

2022 Summer

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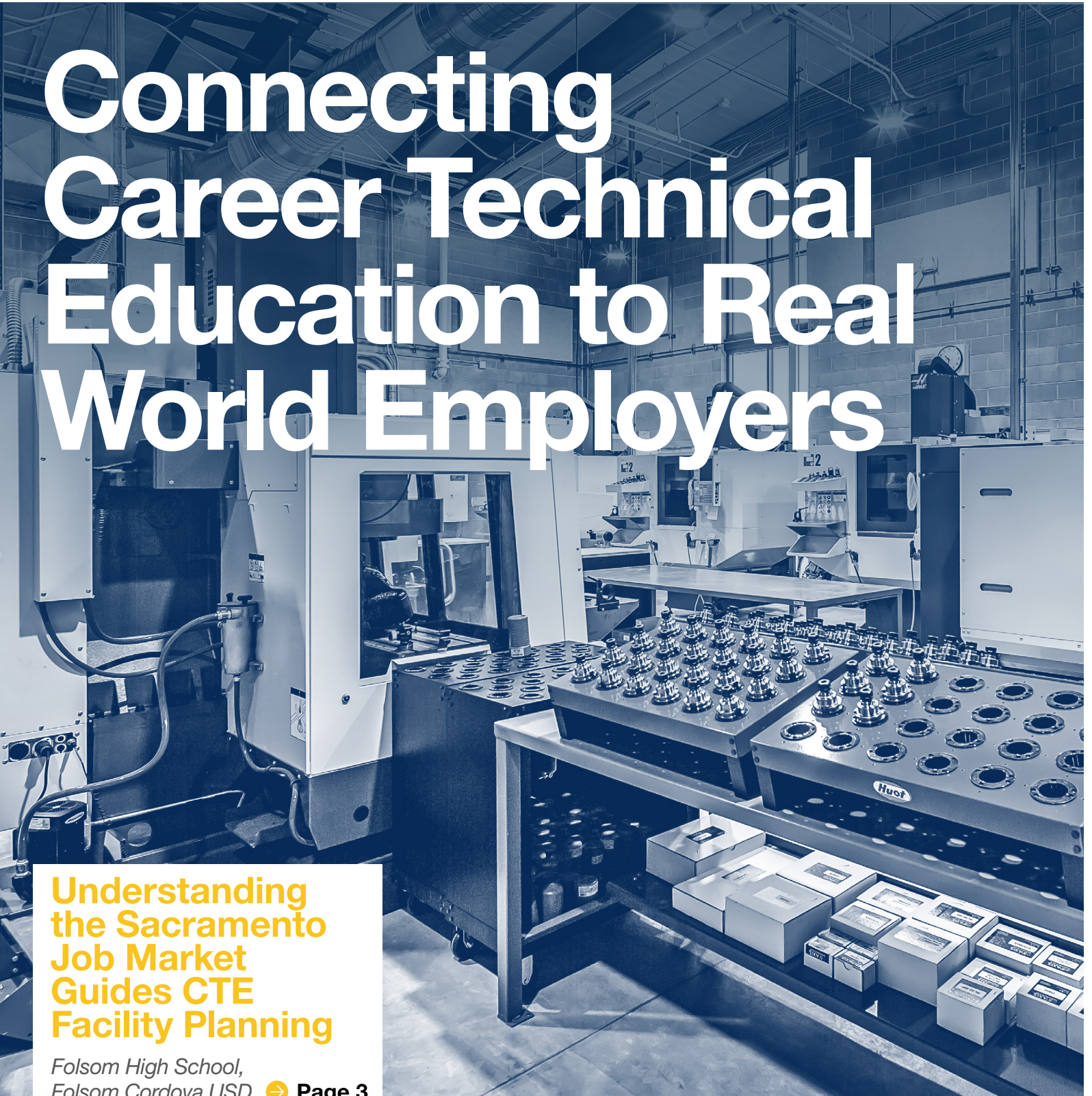
school**news**

