**Type of Project:** State, New Construction  
**Materials Used:** Metal flush seam panels - galvalume and weathered steel, concrete masonry units, high performance glazing  
**Building Area:** 10,890 sf

**Narrative** (describe your project, emphasizing the elements of design achievement as defined in the judging criteria. Include project intentions, programming requirements, cost data and the distinguishing aspects of your resolution. Limited to 5000 characters:)

Fire Station #91 is the new prototypical facility for the City of Henderson Fire Department through a joint agreement between the City of Henderson and the Inspirada Master Planned Community. The project consists of a 10,890 sf of Fire Fighter Barracks, and Storage Bay for fire fighting apparatus. As a City of Henderson project, the building satisfies the City's Green Building Standards, and is targeting LEED Gold Certification.

The overall goals behind the proposed facilities are to provide a secure, flexible, functional, low maintenance building that is respectful of the local desert environment, the Inspirada Commercial Design Standards and responsive to the needs of the evolving West Henderson communities. It will provide respite for Fire Fighters and EMTs to perform at peak physical and mental awareness while providing 24 hour / 7 days a week emergency response and disaster relief services for the continual expansion of West Henderson.
SUSTAINABLE DESIGN INTENT AND INNOVATION

Narrative (Describe how sustainable design and building performance strategies are integrated within the project’s overall design goals. Limited to 5000 characters).

This LEED Silver certified fire station is sited at the base of an existing hill so as not to disturb the hillside; it follows the lands contours minimizing site disturbance, and maximizing daylighting orientations for public daylit spaces. Spaces receive optimal daylighting at north and south orientation, where common living spaces are located and receive full glazed walls.

Exterior materials consist of a combination of filled and polished or ground faced stacked concrete masonry units pigmented to match the existing native volcanic rock. This is accented by the use of low maintenance, high recycled content, metal flush seam panel sheathing systems, and vertical metal flush seam weathered steel sheathing panels aged to a patina consistent with design inspirations drawn from existing geology, flora, and fauna indigenous to the site. More importantly the overall color selection is designed to pay homage to the nearby Sloan Canyon Petroglyphs. Existing rock excavated on site is repurposed as type II compacted sub-base, Rip Rap to line drainage ways and as decorative landscape boulders.

The buildings energy consumption is reduced by the strategic use of deep set, high efficiency, glazing systems shaded by a perforated metal screen and canopy. Large overhanging canopy roof extensions are designed to provide deep, cool, shaded areas with unimpeded air flow over outdoor crew areas. The roof design consists of a highly durable Single-Ply “cool roof” with vertical flush seam panel fascia sheathing and soffits manufactured from the same high recycled content material as the building exterior.

Photovoltaics at employee parking areas provide 13% of on-site renewable energy to offset building energy costs.
DOCUMENTATION OF SPECIFIC MATERIAL CHOICES

**Narrative** (to address the needs for indoor environmental quality and diversion of materials from the waste stream)

Fire Station 91 is targeting LEED Gold Certification.

To achieve the proper indoor air quality for its occupants and visitors, the strategies below were implemented during design and construction:

- The building is a no smoking facility, and designated smoking areas are planned 25 feet from all air intakes and entries.
- Daylighting and views are provided at regularly occupied spaces.
- Adhesives and sealants utilized have low VOC’s.
- Paints and coatings; and woods specified are low emitting.
- Entry mats are planned to trap contaminants at: hallways to dorms and crew offices.
- Lighting systems and thermal systems/ HVAC can be controlled and adjusted by building users.
- A Survey and an action plan has been designed and is in place to verify if the facility is thermally comfortable for its occupants. The survey is planned to be administered within six months of operations.
- Each dormitory was designed with an operable window to allow for increased ventilation as desired by user.
- Views to the outdoors are provided from all common spaces, dormitories, and captain’s and crew offices. Spaces were quiet and dark were required were placed at the core, and training areas have high clerestory windows.
- Fans are provided at each dormitory, gym, dining area, dayroom, training room, crew and captain offices. This allows for further control of ventilation.
- A ten feet garage roll-up door at the gym, allows for fire fighters to open up the space to the exterior, and enjoy fresh air and views of the surrounding hill.
- A construction waste management plan was developed allowing for 75% of demolition and construction waste to be recycled and diverted from the waste stream.
- All rocks and boulders that were excavated or moved to clear areas during construction, were reused and utilized as accent elements of the landscape design.
- Daylighting provided at apparatus bay through the use of clerestory windows.
Site approach...
The fire station prototype is sited to follow the lands contours minimizing site disturbance, and maximizing daylighting orientations for public daylit spaces; spaces receive optimal daylighting at north and south orientation where common living spaces receive full glazed walls.
Sustainability and respect for the native desert and hillside became pivotal factors in site and design approach...
spaces are organized in a layered manner respecting the firemen work flow and need for quietude in between service calls.

1. public spaces/ oversight spaces; lobby, training, captain office
2. firemen common/family spaces; kitchen and day room
3. quiet spaces; dorms
4. service / active spaces; apparatus bay, support and exercise room

the building design layout allows for clear direct paths of travel that minimize response times of incoming service calls.

two main halls act as direct spines that connect dorms, kitchen and dayroom areas to the apparatus bay.

the building floor plan and space layout allows for the training center to function completely separate from the fire station: lobby, restroom and training may serve other stations without impeding and interrupting the functionality of the station.
FLOOR PLAN

PROGRAM REQUIREMENTS

1 lobby
2 training room
3 restroom
4 captain office
5 crew office
6 utility room
7 ems storage
8 day room
9 laundry room
10 electrical / data
11 dorm
12 crew restroom
13 janitor closet
14 kitchen / family room
15 outdoor patio
16 future dorm / expansion
17 apparatus bay
18 scba / air fill storage maintenance room
19 maintenance alcove
20 decon wash
21 ppe cleaning room
22 turnout/room ppe storage
23 exercise room

CITY OF HENDERSON FIRE STATION #91
**Organizational Diagrams**

**AXONOMETRIC - massing**

- **Solar**, photovoltaics at sloped high roof
- **Daylighting**, operable full height glazing at northern exposures spill natural light into the heart of the station, the “kitchen / family room”
- **Depressed roof**, a centralized roof area houses high efficiency HVAC equipment; located low disappearing from visitors sight lines
- **“Cool” roof**, simplified form unifies apparatus bay and building mass; allowing for high ceiling areas to capture daylighting while housing the engines
- **Daylighting**, operable clerestory with overhangs at apparatus bay; ventilates and allows for southern natural light into the active service spaces
- **Shading devices**, vertical and horizontal weathered steel devices control harsh western exposures while allowing for daylighting into captain and crews’ offices

*CITY OF HENDERSON FIRE STATION #91*
exterior materials selection is derived from the site’s natural elements, responding to an absolute no maintenance exterior with high durability:

- weathered steel,
- galvalume metal,
- ground faced stack cmu, and site boulders that are reused as landscape elements; become the driving elements of the architectural visual composition.
CITY OF HENDERSON FIRE STATION #91
SECTION - through family room
INTERIOR - kitchen and lobby

CITY OF HENDERSON FIRE STATION #91
plywood ceilings at lower and higher planes, open towards daylight, blurring interior and exterior edges

acoustical recycled wall material

easy to maintain ground and polished concrete floors