate Piping:

a. Background Color: Yellow.
b. Letter Color: Black.

3.4 DUCT LABEL INSTALLATION

A. Install plastic-laminated duct labels with permanent adhesive on air ducts in the following color codes:

1. Blue: For cold-air supply ducts.
2. Yellow: For hot-air supply ducts.
4. ASME A13.1 Colors and Designs: For hazardous material exhaust.

B. Stenciled Duct Label Option: Stenciled labels, showing service and flow direction, may be provided instead of plastic-laminated duct labels, at Installer's option, if lettering larger than 1 inch high is needed for proper identification because of distance from normal location of required identification.

C. Locate labels near points where ducts enter into concealed spaces and at maximum intervals of 50 feet in each space where ducts are exposed or concealed by removable ceiling system.

END OF SECTION 230553
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 230593
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Balancing Air Systems:
      a. Constant-volume air systems.
   2. Balancing Hydronic Piping Systems:
      a. Constant-flow hydronic systems.

1.3 DEFINITIONS
C. TAB: Testing, adjusting, and balancing.
D. TABB: Testing, Adjusting, and Balancing Bureau.
E. TAB Specialist: An entity engaged to perform TAB Work.

1.4 SUBMITTALS
A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB contractor and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

D. Certified TAB reports.

E. Sample report forms.

F. Instrument calibration reports, to include the following:
   1. Instrument type and make.
   2. Serial number.
   3. Application.
   4. Dates of use.
   5. Dates of calibration.

1.5 QUALITY ASSURANCE

A. TAB Contractor Qualifications: Engage a TAB entity certified by NEBB or TABB.
   1. TAB Field Supervisor: Employee of the TAB contractor and certified by NEBB or TABB.
   2. TAB Technician: Employee of the TAB contractor and who is certified by NEBB or TABB as a TAB technician.

B. TAB Conference: Meet with Owner on approval of the TAB strategies and procedures plan to develop a mutual understanding of the details. Require the participation of the TAB field supervisor and technicians. Provide seven days' advance notice of scheduled meeting time and location.
   1. Agenda Items:
      b. The TAB plan.
      c. Coordination and cooperation of trades and subcontractors.
      d. Coordination of documentation and communication flow.

C. Certify TAB field data reports and perform the following:
   1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
   2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.

D. TAB Report Forms: Use standard TAB contractor's forms approved by Owner.

E. Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation."
1.6 PROJECT CONDITIONS

A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

B. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

1.7 COORDINATION

A. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.

B. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

B. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.

C. Examine the approved submittals for HVAC systems and equipment.

D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine equipment performance data including fan and pump curves.

1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.

2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

F. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

G. Examine test reports specified in individual system and equipment Sections.

H. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

I. Examine three-way valves for proper installation for their intended function of diverting or mixing fluid flows.

J. Examine heat-transfer coils for correct piping connections and for clean and straight fins.

K. Examine system pumps to ensure absence of entrained air in the suction piping.

L. Examine operating safety interlocks and controls on HVAC equipment.

M. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Prepare a TAB plan that includes strategies and step-by-step procedures.

B. Complete system-readiness checks and prepare reports. Verify the following:

   1. Permanent electrical-power wiring is complete.
   2. Hydronic systems are filled, clean, and free of air.
   3. Automatic temperature-control systems are operational.
   4. Balance dampers are open.
   5. Isolating and balancing valves are open and control valves are operational.
   6. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
   7. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.


B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.

2. After testing and balancing, install test ports and duct access doors that comply with requirements in Division 23 Section "Air Duct Accessories."

3. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Division 23 Section "HVAC Insulation."

C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' "as-built" duct layouts.

C. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

D. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

E. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

F. Verify that motor starters are equipped with properly sized thermal protection.

G. Check dampers for proper position to achieve desired airflow path.

H. Check for airflow blockages.

I. Check condensate drains for proper connections and functioning.

J. Check for proper sealing of air-handling-unit components.

K. Verify that air duct system is sealed as specified in Division 23 Section "Metal Ducts."

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

1. Measure total airflow.

   a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.
2. Measure fan static pressures as follows to determine actual static pressure:
   a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
   b. Measure static pressure directly at the fan outlet or through the flexible connection.
   c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.

3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
   a. 

4. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.

5. Obtain approval from Owner for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in Division 23 Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.

6. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, and any other operating mode to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.

1. Measure airflow of submain and branch ducts.
   a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.

2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.
3. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.

C. Measure air outlets and inlets without making adjustments.

1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.

D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.
1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.

2. Adjust patterns of adjustable outlets for proper distribution without drafts.

3.6 GENERAL PROCEDURES FOR HYDRONIC SYSTEMS

A. Prepare test reports with pertinent design data, and number in sequence starting at pump to end of system. Check the sum of branch-circuit flows against the approved pump flow rate. Correct variations that exceed plus or minus 5 percent.

B. Prepare schematic diagrams of systems' "as-built" piping layouts.

C. Prepare hydronic systems for testing and balancing according to the following, in addition to the general preparation procedures specified above:

1. Open all manual valves for maximum flow.
2. Check liquid level in expansion tank.
3. Check makeup water-station pressure gage for adequate pressure for highest vent.
4. Check flow-control valves for specified sequence of operation, and set at indicated flow.
5. Set differential-pressure control valves at the specified differential pressure. Do not set at fully closed position when pump is positive-displacement type unless several terminal valves are kept open.
6. Set system controls so automatic valves are wide open to heat exchangers.
7. Check pump-motor load. If motor is overloaded, throttle main flow-balancing device so motor nameplate rating is not exceeded.
8. Check air vents for a forceful liquid flow exiting from vents when manually operated.

3.7 PROCEDURES FOR CONSTANT-FLOW HYDRONIC SYSTEMS

A. Measure water flow at pumps. Use the following procedures except for positive-displacement pumps:

1. Verify impeller size by operating the pump with the discharge valve closed. Read pressure differential across the pump. Convert pressure to head and correct for differences in gage heights. Note the point on manufacturer's pump curve at zero flow and verify that the pump has the intended impeller size.
   a. If impeller sizes must be adjusted to achieve pump performance, obtain approval from Owner and comply with requirements in Division 23 Section "Hydronic Pumps."

2. Check system resistance. With all valves open, read pressure differential across the pump and mark pump manufacturer's head-capacity curve. Adjust pump discharge valve until indicated water flow is achieved.
   a. Monitor motor performance during procedures and do not operate motors in overload conditions.
3. Verify pump-motor brake horsepower. Calculate the intended brake horsepower for the system based on pump manufacturer's performance data. Compare calculated brake horsepower with nameplate data on the pump motor. Report conditions where actual amperage exceeds motor nameplate amperage.

4. Report flow rates that are not within plus or minus 10 percent of design.

B. Measure flow at all automatic flow control valves to verify that valves are functioning as designed.

C. Measure flow at all pressure-independent characterized control valves, with valves in fully open position, to verify that valves are functioning as designed.

D. Set calibrated balancing valves, if installed, at calculated presettings.

E. Measure flow at all stations and adjust, where necessary, to obtain first balance.

   1. System components that have Cv rating or an accurately cataloged flow-pressure-drop relationship may be used as a flow-indicating device.

F. Measure flow at main balancing station and set main balancing device to achieve flow that is 5 percent greater than indicated flow.

G. Adjust balancing stations to within specified tolerances of indicated flow rate as follows:

   1. Determine the balancing station with the highest percentage over indicated flow.
   2. Adjust each station in turn, beginning with the station with the highest percentage over indicated flow and proceeding to the station with the lowest percentage over indicated flow.
   3. Record settings and mark balancing devices.

H. Measure pump flow rate and make final measurements of pump amperage, voltage, rpm, pump heads, and systems' pressures and temperatures including outdoor-air temperature.

I. Measure the differential-pressure-control-valve settings existing at the conclusion of balancing.

J. Check settings and operation of each safety valve. Record settings.

3.8 PROCEDURES FOR STEAM SYSTEMS

A. Measure and record upstream and downstream pressure of each piece of equipment.

B. Measure and record upstream and downstream steam pressure of pressure-reducing valves.

C. Check settings and operation of automatic temperature-control valves, self-contained control valves, and pressure-reducing valves. Record final settings.

D. Check settings and operation of each safety valve. Record settings.

E. Verify the operation of each steam trap.
3.9 PROCEDURES FOR HEAT EXCHANGERS

A. Measure water flow through all circuits.
B. Adjust water flow to within specified tolerances.
C. Measure inlet and outlet water temperatures.
D. Measure inlet steam pressure.
E. Check settings and operation of safety and relief valves. Record settings.

3.10 PROCEDURES FOR MOTORS

A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
   1. Manufacturer's name, model number, and serial number.
   4. Efficiency rating.
   5. Nameplate and measured voltage, each phase.
   6. Nameplate and measured amperage, each phase.
   7. Starter thermal-protection-element rating.

B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass of the controller to prove proper operation. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

3.11 PROCEDURES FOR TESTING, ADJUSTING, AND BALANCING EXISTING SYSTEMS

A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.
   1. Measure and record the operating speed, airflow, and static pressure of each fan.
   2. Measure motor voltage and amperage. Compare the values to motor nameplate information.
   3. Check the refrigerant charge.
   4. Check the condition of filters.
   5. Check the condition of coils.
   6. Check the operation of the drain pan and condensate-drain trap.
   7. Check bearings and other lubricated parts for proper lubrication.

B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:
   1. New filters are installed.
2. Coils are clean and fins combed.
3. Drain pans are clean.
4. Fans are clean.
5. Bearings and other parts are properly lubricated.
6. Deficiencies noted in the preconstruction report are corrected.

C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.

1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.
2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
3. If calculations increase or decrease the airflow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
4. Balance each air outlet.

3.12 TOLERANCES

A. Set HVAC system's air flow rates and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.
2. Air Outlets and Inlets: Plus or minus 10 percent.
3. Heating-Water Flow Rate: Plus or minus 10 percent.

3.13 REPORTING

A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.

B. Status Reports: Prepare weekly progress reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

3.14 FINAL REPORT

A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

2. Include a list of instruments used for procedures, along with proof of calibration.

B. Final Report Contents: In addition to certified field-report data, include the following:

1. Pump curves.
2. Fan curves.
3. Manufacturers' test data.
4. Field test reports prepared by system and equipment installers.
5. Other information relative to equipment performance; do not include Shop Drawings and product data.

C. General Report Data: In addition to form titles and entries, include the following data:

1. Title page.
2. Name and address of the TAB contractor.
3. Project name.
4. Project location.
5. Architect's name and address.
6. Engineer's name and address.
7. Contractor's name and address.
9. Signature of TAB supervisor who certifies the report.
10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
11. Summary of contents including the following:
   a. Indicated versus final performance.
   b. Notable characteristics of systems.
   c. Description of system operation sequence if it varies from the Contract Documents.

12. Nomenclature sheets for each item of equipment.
13.
14. Notes to explain why certain final data in the body of reports vary from indicated values.
15. Test conditions for fans and pump performance forms including the following:
   a. Settings for outdoor-, return-, and exhaust-air dampers.
   b. Conditions of filters.
   c. Cooling coil, wet- and dry-bulb conditions.
   d. Face and bypass damper settings at coils.
   e. Fan drive settings including settings and percentage of maximum pitch diameter.
   f. Inlet vane settings for variable-air-volume systems.
   g. Settings for supply-air, static-pressure controller.
   h. Other system operating conditions that affect performance.

D. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:

1. Quantities of outdoor, supply, return, and exhaust airflows.
2. Water and steam flow rates.
3. Duct, outlet, and inlet sizes.
4. Pipe and valve sizes and locations.
5. Balancing stations.

E. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:

1. Unit Data:
   a. Unit identification.
   b. Location.
   c. Make and type.
   d. Model number and unit size.
   e. Manufacturer's serial number.
   f. Unit arrangement and class.
   g. Discharge arrangement.
   h. Sheave make, size in inches, and bore.
   i. Center-to-center dimensions of sheave, and amount of adjustments in inches.
   j. Number, make, and size of belts.
   k. Number, type, and size of filters.

2. Motor Data:
   a. Motor make, and frame type and size.
   b. Horsepower and rpm.
   c. Volts, phase, and hertz.
   d. Full-load amperage and service factor.
   e. Sheave make, size in inches, and bore.
   f. Center-to-center dimensions of sheave, and amount of adjustments in inches.