HMC Architects

Connecting Career Technical Education to Real World Employers

**Understanding
the Sacramento
Job Market
Guides CTE
Facility Planning**

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Folsom Cordova USD ➔ **Page 3**



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Connecting Career Technical Education to Real World Employers

Understanding the Sacramento Job Market Guides CTE Facility Planning

*Folsom High School,
Folsom Cordova USD*

By: Teri Jamison, AIA, LEED BD+C, ALEP
Managing Principal
RGA + A Studio of HMC Architects



Natalie Elliott-Cisneros stands in front of a large computerized numerical control (CNC) machine operating the 137-button control panel while monitoring a high-speed spindle through plexiglass doors. Based on a computer-generated design, it is carving a four-inch cube of aluminum into a trailer hitch cover featuring the school mascot. Natalie is one of several students working on six CNC robotic mill machines under the watchful eye of Folsom High School Manufacturing & Product Design instructor Andrew Bias who goes by Drew.

Drew circulates the room, stopping to engage, evaluate, answer questions, and noodle through problems. Nearby, inside a large welding booth, a student wearing a heavy hood is zeroed in on the little blue arc at the tip of his welder. As sparks and heat fly off, he drags an orange molten puddle to fuse two pieces of steel. This is one of 11 welding stations, including a robotic welder, a set-up rivaling many welding shops. The hive of activity in this ample shop space could be mistaken for the floor of a commercial production facility.

A New Facility for a New Generation

Folsom Cordova USD dedicated this 20,155 SF CTE building last September, a long-anticipated addition to the sprawling Folsom High School campus that serves over 2,500 students in the suburbs 20 miles east of Sacramento. When we designed and built this campus in 1998, CTE was not an emphasis in education. Shop spaces were eliminated because there was this idea that the college track was the only way to go. Educators understand that not everyone should be on the traditional college track. Everything has changed, and there's an understanding of how valuable CTE is and that kids learn differently.

Career Technical Education has come a long way in just a few decades. In 2020 there were 11.1 million CTE students across every state, with programs in nearly 1,300 public high schools and 1,700 two-year-colleges (U.S. Department of Education). It is broadly understood that CTE is helping our nation meet the real and immediate challenges of economic development, student achievement, and global

competitiveness. The California Department of Education website points out a correlation between CTE Ed and future success in both primary pathways: either into a college program or a career position.

The facility at Folsom HS features a shop, lab, and classroom spaces for learning in a broad and diverse set of disciplines: product innovation (which includes welding, woodworking, robotic lathe), engineering design, architectural design, systems programming (computer science), graphic design, game development, and film/video production.

Six faculty members split their time between the large machine room, an equally large woodshop space, and three classrooms that connect to the workspaces. The machine shop connects to one of the classrooms via a window, allowing supervision and observation. The labs/classrooms (shared with the Physics program) feature sinks, lab worktops, and power drops from the ceiling at each workstation. There are teaching walls

and tech connectivity throughout the facility. Oversized doors open onto a work yard behind the facility. This partially covered space is a staging and utility area for materials and large projects.

We had to plan precisely so that the various programs could work in sync within the space. The requirements of these specialized spaces included slab stabilization for vibration control, dust control, compressed air, and the technical power needs of the machinery.

Connecting the Dots in Sacramento

At the ribbon-cutting in September, one of the speakers was Scott Frederick, a quality assurance manager at the 60-acre Siemens plant in south Sacramento that makes passenger rail vehicles. Scott, an engineer with a diverse manufacturing background, talked about being included by the district in the facility planning process. "Siemens is part of the Sacramento Valley Manufacturers Association (SVMA), an industry advisory group that coordinates with and advises high school and community college CTE programs," he said, underscoring the

➔ *Continued next page*



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importance of CTE programs as a source for work-ready employees.

"We reviewed the architectural plans, and the equipment list worked with Drew Bias and other faculty members, and talked about the type of welding we do—stainless steel, carbon steel, MIG welding (Metal Inert Gas). We want new hires to have skills and safety training (OSHA-10 certification, referring to an industry-standard 10-hour program), ladder safety, eye safety, and chemical identification."

