



**Scottsdale Fire Station
No. 2
Scottsdale, AZ**

11k

dollars in energy cost saved annually

100

percent of irrigation supplied by grey water

839

tons of construction waste diverted

LEED Facts

**Scottsdale Fire Station No.2
Scottsdale, AZ**

LEED - New Construction V2.0
Certification Awarded September 2, 2009

PLATINUM 52*

Sustainable Sites 10/14

Water Efficiency 4/5

Energy & Atmosphere 12/17

Materials & Resources 6/13

Indoor Environmental Quality 15/15

Innovations & Design 5/5

***Out of a possible 69 points**

The information provided is based on that stated in the LEED® project certification submittals. USGBC and Chapters do not warrant or represent the accuracy of this information. Each building's actual performance is based on it's unique design, construction, operation, and maintenance. Energy efficiency and sustainable results will vary.

Scottsdale Fire Station No. 2

PROJECT BACKGROUND

The new station represents the first Fire Station in the United States to achieve LEED Platinum Certification from the USGBC. The two-story, three-bay facility was designed by LEA Architects to utilize both passive and active sustainable green building strategies. The CMAR project incorporates recycled materials, water harvesting, and collects solar energy for radiant heating and electricity. The Fire Station includes a community room that opens on to a shared courtyard. Cor-ten weathered steel pivot gates incorporate public art into the architecture, and provide flexibility in varying the level of security, and configuration of the shared courtyard space. The Fire Station includes 3 apparatus bays, a utility shop, decon room, turn out room, and various other support spaces. The station will house ten firefighters including 2 captain dorms and offices, a battalion chief and fit quarters, crew office, dayroom, dining room, kitchen, and a physical conditioning room. The living areas for the firefighters are located on the second level for added privacy, but open to the outdoors with exterior decks and patio areas.

SUSTAINABLE STRATEGIES

- **SS** - Pervious pavers were utilized in the parking area to reduce the site's heat island effect and control storm water runoff. Drywells are connected to the buildings rainwater collection system to remove suspended solids from storm water promote infiltration back into the aquifer. The project provides 19,237 SF of open space or 25% more than minimum zoning requirements
- **WE** - A gray water system collects water from showers and sinks for use in landscape irrigation, the use of low flow fixtures, dual flush toilets, and waterless urinals, and collection of roof water by water harvesting colonnade piping and trough shade elements contribute to the reduction in potable water use on the site.
- **EA** - Evacuated Tube Solar hot water collectors and Solar PV panels are utilized as sources of onsite renewable energy. The apparatus bays collect heat from the south facing weathering steel standing seam metal roof to passively heat the apparatus bays during the winter. Energy consumption is further reduced by use of dual pane windows with low-e coatings, enhanced building envelope insulation, north-south building orientation, overhangs, natural daylighting, occupancy and daylight sensors, as well as energy efficient mechanical equipment.
- **MR** - Ground Face Concrete Masonry is utilized on the interior of the space for thermal mass and as a local and regional material. 31% of the building's materials by value utilize recycled content. 73% of the wood utilized in the project is harvested from sustainable FSC certified forests.
- **IEQ** - 95% of all occupied spaces were located on the perimeter of the building for access to natural light and views.
- **ID** - A cooling tower affords the ability to cool passively both the interior of the community room and the courtyard space and can be used as a training and communications tower.

MEASURABLE RESULTS

- 100% of the landscape irrigation resulting from water reuse (gray water).
- 100% of the storm water generated from the site is stored and recharges the aquifer using a drywell thereby reducing the runoff to the City's storm water system. (predicted)
- 126,000 gallons annually or 37.87% of Potable water usage reduced by (predicted)
- 40% energy reduction compared to the ASHRAE 90.1-1999 base case. (predicted)
- 9% of the project's total power is provided through renewable sources (solar PV and solar hot water) saving over \$1,000 annually on energy bills.(predicted)

SUSTAINABLE DESIGN CHALLENGES

The tight urban project site provided a significant challenge in meeting requirements for accommodating the building's significant programmatic requirements including the large emergency vehicles. The site constraints challenged the design team to develop a compressed and efficient multi story plan, which allowed the occupiable spaces to be located at the perimeter of the building envelope with access to natural daylight and views. The tight site did not afford opportunity for large retention areas so roof rain water harvesting / collection strategies in cooperation with pervious pavers and drywells were utilized in developing a comprehensive stormwater management plan.



Photo by Larry Enyart, FAIA, LEED AP / Lance Enyart, AIA, LEED AP



Photo by Larry Enyart, FAIA, LEED AP / Lance Enyart, AIA, LEED AP

PROJECT TEAM

Owner: City of Scottsdale
Architect: LEA-Architects
Civil Engineer: Strand & Associates
Structural Engineer: Struktur Studio
Mechanical Engineer: NP Mechanical
Electrical Engineer: NP Mechanical
Contractor: Sun Eagle Corporation
Landscape Architect: Campbell Collaborative
Environmental Advisor: E/FECT. Sustainable Design Solutions

Project Size: 14,000 S.F.
Site Size: .98 acres
Construction Cost: \$4.8M



Arizona Chapter
Admin@usgbcaz.org