SAVING LIVES, PROTECTING THE PLANET

San Leandro Fire Station 10 Paves the Way for Future Alameda County Projects

It seems only fitting, that San Leandro's first municipal green building project was a fire station. "We're in the life-saving business," says Brian McKenna, Assistant Chief–Support Services with the Alameda County Fire Department, "and we see protecting the environment as a natural continuation of that mission."

San Leandro Fire Station 10, completed in 2003, served as a valuable proving ground for future green buildings in Alameda County. The building incorporates many measures that reduce its ecological footprint, which is particularly notable considering that StopWaste.Org and its green building consultants didn't join the project team until Station 10's design was nearly complete. Their challenge: helping transform a conventional design into a greener building without spending time and money on redesigning the building's basic form.

StopWaste.Org and its consultants met with the City to review existing specifications and discuss green alternatives that could still be adopted at this late stage in the project. These recommendations included energy efficient lighting and heating, ventilation and air conditioning (HVAC) systems, use of recycled and low-emission materials and reduced construction and demolition waste.

The result: a building that exceeds state requirements for energy efficiency, used less materials to build, reduced its contribution to landfills and cut associated disposal costs. These measures formed the basis for a set of standard specifications for a prototypical county fire station; the standard specs also include additional measures that are appropriate for early-phase projects (see companion case study, "Dublin Gets Double the Green"). "We're a progressive organization with the future in mind," McKenna says. "Every step along the way, we're looking to be more efficient from an energy and monetary standpoint."

What Makes it Green

ENERGY EFFICIENCY & REDUCED CARBON FOOTPRINT

An efficient air conditioning system replaced the originally specified unit, exceeding the California building energy efficiency code requirements that were in effect at the time. The air conditioning system uses R-410A refrigerant, a substance considered more environmentally friendly than older, ozone-depleting refrigerants. A high efficiency gas fired water heater replaced the standard specified equipment. ENERGY STAR® refrigerators were selected.

FAST FACTS

LOCATION
2194 Williams Street
San Leandro, CA

PARCEL SIZE
40,000 sq. ft.

BUILDING TYPE
Emergency Services

BUILDING SIZE
10,800 sq. ft.

COST
$3.6 million

COMPLETION DATE
March 2003

OWNER/DEVELOPER
City of San Leandro & Alameda County Fire Dept.

ARCHITECT
CJW Architecture
Portola Valley, CA

GENERAL CONTRACTOR
W.A. Thomas Co., Martinez, CA

CONTACT FOR MORE INFO
Scott Doan
Alameda County Fire Dept.
TEL 510-618-3474

Electronic occupancy sensors were installed in select areas to reduce lighting use when those areas are unoccupied. Clerestory windows provide daylight, reducing the need for electric lighting. McKenna notes that of the station's numerous green building features, the daylighting design is particularly successful, both in terms of energy savings and lighting quality. Other energy-saving measures include weatherstripping around exterior doors and sealing ductwork with mastic.

In the years since the station was constructed, several of these energy efficiency strategies have become commonplace practices or code requirements, notably the use of 13 SEER air conditioners, weatherstripping around garage doors, and the use of mastic on ductwork. Early adoption of high performance measures can give project developers an advantage by anticipating and complying with future energy codes and building regulations before they become law.

REDUCED WASTE

Whether it's wastepaper, cans, bottles or used fluorescent light bulbs, "there is truly a commitment to recycling in our stations," says McKenna. That commitment to preventing waste carried over into the construction of Station 10. A cornerstone of the project's green building initiative was its construction and demolition waste reduction plan. The building's site was an empty lot paved with asphalt over base rock. All the pavement and rock was reused on site, thus avoiding hauling and disposal costs and waste to the landfill. Also, the contractor worked with Alameda County Industries to set up debris boxes to sort and recycle other construction materials. As a result, 85% of the construction waste was recycled, reducing disposal costs by nearly $26,000. After realizing such financial and environmental benefits, the City now requires construction waste recycling on all projects valued at greater than $100,000.

The flooring is sealed concrete instead of sheet vinyl. Not installing vinyl flooring on top of the concrete slab has multiple environmental benefits: it reduces material use today, reduces waste sent to the landfill when the building is remodeled in the future, and avoids polyvinyl chloride, the manufacture of which produces dioxin, a persistent environmental toxin.

IMPROVED INDOOR QUALITY

Zero-VOC latex paint was used for interior walls, eliminating potentially harmful offgassing that typically occurs with paints containing volatile organic compounds. Medium-density fiberboard made with no added formaldehyde was used for all cabinets and counters. The carpets contain recycled content, and were installed with low-VOC adhesives. In all, these relatively simple changes in finishes and materials improve indoor air quality while driving the demand for greener building products.

GREEN at a GLANCE

ENERGY & CLIMATE CHANGE

- Air conditioner exceeds California Title 24–2001 energy code (Carrier 38TXA, 13 SEER)
- Ozone-friendly air conditioner refrigerant (Puron R-410A)
- Efficient 50-gal. gas water heater (State Select PR6 50 NBRS, 40 MBH, 0.62 energy factor)
- ENERGY STAR® refrigerators (Frigidaire FRT21H7AS)
- Ultrasonic room occupancy sensors installed in exercise, locker room, laundry and offices
- Clerestory windows for daylighting
- Weatherstripping and mastic-sealed ductwork to increase efficiency

WASTE REDUCTION

- 100% of asphalt concrete pavement was recycled; all base rock reused on site
- 1,251 cubic yards of waste removed from the site, of which 85% was recycled, saving $25,816 in avoided waste disposal costs
- Sealed concrete floors instead of sheet vinyl

INDOOR AIR QUALITY

- Zero-VOC interior paints (Dunn-Edwards' Sierra)
- Carpets contain 38% recycled content (Collins & Aikman's Infinity Powerbond); installed with low-VOC adhesives
- Casework uses MDF with no added formaldehyde (Sierra Pine's Medite II)

This case study was written by StopWaste.Org as part of its Green Building in Alameda County program. For information about waste reduction and green building, visit www.StopWaste.Org or call 510-891-6500