"We need a few robotic welder operators and a lot of manual welders." He explained how even manual processes are fairly technical today, assisted by wireless and Bluetooth technology apps. "Our operation has different job functions for different aptitudes—the person who likes detail-oriented bench work will excel at wiring

sub-assemblies, and then we also have the larger crane-assisted assembly work that's more like construction."

Siemens has operated in Sacramento for over 30 years, employing over 1,500 people. At the 600,000 SF manufacturing complex, they design, engineer, and build locomotives, passenger coaches, light rail vehicles, and streetcars. The facility provides vehicles, components, and systems to more than 30 transportation operators around the country. The plant has manufactured locomotives for Caltrans and light rail trains for San Francisco, Sacramento, and San Diego in California.

At the FHS CTE ribbon-cutting, Scott mentioned the need (at the time) for approximately 100 welders and 100 assemblers over the following year, some of whom would work on a large Amtrak contract that will run through 2030. "For several reasons, Siemens has carved out a specialty, supplying the passenger light

rail market. We are well-positioned and growing fast. But our growth is limited by our ability to hire skilled employees." They are currently running three shifts a day (24 hours continuously), five days a week, with some 60 welders in their Weld Education Center.

Depending on the need and skill level, a student can come from a community college or directly from high school and start on one of Siemens' welding benches. Entry welding and assembly jobs start at around \$17/hour and \$21/hour, respectively, but the advancement is typically fast for high performers. They have specialists and senior people who can make up to \$35-45/hour, and several people at their facility are in the six-figure range with overtime. That's six figures with a community college degree, without all the big student loans.

This is the heart of the CTE story—connecting high school education with real-world jobs that pay a good wage.

With a skilled labor shortage in the U.S. (see Further Reading), this type of industry/education partnership is a real win-win.

Hands-On Learning and an Innovation Vibe

CTE Division Lead Instructor Tyler Johnstone is excited to be in this new facility. He teaches Introduction to Engineering and a two-course sequence in the Architecture Pathway. Both classes include a mixture of hand drafting, CAD, and practical shop skills. He brings back former students working in the trades to instruct students on wiring and circuits. He explains, "With this new shop space, I can now deliver far more depth to the curriculum than I ever could."

In the spring, student-choice projects include 70 options, with everything from custom drones, pendulum art creation, robotics arms, and custom chess sets. Tyler loves this student-centered

learning, “Once the students learn to use the tools and spaces we have, they can take ownership of their education. I’ve helped open a new world up for them, and they get to create their learning journey with me helping along the side.”

Ask Drew Bias about the students, and you can see him light up, describing the high levels of student engagement, including adding additional course offerings to meet the increased demand. In talking with some of the students, you get a sense of the interest in making cool things, and their love of the hands-on group work:

“I have been able to learn a lot more useful skills than in my standard classes. This includes using 3D modeling programs that we will later be tested on so that we can receive an industry certificate. It can be more fun than my traditional classes as we get to do unique projects, most of the group activities.”

— Sean Ganbold, 9th grade

“All the tools and resources like computers have made it easy for online CAD designs and in-shop builds. My CTE course (IED) is my favorite class because of the flexibility and freedom to design whatever you want for a project. Overall, my CTE course is extremely engaging. It makes me excited to walk into my classroom every day.”

— Eric Beckford, 10th grade

A District Priority

One of the key planners for the Folsom Cordova USD is Alicia Caddell, an administrator in charge of Career Technical Education for 7th through 12th grades. With her 13 years as a Business and Technology Teacher and corporate sales positions in Silicon Valley, Alicia has the right background for this role. She is laser-focused on understanding the job market and “making sure students have the ability

to go where the jobs are, getting that certificate, whether it’s product innovation, manufacturing, medical” or any of the district’s 20 pathways within ten industry sectors.

