Concrete Masonry Association of California and Nevada

CMU Profiles in Architecture

Fall 2022

Why Masonry?
www.whymasonry.org

P-210 Flight Simulator
HDR
Photo by Alex Nye Art

Inside this issue:

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MASONRY CONTRACTOR:
GBC Concrete and Masonry Construction, Inc.
BLOCK PRODUCER:
Angelus Block Company, Inc.
OWNER:
Chaffey Joint Union High School District
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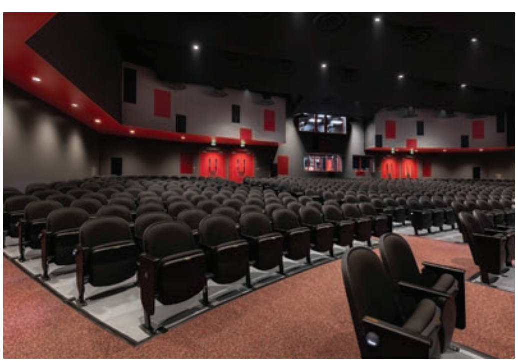
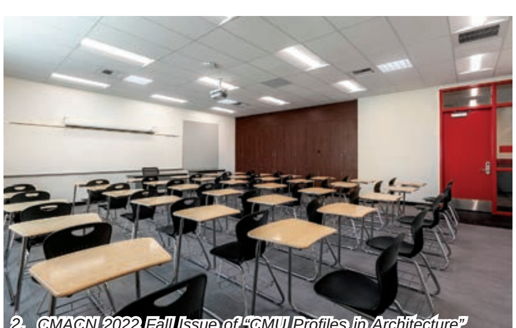
Etiwanda High School Auditorium and Classroom Building Addition