3. Test Data (Indicated and Actual Values):
   a. Total airflow rate in cfm.
   b. Total system static pressure in inches wg.
   c. Fan rpm.
   d. Discharge static pressure in inches wg.
   e. Filter static-pressure differential in inches wg.
   f. Preheat-coil static-pressure differential in inches wg.
   g. Cooling-coil static-pressure differential in inches wg.
   h. Heating-coil static-pressure differential in inches wg.
   i. Outdoor airflow in cfm.
   j. Return airflow in cfm.
   k. Outdoor-air damper position.
   l. Return-air damper position.
   m. Vortex damper position.

F. Apparatus-Coil Test Reports:

1. Coil Data:
   a. System identification.
   b. Location.
c. Coil type.
d. Number of rows.
e. Fin spacing in fins per inch o.c.
f. Make and model number.
g. Face area in sq. ft.
h. Tube size in NPS.
i. Tube and fin materials.
j. Circuiting arrangement.

2. Test Data (Indicated and Actual Values):
   a. Air flow rate in cfm.
   b. Average face velocity in fpm.
   c. Air pressure drop in inches wg.
   d. Outdoor-air, wet- and dry-bulb temperatures in deg F.
   e. Return-air, wet- and dry-bulb temperatures in deg F.
   f. Entering-air, wet- and dry-bulb temperatures in deg F.
   g. Leaving-air, wet- and dry-bulb temperatures in deg F.
   h. Water flow rate in gpm.
   i. Water pressure differential in feet of head or psig.
   j. Entering-water temperature in deg F.
   k. Leaving-water temperature in deg F.
   l. Refrigerant expansion valve and refrigerant types.
   m. Refrigerant suction pressure in psig.
   n. Refrigerant suction temperature in deg F.
   o. Inlet steam pressure in psig.

G. Fan Test Reports: For supply, return, and exhaust fans, include the following:

1. Fan Data:
   a. System identification.
   b. Location.
   c. Make and type.
   d. Model number and size.
   e. Manufacturer's serial number.
   f. Arrangement and class.
   g. Sheave make, size in inches, and bore.
   h. Center-to-center dimensions of sheave, and amount of adjustments in inches.

2. Motor Data:
   a. Motor make, and frame type and size.
   b. Horsepower and rpm.
   c. Volts, phase, and hertz.
   d. Full-load amperage and service factor.
   e. Sheave make, size in inches, and bore.
   f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
   g. Number, make, and size of belts.

3. Test Data (Indicated and Actual Values):
FAIRMONT CAMPUS BUILDING C & E  
MAKE READY IMPROVEMENTS

a. Total airflow rate in cfm.
b. Total system static pressure in inches wg.
c. Fan rpm.
d. Discharge static pressure in inches wg.
e. Suction static pressure in inches wg.

H. Round, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:

1. Report Data:
   a. System and air-handling-unit number.
   b. Location and zone.
   c. Traverse air temperature in deg F.
   d. Duct static pressure in inches wg.
   e. Duct size in inches.
   f. Duct area in sq. ft..
   g. Indicated air flow rate in cfm.
   h. Indicated velocity in fpm.
   i. Actual air flow rate in cfm.
   j. Actual average velocity in fpm.
   k. Barometric pressure in psig.

2. Test Data (Indicated and Actual Values):
   a. Air flow rate in cfm.
   b. Entering-water temperature in deg F.
   c. Leaving-water temperature in deg F.
   d. Water pressure drop in feet of head or psig.
   e. Entering-air temperature in deg F.
   f. Leaving-air temperature in deg F.

I. Pump Test Reports: Calculate impeller size by plotting the shutoff head on pump curves and include the following:

1. Unit Data:
   a. Unit identification.
   b. Location.
   c. Service.
   d. Make and size.
   e. Model number and serial number.
   f. Water flow rate in gpm.
   g. Water pressure differential in feet of head or psig.
   h. Required net positive suction head in feet of head or psig.
   i. Pump rpm.
   j. Impeller diameter in inches.
   k. Motor make and frame size.
   l. Motor horsepower and rpm.
   m. Voltage at each connection.
   n. Amperage for each phase.
2. Test Data (Indicated and Actual Values):
   a. Static head in feet of head or psig.
   b. Pump shutoff pressure in feet of head or psig.
   c. Actual impeller size in inches.
   d. Full-open flow rate in gpm.
   e. Full-open pressure in feet of head or psig.
   f. Final discharge pressure in feet of head or psig.
   g. Final suction pressure in feet of head or psig.
   h. Final total pressure in feet of head or psig.
   i. Final water flow rate in gpm.
   j. Voltage at each connection.
   k. Amperage for each phase.

J. Instrument Calibration Reports:
   1. Report Data:
      a. Instrument type and make.
      b. Serial number.
      c. Application.
      d. Dates of use.
      e. Dates of calibration.

3.15 INSPECTIONS

A. Initial Inspection:
   1. After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the final report.
   2. Check the following for each system:
      a. Measure airflow of at least 10 percent of air outlets.
      b. Measure water flow of at least 5 percent of terminals.
      c. Measure room temperature at each thermostat/temperature sensor. Compare the reading to the set point.
      d. Verify that balancing devices are marked with final balance position.
      e. Note deviations from the Contract Documents in the final report.

B. Final Inspection:
   1. After initial inspection is complete and documentation by random checks verifies that testing and balancing are complete and accurately documented in the final report, request that a final inspection be made by Owner.
   2. The TAB contractor's test and balance engineer shall conduct the inspection in the presence of Owner.
3. Owner shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.

4. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."

5. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

C. TAB Work will be considered defective if it does not pass final inspections. If TAB Work fails, proceed as follows:

1. Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.
2. If the second final inspection also fails, Owner may contract the services of another TAB contractor to complete TAB Work according to the Contract Documents and deduct the cost of the services from the original TAB contractor's final payment.

D. Prepare test and inspection reports.

3.16 ADDITIONAL TESTS

A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

END OF SECTION 230593
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 23 07 00
HVAC INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Insulation Materials:
      a. Mineral fiber.
   2. Adhesives.
   3. Lagging adhesives.
   4. Factory-applied jackets.
   5. Field-applied jackets.
   6. Tapes.
B. Related Sections:
   1. Division 23 Section "Metal Ducts" for duct liners.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).
B. Shop Drawings:
   1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
   2. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.
   3. Detail removable insulation at piping specialties, equipment connections, and access panels.
   4. Detail application of field-applied jackets.
C. Qualification Data: For qualified Installer.
D. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.
1.4 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment."

B. Coordinate clearance requirements with piping Installer for piping insulation application, duct Installer for duct insulation application, and equipment Installer for equipment insulation application. Before preparing piping and ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

C. Coordinate installation and testing of heat tracing.

1.7 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.
PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Mineral-Fiber, Preformed Pipe Insulation:
   1. Type I, 850 deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

2.2 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.


D. PVC Jacket Adhesive: Compatible with PVC jacket.

2.3 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C Class I, Grade A and shall be compatible with insulation materials, jackets, and substrates.

   1. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over duct, equipment, and pipe insulation.
   2. Service Temperature Range: Minus 50 to plus 180 deg F.

2.4 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

   1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.
4. FSP Jacket: Aluminum-foil, fiberglass-reinforced scrim with polyethylene backing; complying with ASTM C 1136, Type II.

2.5 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.
   1. Width: 3 inches.
   2. Thickness: 11.5 mils.
   4. Elongation: 2 percent.
   5. Tensile Strength: 40 lbf/inch in width.
   6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive. Suitable for indoor and outdoor applications.
   1. Width: 2 inches.
   2. Thickness: 6 mils.
   3. Adhesion: 64 ounces force/inch in width.
   4. Elongation: 500 percent.
   5. Tensile Strength: 18 lbf/inch in width.

2.6 SECUREMENTS

A. Bands:
   1. Stainless Steel: ASTM A 167 or ASTM A 240/A 240M, Type 304 or Type 316; 0.015 inch thick, 1/2 inch wide with wing or closed seal.

B. Wire: 0.062-inch soft-annealed, stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.
   1. Verify that systems and equipment to be insulated have been tested and are free of defects.
   2. Verify that surfaces to be insulated are clean and dry.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment, ducts and fittings, and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment, duct system, and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.

3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.

4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets per manufacturer’s recommendations.

M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. For above ambient services, do not install insulation to the following:

1. Vibration-control devices.
2. Testing agency labels and stamps.
3. Nameplates and data plates.
5. Handholes.
6. Cleanouts.

3.3 PENETRATIONS

A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

B. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions. Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.

1. Comply with requirements in Division 07 Section "Penetration Firestopping" and fire-resistive joint sealers.

3.4 GENERAL PIPE INSULATION INSTALLATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:

1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe
insulation by not less than two times the thickness of pipe insulation, or one pipe
diameter, whichever is thicker. For valves, insulate up to and including the bonnets,
valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with
insulating cement.

5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same
material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe
insulation by not less than two times the thickness of pipe insulation, or one pipe
diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating
cement. Insulate strainers so strainer basket flange or plug can be easily removed and
replaced without damaging the insulation and jacket. Provide a removable reusable
insulation cover. For below ambient services, provide a design that maintains vapor
barrier.

6. Insulate flanges and unions using a section of oversized preformed pipe insulation.
Overlap adjoining pipe insulation by not less than two times the thickness of pipe
insulation, or one pipe diameter, whichever is thicker.

7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a
mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for
above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the
mastic to a smooth and well-shaped contour.

8. For services not specified to receive a field-applied jacket except for flexible elastomeric
and polyolefin, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and
unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation
facing using PVC tape.

9. Stencil or label the outside insulation jacket of each union with the word "UNION."
Match size and color of pipe labels.

C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps,
test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels,
and equipment. Shape insulation at these connections by tapering it to and around the
connection with insulating cement and finish with finishing cement, mastic, and flashing
sealant.

D. Install removable insulation covers at locations indicated. Installation shall conform to the
following:

1. Make removable flange and union insulation from sectional pipe insulation of same
thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe
insulation.

2. When flange and union covers are made from sectional pipe insulation, extend insulation
from flanges or union long at least two times the insulation thickness over adjacent pipe
insulation on each side of flange or union. Secure flange cover in place with stainless-
steel or aluminum bands. Select band material compatible with insulation and jacket.

3. Construct removable valve insulation covers in same manner as for flanges except divide
the two-part section on the vertical center line of valve body.

4. When covers are made from block insulation, make two halves, each consisting of
mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached
insulation, to flanges with tie wire. Extend insulation at least 2 inches (50 mm) over
adjacent pipe insulation on each side of valve. Fill space between flange or union cover
and pipe insulation with insulating cement. Finish cover assembly with insulating
cement applied in two coats. After first coat is dry, apply and trowel second coat to a
smooth finish.
5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.5 MINERAL-FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:
   1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
   2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
   3. For insulation with factory-applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.
   4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:
   1. Install preformed pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
   4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:
   1. Install preformed sections of same material as straight segments of pipe insulation when available.
   2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:
   1. Install preformed sections of same material as straight segments of pipe insulation when available.
   2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
   3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
   4. Install insulation to flanges as specified for flange insulation application.

END OF SECTION 230700
SECTION 232113
HYDRONIC PIPING

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. This Section includes pipe and fitting materials, joining methods, special-duty valves, and specialties for the following:
   1. Hot-water heating piping.
   2. Makeup-water piping.
   3. Condensate-drain piping.
   5. Air-vent piping.

B. Related Sections include the following:
   1. Division 23 Section "Hydronic Pumps" for pumps, motors, and accessories for hydronic piping.

1.3 DEFINITIONS
A. PTFE: Polytetrafluoroethylene.
B. RTRF: Reinforced thermosetting resin (fiberglass) fittings.
C. RTRP: Reinforced thermosetting resin (fiberglass) pipe.

1.4 SUBMITTALS
A. Product Data: For each type of the following:
   1. RTRP and RTRF with adhesive.
   2. Pressure-seal fittings.
   3. Valves. Include flow and pressure drop curves based on manufacturer's testing for calibrated-orifice balancing valves and automatic flow-control valves.
   4. Air control devices.
   6. Hydronic specialties.
B. Shop Drawings: Detail, at 1/4 scale, the piping layout, fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to the building structure. Detail location of anchors, alignment guides, and expansion joints and loops.

