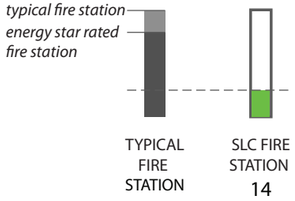
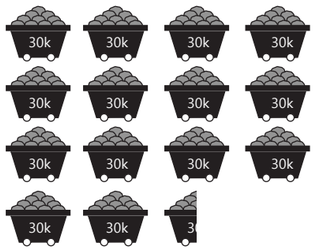
Carbon Emissions Reduction:

SLC Fire Station 14 is projected to be 5X more energy efficient than the typical fire station contributing to a carbon emission reduction of nearly 902,000 pounds of carbon per year



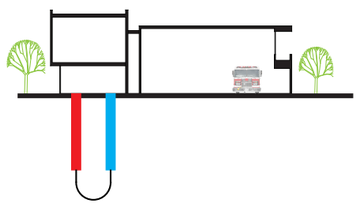
447,703



Total reduction in pounds of coal burned per year[1]

Geothermal Heating & Cooling:

SLC Fire Station 14 utilizes a geothermal heating & cooling system which makes use of the earth's ambient temperature to heat and cool the building. (40) vertical bores extend 300' down into the earth.



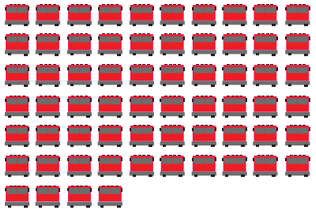
10.5

Equivalent number of homes that could be heated by the station's geothermal system[2]

Water Efficiency:

SLC Fire Station 14 utilizes several strategies for reducing water consumption including; low flow plumbing fixtures, xeriscaping and drought tolerant plantings. Water use is expected to be reduced by 20% for plumbing fixtures and 50% for landscaping from the typical baseline.

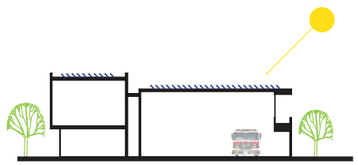
128,772 | 64



128,772 gallons of water saved yearly; enough water to fill(64) 2,000 gallon SLC fire pumper trucks annually[3]

Photovoltaic Energy:

The solar panel array mounted on the roof of SLC Fire Station 14 contains 300 panels which generate 108,000 watts of power at any point in time.



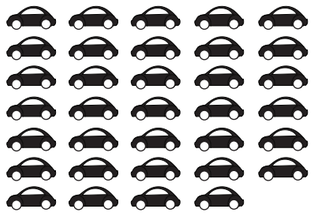
27

The power generated by the solar panel array is equivalent to the power needed to supply (27)SLC homes annually[4]

Construction Waste Management:

Over 55% of all construction waste was recycled and diverted from landfills

68



68 tons of waste recycled and diverted from the landfill. This is equivalent to the weight of 34 Volkswagen Beetles

Sustainable Design Strategies:

SLC Fire Station 14 employs a variety of active and passive energy saving measures to meet the goals of NET ZERO energy, meaning all energy consumed by the fire station is created on site.

Electrical systems were thoughtfully designed to conserve energy. From LED lighting and occupancy sensors to an in depth study of plug loads and appliance selections, efficiency was sought out in all phases of the design. Contact switches turn off the mechanical heating and cooling units when a window or door is open in the respective space to avoid wasting energy.

Glass used for the Fire Station windows consists of a triple paned, argon gas filled unit with a ceramic frit dot pattern screen printed onto the glass to help reduce heat gain within the building. 75% of the heat gain of a typical clear single paned window is eliminated with the glazing used on Fire Station 14.

The apparatus bays within the Fire Station were designed to avoid excess energy use through the implementation of "passive" cooling via shading devices and high performance glass in conjunction with high speed fans. Heating is delivered to the Apparatus Bays by a radiant floor system tied to geothermal heat.

The design team conducted ongoing evaluations of design decisions through the use of energy models and continual discussions with the owner and building users. A working energy model allowed for the design team to assess impacts of MEP systems, selection and nuances of envelope design including window placement and r-values of walls and roof assemblies. The wall types used on Fire Station 14 incorporate continuous rigid exterior insulation as well as a highly insulated roof assembly to achieve r-values of R-34 at the walls and R-60 at the roof.

Footnotes Sources:

1. Energy consumption is compared to typical Fire Station EUI as reported by Energy Star Portfolio Manager 2016. Carbon emission reduction was estimated through the use of energy model projections as compared to ASHRAE code required minimums.
2. BTU's of a typical 2,000 sf residence were based on EIA reported averages as of 2012 as compared to Fire Station 14 energy model projections.
3. Per capita water usage based on Utah DNR Water Resources Residential Water Use Study; 62 gallons of indoor water use per capita and 134 gallons of water use per capita, daily.
4. Watts per square foot for a typical 2,000 sf residential household estimated at 2 watts per square foot.