Rancho Cucamonga, California



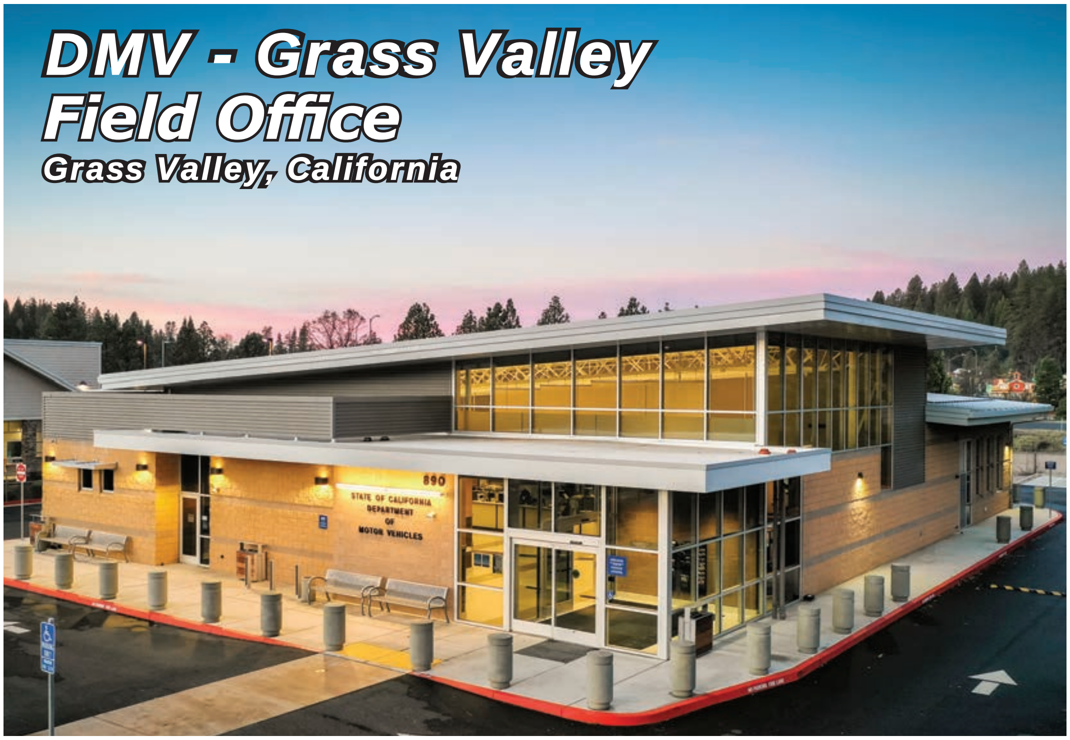


ARCHITECT'S COMMENTARY: The new Etiwanda High School facility addition is comprised of a two-story auditorium and a 50-classroom building, completing the school as the last permanent addition to this 25-year-old campus. The auditorium house seats 800 and features a lobby, restrooms, ticket booth, dual-level control room(s), and full working stage. Technical catwalks traverse the auditorium house at three points. The building also includes a scene shop, choral room, drama room, and a variety of classroom spaces.

WHY MASONRY? The building's structure is made of concrete masonry units (CMUs) and steel, keeping with the remainder of the campus. The multi-color masonry blends the auditorium with the existing architecture, while a new public plaza with an expansive roof overhang becomes a focal point of the school's central quadrangle. CMUs were instrumental in keeping outside noise out while helping tune performance sounds within the auditorium. The auditorium has a sister building at nearby Rancho Cucamonga High School, and the two buildings were designed concurrently to share technical rigging, lighting, and sound equipment.

DMV - Grass Valley Field Office

Grass Valley, California



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Masonry Contractor:
Townsend & Schmidt Masonry
Block Producer:
Basalite Concrete Products, LLC
Owner:
California Department of General Services
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Architect's Commentary: Located in the mountain community of Grass Valley, the 8,000-square-foot DMV Field Office is a public resource that is visited by every member of the surrounding community. As part of its programmatic mission, the new office needed to be extremely durable as well as be an iconic community facility, while representing a continued commitment to sustainable building design by the State of California.

Why Masonry? Due to their extreme durability, ease of maintenance, low cost, and ability to respond to the disposition of the surrounding site and community, concrete masonry units (CMUs) were an excellent choice as one of the DMV's primary building materials. The use of CMUs was also a logical choice to help with the interior environmental systems and the zero net energy requirements of the building, helping to create a thermal lag. Architecturally, CMUs were a natural fit, helped create a mass that anchors the building, and blend in with the surroundings of the community. Furthermore, CMUs provide the durability required by the State to handle the daily public use.

The CMUs consist of two defined sections, the entry and the perimeter. The entry features a ground face CMU signage wall helping to direct visitors to the front door, while the perimeter consists of a split faced CMU with a ground faced color band that matches the accenting metal panels. Within the interior, the ground face CMU wall provides extreme durability from public abuse and stays exposed as one enters the building. Inside, only ground face units were used, and the clerestory windows wash the CMU walls with natural light, which highlights the subtle differences in the aggregates.

P-210 Flight Simulator

MCAS Miramar, California

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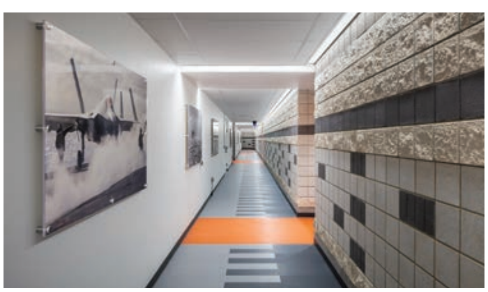
Masonry Contractor:
Haxton Masonry Inc.
Block Producer:
RCP Block & Brick, Inc.
Owner:
NAVFAC Southwest
©Photography:
Alex Nye Art - dusk and interior photos
Pam Martin, RCP Block & Brick, Inc. - exterior daytime photos

Architect's Commentary: The F-35 Flight Simulator at MCAS Miramar is a critical component of the F-35 Joint Strike Fighter's (JSF) defense mission in the Western U.S. This facility is a 53,000-square-foot, two-story building that houses six augmented reality simulators that are individually valued at more than the building itself. Offices for training and other associated mission functions are co-located for efficiency and security.