C. Welding certificates.

D. Qualification Data: For Installer.

E. Field quality-control test reports.

F. Operation and Maintenance Data: For air control devices, hydronic specialties, and special-duty valves to include in emergency, operation, and maintenance manuals.

G. Water Analysis: Submit a copy of the water analysis to illustrate water quality available at Project site.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

B. Steel Support Welding: Qualify processes and operators according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

C. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

D. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp air separators and expansion tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 01.

1.6 EXTRA MATERIALS

A. Water-Treatment Chemicals: Furnish enough chemicals for initial system startup and for preventive maintenance for one year from date of Substantial Completion.

B. Differential Pressure Meter: For each type of balancing valve and automatic flow control valve, include flowmeter, probes, hoses, flow charts, and carrying case.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

PART 2 - PRODUCTS

2.1 COPPER TUBE AND FITTINGS

A. Drawn-Temper Copper Tubing: ASTM B 88, Type L.

B. Wrought-Copper Fittings: ASME B16.22.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
      a. Anvil International, Inc.
      b. S. P. Fittings; a division of Star Pipe Products.
      c. Victaulic Company of America.

C. Wrought-Copper Unions: ASME B16.22.

2.2 JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
   1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
      a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
      b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for joining copper with copper; or BAg-1, silver alloy for joining copper with bronze or steel.

E. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

F. Gasket Material: Thickness, material, and type suitable for fluid to be handled and working temperatures and pressures.

2.3 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper-alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   b. Central Plastics Company.
   d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
   e. Zurn Plumbing Products Group; AquaSpec Commercial Products Division.

2. Factory-fabricated union assembly, for 250-psig minimum working pressure at 220 deg F.

D. Dielectric Flanges:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      b. Central Plastics Company.
      c. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Factory-fabricated companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

E. Dielectric-Flange Kits:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Advance Products & Systems, Inc.
      b. Calpico, Inc.
      c. Central Plastics Company.
      d. Pipeline Seal and Insulator, Inc.

2. Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
3. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.

2.4 VALVES

A. Gate, Globe, Check, Ball, and Butterfly Valves: Comply with requirements specified in Division 23 Section "General-Duty Valves for HVAC Piping."

B. Automatic Temperature-Control Valves, Actuators, and Sensors: Comply with requirements specified in Division 23 Section "Instrumentation and Control for HVAC."

C. Bronze, Calibrated-Orifice, Balancing Valves:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

a. Armstrong Pumps, Inc.
b. Bell & Gossett Domestic Pump; a division of ITT Industries.
c. Flow Design Inc.
d. Gerand Engineering Co.
e. Griswold Controls.
f. Taco.

2. Body: Bronze, ball or plug type with calibrated orifice or venturi.
3. Ball: Brass or stainless steel.
4. Plug: Resin.
5. Seat: PTFE.
6. End Connections: Threaded or socket.
8. Handle Style: Lever, with memory stop to retain set position.
10. Maximum Operating Temperature: 250 deg F.

D. Diaphragm-Operated, Pressure-Reducing Valves:
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

   a. Amtrol, Inc.
   b. Armstrong Pumps, Inc.
   c. Bell & Gossett Domestic Pump; a division of ITT Industries.
   d. Conbraco Industries, Inc.
   e. Spence Engineering Company, Inc.
   f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Body: Bronze or brass.
3. Disc: Glass and carbon-filled PTFE.
5. Stem Seals: EPDM O-rings.
6. Diaphragm: EPT.
7. Low inlet-pressure check valve.
8. Inlet Strainer: Stainless-steel, removable without system shutdown.
10. Valve Size, Capacity, and Operating Pressure: Selected to suit system in which installed, with operating pressure and capacity factory set and field adjustable.

E. Diaphragm-Operated Safety Valves:
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

   a. Amtrol, Inc.
   b. Armstrong Pumps, Inc.
   c. Bell & Gossett Domestic Pump; a division of ITT Industries.
   d. Conbraco Industries, Inc.
   e. Spence Engineering Company, Inc.
   f. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

2. Body: Bronze or brass.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

3. Disc: Glass and carbon-filled PTFE.
5. Stem Seals: EPDM O-rings.
6. Diaphragm: EPT.
8. Inlet Strainer: Stainless-steel, removable without system shutdown.
10. Valve Size, Capacity, and Operating Pressure: Comply with ASME Boiler and Pressure Vessel Code: Section IV, and selected to suit system in which installed, with operating pressure and capacity factory set and field adjustable.

F. Automatic Flow-Control Valves:
1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
   a. Flow Design Inc.
   b. Griswold Controls.
   c. Or approved equal.
2. Body: Brass or ferrous metal.
3. Piston and Spring Assembly: Stainless steel, tamper proof, self cleaning, and removable.
4. Combination Assemblies: Include bronze or brass-alloy ball valve.
5. Identification Tag: Marked with zone identification, valve number, and flow rate.
6. Size: Same as pipe in which installed.
7. Performance: Maintain constant flow, plus or minus 5 percent over system pressure fluctuations.
9. Maximum Operating Temperature: 250 deg F.

2.5 AIR CONTROL DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Amtrol, Inc.
2. Armstrong Pumps, Inc.
3. Bell & Gossett Domestic Pump; a division of ITT Industries.
4. Taco.

B. Manual Air Vents:
1. Body: Bronze.
2. Internal Parts: Nonferrous.
3. Operator: Screwdriver or thumbscrew.
4. Inlet Connection: NPS 1/2.
7. Maximum Operating Temperature: 225 deg F.

C. Automatic Air Vents:
1. Body: Bronze or cast iron.
2. Internal Parts: Nonferrous.
4. Inlet Connection: NPS 1/2.
7. Maximum Operating Temperature: 240 deg F.

D. Diaphragm-Type Expansion Tanks:

1. Tank: Welded steel, rated for 125-psig working pressure and 375 deg F maximum operating temperature. Factory test with taps fabricated and supports installed and labeled according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
2. Diaphragm: Securely sealed into tank to separate air charge from system water to maintain required expansion capacity.

E. In-Line Air Separators:

1. Tank: One-piece cast iron with an integral weir constructed to decelerate system flow to maximize air separation.
3. Maximum Operating Temperature: Up to 300 deg F.

2.6 CHEMICAL TREATMENT

A. Bypass Chemical Feeder: Welded steel construction; 125-psig working pressure; 5-gal. capacity; with fill funnel and inlet, outlet, and drain valves.

1. Chemicals: Specially formulated, based on analysis of makeup water, to prevent accumulation of scale and corrosion in piping and connected equipment.

B. Ethylene and Propylene Glycol: Industrial grade with corrosion inhibitors and environmental-stabilizer additives for mixing with water in systems indicated to contain antifreeze or glycol solutions.

2.7 HYDRONIC PIPING SPECIALTIES

A. Y-Pattern Strainers:

1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
2. End Connections: Threaded ends for NPS 2 and smaller; flanged ends for NPS 2-1/2 and larger.
3. Strainer Screen: 60-mesh startup strainer, and perforated stainless-steel basket with 50 percent free area.

B. Stainless-Steel Bellow, Flexible Connectors:
2. End Connections: Threaded or flanged to match equipment connected.
4. CWP Rating: 150 psig.
5. Maximum Operating Temperature: 250 deg F.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

A. Hot-water heating piping, aboveground, NPS 2 and smaller shall be the following:
   1. Type L, drawn-temper copper tubing, wrought-copper fittings, and soldered joints.

B. Makeup-Water Piping Installed Belowground and within Slabs: Type K (A), annealed-temper copper tubing, wrought-copper fittings, and soldered joints. Use the fewest possible joints.

C. Condensate-Drain Piping: Type M, drawn-temper copper tubing, wrought-copper fittings, and soldered joints.

D. Condensate-Drain Piping: Schedule 40 PVC plastic pipe and fittings and solvent-welded joints.

E. Blowdown-Drain Piping: Same materials and joining methods as for piping specified for the service in which blowdown drain is installed.

F. Air-Vent Piping:
   1. Inlet: Same as service where installed with metal-to-plastic transition fittings for plastic piping systems according to the piping manufacturer's written instructions.
   2. Outlet: Type K (A), annealed-temper copper tubing with soldered or flared joints.

G. Safety-Valve-Inlet and -Outlet Piping for Hot-Water Piping: Same materials and joining methods as for piping specified for the service in which safety valve is installed with metal-to-plastic transition fittings for plastic piping systems according to the piping manufacturer's written instructions.

3.2 VALVE APPLICATIONS

A. Install shutoff-duty valves at each branch connection to supply mains, and at supply connection to each piece of equipment.

B. Install calibrated-orifice, balancing valves at each branch connection to return main.

C. Install calibrated-orifice, balancing valves in the return pipe of each heating or cooling terminal.

D. Install check valves at each pump discharge and elsewhere as required to control flow direction.
E. Install safety valves at hot-water generators and elsewhere as required by ASME Boiler and Pressure Vessel Code. Install drip-pan elbow on safety-valve outlet and pipe without valves to the outdoors; and pipe drain to nearest floor drain or as indicated on Drawings. Comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1, for installation requirements.

F. Install pressure-reducing valves at makeup-water connection to regulate system fill pressure.

3.3 PIPING INSTALLATIONS

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicate piping locations and arrangements if such were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.

I. Install piping to allow application of insulation.

J. Select system components with pressure rating equal to or greater than system operating pressure.

K. Install groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.

L. Install drains, consisting of a tee fitting, NPS 3/4 ball valve, and short NPS 3/4 threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

M. Install piping at a uniform grade of 0.2 percent upward in direction of flow.

N. Reduce pipe sizes using eccentric reducer fitting installed with level side up.

O. Install branch connections to mains using mechanically formed tee fittings in main pipe, with the branch connected to the bottom of the main pipe. For up-feed risers, connect the branch to the top of the main pipe.
P. Install valves according to Division 23 Section "General-Duty Valves for HVAC Piping."

Q. Install unions in piping, NPS 2 and smaller, adjacent to valves, at final connections of equipment, and elsewhere as indicated.

R. Install flanges in piping, NPS 2-1/2 and larger, at final connections of equipment and elsewhere as indicated.

S. Install strainers on inlet side of each control valve, pressure-reducing valve, solenoid valve, in-line pump, and elsewhere as indicated. Install NPS 3/4 nipple and ball valve in blowdown connection of strainers NPS 2 and larger. Match size of strainer blowoff connection for strainers smaller than NPS 2.

T. Identify piping as specified in Division 23 Section "Identification for HVAC Piping and Equipment."

U. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 23 Section "Sleeves and Sleeve Seals for HVAC Piping."

V. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Division 23 Section "Sleeves and Sleeve Seals for HVAC Piping."

W. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Division 23 Section "Escutcheons for HVAC Piping."

3.4 HANGERS AND SUPPORTS

A. Hanger, support, and anchor devices are specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment." Comply with the following requirements for maximum spacing of supports.

B. Install the following pipe attachments:

1. Adjustable steel clevis hangers for individual horizontal piping less than 20 feet long.
2. Provide copper-clad hangers and supports for hangers and supports in direct contact with copper pipe.

C. Install hangers for drawn-temper copper piping with the following maximum spacing and minimum rod sizes:

1. NPS 3/4: Maximum span, 5 feet; minimum rod size, 1/4 inch.
2. NPS 1: Maximum span, 6 feet; minimum rod size, 1/4 inch.
3. NPS 1-1/2: Maximum span, 8 feet; minimum rod size, 3/8 inch.
4. NPS 2: Maximum span, 8 feet; minimum rod size, 3/8 inch.
5. NPS 2-1/2: Maximum span, 9 feet; minimum rod size, 3/8 inch.
6. NPS 3: Maximum span, 10 feet; minimum rod size, 3/8 inch.
3.5  PIPE JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 23 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.


F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.


H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

I. Mechanically Formed, Copper-Tube-Outlet Joints: Use manufacturer-recommended tool and procedure, and brazed joints.

3.6  HYDRONIC SPECIALTIES INSTALLATION

A. Install manual air vents at high points in piping, at heat-transfer coils, and elsewhere as required for system air venting.

B. Install automatic air vents at high points of system piping in mechanical equipment rooms only. Manual vents at heat-transfer coils and elsewhere as required for air venting.

C. Install piping from boiler air outlet, air separator, or air purger to expansion tank with a 2 percent upward slope toward tank.

D. Install in-line air separators in pump suction. Install drain valve on air separators NPS 2 and larger.
E. Install tangential air separator in pump suction. Install blowdown piping with gate or full-port ball valve; extend full size to nearest floor drain.