In addition to helping develop the curriculum and programming, Alicia was instrumental in securing a six million dollar State CTE grant. The Six Million Dollar Woman, as colleagues called her, guided the FHS application through a rigorous and competitive three-stage process. “All told, the FHS CTE facility was planned, designed, and built on a five-year timeline,” she says.

Caddell gives credit to two key players. “Although he is too modest to admit it, Principal Howard Cadenhead was the driving force behind this project and the liaison with local industry. He would say, ‘We’ve got nothing for talented kids who are good at working with their hands.’ Now they do. She continued, “District COO Matt Washburn played a vital role in planning and delivering such a state-of-the-art facility, especially the decision to build a new dedicated facility versus attempting to modernize an inadequate existing space.”

“It’s great to see the excitement and enthusiasm in the students,” Washburn says. “These new experiences they are gaining will help prepare them for future opportunities.”

Caddell mentions that a diverse range of students thrives in CTE programs and that many young women are in the program. She notes that special needs students often excel in this detailed, hands-on work.

FCUSD Superintendent Dr. Sarah Koligian sums up the larger context of the CTE program and ongoing relationships with industry partners: “Folsom Cordova USD is pleased to offer our students a one-of-a-kind space devoted to skill-based and

hands-on learning. It is a district priority, and our business partners continue to interact with teachers and students during the school year and the summer, providing the internship. This gives our students a cutting-edge advantage as they prepare for the workforce.”

As the Folsom High School CTE program completes its first few years in this modern facility, faculty, administrators, students, and parents look forward to seeing graduates eventually move into good-paying positions at Siemens and across the local workforce.

Further Reading:

Folsom Cordova USD CTE:
<https://www.fcusd.org/Page/31933>

Siemens U.S., Sacramento:
<https://new.siemens.com/us/en/company/siemens-in-the-usa/sacramento.html>

Inside the Massive Factory Where Siemens Builds Trains | WIRED

Siemens Sacramento Rail Manufacturing Plant

Building Brightline’s Trains: A Tour Inside Siemens Sacramento Rolling Stock Factory

Advance CTE, Non-profit advocacy:
<https://careertech.org/>

Skills USA:
<https://www.skillsusa.org/>

California Department of Education Fact Sheet:
<https://www.cde.ca.gov/ci/ct/gi/ctegeneralfacts.asp>

Skilled Labor Shortage:
CNN Business (5/4/21): American factories are desperate for workers. It’s a \$1 trillion problem
CNN (10/25/21): Nearly half of American companies say they are short of skilled workers



By: Bruce Boul
Communications Director
HMC Architects

Point of View

Malibu High School

**Project
Profile**



“THESE MODERN BUILDINGS BETTER MATCH THE HIGH LEVELS OF LEARNING AND CARE THAT HAPPEN DAILY IN OUR CLASSROOMS. THE ENTIRE MALIBU COMMUNITY IS EXCEPTIONALLY PROUD OF THIS PROJECT.” – *Malibu High School Principal Patrick Miller*