Why Masonry?

This building relies on nine different types of CMU for its structure, security, sustainable features, and the ample pallet of colors and textures used expressively inside and out. The design of the floor plan organically developed into a kit of parts, that upon rotation and repositioning, organized the building in a cohesive and logical manner. As mission dictates form, the highly secure nature of the facility required large building masses that were appropriately given a human scale with changes in color, texture, and modularity by utilizing various colors and textures available in concrete masonry unit (CMU) construction. CMU banding on the exterior continues inward and hints at the layering of internal zones that are reserved only to the building occupants. Pilasters at the perimeter are like sentries echoing the security requirements of the building. The soaring glazed entry emulates the ascent incline of the F-35s upon take off, and the metal pilasters represent the three differing variations of the aircraft.

The project was designed to meet all USGBC Guiding Principles, utilizing sustainable strategies such as dual sourced plumbing to allow the use of recycled water wherever possible. Also included is a high albedo reflective roof and carport solar arrays that reduce the heat island effect while decreasing energy use and generation power. While the majority of the highly secure zones are windowless per mission requirements, the building's interior lighting is designed to allow tuning to circadian rhythms and function as inherent wayfinding to the various zones.



McAuley Residence

Bonsall, California

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Lance McAuley
Principal-in-Charge

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BLOCK PRODUCER:
ORCO Block & Hardscape
OWNER:
McAuley Design and Construction, Inc.
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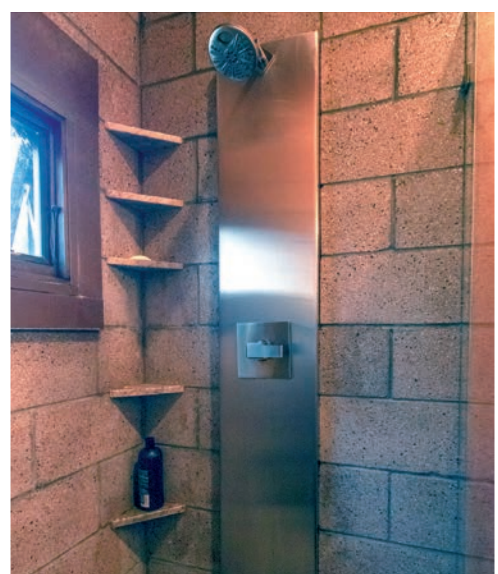
Ryan Hills

ARCHITECT'S COMMENTARY: Located just minutes away from Bonsall's beautiful wineries, craft breweries, and cultural art centers, the McAuley Residence was designed to capture all of its breathtaking surroundings while remaining sustainable and green. Attention to detail was critical to ensure this residence would remain timeless and functional for many years to come.

WHY MASONRY?

In working with the community and local fire department, it was concluded that concrete masonry units (CMUs), when used to their fullest potential, would allow for the desired architectural design, constructability, and sustainability that was to be achieved by the project.

Burnished and split face CMUs were used to achieve the project color and aesthetic effects, as well as Venetian plaster to tie into the rich history of the surroundings. With CMUs as the main construction material, a thermal mass approach was applied to utilize the cooling effects that can be found in Southern California. Likewise, all of the structures at this residence possess concrete floors, CMU exterior and interior walls, concrete roof tiles, and concrete flatwork. A concrete bistro table is also on site, tying the structures to the owner's personal effects. In addition to CMU use, solar electricity, massive water harvesting, construction waste recycling, water-based finishes, and permeable driveways were used to keep this project as "green" as possible.