F. Install bypass chemical feeders in each hydronic system where indicated, in upright position with top of funnel not more than 48 inches above the floor. Install feeder in minimum NPS 3/4 bypass line, from main with full-size, full-port, ball valve in the main between bypass connections. Install NPS 3/4 pipe from chemical feeder drain, to nearest equipment drain and include a full-size, full-port, ball valve.

G. Install expansion tanks on the floor. Vent and purge air from hydronic system, and ensure tank is properly charged with air to suit system Project requirements.

3.7 TERMINAL EQUIPMENT CONNECTIONS

A. Sizes for supply and return piping connections shall be the same as or larger than equipment connections.

B. Install control valves in accessible locations close to connected equipment.

C. Install bypass piping with globe valve around control valve. If parallel control valves are installed, only one bypass is required.

D. Install ports for pressure gages and thermometers at coil inlet and outlet connections according to Division 23 Section "Meters and Gages for HVAC Piping."

3.8 CHEMICAL TREATMENT

A. Perform an analysis of makeup water to determine type and quantities of chemical treatment needed to keep system free of scale, corrosion, and fouling, and to sustain the following water characteristics:

1. pH: 9.0 to 10.5.
2. "P" Alkalinity: 100 to 500 ppm.
3. Boron: 100 to 200 ppm.
4. Chemical Oxygen Demand: Maximum 100 ppm. Modify this value if closed system contains glycol.
5. Corrosion Inhibitor:
   a. Sodium Nitrate: 1000 to 1500 ppm.
6. Soluble Copper: Maximum 0.20 ppm.
7. Tolyiriazole Copper and Yellow Metal Corrosion Inhibitor: Minimum 10 ppm.
8. Total Suspended Solids: Maximum 10 ppm.
10. Free Caustic Alkalinity: Maximum 20 ppm.
11. Microbiological Limits:
   a. Total Aerobic Plate Count: Maximum 1000 organisms/ml.
   b. Total Anaerobic Plate Count: Maximum 100 organisms/ml.
c. Nitrate Reducers: 100 organisms/ml.

B. Fill system with fresh water and add liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products from piping. Circulate solution for a minimum of 24 hours, drain, clean strainer screens, and refill with fresh water.

C. Add initial chemical treatment and maintain water quality in ranges noted above for the first year of operation.

3.9 FIELD QUALITY CONTROL

A. Prepare hydronic piping according to ASME B31.9 and as follows:

1. Leave joints, including welds, uninsulated and exposed for examination during test.
2. Provide temporary restraints for expansion joints that cannot sustain reactions due to test pressure. If temporary restraints are impractical, isolate expansion joints from testing.
3. Flush hydronic piping systems with clean water; then remove and clean or replace strainer screens.
4. Isolate equipment from piping. If a valve is used to isolate equipment, its closure shall be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.
5. Install safety valve, set at a pressure no more than one-third higher than test pressure, to protect against damage by expanding liquid or other source of overpressure during test.

B. Perform the following tests on hydronic piping:

1. Use ambient temperature water as a testing medium unless there is risk of damage due to freezing. Another liquid that is safe for workers and compatible with piping may be used.
2. While filling system, use vents installed at high points of system to release air. Use drains installed at low points for complete draining of test liquid.
3. Isolate expansion tanks and determine that hydronic system is full of water.
4. Subject piping system to hydrostatic test pressure that is not less than 1.5 times the system's working pressure. Test pressure shall not exceed maximum pressure for any vessel, pump, valve, or other component in system under test. Verify that stress due to pressure at bottom of vertical runs does not exceed 90 percent of specified minimum yield strength or 1.7 times "SE" value in Appendix A in ASME B31.9, "Building Services Piping."
5. After hydrostatic test pressure has been applied for at least 10 minutes, examine piping, joints, and connections for leakage. Eliminate leaks by tightening, repairing, or replacing components, and repeat hydrostatic test until there are no leaks.
6. Prepare written report of testing.

C. Perform the following before operating the system:

1. Open manual valves fully.
2. Inspect pumps for proper rotation.
3. Set makeup pressure-reducing valves for required system pressure.
4. Inspect air vents at high points of system and determine if all are installed and operating freely (automatic type), or bleed air completely (manual type).
5. Set temperature controls so all coils are calling for full flow.
6. Inspect and set operating temperatures of hydronic equipment, such as boilers, chillers, cooling towers, to specified values.
7. Verify lubrication of motors and bearings.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. This Section includes the following:

1.3 DEFINITIONS
   A. Buna-N: Nitrile rubber.
   B. EPT: Ethylene propylene terpolymer.

1.4 SUBMITTALS
   A. Product Data: Include certified performance curves and rated capacities, operating characteristics, furnished specialties, final impeller dimensions, and accessories for each type of product indicated. Indicate pump's operating point on curves.
   B. Shop Drawings: Show pump layout and connections. Include setting drawings with templates for installing foundation and anchor bolts and other anchorages.
   C. Operation and Maintenance Data: For pumps to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE
   A. Source Limitations: Obtain hydronic pumps through one source from a single manufacturer.
   B. Product Options: Drawings indicate size, profiles, and dimensional requirements of hydronic pumps and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."
C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. UL Compliance: Comply with UL 778 for motor-operated water pumps.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and nozzles with wooden flange covers or with screwed-in plugs.

B. Store pumps in dry location.

C. Retain protective covers for flanges and protective coatings during storage.

D. Protect bearings and couplings against damage from sand, grit, and other foreign matter.

E. Comply with pump manufacturer's written rigging instructions.

1.7 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Mechanical Seals: One mechanical seal(s) for each pump.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 CLOSE-COUPLED, IN-LINE CENTRIFUGAL PUMPS

1. Bell & Gossett; Div. of ITT Industries.

2. Or approved equal.
B. Description: Factory-assembled and -tested, centrifugal, overhung-impeller, close-coupled, in-line pump as defined in HI 1.1-1.2 and HI 1.3; designed for installation with pump and motor shafts mounted horizontally or vertically. Rate pump for 125-psig minimum working pressure and a continuous water temperature of 200 deg F.

C. Pump Construction:
   1. Casing: Radially split, cast iron, with replaceable bronze wear rings, threaded gage tappings at inlet and outlet, and threaded union end connections.
   2. Impeller: ASTM B 584, cast bronze; statically and dynamically balanced, keyed to shaft, and secured with a locking cap screw. Trim impeller to match specified performance.
   3. Pump Shaft: Steel, with copper-alloy shaft sleeve or Stainless steel.
   4. Mechanical Seal: Carbon rotating ring against a ceramic seat held by a stainless-steel spring, and Buna-N bellows and gasket. Include water slinger on shaft between motor and seal.
   5. Packing Seal: Stuffing box, with a minimum of four rings of graphite-impregnated braided yarn with bronze lantern ring between center two graphite rings, and bronze packing gland.

D. Motor: Single speed, with permanently lubricated ball bearings, unless otherwise indicated; and rigidly mounted to pump casing. Comply with requirements in Division 23 Section "Common Motor Requirements for HVAC Equipment."

2.3 PUMP SPECIALTY FITTINGS

A. Triple-Duty Valve: Angle or straight pattern, 175-psig pressure rating, cast-iron body, pump-discharge fitting; with drain plug and bronze-fitted shutoff, balancing, and check valve features. Brass gage ports with integral check valve, and orifice for flow measurement.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine equipment foundations and anchor-bolt locations for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Examine roughing-in for piping systems to verify actual locations of piping connections before pump installation.

C. Examine foundations and inertia bases for suitable conditions where pumps are to be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PUMP INSTALLATION

A. Comply with HI 1.4.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

B. Install pumps with access for periodic maintenance including removal of motors, impellers, couplings, and accessories.

C. Independently support pumps and piping so weight of piping is not supported by pumps and weight of pumps is not supported by piping.

D. Install continuous-thread hanger rods and spring hangers of sufficient size to support pump weight. Vibration isolation devices are specified in Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment." Fabricate brackets or supports as required. Hanger and support materials are specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment."

3.3 ALIGNMENT

A. Align pump and motor shafts and piping connections after setting on foundation, grout has been set and foundation bolts have been tightened, and piping connections have been made.

B. Comply with pump and coupling manufacturers' written instructions.

C. After alignment is correct, tighten foundation bolts evenly but not too firmly. Completely fill baseplate with nonshrink, nonmetallic grout while metal blocks and shims or wedges are in place. After grout has cured, fully tighten foundation bolts.

3.4 CONNECTIONS

A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to machine to allow service and maintenance.

C. Connect piping to pumps. Install valves that are same size as piping connected to pumps.

D. Install suction and discharge pipe sizes equal to or greater than diameter of pump nozzles.

E. Install triple-duty valve on discharge side of pumps.

F. Install suction diffuser and shutoff valve on suction side of pumps.

G. Install flexible connectors on suction and discharge sides of base-mounted pumps between pump casing and valves.

H. Install pressure gages on pump suction and discharge, at integral pressure-gage tapping, or install single gage with multiple input selector valve.

I. Install check valve and gate or ball valve on each condensate pump unit discharge.

J. Install electrical connections for power, controls, and devices.

K. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

HYDRONIC PUMPS
232123 - 4 KPA 443
3.5 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.
2. Check piping connections for tightness.
3. Clean strainers on suction piping.
4. Perform the following startup checks for each pump before starting:
   a. Verify bearing lubrication.
   b. Verify that pump is free to rotate by hand and that pump for handling hot liquid is free to rotate with pump hot and cold. If pump is bound or drags, do not operate until cause of trouble is determined and corrected.
   c. Verify that pump is rotating in the correct direction.
5. Prime pump by opening suction valves and closing drains, and prepare pump for operation.
7. Open discharge valve slowly.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain hydronic pumps. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION
SECTION 233113

METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Single-wall rectangular ducts and fittings.
2. Single-wall round ducts and fittings.
4. Duct liner.
5. Sealants and gaskets.
6. Hangers and supports.

B. Related Sections:

1. Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.
2. Division 23 Section "Air Duct Accessories" for dampers, sound-control devices, and turning vanes.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible".

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.

1.4 SUBMITTALS

A. Product Data: For each type of the following products:
1. Liners and adhesives.
2. Sealants and gaskets.

B. Shop Drawings:
1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
2. Factory- and shop-fabricated ducts and fittings.
3. Duct layout indicating sizes, configuration, liner material, and static-pressure classes.
4. Elevation of top of ducts.
5. Dimensions of main duct runs from building grid lines.
6. Fittings.
7. Reinforcement and spacing.
8. Seam and joint construction.
9. Equipment installation based on equipment being used on Project.
10. Locations for duct accessories, including dampers, and turning vanes.
11. Hangers and supports, including methods for duct and building attachment and vibration isolation.

C. Field quality-control reports.

1.5 QUALITY ASSURANCE


B. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS

2.1 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-4, "Transverse (Girth) Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-5, "Longitudinal Seams - Rectangular Ducts," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 2, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 SINGLE-WALL ROUNDDUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Lindab Inc.
   b. McGill AirFlow LLC.
   c. SEMCO Incorporated.
   d. Sheet Metal Connectors, Inc.
   e. Spiral Manufacturing Co., Inc.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Transverse Joints - Round Duct," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Seams - Round Duct and Fittings," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Fabricate round ducts larger than 90 inches in diameter with butt-welded longitudinal seams.
2. Fabricate flat-oval ducts larger than 72 inches in width (major dimension) with butt-welded longitudinal seams.

D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "90 Degree Tees and Laterals," and Figure 3-5, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS

A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct
construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
   2. Finishes for Surfaces Exposed to View: Mill phosphatized.