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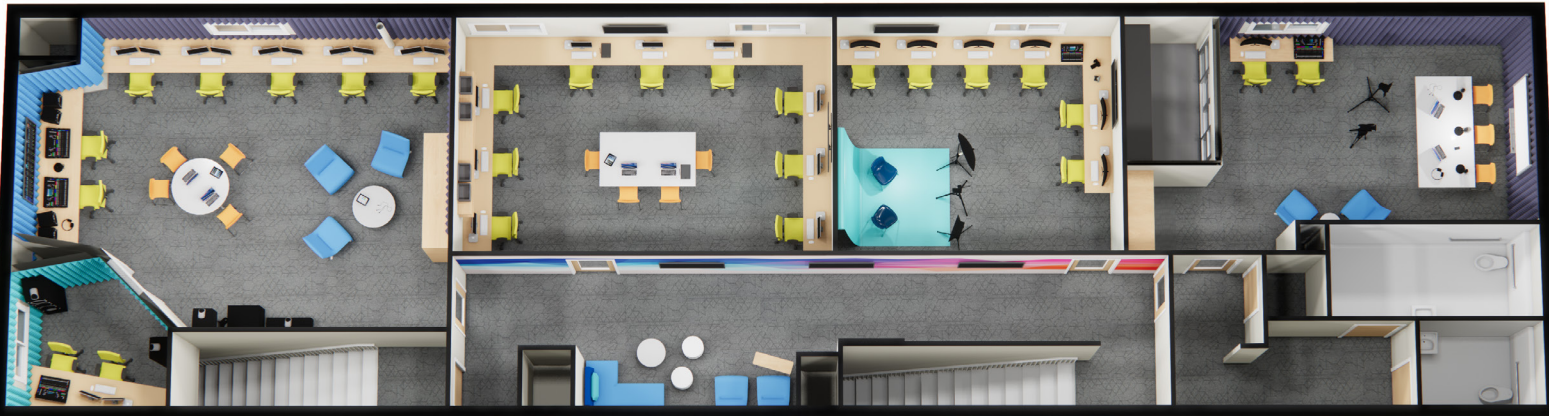
Located in a city famous for its coastline, canyons, surf, and sun, Malibu High School's new Classroom, Library, and Administration building celebrates the local landscape to create a harmony of environment and education and transform the campus. The modern facility's flexible spaces, with sea breezes and views of the surrounding mountains, aim to improve the student experience and support them in reaching their fullest potential.

The stepping two-story building spans the entire street front and flows with the natural topography of the school's hillside location to create a much-needed new face of campus. A two-level administration wing anchors the new main entry, serving the incoming public and students at the main level at its lower entrance. The library's placement at the northwest corner frames a secondary campus entry with the existing theater building, reinforcing the shared public use of these two programs. There are new classrooms and labs on the courtyard and upper level, along with a demonstration roof garden that functions as an educational space for student and community use. The design integrates sustainable strategies that optimize learning environments while reducing reliance on mechanical and electrical

systems. Abundant glazing throughout the building is protected by exterior circulation arcades with extensive sunshades, promoting outdoor physical and visual connections for students and staff. The dynamic yet functional design features generous daylighting, highly visible photovoltaic canopies, expansive sunshade devices, and angular roof elements, connecting students and staff with their surroundings. The revitalized student courtyard improves stormwater management, creates various scaled use opportunities for students, and supports outdoor teaching environments highly suitable to the Malibu climate.

During construction, HMC led a seven-week design and construction seminar for the students, immersing them in the process. Students toured the job site, reviewed stakeholder surveys, and learned about design, construction, sustainability, landscape architecture, and energy and water management. During the last week, students presented their designs—based on what they'd learned—while the project team provided valuable feedback and knowledge while encouraging students to dive deeper into the industry and open their minds to real-world opportunities.





Making Music

HMC Architects Partners with Boys & Girls Club to Design New Challengers Media Suite

By: Sergio Lechuga

Design Principal
HMC Architects



The Boys & Girls Club of Metro Los Angeles's (BGCMLA) sole mission is to enable young people, particularly children, in the most vulnerable neighborhoods of Los Angeles to reach their full potential by offering creative, research-based education programming in Science, Technology, Engineering and Math (STEM). It is no coincidence Grammy Award-winning recording artists, producers, and prominent donors have partnered with BGCMLA, HMC Architects, and HMC's Designing Futures Foundation to design the new Challengers Media Suite and Recording Studios.

Located in South Central Los Angeles at the Boys & Girls Club Challengers Clubhouse, the existing second-floor loft will be converted into a state-of-the-art music recording studio, technology lab, visual arts studio, and podcast/radio recording studio. The

interior design is envisioned to reflect the diverse surrounding community by incorporating vibrant materials and finishes and custom wall graphics. Spaces come to life with engaging, flexible, and contemporary furniture that one might find in industry sound studios. Designed to work within the existing floor layout, the reenvisioned studios will upgrade essential building systems and will be made ADA accessible.

