Protecting Communities, Sustainably: LEED Taking Hold in Public Safety Space

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Mountain View Fire Station No. 5 in Mountain View, Calif., LEED Gold. Credit: David Wakeley

Today, in homes, schools, stores, offices and places of worship, people are enjoying the social and economic benefits that come with buildings that are good for the environment and the individuals that use them.

And as green building takes root in more neighborhoods, the police and firefighters who protect community members are among those that are increasingly benefiting from living and working in LEED certified buildings.

Among the places that made our annual list of the top 10 states for LEED (measured by square footage of LEED space certified in 2012 per state resident), many had public safety-related projects certify last year.

Notable public-safety projects that certified in 2012 in the states that made the list include:

- Twin Cities Police Headquarters in Larkspur, Calif., LEED Platinum
- Vail Fire Station 3 in Vail, Colo., LEED Gold
- UMass Amherst Campus Police Station, LEED Gold
- Lake Mead National Recreation Area Interagency Communication Center, Boulder City, Nev., LEED Gold
- Greenwood Fire Station 21, Seattle, LEED Gold
- Mountain View Fire Station 5, Mountain View, Calif., LEED Gold
- Alexandria Police Headquarters, Alexandria, Va., LEED Gold
- Denver Police Crime Lab, LEED Gold

When designing a LEED building for use by public safety officers, there are a number of important considerations specific to the space.

David Ross of Bull Stockwell Allen, who served as the LEED AP on the Mountain View Fire Station 5, noted that a fire station must serve various functions: providing space for vehicle storage and maintenance, hazardous material decontamination, medical treatment, emergency response, meetings, training, physical fitness and housing — all under one roof.

“Using controls such as daylight and occupancy sensors to reduce lighting and apparatus bay door interlocks to automatically shut off the heating and engage vehicle exhaust systems are helpful in meeting LEED credits and reducing energy use,” he said. However, these features must be carefully integrated with overrides and emergency response systems.

Another important consideration in designing a police or fire station is that it must be operational at all times. For the Mountain View Fire Station, an inexpensive solar water heating system and credits for on-site energy production were a great fit for the intense operational, maintenance and domestic-water-use requirements of a 24/7 home and workplace, Ross said.

Similarly, security and durability are two key aspects of sustainable building design for LEED police stations, according to Doug Joder of GLASS Architects, which designed the Twin Cities Police Headquarters in Larkspur and has worked on several other public-safety-related LEED projects in California.

Joder particularly noted the importance of durable materials in detention areas in the Twin Cities station, where his firm incorporated materials that not only met durability criteria, but were also composed of recycled and locally harvested and manufactured content.

“Air quality throughout the building was a consideration, but particularly in areas such as gun cleaning rooms, armory, locker rooms and laboratory rooms,” he said. “The building systems were designed to ensure good indoor air quality in these areas.”

The police station was also specially designed to accommodate multiple shifts of occupants. It features individual lighting and thermal controls in the various workstations throughout the building, especially in the radio communications and dispatch center, allowing each shift member to adjust the environment to his or her preferences.

Of course, as a LEED building, the Twin Cities Police Headquarters was designed for maximum energy efficiency. To mitigate energy use, the building features on-site power generation through photovoltaic roof panels, which produce 29 percent of its total annual energy usage and help the building exceed the energy efficiency of a typical similar building by 47 percent. Meanwhile, the design reduces water usage by 38 percent, Joder said, and the irrigation system uses 72 percent less water than a typical system.

Joder and Ross both believe that as more public entities come to recognize the benefits of green building, the increasing adoption of LEED in the public safety space will continue.

“We attribute the increase [in public-safety green building] to several factors, including cities and special districts taking a leadership role in sustainability and carbon footprint reduction within the community,” Joder said. “Commissioning and measurement and verification measures that help the project owners verify that the building systems are functioning as designed ... are also gaining understanding and support.”

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