2.4 DUCT LINER

A. Fibrous-Glass Duct Liner: Comply with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. CertainTeed Corporation; Insulation Group.
      b. Johns Manville.
      c. Knauf Insulation.
      d. Owens Corning.
   2. Maximum Thermal Conductivity:
      a. Type I, Flexible: 0.27 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
      b. Type II, Rigid: 0.23 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
   3. Solvent-Based Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.
      a. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Insulation Pins and Washers:
   1. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.
   2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick galvanized steel; with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

C. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-19, "Flexible Duct Liner Installation."
   1. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.
   2. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.
   3. Butt transverse joints without gaps, and coat joint with adhesive.
4. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.
5. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and dimensions of standard liner make longitudinal joints necessary.
6. Apply adhesive coating on longitudinal seams in ducts with air velocity of 2500 fpm.
7. Secure liner with mechanical fasteners 4 inches from corners and at intervals not exceeding 12 inches transversely; at 3 inches from transverse joints and at intervals not exceeding 18 inches longitudinally.
8. Secure transversely oriented liner edges facing the airstream with metal nosings that have either channel or "Z" profiles or are integrally formed from duct wall. Fabricate edge facings at the following locations:
   a. Fan discharges.
   b. Intervals of lined duct preceding unlined duct.
   c. Upstream edges of transverse joints in ducts where air velocities are higher than 2500 fpm or where indicated.
9. Secure insulation between perforated sheet metal inner duct of same thickness as specified for outer shell. Use mechanical fasteners that maintain inner duct at uniform distance from outer shell without compressing insulation.
   a. Sheet Metal Inner Duct Perforations: 3/32-inch diameter, with an overall open area of 23 percent.
10. Terminate inner ducts with buildouts attached to dampers, turning vane assemblies, or other devices. Fabricated buildouts (metal hat sections) or other buildout means are optional; when used, secure buildouts to duct walls with bolts, screws, rivets, or welds.

2.5 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

B. Two-Part Tape Sealing System:
   1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
   2. Tape Width: 3 inches.
   5. Mold and mildew resistant.
   6. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
   7. Service: Indoor and outdoor.
   8. Service Temperature: Minus 40 to plus 200 deg F.
   9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum.
   10. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
C. Water-Based Joint and Seam Sealant:
   1. Application Method: Brush on.
   2. Solids Content: Minimum 65 percent.
   5. Mold and mildew resistant.
   6. VOC: Maximum 75 g/L (less water).
   7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
   8. Service: Indoor or outdoor.
   9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

D. Solvent-Based Joint and Seam Sealant:
   1. Application Method: Brush on.
   2. Base: Synthetic rubber resin.
   4. Solids Content: Minimum 60 percent.
   5. Shore A Hardness: Minimum 60.
   7. Mold and mildew resistant.
   8. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
   9. VOC: Maximum 395 g/L.
   10. Maximum Static-Pressure Class: 10-inch wg, positive or negative.
   11. Service: Indoor or outdoor.
   12. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

E. Flanged Joint Sealant: Comply with ASTM C 920.
   2. Type: S.
   3. Grade: NS.
   5. Use: O.
   6. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

F. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

G. Round Duct Joint O-Ring Seals:
   1. Seal shall provide maximum leakage class of 3 cfm/100 sq. ft. at 1-inch wg and shall be rated for 10-inch wg static-pressure class, positive or negative.
   2. EPDM O-ring to seal in concave bead in coupling or fitting spigot.
   3. Double-lipped, EPDM O-ring seal, mechanically fastened to factory-fabricated couplings and fitting spigots.
2.6 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.
B. Strap and Rod Sizes: Comply with SMACNA’s "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct."
C. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.
D. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.
E. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.
B. Install ducts according to SMACNA’s "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.
C. Install round ducts in maximum practical lengths.
D. Install ducts with fewest possible joints.
E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.
F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.
G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.
I. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.
J. .

FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

METAL DUCTS
233113 - 7
KPA 443
3.2 INSTALLATION OF EXPOSED DUCTWORK
   A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.
   B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.
   C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.
   D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.
   E. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.3 DUCT SEALING
   A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
   B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":
      1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

3.4 HANGER AND SUPPORT INSTALLATION
   A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Hangers and Supports."

3.5 CONNECTIONS
   A. Make connections to equipment with flexible connectors complying with Division 23 Section "Air Duct Accessories."
   B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.6 FIELD QUALITY CONTROL
   A. Perform tests and inspections.
   B. Leakage Tests:

2. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.

3. Test for leaks before applying external insulation.

4. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If static-pressure classes are not indicated, test system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure.

5. Give seven days' advance notice for testing.

C. Duct system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.7 START UP

A. Air Balance: Comply with requirements in Division 23 Section "Testing, Adjusting, and Balancing for HVAC."

END OF SECTION
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 233300
AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Backdraft dampers.
   3. Flange connectors.
   4. Turning vanes.
   5. Flexible connectors.
   6. Duct accessory hardware.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated.
   1. For duct silencers, include pressure drop and dynamic insertion loss data. Include breakout noise calculations for high transmission loss casings.
B. Shop Drawings: For duct accessories. Include plans, elevations, sections, details and attachments to other work.
   1. Detail duct accessories fabrication and installation in ducts and other construction. Include dimensions, weights, loads, and required clearances; and method of field assembly into duct systems and other construction. Include the following:
      a. Special fittings.
      c. Wiring Diagrams: For power, signal, and control wiring.
C. Source quality-control reports.
D. Operation and Maintenance Data: For air duct accessories to include in operation and maintenance manuals.
1.4 QUALITY ASSURANCE


B. Comply with AMCA 500-D testing for damper rating.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
   2. Exposed-Surface Finish: Mill phosphatized.

2.2 BACKDRAFT DAMPERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   2. .
   3. Ruskin Company.
   4. Or approved equal.

B. Description: Gravity balanced.


D. Maximum System Pressure: 1-inch wg.

E. Frame: 0.052-inch- thick, galvanized sheet steel, with welded corners.

F. Blades: Multiple single-piece blades, center-pivoted, maximum 6-inch width, 0.025-inch-thick, roll-formed aluminum with sealed edges.

G. Blade Action: Parallel.

H. Blade Seals: Felt.

I. Return Spring: Adjustable tension.
2.3 MANUAL VOLUME DAMPERS

A. Low-Leakage, Steel, Manual Volume Dampers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. McGill AirFlow LLC.
   b. METALAIRE, Inc.
   c. 
   d. Ruskin Company.

2. Low-leakage rating and bearing AMCA's Certified Ratings Seal for both air performance and air leakage.

3. Suitable for horizontal applications.

4. Frames:

   a. Galvanized-steel channels, 0.064 inch thick.
   b. Mitered and welded corners.
   c. Flanges for attaching to walls and flangeless frames for installing in ducts.

5. Blades:

   a. Multiple or single blade.
   b. Parallel- or opposed-blade design.
   c. Stiffen damper blades for stability.
   d. Galvanized, roll-formed steel, 0.064 inch thick.


10. Accessories:

    a. Include locking device to hold single-blade dampers in a fixed position without vibration.

B. Jackshaft:


2. Material: Galvanized-steel pipe rotating within pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.

3. Length and Number of Mountings: As required to connect linkage of each damper in multiple-damper assembly.

C. Damper Hardware:


2. Include center hole to suit damper operating-rod size.

3. Include elevated platform for insulated duct mounting.
2.4 FLANGE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Nexus PDQ; Division of Shilco Holdings Inc.

B. Description: Add-on or roll-formed, factory-fabricated, slide-on transverse flange connectors, gaskets, and components.

C. Material: Galvanized steel.

D. Gage and Shape: Match connecting ductwork.

2.5 TURNING VANES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Duro Dyne Inc.
3. METALAIRE, Inc.

B. Manufactured Turning Vanes for Metal Ducts: Curved blades of galvanized sheet steel; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.


C. Manufactured Turning Vanes for Nonmetal Ducts: Fabricate curved blades of resin-bonded fiberglass with acrylic polymer coating; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.

D. General Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 2-3, "Vanes and Vane Runners," and 2-4, "Vane Support in Elbows."

E. Vane Construction: Single wall.

F. Vane Construction: Single wall for ducts up to 48 inches wide and double wall for larger dimensions.

2.6 FLEXIBLE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Duro Dyne Inc.
2.7 DUCT ACCESSORY HARDWARE

A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct-insulation thickness.

B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts.

B. Install duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.

C. Install backdraft dampers at inlet of exhaust fans or exhaust ducts as close as possible to exhaust fan unless otherwise indicated.

D. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts. Where dampers are installed in ducts having duct liner, install dampers with hat channels of same depth as liner, and terminate liner with nosing at hat channel.

1. Install steel volume dampers in steel ducts.

E. Set dampers to fully open position before testing, adjusting, and balancing.

F. Install flexible connectors to connect ducts to equipment.

G. Install duct test holes where required for testing and balancing purposes.

3.2 FIELD QUALITY CONTROL

A. Tests and Inspections:
1. Operate dampers to verify full range of movement.
2. Inspect turning vanes for proper and secure installation.

END OF SECTION 233300
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

SECTION 233423
HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary
Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. In-line centrifugal fans.

1.3 PERFORMANCE REQUIREMENTS

A. Project Altitude: Base fan-performance ratings on sea level.

B. Operating Limits: Classify according to AMCA 99.

1.4 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of
product indicated and include the following:

1. Certified fan performance curves with system operating conditions indicated.
2. Certified fan sound-power ratings.
3. Motor ratings and electrical characteristics, plus motor and electrical accessories.
4. Material thickness and finishes, including color charts.
5. Dampers, including housings, linkages, and operators.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required
clearances, method of field assembly, components, and location and size of each field
connection.

2. Design Calculations: Calculate requirements for selecting vibration isolators and seismic
restraints and for designing vibration isolation bases.

C. Coordination Drawings: Reflected ceiling plans and other details, drawn to scale, on which the
following items are shown and coordinated with each other, based on input from installers of
the items involved:

1. Ceiling suspension assembly members.
2. Size and location of initial access modules for acoustical tile.
3. Ceiling-mounted items including light fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

D. Field quality-control test reports.
E. Operation and Maintenance Data: For power ventilators to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. AMCA Compliance: Products shall comply with performance requirements and shall be licensed to use the AMCA-Certified Ratings Seal.

C. NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.

D. UL Standard: Power ventilators shall comply with UL 705.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver fans as factory-assembled unit, to the extent allowable by shipping limitations, with protective crating and covering.

B. Disassemble and reassemble units, as required for moving to final location, according to manufacturer's written instructions.

C. Lift and support units with manufacturer's designated lifting or supporting points.

1.7 COORDINATION

A. Coordinate size and location of structural-steel support members.

PART 2 - PRODUCTS

2.1 IN-LINE CENTRIFUGAL FANS

A. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:
   1. Greenheck.
   2. Or approved equal.
B. Description: In-line, direct and belt-driven centrifugal fans consisting of housing, wheel, outlet guide vanes, fan shaft, bearings, motor and disconnect switch, drive assembly, mounting brackets, and accessories.

C. Housing: Split, spun aluminum with aluminum straightening vanes, inlet and outlet flanges, and support bracket adaptable to ceiling mounting.

D. Direct-Driven Units: Motor mounted in airstream, factory wired to disconnect switch located on outside of fan housing.

E. Belt-Driven Units: Motor mounted on adjustable base, with adjustable sheaves, enclosure around belts within fan housing, and lubricating tubes from fan bearings extended to outside of fan housing.

F. Fan Wheels: Aluminum, airfoil blades welded to aluminum hub.

G. Accessories:
   1. Companion Flanges: For inlet and outlet duct connections.
   2. Motor and Drive Cover (Belt Guard): Epoxy-coated steel.
   3. Vibration Isolators:
      a. Type: Spring.
      b. Static Deflection: 1 inch.

2.2 MOTORS

A. Comply with requirements in Division 23 Section "Common Motor Requirements for HVAC Equipment."

B. Enclosure Type: Totally enclosed, fan cooled.

2.3 SOURCE QUALITY CONTROL

A. Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.

B. Fan Performance Ratings: Establish flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests and ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install power ventilators level and plumb.
FAIRMONT CAMPUS BUILDING C & E  
MAKE READY IMPROVEMENTS

B. Support suspended units from structure using threaded steel rods and spring hangers having a static deflection of 1 inch.

C. Install units with clearances for service and maintenance.

D. Label units according to requirements specified in Division 23 Section "Identification for HVAC Piping and Equipment."

3.2 CONNECTIONS

A. Duct installation and connection requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Division 23 Section "Air Duct Accessories."

B. Install ducts adjacent to power ventilators to allow service and maintenance.

C. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

D. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Verify that shipping, blocking, and bracing are removed.
2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
3. Verify that cleaning and adjusting are complete.
4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
5. Adjust belt tension.
6. Adjust damper linkages for proper damper operation.
7. Verify lubrication for bearings and other moving parts.
8. Verify that manual volume dampers in connected ductwork systems are in fully open position.
9. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
10. Shut unit down and reconnect automatic temperature-control operators.
11. Remove and replace malfunctioning units and retest as specified above.