The new space will give students a one-of-a-kind experience that introduces them to music production, mixing, songwriting, photography, graphic design, and other courses essential to aspiring artists. Audio, visual, and technology stations will be outfitted with modern equipment used by industry professionals accompanied by a library of tutorials and projects. The Challengers Media

Suite is a place to become exposed to fun and inspiring hobbies that have the potential to become lucrative professions. The suite will bring a music education and recording program to an underserved community of Los Angeles, teaching students about the music industry and business etiquette. Its creation will have an immense and lasting impact on students, help them become proficient in the industry technology, and guide and inspire them into viable career paths. The design plans have been presented to the client and donors who will move forward onto the next steps with the goal of completing the project in late 2022/early 2023.

HMC and the DFF are long-time supporters of the Boys & Girls Club. Since 2017, we have supported the annual Herman Miller We Care Event at the Boys & Girls Club in Hollywood.

In 2020 the DFF awarded a \$6,000 grant to the BGCMLA to support the renovation of one of the outdated rooms at their Challengers Clubhouse, so that the new room is safe, inspiring, and adequately equipped to serve as an educational hub for children. In conjunction with the grant, a team of three HMC interior designers designed the project under the firm's pro bono program to create a bright and flexible new space for the club. The DFF has also awarded a \$5,000 grant to the Boys & Girls Club San Francisco to create opportunities for San Francisco youth to think critically about their place in a rapidly changing city through art, music, and spoken word. HMC is proud to continue to serve the Boys & Girls Club and help bring a positive impact on our local communities.

Seismically Safe

How the Seismic Mitigation Program Can Improve Safety

By: Stephanie Lozano

School Facilities Planner Analyst
HMC Architects



To assist school districts with improved facilities for students and staff in what is considered “California’s most vulnerable schools,” the School Facilities Program (SFP) created the Seismic Mitigation Program (SMP). The SMP allocates state funding for the replacement of buildings, rehabilitation of buildings, or replacement of an entire campus.

There are three options for receiving state funding under the SMP: (1) replacement of the entire school if all buildings on campus are eligible for replacement, (2) replacement of individual facilities [one or more buildings], and (3) repair of individual facilities. It is essential to understand that DSA is the state agency that determines building eligibility and approval of either replacement or rehabilitation project applications. After DSA accomplishes this, the district submits a funding application to OPSC. DSA determines eligibility for funding and application approval. OPSC approves funding, and the SAB releases the state funding.

The first phase of the SMP process is determining whether your building

is eligible for funding. This period is the time for districts to team up with California licensed design professionals (architect and structural engineers). The structural engineer should provide a report with evidence demonstrating the specific building poses a risk of injury to occupants due to ground motion. While the structural engineer prepares their report, the architect must register the project to the appropriate DSA regional office. The DSA fee for the funding eligibility phase is \$1,000 per building. Each building submitted to DSA for phase one review is treated as an individual project, even when located at the same site. Should a district want DSA to review multiple buildings for funding, each building must have a structural engineer report, registration, and pay a \$1,000 fee. Districts can upload the submittal to DSABox. DSA will assess and issue Bluebeam Session ID to view comments and Project ID to upload for backcheck. After the re-review, DSA will advise the district and design team if the building or buildings meet eligibility. Once the district receives the concurrence letter from DSA that the building meets the funding eligibility criteria, the district can proceed with

phase two of selecting replacement or rehabilitation.

Phase two of the SMP process determines the analysis used for receiving state funding. After receiving a concurrence letter from DSA in phase one, the design team and district need to decide whether they will submit a replacement or rehabilitation analysis. For a district to qualify for the replacement option, they must demonstrate that the estimated cost of replacement is higher than 50 percent of the building’s cost. Otherwise, the project is ineligible. The district must show replacement and rehabilitation costs for the replacement option. Funding is based on the required DSA scope of minimum work to replace. The replacement analysis report should describe the seismic deficiencies.