Agua Caliente Elementary School Reconstruction, Palm Springs Unified School District

Cathedral City, California

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Richard Nowicki, AIA
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Erickson-Hall Construction
Masonry Contractor:
New Dimension Masonry, Inc.
Block Producer:
ORCO Block and Hardscape
Owner:
Palm Springs Unified School District
©Photography:
Zach Benson Photography

Architect's Commentary: Agua Caliente Elementary School was originally constructed using a mid-century modern style. Located in Cathedral City, the school was built in 1962 in a neighborhood of affordable modernist homes known as the 'Dream Homes.' For many, these homes were the first and only opportunity to own a home and create a family legacy of success. Age has withered that modernist dream, and updates are due. The Districts' goal was to provide new school facilities that support the Architectural heritage of the community through the design of a school that relies heavily on Palm Springs' modernist traditions. The design for the new campus is inspired by the internationally renowned architectural movement of 'Palm Springs Modernism' to continue the contextual connection to the community and its rich history.

Why Masonry? The desert climate is harsh, but features of modernism, effective at connecting the interior spaces to the physical environment, can be made sustainable through careful material selection and building orientation. Locally sourced concrete masonry units (CMUs) were chosen, not only for their durability and permanence, but also for their intrinsic environmental benefits. The new campus design harnesses aspects of the desert climate to increase energy efficiency and occupant comfort. The design incorporates abundant natural light with windows full of views of the mountains. Passive heating and cooling through thermal massing is provided in the concrete floors and CMU walls, storing energy during the desert's diurnal swings. The CMU walls were specified with dark aggregates to increase visual comfort by limiting solar glare common in desert environments. Reflective insulation, insulated/coated glazing, and solar reflective surfaces provide increased insulation values in the building envelope. Lastly, the buildings are oriented on site to mitigate the impacts of the prevailing winds and airborne sand, with CMUs providing the durability needed for the building and large overhangs providing abundant shade to the windows, entries, and outdoor collaboration areas.

Design Masonry Headquarters

Santa Clarita, California

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GENERAL CONTRACTOR:
Design Masonry Inc.
MASONRY CONTRACTOR:
Design Masonry Inc.
BLOCK PRODUCER:
Angelus Block Company, Inc.
OWNER:
Design Masonry Inc.
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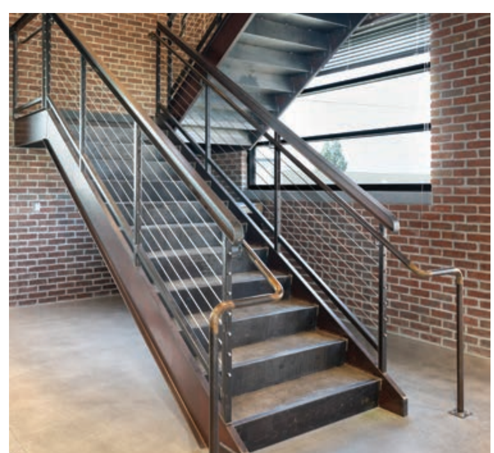
ARCHITECT'S COMMENTARY: The 10,000 square-foot two-story headquarters for Design Masonry Inc. was programmed to serve the sales, bidding, project management, and distribution divisions on the first floor with their corporate offices on the second floor. The major design challenge was to develop the project on a flood plain with the finish floor 5-feet above grade. That condition presented an opportunity to incorporate a single material for site walls, planters, and the building envelope.

WHY MASONRY? Design Masonry Inc. wanted to celebrate the use of masonry and the craft-handmade industry that is thriving and are a part of. The building material and massing relates to the manufacturing district that surrounds it and sets itself apart by the amount of windows and careful detailing in its finishes. The use of concrete masonry units (CMUs) allowed the project insulation values, achieve larger openings for more natural light, sound insulation and a beautiful finish.

A single CMU color was used throughout the project in various finishes and textures. This allowed unity of the material throughout the project and to showcase the versatility of the block. It was important to Design Masonry Inc. to express the purity of the raw masonry and concrete materials throughout the project, both inside and out.



Concrete Masonry Association of California and Nevada

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a nonprofit professional trade association established in 1977, is committed to strengthening the masonry industry in California and Nevada by:

- Providing technical information on concrete masonry for design professionals.
- Protecting and advancing the interests of the concrete masonry industry.
- Developing new and existing markets for concrete masonry products.
- Coordinating Members' efforts in solving common challenges within the masonry industry.

CMACN

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