B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
3.4 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Adjust belt tension.

C. Refer to Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.

D. Replace fan and motor pulleys as required to achieve design airflow.

E. Lubricate bearings.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Round ceiling diffusers.
2. Fixed face grilles.

B. Related Sections:

1. Division 08 Section "Louvers and Vents" for fixed and adjustable louvers and wall vents, whether or not they are connected to ducts.
2. Division 23 Section "Air Duct Accessories" for volume-control dampers not integral to diffusers, registers, and grilles.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated, include the following:

1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
2. Diffuser, Register, and Grille Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

PART 2 - PRODUCTS

2.1 CEILING DIFFUSERS

A. Round Ceiling Diffuser:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Anemostat Products; a Mestek company.
b. METALAIRE, Inc.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

c. Price Industries.
d. Titus.
e. Tuttle & Bailey.

2. Devices shall be specifically designed for variable-air-volume flows.
4. Finish: Baked enamel, white.
5. Face Style: Threecone.
7. Dampers: Radial opposed blade.

2.2 REGISTERS AND GRILLES

A. Fixed Face Grille:
1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
   a. Krueger.
   b. Titus.
   c. Tuttle & Bailey, or approved equal.
3. Finish: Baked enamel, white.
7. Mounting: Countersunk screw.
8. 

2.3 SOURCE QUALITY CONTROL

A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas where diffusers, registers, and grilles are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install diffusers, registers, and grilles level and plumb.
B. Exposed Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers and air extractors.

3.3 ADJUSTING

A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION
SECTION 238233
CONVECTORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:


1.3 SUBMITTALS

A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for each type of product indicated.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Plans, elevations, sections, and details.
2. Details of custom-fabricated enclosures indicating dimensions.
3. Location and size of each field connection.
4. Location and arrangement of piping valves and specialties.
5. Location and arrangement of integral controls.
6. Enclosure joints, corner pieces, access doors, and other accessories.

C. Coordination Drawings: Floor plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

1. Structural members, including wall construction, to which convection units will be attached.
2. Method of attaching convection units to building structure.
3. Penetrations of fire-rated wall and floor assemblies.

D. Color Samples for Initial Selection: For units with factory-applied color finishes.

E. Color Samples for Verification: For each type of exposed finish required.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

F. Field quality-control test reports.

G. Operation and Maintenance Data: For convection heating units to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 HOT-WATER FINNED-TUBE RADIATORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Vulcan Radiator.
   2. Or approved equal.

B. Performance Ratings: Rate finned-tube radiators according to Hydronics Institute's "I=B=R Testing and Rating Standard for Finned-Tube (Commercial) Radiation."

C. Heating Elements: Copper tubing mechanically expanded into flanged collars of evenly spaced aluminum fins resting on element supports. One tube end shall be belled.

D. Element Supports: Ball-bearing cradle type to permit longitudinal movement on enclosure brackets.

E. Front Panel: Minimum 0.0428-inch-thick steel.

F. Wall-Mounting Back Panel: Minimum 0.0329-inch-thick steel, full height, with full-length channel support for front panel without exposed fasteners.

G. Support Brackets: Locate at maximum 36-inch spacing to support front panel and element.

H. Finish: Baked-enamel finish in manufacturer's standard color as selected by Architect.

I. Damper: Knob-operated internal damper at enclosure outlet.

J. Access Doors: Factory made, permanently hinged with tamper-resistant fastener, minimum size 6 by 7 inches, integral with enclosure.

K. Enclosure Style: Sloped top.
   1. Front Outlet Grille: Extruded-aluminum linear bar grille; pencil-proof bar spacing.

L. Accessories: Filler sections, corners, relay sections, and splice plates all matching the enclosure and grille finishes.
3.1 EXAMINATION

A. Examine areas to receive convection heating units for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Examine roughing-in for hydronic-piping connections to verify actual locations before convection heating unit installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FINNED-TUBE RADIATOR INSTALLATION

A. Install units level and plumb.

B. Install finned-tube radiators according to Guide 2000 - Residential Hydronic Heating.

C. Install enclosure continuously around corners, using outside and inside corner fittings.

D. Join sections with splice plates and filler pieces to provide continuous enclosure.

E. Install access doors for access to valves.

F. Install enclosure continuously from wall to wall.

G. Terminate enclosures with manufacturer's end caps, except where enclosures are indicated to extend to adjoining walls.

H. Install valves within reach of access door provided in enclosure.

I. Install air-seal gasket between wall and recessing flanges or front cover of fully recessed unit.

J. Install piping within pedestals for freestanding units.

3.3 CONNECTIONS

A. Piping installation requirements are specified in Division 23 Section "Hydronic Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect hot-water units and components to piping according to Division 23 Section "Hydronic Piping."

   1. Install shutoff valves on inlet and outlet, and balancing valve on outlet.

C. Install control valves as required by Division 23 Section "Instrumentation and Control for HVAC."

D. Install piping adjacent to convection heating units to allow service and maintenance.
3.4 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

B. Remove and replace convection heating units that do not pass tests and inspections and retest as specified above.

END OF SECTION
SECTION 26 00 00

GENERAL ELECTRICAL REQUIREMENTS

PART 1 Summary: Intent of drawings and Specifications is to obtain complete systems tested, adjusted, and ready for operation.

1.1. Except as otherwise defined in greater detail, the terms "provide", "furnish" and "install" as used in Division 26 Contract Documents shall have the following meanings:

A. "Provide" or "provided" shall mean "furnish and install".
B. "Furnish" or "furnished" does not include installation.
C. "Install" or "installed" does not include furnishing.

1.2. Include incidental details not usually shown or specified, but necessary for proper installation and operation.

1.3. Check, verify and coordinate work with drawings and specifications prepared for other trades. Include modifications, relocations or adjustments necessary to complete work or to avoid interference with other trades.

1.4. Included in this Contract are electrical connections to equipment provided by others. Refer to Architectural, Mechanical, and final shop drawings for equipment being furnished under other sections for exact locations of electrical outlets and various connections required.

1.5. Information given herein and on drawings is as exact as could be secured but is not guaranteed. Do not scale drawings for exact dimensions.

1.6. Where architectural features govern location of work, refer to Architectural Drawings.

1.7. Work shall be performed in "neat and workmanlike" manner as defined in ANSI/NECA 1, Standard Practices for Good Workmanship in Electrical Contracting.

1.8. Continuity of Service:

A. No service shall be interrupted or changed without permission from Architect and Owner. Obtain written permission before work is started.

B. When interruption of services is required, persons concerned shall be notified and shall agree upon time.

1.9. Demolition:

A. Division 01 - Selective Demolition.

B. Perform demolition as required to accomplish new work.
1. Remove abandoned wiring to source of supply.

2. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

3. Disconnect abandoned outlets and remove devices.

4. Remove abandoned outlets if conduit servicing them is abandoned and removed.

5. Provide blank cover for abandoned outlets that are not removed.

6. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

7. Disconnect and remove abandoned luminaries. Remove brackets, stems, hangers, and other accessories.

8. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.

C. Accomplish work in neat workmanlike manner to minimize interference; annoyance or inconvenience such work might impose on Owner or other Contractors.

D. Unless otherwise noted, remove from premises materials and equipment removed in demolition work.

E. Equipment noted to be removed and turned over to Owner shall be delivered to Owner at place and time Owner designates.

F. Where materials are to be turned over to Owner or reused and installed by Contractor, it shall be Contractor's responsibility to maintain condition of materials and equipment equal to that existing before work began. Repair or replace damaged materials or equipment at no additional cost to Owner.

G. Where demolition work interferes with Owner's use of premises, schedule work through Architect, Owner and with other Contractors to minimize inconvenience to Owner. Architect must approve schedule before Contractor begins such work.

1.10. Cleaning and Repair:

A. Clean and repair existing materials and equipment that remain or is to be reused.

B. Panelboards.

1. Clean exposed surfaces and check tightness of electrical connections.

2. Replace damaged circuit breakers and provide closure plates for vacant positions.
3. Provide typed circuit directory showing revised circuiting arrangement.

C. Requirements Of Regulatory Agencies:

1. Rules and regulations of Federal, State and local authorities and utility companies, in force at time of execution of Contract shall become part of this specification.

D. Reference Standards:

1. Agencies or publications referenced herein refer to the following:
   - AEIC Association of Edison Illuminating Companies
   - ANSI American National Standards Institute
   - ASME American Society of Mechanical Engineers
   - ASTM American Society for Testing and Materials
   - BICSI Building Industry Consulting Services International
   - EIA Electronic Industries Association
   - FIPS Federal Information Processing Standards
   - FCC Federal Communications Commission
   - ICEA Insulated Cable Engineers Association
   - IEEE Institute of Electrical & Electronics Engineers
   - IESNA Illuminating Engineering Society of North America
   - NEC National Electrical Code
   - NECA National Electrical Contractors Association
   - NEMA National Electrical Manufacturers Association
   - NESC National Electrical Safety Code
   - NETA National Electrical Testing Association
   - NFPA National Fire Protection Association
   - NIST National Institute of Standards & Technology
   - OSHA Occupational Safety and Health Administration
   - TIA Telecommunications Industries Association
   - UL Underwriters Laboratories, Inc.
E. Listing:

1. Material installed on project shall bear UL label or be UL listed, unless UL label or listing is not available for that type of material.

2. Other nationally recognized testing agencies, acceptable to AHJ, are approved.

1.11. Submittals:

A. Submit shop drawings for equipment provided under this Section:

   1. Operation and Maintenance Manuals:
   
   2. Record Documents:

1.12. Guarantee:

A. Guarantee for one year after acceptance by Owner equipment, materials, and workmanship to be free from defect.

PART 2 Products:

2.1. All products shall be new and be UL Listed.

PART 3 Execution:

3.1. Equipment access.

   A. Install raceways, junction and pull boxes, and accessories to permit access to equipment for maintenance. Relocation of raceways, or accessories as required, to provide access shall be provided at no additional cost to Owner.

   B. Install equipment with ample space allowed for removal, repair or changes to equipment. Provide ready accessibility to equipment and wiring without moving other equipment, which is to be installed or which is already in place.

3.2. Equipment Supports:

   A. Provide supporting steel not indicated on drawings as required for installation of equipment and materials including angles, channels, beams, hangers, etc.

   B. Concrete anchors, used for attachment to concrete, shall be steel shell with plug type. Plastic, rawhide or anchors utilizing lead are not allowed.

   C. Do not support equipment or luminaires from non-structural elements.

3.3. Acceptance Testing:

   A. When equipment or systems fail to meet minimum test requirements, replace or repair defective work or materials as necessary and repeat inspection and test. Make repairs with new materials.
B. Contractor is responsible for certifying in writing equipment and system test results. Certification shall include identification of portion of system tested, date, time, test criteria and name and title of person signing test certification documents.

3.4. Start-Up:

A. Systems and equipment shall be started, tested, adjusted and turned over to Owner ready for operation.

B. Follow manufacturer's pre-start-up checkout, start-up, trouble shooting and adjustment procedures.
SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1. This Section includes the following:

A. Building wires and cables rated 600 V and less.
B. Connectors, splices, and terminations rated 600 V and less.
C. Sleeves and sleeve seals for cables.
D. Conductor and conduit sizes in these contract documents are based on copper wire, and only copper wire shall be used. Aluminum cable is prohibited.

1.2. DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.
B. NBR: Acrylonitrile-butadiene rubber.

1.3. SUBMITTALS

A. Product Data: For each type of product indicated.

1.4. QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, and marked for intended use.
B. Comply with NFPA 70.

1.5. COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 PRODUCTS

2.1. Conductors and Cables

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Alcan Products Corporation; Alcan Cable Division.
3. General Cable Corporation.
4. Senator Wire & Cable Company.
5. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.
C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN

PART 3 EXECUTION

3.1. CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2. CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-THWN, single conductors in raceway.
B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-THWN, single conductors in raceway.
D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
E. Feeders in Cable Tray: Type THHN-THWN, single conductors in raceway.
F. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway.
G. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
H. Branch Circuits in Cable Tray: Type THHN-THWN, single conductors in raceway.
I. Class 1 Control Circuits: Type THHN-THWN, in raceway.
J. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.3. INSTALLATION OF CONDUCTORS AND CABLES

A. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

B. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
C. Support cables according to Division 26 Section "Hangers and Supports for Electrical Systems."

D. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

3.4. Connections

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.5. SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

3.6. Field Quality Control:

A. Test 600 volt conductors and cables per requirements in Sections 26 0800 and 26 0813.

B. Interpret test results in writing and submit to Engineer.

C. Replace conductors and cables that are found defective, at no expense to Owner.
SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 Summary

1.1. Provide a complete grounding system for services and equipment as required by Code, applicable portions of other NFPA codes, and as indicated herein.

1.2. Maximum resistance to ground shall be less than 25 ohms.

1.3. SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 Products

2.1. Conductors

A. Insulated Conductors: wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:


4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.

5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

7. Grounding Bus: Rectangular bars of annealed copper.

C. CONNECTORS

1. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. GROUNDING ELECTRODES

1. Ground Rods: Copper-clad; 3/4 inch by 10 feet (19 mm by 3 m) in diameter.

2. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

3. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches (1200 mm) long.

4. Backfill Material: Electrode manufacturer's recommended material.

PART 3 Execution

3.1. Conductor Terminations and Connections:

A. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.

B. Underground Connections: Welded connectors, except at test wells.

C. Connections to Ground Rods at Test Wells: Bolted connectors.

D. Connections to Structural Steel: Welded connectors.

3.2. Equipment Grounding

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

C. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
SECTION 26 05 29
HANGERS AND SUPPORTS

PART 1 Summary

1.1. Hangers and supports for electrical equipment and systems.

1.2. Construction requirements for concrete bases.

1.3. Related Sections include the following:
   A. Division 26 Section "Vibration And Seismic Controls For Electrical Systems" for products and installation requirements necessary for compliance with seismic criteria.

1.4. DEFINITIONS
   A. EMT: Electrical metallic tubing.
   B. IMC: Intermediate metal conduit.
   C. RMC: Rigid metal conduit.

1.5. PERFORMANCE REQUIREMENTS
   A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
   B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
   C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.6. SUBMITTALS
   A. Product Data: For the following:
      1. Steel slotted support systems.
      2. Nonmetallic slotted support systems.

PART 2 Products

2.1. Support, Anchorage and Attachment Components
   A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Allied Tube & Conduit.
2. Cooper B-Line, Inc.; a division of Cooper Industries.
4. Seasafe, Inc.

C. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.

D. Fitting and Accessory Materials: Same as channels and angles

E. Rated Strength: Selected to suit applicable load criteria.

F. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

G. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

H. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

I. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

2.2. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hilti Inc.
2. ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
3. MKT Fastening, LLC.
C. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

D. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Cooper B-Line, Inc.; a division of Cooper Industries.
   2. Empire Tool and Manufacturing Co., Inc.
   3. Hilti Inc.
   4. ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
   5. MKT Fastening, LLC.

E. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.

F. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.

G. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.

H. Toggle Bolts: All-steel springhead type.


2.3. FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 Execution

3.1. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

3.2. Support Installation

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
C. Strength of Support Assemblies: Select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements.

E. To Wood: Fasten with lag screws or through bolts.

F. To New Concrete: Bolt to concrete inserts.

G. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.

H. To Existing Concrete: Expansion anchor fasteners.

I. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.

J. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.

K. To Light Steel: Sheet metal screws.

L. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

M. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3. INSTALLATION OF FABRICATED METAL SUPPORTS

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

B. Field Welding: Comply with AWS D1.1/D1.1M.

3.4. CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Anchor equipment to concrete base.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2. Install anchor bolts to elevations required for proper attachment to supported equipment.

3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5. PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

B. Apply paint by brush or spray to provide minimum dry film thickness of **2.0 mils (0.05 mm)**.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.
SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 Summary

1.1. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2. DEFINITIONS

A. EMT: Electrical metallic tubing.
B. ENT: Electrical nonmetallic tubing.
C. EPDM: Ethylene-propylene-diene terpolymer rubber.
D. FMC: Flexible metal conduit.
E. IMC: Intermediate metal conduit.
F. LFMC: Liquidtight flexible metal conduit.
G. LFNC: Liquidtight flexible nonmetallic conduit.
H. NBR: Acrylonitrile-butadiene rubber.
I. RNC: Rigid nonmetallic conduit.

1.3. SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
B. Custom enclosures and cabinets.

1.4. QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, and marked for intended use.
B. Comply with NFPA 70.

PART 2 Products

2.1. Metal Conduit and Tubing

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.
5. Electri-Flex Co.
7. Maverick Tube Corporation.

B. Rigid Steel Conduit: ANSI C80.1.
C. IMC: ANSI C80.6.
D. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit
E. Comply with NEMA RN 1.
F. LFMC: Flexible steel conduit with PVC jacket.
G. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
H. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2. Nonmetallic Conduit and Tubing

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems, Inc.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corporation.
4. CANTEX Inc.
7. ElecSYS, Inc.
8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell Company.
12. Thomas & Betts Corporation.

B. ENT: NEMA TC 13.

C. RNC: NEMA TC 2, Type EPC-40-PVC

D. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

E. Fittings for LFNC: UL 514B.

2.3. OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Arnco Corporation.
2. Endot Industries Inc.
3. IPEX Inc.
4. Lamson & Sessions; Carlon Electrical Products.

B. Description: Comply with UL 2024; flexible type Metal Wireways: NEMA 250

2.4. METAL WIREWAYS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1 unless otherwise indicated.
C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Finish: Manufacturer's standard enamel finish.

2.5. NONMETALLIC WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hoffman.

2. Lamson & Sessions; Carlon Electrical Products.

C. Description: Fiberglass polyester, extruded and fabricated to size and shape indicated, with no holes or knockouts. Cover is gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections are flanged, with stainless-steel screws and oil-resistant gaskets.

D. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.

E. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.6. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC.

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Butler Manufacturing Company; Walker Division.

2. Enduro Systems, Inc.; Composite Products Division.

3. Hubbell Incorporated; Wiring Device-Kellems Division.

4. Lamson & Sessions; Carlon Electrical Products.

5. Panduit Corp.


7. Wiremold Company (The); Electrical Sales Division.

2.7. Boxes, Enclosures, and Cabinets
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.
7. RACO; a Hubbell Company.
10. Spring City Electrical Manufacturing Company.

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

D. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch.

PART 3 Execution

3.1. EXECUTION

A. RACEWAY APPLICATION

1. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

2. Exposed Conduit: Rigid steel conduit.

B. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

C. Comply with the following indoor applications, unless otherwise indicated:
1. Exposed, Not Subject to Physical Damage: EMT.

2. Concealed in Ceilings and Interior Walls and Partitions: EMT.

3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.

D. Boxes and Enclosures: NEMA 250, Type 1.

E. Minimum Raceway Size: 3/4-inch (21-mm) trade size.

F. Raceway Fittings: Compatible with raceways and suitable for use and location.

G. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

H. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.

3.2. INSTALLATION

A. Comply with NECA 1 for installation requirements.

B. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

D. Conceal conduit and EMT within finished walls, ceilings, and floors.

E. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

F. Install pull wires in empty raceways.
G. Rigid Metal Conduit (RMC) permitted to be installed as follows:
   1. Installations below grade and in or under concrete slabs.
   2. All locations except corrosive atmospheres.
   3. Hazardous locations.
   4. Locations requiring mechanical protection.

H. Electrical Metallic Tubing (EMT) permitted to be installed as follows:
   1. Interior partitions.
   2. Above suspended ceilings.
   3. In concrete slabs.
   4. 6 ft AFF in exposed areas of mechanical equipment rooms.
   5. Sizes 2" and smaller except as approved.

I. Liquid Tight Flexible Metal Conduit (LFMC) permitted to be installed as follows:
   1. Use liquid tight flexible conduit, not over 4 ft in length, for final connections to:
   2. Vibrating equipment (including transformers and hydraulic, pneumatic, electric solenoid, or motor-driven equipment) in wet locations.
   3. Instruments and control devices.

J. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:
   1. 3/4-Inch (19-mm) Trade Size and Smaller: Install raceways in maximum lengths of 50 feet (15 m).
   2. 1-Inch (25-mm) Trade Size and Larger: Install raceways in maximum lengths of 75 feet (23 m).
   3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

K. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut.
Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.3. SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

B. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

C. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side greater than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).

2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches (1270 mm) and 1 or more sides equal to, or greater than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

G. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway unless sleeve seal is to be installed.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry.

I. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials.

J. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

K. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.4. SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.
B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.5. FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.6. PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

B. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

C. Repair damage to PVC or paint finishes with matching touchup coating
SECTION 26 05 48

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 Summary

1.1. Isolation pads.
1.2. Spring isolators.
1.3. Restrained spring isolators.
1.4. Channel support systems.
1.5. Restraint cables.
1.6. Hanger rod stiffeners.
1.7. Anchorage bushings and washers.

PART 2 Products

2.1. Vibration Isolators

A. Manufacturers:

1. Ace Mountings Co., Inc.
2. Amber/Booth Company, Inc.
4. Isolation Technology, Inc.
7. Vibration Eliminator Co., Inc.
8. Vibration Isolation.

B. Pads: Arrange in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.
C. Spring Isolators: Freestanding, laterally stable, open-spring isolators.

D. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic or limit-stop restraint.

2.2. Seismic-Restraint Devices

A. Manufacturers:

1. Amber/Booth Company, Inc.
2. California Dynamics Corporation.
3. Cooper B-Line, Inc.; a division of Cooper Industries.
4. Hilti Inc.
5. Loos & Co.; Seismic Earthquake Division.
7. TOLCO Incorporated; a brand of NIBCO Inc.
8. Unistrut; Tyco International, Ltd.

B. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined in reports by an agency acceptable to authorities having jurisdiction.

C. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.

D. Restraint Cables: ASTM A 603 galvanized-steel cables with end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.

E. Bushings for Floor-Mounted Equipment Anchor: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchors and studs.

PART 3 Execution

3.1. Examination

A. Examine areas and equipment to receive seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.
B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. Seismic-Restraint Device Installation

3.3. Drilled-in Anchors

3.4. Accommodation of Differential Seismic Motion
SECTION 26 05 53

ELECTRICAL SYSTEMS IDENTIFICATION

PART 1 Summary

1.1. Identification for raceways.

1.2. Identification of power and control cables.

1.3. Identification for conductors.

1.4. Warning labels and signs.

1.5. Instruction signs.

1.6. Equipment identification labels.

1.7. COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 PRODUCTS

2.1. Power Raceway Identification Materials

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

2.2. Armored and Metal-Clad Cable Identification Materials

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
2.3. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

2.4. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches (50 mm) wide; compounded for outdoor use.

2.5. Power and Control Cable Identification Materials

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.


2.7. Instruction Signs: engraved, laminated acrylic or melamine plastic

2.8. Equipment Identification Labels: adhesive film label, machine printed, in black, by thermal transfer or equivalent process.

2.9. Cable Ties: fungus inert, self extinguishing one piece, self locking, type 6/6 nylon.

PART 3 Execution

3.1. Installation

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

3.2. Identification Schedule

A. Equipment to Be Labeled:

1. Identification labeling of some items listed below may be required by individual Sections or by NFPA 70.

2. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be laminated acrylic or melamine label.

3. Enclosures and electrical cabinets.

4. Access doors and panels for concealed electrical items.

5. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.

7. Enclosed circuit breakers.
8. Contactors.
SECTION 26 22 00

LOW-VOLTAGE TRANSFORMERS

PART 2 - Summary

1.1. This Section includes the following types of dry-type transformers rated 600 V and less, with capacities up to 1000 kVA:

PART 2 Products

2.1. Manufacturers
   A. Square D.
   B. General Electric
   C. Cutler-Hammer
   D. Siemens

2.2. General Transformer Requirements
   A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.
   B. Cores: Grain-oriented, non-aging silicon steel.
   C. Coils: Continuous windings without splices except for taps.

2.3. Distribution Transformers
   A. Comply with NEMA ST 20, and list and label as complying with UL 1561.
   B. Cores: One leg per phase.
   C. Enclosure: Ventilated, NEMA 250, Type 1.
   D. Transformer Enclosure Finish: Comply with NEMA 250.
   E. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and two 2.5 percent taps below normal full capacity.
   F. Insulation Class: 220 deg C, UL-component-recognized insulation system with a maximum of 80 deg C rise above 40 deg C ambient temperature.
   G. Energy Efficiency for Transformers Rated 15 kVA and Larger:
      1. Complying with NEMA TP 1, Class 1 efficiency levels.
2. Tested according to NEMA TP 2.