If the estimated cost is less than 50 percent of the building cost, the project will qualify for rehabilitation. The rehabilitation requires a pre-application meeting with DSA to review the evaluation and design criteria. Seismic rehabilitation includes strengthening all structural elements and requires

complete inventory and analysis of non-structural components of the building. Rehabilitation projects are also subject to structural repair for wind and seismic forces. After the pre-application meeting, the design team must register the project six to eight weeks before submitting the evaluation and design criteria report. Each building must be submitted as a separate application for projects with multiple facilities. After DSA review, they will issue Bluebeam Session ID to view comments and Project ID to upload for backcheck. DSA reviews the backcheck documents, and if everything is satisfactory, they will approve the evaluation and design criteria report.

Once the district has received DSA approval on the replacement or rehabilitation analysis, the district must submit a project to DSA for completion of work (phase three of SMP). This phase is different than the rest because this is where the design professionals either submit a scope of work for new construction (replacement) or modernization (rehabilitation). This will be a regular EPR submittal and should follow

PR18-04 Procedure for Electronic Plan Review for Design Professional of Record Using Bluebeam. Suppose the district wishes to expand the scope of work beyond the minimum required seismic rehabilitation. In that case, they must submit the project in increments, where the first increment must include only the work expected to receive SMP funding. OPSC's requirement for project funding is limited to work required to obtain DSA approval of seismic rehabilitation and related fire life safety and accessibility upgrades. Any other work outside the provisions of seismic rehabilitation will not be eligible for state funding.

A district can request conceptual approval of their project, which occurs after phase two approval (replacement/rehabilitation analysis), but before submitting their project to DSA for phase three (approval of plans and specs). The conceptual approval process is not

required, but it provides the district with insight into whether their project qualifies for funding and estimates the amount for which they are eligible.

The fourth and final phase of the SMP process is funding. OPSC has supplemental grants available for replacement or rehabilitation projects. Districts can request these additional funds depending on the analysis option for their project. The district must submit the package to OPSC to get approval for the funding. The entire package is submitted to the OPSC's online portal. During the intake period, OPSC can issue a 24-hour letter requesting missing required documents to complete the submittal. The district is required to upload missing documents or risk denial of funds. After an initial review of documentation, OPSC can send a 15- or four-day letter to the district to provide concurrence with OPSC's findings or submit

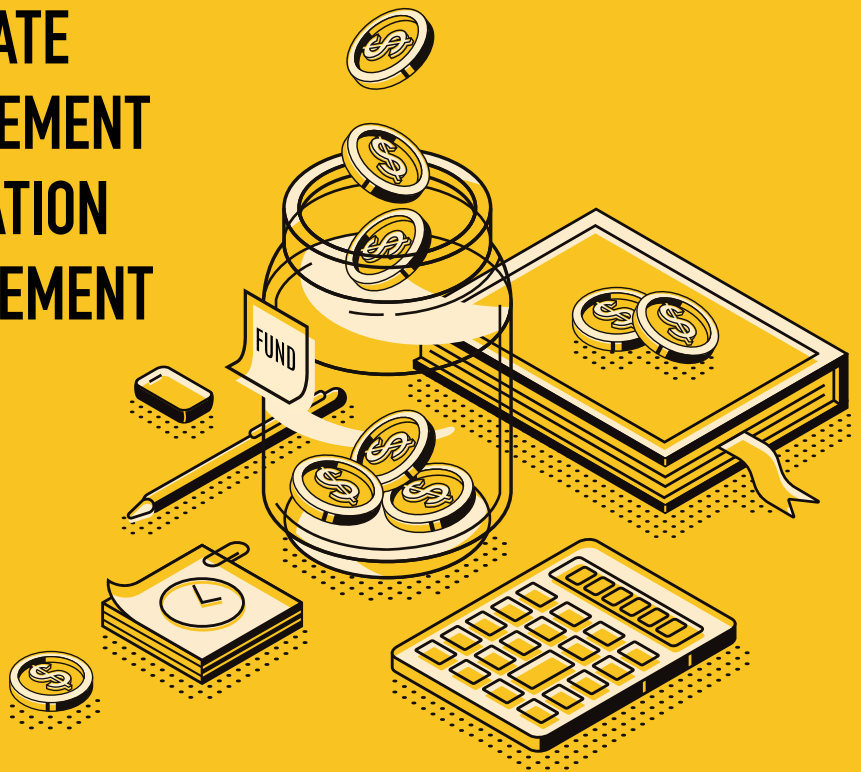
additional evidence to support different conclusions. Once OPSC approves the funding application, they will place it on the Unfunded List (Lack of AB 55 Loans) and subject to the Priority Funding Process. The district must participate in the priority funding or risk revoking its project. When the SAB grants the apportionment, the district must submit a SAB 50-05 Fund Release Authorization form.