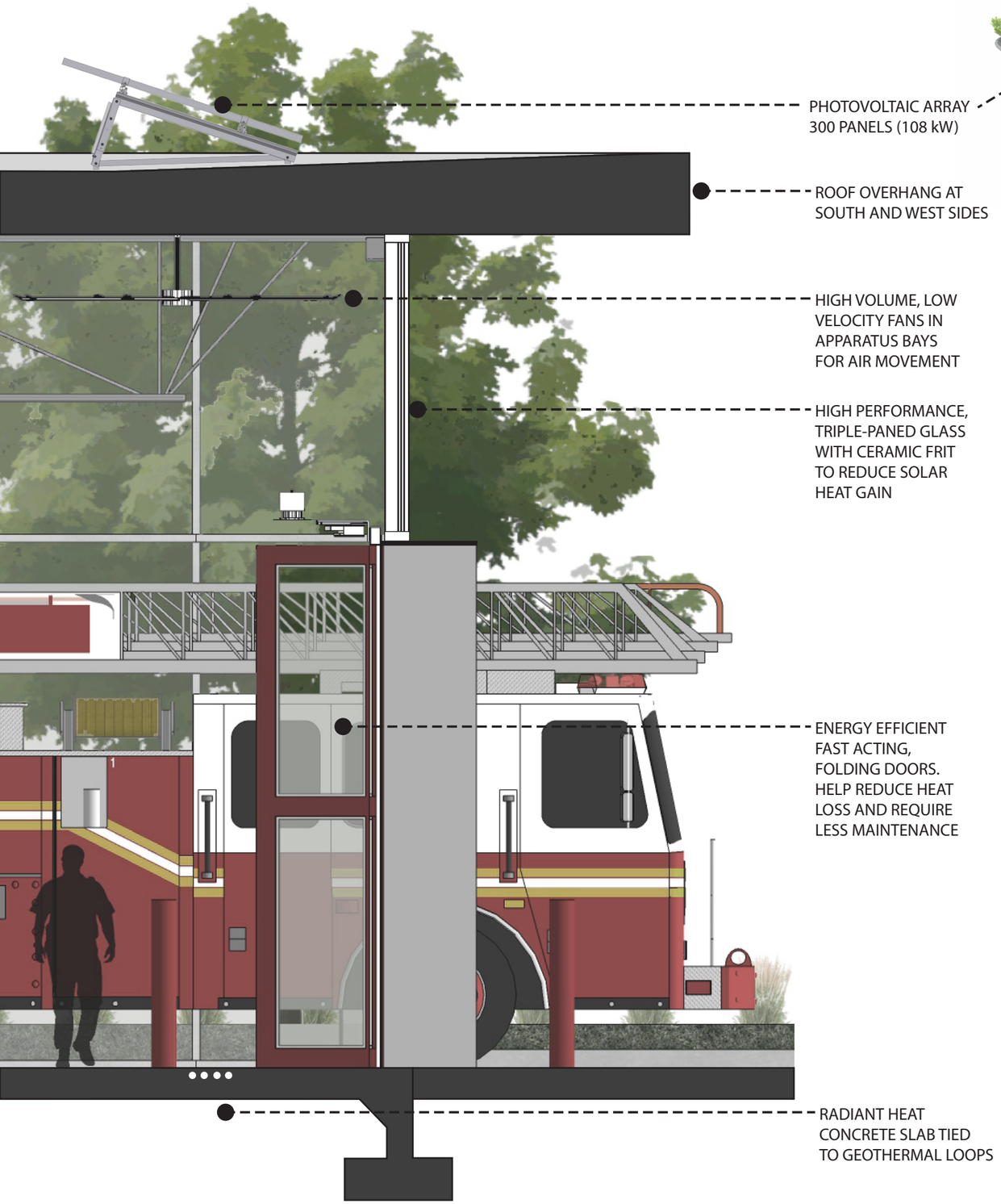
Design Team:

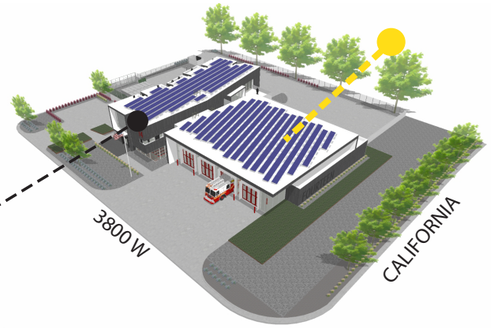
Blalock and Partners Architectural Design Studio:	*Architectural Design*
Van Boerum and Frank:	*Mechanical Engineering & Design*
Spectrum Engineers :	*Electrical Engineering & Design*
Andersen Wahlen Engineers:	*Civil Engineering*
G. Brown Landscape Architects:	*Landscape Design*
TCA Architecture & Planning:	*Architectural Consultant*

SLC
FIRE STATION
14

and PARTNERS blalock
architectural design studio

PASSIVE SOLAR DESIGN, BUILDING ORIENTATION & DAYLIGHTING





The form of the building and position of window openings are designed to capture daylighting during winter months while providing shading in harsh summer months

Windows at the firefighter dorms are designed to provide natural ventilation & privacy while still allowing for ample daylight