H. K-Factor Rating: Transformers to be K-factor rated shall comply with UL 1561 requirements for nonsinusoidal load current-handling capability to the degree defined by designated K-factor and CSL-3 rating.

1. Unit shall not overheat when carrying full-load current with harmonic distortion corresponding to designated K-factor.

2. Indicate value of K-factor on transformer nameplate.

I. Electrostatic Shielding: Each winding shall have an independent, single, full-width copper electrostatic shield arranged to minimize interwinding capacitance.

J. Wall Brackets: Manufacturer's standard brackets.

K. Low-Sound-Level Requirements: Minimum of 3 dBA less than NEMA ST 20 standard sound levels when factory tested according to IEEE C57.12.91.

PART 3 Execution

3.1. Examination

A. Examine conditions for compliance with enclosure- and ambient-temperature requirements for each transformer.

B. Verify that field measurements are as needed to maintain working clearances required by NFPA 70 and manufacturer's written instructions.

C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed.

D. Verify that ground connections are in place and requirements in Division 26 Section "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. Installation

A. Install wall-mounting transformers level and plumb with wall brackets fabricated by transformer manufacturer.

B. Construct concrete bases and anchor floor-mounting transformers according to manufacturer's written instructions, seismic codes applicable to Project, and requirements in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
SECTION 26 24 16

PANELBOARDS

PART 1 Summary

1.1. Lighting and appliance branch-circuit panelboards.

1.2. Load centers.

1.3. Electronic-grade panelboards.

PART 2 Products

2.1. General Requirements for Panelboards

   A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

   B. Enclosures: Surface-mounted cabinets.

   C. Rated for environmental conditions at installed location.

   D. Indoor Dry and Clean Locations: NEMA 1,

   E. Incoming Mains Location: Top.

   F. Phase, Neutral, and Ground Buses:

   G. Conductor Connectors: Suitable for use with conductor material and sizes.

   H. Service Equipment Label: NRTL labeled for use as service equipment for panelboards or load centers with one or more main service disconnecting and overcurrent protective devices.


2.2. Lighting and Appliance Branch-Circuit Panelboards

   A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

   B. Mains: Circuit breaker.

   C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

   D. Contactors can be incorporated to switch the entire panelboard or only a portion of the circuits. Coordinate with Drawings and schedules to indicate contactor
connections, type, quantity of circuits controlled, current ratings, external control
circuits, and number of poles. Consult manufacturers for their respective
limitations on and availability of short-circuit ratings and electrically held
contactors, which may not be available from all manufacturers.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed
alike.

F. Column-Type Panelboards: Narrow gutter extension, with cover, to overhead
junction box equipped with ground and neutral terminal buses.

2.3. Disconnecting and Overcurrent Protective Devices

A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting
capacity to meet available fault currents.

B. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level
overloads, and instantaneous magnetic trip element for short circuits. Adjustable
magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

C. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with
front-mounted, field-adjustable trip setting.

D. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or
field-replicable electronic trip; and the following field-adjustable settings:

1. Instantaneous trip.
2. Long- and short-time pickup levels.
3. Long- and short-time time adjustments.
4. Ground-fault pickup level, time delay, and I^2t response.

E. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through
ratings less than NEMA FU 1, RK-5.

PART 3 Execution

3.1. Examination

A. Receive, inspect, handle, and store panelboards according to and NECA 407 and
NEMA PB 1.1.

B. Examine panelboards before installation. Reject panelboards that are damaged or
rusted or have been subjected to water saturation.

C. Examine elements and surfaces to receive panelboards for compliance with
installation tolerances and other conditions affecting performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been
corrected.
3.2. Installation

A. Install panelboards and accessories according to NECA 407 and NEMA PB 1.1.

B. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

C. Install overcurrent protective devices and controllers not already factory installed.

D. Install filler plates in unused spaces.

E. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

F. Comply with NECA 1.
SECTION 26 27 26
WIRING DEVICES

PART 1 Summary

1.1. This Section includes the following:

A. Receptacles, receptacles with integral GFCI, and associated device plates.
B. Receptacles with integral surge suppression units.
C. Wall-box motion sensors.
D. Isolated-ground receptacles.
E. Wall-switch and exterior occupancy sensors.
F. Communications outlets.

PART 2 Products

2.1. Straight Blade Receptacles

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

2.2. GFCI Receptacles

A. General Description: Straight blade, feed-through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.
   1. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

2.3. Snap Switches

A. Comply with NEMA WD 1 and UL 20.
B. Switches, 120/277 V, 20 A:
C. Key-Operated Switches, 120/277 V, 20 A:
   1. Description: Single pole, with factory-supplied key in lieu of switch handle.
D. Single-Pole, Double-Throw, Momentary Contact, Center-Off Switches, 120/277 V, 20 A; for use with mechanically held lighting contactors.

2.4. Occupancy Sensors
A. Wall-Switch Sensors:
   1. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 180-degree field of view, with a minimum coverage area of 900 sq. ft. (84 sq. m).

2.5. Wall Plates
   A. Single and combination types to match corresponding wiring devices.

2.6. Multioutlet Assemblies
   A. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.
   B. Raceway Material: Metal, with manufacturer's standard finish.
   C. Wire: No. 12 AWG.

2.7. Finishes
   A. Color: white for normal power.

PART 3 Execution

3.1. Installation
   A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.
   B. Conductors:
      1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
   C. Device Installation:
      1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
   D. Arrangement of Devices: Mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.
   E. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

3.2. Identification
   A. Comply with Division 26 Section "Identification for Electrical Systems."
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

WIRING DEVICES
26 27 26 - 3

KPA 443
SECTION 26 28 16
ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 Summary:

1.1. This Section includes fusible and non-fusible disconnect switches and circuit breakers in individual enclosures.

PART 2 Products:

2.1. Manufacturers:

A. Square D.
B. General Electric.
C. Cutler-Hammer.
D. Siemens.

2.2. Disconnect Switches:

A. NEMA KS 1, UL 98.
B. Load interrupter enclosed knife switch, heavy-duty type.
C. Fusible or non-fusible type as indicated.

2.3. Enclosed Circuit Breakers:

A. NEMA AB 1, UL 489.
B. Enclosed molded-case circuit breakers:
   1. Tripped indication clearly shown on breaker handle taking position between "ON" and "OFF".

PART 3 Execution:

3.1. Install disconnect switches and/or enclosed circuit breakers in accordance with ANSI/NECA 1.

3.2. Install disconnect switches and/or enclosed circuit breakers level and plumb, in accordance with manufacturer's written instruction.

3.3. Disconnect switches and enclosed circuit breakers mounting and seismic restraints:

3.4. Install disconnect switches and enclosed circuit breakers anchorage devices and seismic restraints based on design by an Engineer registered and licensed in State of California,
and to comply with Section 26 0548 - Vibration and Seismic Controls for Electrical Systems for seismic criteria.

A. Fasten disconnect switches and enclosed circuit breakers firmly to walls and structural surfaces, ensuring they are permanently and mechanically anchored.

B. Anchor and fasten disconnect switches and enclosed circuit breakers and their supports to building structural elements (wood, concrete, masonry, hollow walls and nonstructural building surfaces) by methods described in Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Install 2 rows of steel slotted channel, with minimum of 4 attachment points, for each disconnect switch and enclosed circuit breaker.

D. When not located directly on wall, install support frame of steel slotted channel anchored to floor and ceiling structure.
SECTION 26 51 00

INTERIOR LIGHTING

PART 1 Summary

1.1. Interior lighting fixtures, lamps, and ballasts.
1.2. Emergency lighting units.
1.3. Exit signs.
1.4. Lighting fixture supports.

PART 2 Products

2.1. General Requirements for Lighting Fixtures and Components

A. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.

2.2. Ballasts for Linear Fluorescent Lamps

A. General Requirements for Electronic Ballasts:
   1. Comply with UL 935 and with ANSI C82.11.
   2. Designed for type and quantity of lamps served.
   3. Ballasts shall be designed for full light output unless another BF, dimmer, or bi-level control is indicated.

B. Luminaires controlled by occupancy sensors shall have programmed-start ballasts.

C. Electronic Programmed-Start Ballasts for T8 Lamps: Comply with ANSI C82.11 and the following:

D. Automatic lamp starting after lamp replacement.

2.3. Electromagnetic Ballasts: Comply with ANSI C82.1; energy saving, high-power factor, Class P, and having automatic-reset thermal protection.

2.4. Ballasts for Bi-Level Controlled Lighting Fixtures: Electronic type.

2.5. Ballasts for Compact Fluorescent Lamps

A. Description: Electronic-programmed rapid-start type, complying with UL 935 and with ANSI C 82.11, designed for type and quantity of lamps. Ballast shall be designed for full light output unless dimmer or bi-level control.
B. Lamp end-of-life detection and shutdown circuit.
C. Automatic lamp starting after lamp replacement.
D. Sound Rating: Class A.
E. Total Harmonic Distortion Rating: Less than 20 percent.
F. Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
G. Operating Frequency: 20 kHz or higher.
H. Lamp Current Crest Factor: 1.7 or less.
I. BF: 0.95 or higher unless otherwise indicated.
J. Interference: Comply with 47 CFR 18, Ch. 1, Subpart C, for limitations on electromagnetic and radio-frequency interference for nonconsumer equipment.

2.6. Exit Signs
A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
B. Internally Lighted Signs:
   1. Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life.
   2. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.

2.7. FLUORESCENT LAMPS
A. T8 rapid-start lamps, rated 32 W maximum, nominal length of 48 inches (1220 mm), 2800 initial lumens (minimum), CRI 75 (minimum), color temperature 3500K, and average rated life 20,000 hours unless otherwise indicated.

2.8. LIGHTING FIXTURE SUPPORT COMPONENTS
A. Single-Stem Hangers: 1/2-inch (13-mm) steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.
B. Twin-Stem Hangers: Two, 1/2-inch (13-mm) steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.
C. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm).
D. Rod Hangers: 3/16-inch (5-mm) minimum diameter, cadmium-plated, threaded steel rod.
E. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

PART 3 Execution

3.1. Installation

A. Lighting fixtures:
   1. Set level, plumb, and square with ceilings and walls.
   2. Install lamps in each luminaire.

B. Suspended Lighting Fixture Support:

C. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.

D. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.

E. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.

F. Do not use grid as support for pendant luminaires. Connect support wires or rods to building structure.

3.2. Identification

A. Install labels with panel and circuit numbers on concealed junction and outlet boxes. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."
PART 1 Summary:

1.1. Furnish and install complete hard-wired, Zoned, Non-coded Fire Alarm System as shown on plans.

PART 2 Products:

2.1. Control Panel:

   A. Provide expandable, modular construction Fire Alarm Control Panel with solid state, microprocessor based electronics.

   B. Visual indicators shall be high contrast, LED type, or LCD readout.

2.2. Remote Annunciator Panel:

   A. Provide LED annunciator.

   B. Wiring between annunciator panel and Fire Alarm Control Panel shall be supervised.

   C. Annunciator shall provide:

      1. Control push-button switches for; alarm silence, trouble silence, system reset and manual evacuation.

      2. Key "enable" switch to activate or deactivate control and push-button switches.

      3. System trouble LED.

      4. Power on LED.

   D. Manual Stations:

      1. Be single action.

      2. Constructed of high impact, red Lexan with raised white lettering and smooth high gloss finish.

      3. Have hinged front with key lock. Stations, which utilize screwdrivers, allen wrenches, or other commonly available tools, shall not be accepted.

      4. Be keyed alike with Fire Alarm Control Panel.

   E. When station is operated, handle shall lock in open manner to facilitate quick visual identification of activated station.
FAIRMONT CAMPUS BUILDING C & E
MAKE READY IMPROVEMENTS

F. Horn/Strobe Units.
G. Speaker/Strobe Units.
H. Smoke Detectors.
I. Door Holders.

PART 3 Execution:

3.1. Class B circuiting shall be used.

3.2. Installation shall be done in neat, workmanlike manner in accordance with manufacturer's recommendations.

3.3. Smoke detectors shall not be mounted until construction is completed.

3.4. Fire Alarm Panel Risers shall be in conduit system separate from other building wiring.

3.5. Branch Circuit wiring shall be in conduit system separate from other building wiring.