Once funds are released, OPSC has very minimal oversight on the use of funding and places responsibility on the district. OPSC monitors project progress via SAB 50-06 Expenditure Reports and DLOPE (Detailed Listing of Project Expenditures) required to be submitted by the district. This SAB 50-06 allows the district to report all expenditures from district and state funds in summary form. The DLOPE is used as supplement data and should be attached to the SAB 50-06

Expenditure Report. Smaller-scale projects completed in less than one year will only require one expenditure report. Larger-scale projects will require several expenditure reports. The first expenditure report is due one year after the first fund release. Additional expenditure reports are due annually upon the date of the first report or until the project is complete. A project is finished with the district notifying that project is at 100 percent, or if a project is less than 100 percent upon its third expenditure report. Within two years of receipt of the final expenditure report, OPSC will close out expenditures. Any state portion, including interest earned on state funds not used, must be returned to the state.

At HMC, we're dedicated to helping you design safe, resilient learning environments. If you have questions about the SMP, please contact us.

THE SMP (SEISMIC MITIGATION PROGRAM) ALLOCATES STATE FUNDING FOR THE REPLACEMENT OF BUILDINGS, REHABILITATION OF BUILDINGS, OR REPLACEMENT OF AN ENTIRE CAMPUS.



Birch Lane Elementary School Celebrates New Multipurpose Room

By: Kathleen Stanton
Communications Specialist
HMC Architects



HMC Architects and Davis Joint Unified School District (DJUSD) recently celebrated Birch Lane Elementary School's new multipurpose room (MPR) grand opening in Davis, California, with a ribbon-cutting ceremony.

This MPR is the first of four delivered for the DJUSD. Birch Lane's MPR has four major components: kitchen, dining/performance, music, and support spaces with room for 650 students and dining seating for 300. Designed to be the heart of each campus, the buildings revitalize campus culture and provide a welcoming space for the whole school to gather. Deep overhangs allow indirect light to flood the main MPR space and minimize glare.

"I am as impressed with (HMC's) design work as I am with their engagement process," said DJUSD's Executive Director of Capital Operations David Burke. "While each building is

essentially the same programmatically, HMC skillfully located the placement of each building to reinvigorate the students and staff, developing a new center for social activity."

Designing and constructing all four MPRs with slightly staggered construction schedules allowed for an efficient flow of trades across the four sites. The design team led stakeholder engagement meetings, both in-person and virtually, leading to a successful process for each campus. As the first of four, the subsequent MPRs benefitted from issues resolved at Birch Lane ES. The district's strategy to bid the four projects in one package allowed our construction partners, Landmark Construction, to take advantage of a competitive market. With this combination of efficiency and competitive bidding, DJUSD estimates they saved over \$4 M in design fees and construction costs.



HMC Architects' Sacramento Studio Moves Downtown

In August 2021, HMC Architects acquired Sacramento-based Rainforth Grau Architects, creating one of the strongest PreK-12 educational design practices in California. We're happy to announce that we've merged our Sacramento offices into a single location in midtown Sacramento.

Located in the vibrant heart of Sacramento's arts and entertainment district, the studio features a large contemporary open plan with collaborative meeting and presentation spaces that supports our Stronger Together work mentality.

We look forward to hosting clients and industry partners here and together creating designs that have a positive impact on our communities.

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