



Alameda County Juvenile Justice Center

GREEN BUILDING

PROJECT PROFILE

Challenges

- Providing a healthy and comfortable indoor environment
- Minimizing environmental impacts including climate change
- Delivering a resource-efficient and cost-effective building within existing budget and schedule

Solutions

- Maximize daylight, purchase low-emitting materials, and automate environmental controls
- Install solar power for 50% of building's electricity
- Design to outperform energy and water building codes by over 40%

Benefits

- High indoor air quality for youth residents and other occupants
- Renewable energy generation equivalent to powering 750 homes
- Annual energy savings of \$350,000 and water savings of 7 million gallons

Background

Alameda County's General Services Agency (GSA) was tasked with delivering a new Juvenile Justice Center. County agencies needed to consolidate services to provide an integrated therapeutic environment for the community's at-risk youth. To facilitate this, the Center was designed to provide a healthy indoor environment while also reducing global warming impacts and saving taxpayer dollars through conservation and waste reduction.

The Board of Supervisors adopted the Green Building Ordinance in 2003, directing the County to build capital projects to a Silver level under the nationally-accepted US Green Building Council's LEED® standard. GSA designed the facility to reach the Gold level, making it the nation's greenest juvenile detention center.

Challenges

Creating a healthy space with daylight and fresh air for facility youth and occupants was a top priority. Requirements and regulations for detention and courts facilities make many typical green features inappropriate. For example, security requirements limit choices for materials and continual building operation is energy intensive. With no additional funding, green features had to be integrated into the overall design.

Facts at a Glance

- New 379,000 sq. ft. facility located in San Leandro, California
- Nine agencies provide integrated services
- 360-bed juvenile detention facility
- LEED® Gold green building rating
- Completed on time and on budget: \$176 million and 31 months



Chris P. Hooten / AP Photo



Chi's Photography

SOLUTIONS

Alameda County's General Services Agency used an integrated team approach with its project partners, including architect HOK, Hensel Phelps Construction Co., Vanir Construction Management, and other County agencies. The team used LEED as a tool, not a checklist, to deliver a facility that met the occupants' needs while addressing operations and maintenance from the design forward.

IN THEIR WORDS

This project demonstrates to our region that local government can utilize green building to address climate change in a realistic way.

Keith Carson
Alameda County Supervisor

The ACJJC showcases opportunities for waste reduction and green purchasing at all stages of a building's life, from demolition to construction and maintenance.

Karen Smith
Executive Director, StopWaste.Org

PROJECT CONTACT

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INDOOR ENVIRONMENTAL QUALITY

In juvenile detention residential areas, skylights and two levels of windows facing an outdoor courtyard provide natural light without compromising security. The design team integrated the external exercise area with the housing unit to take advantage of natural lighting.

Finishes, carpet, and furniture were selected to give off little or no volatile organic compounds that can be toxic and reduce indoor air quality. A two-week building flush-out cleaned air after construction. Ongoing cleaning with GreenSeal-certified non-toxic janitorial cleaners also promotes healthy indoor air quality.

Carbon dioxide and temperature sensors as well as lighting systems that adjust to occupancy and daylight maintain a comfortable environment. The County is developing new occupant orientations, post-occupancy surveys, and cross-department Green Teams to keep operations green and comfortable.

CLIMATE PROTECTION

Building construction and operation create over 40% of U.S. global warming emissions. To address this critical issue, 50% of the power needed to operate this facility comes from an 880-kilowatt rooftop solar system.

During construction, several innovations reduced greenhouse gas emissions. Site-grading equipment used

biodiesel fuel, reducing carbon dioxide emissions by 200 tons. Structural concrete units were prefabricated with fly ash, a by-product of coal combustion which not only creates a stronger structure, but also saves energy and landfill space. 93% of construction and demolition debris was reused rather than landfilled to save the energy involved in extracting and manufacturing new materials.

Six acres of open space were preserved. Existing wetlands were restored in conjunction with the use of retention ponds and bioswales for natural stormwater filtration. The facility's location near BART, preferential carpool parking, and bicycle storage and showers encourage sustainable commuting.

HIGHLY-EFFICIENT DESIGN

The secure area of justice facilities is not subject to the State of California's stringent Title 24 energy code. However, through well-insulated roof, walls, and windows as well as efficient lighting and ventilation and a central plant for heating and cooling, the facility is designed to outperform a code-compliant building by 46%. To ensure the facility performs as designed, all systems were tested by a third-party commissioning agent.

Low-flow fixtures will use 41% less water than federal code requires. Drought-resistant plants, drip irrigation, and using lawn only for a playing field uses 52% less water than typical landscaping.