WESTERN PLACER USD

SCOTT M. LEAMAN ELEMENTARY SCHOOL

EXECUTIVE SUMMARY

The Design Question:

How can we develop a cost-effective and inspiring elementary school for all students in the Leaman community that is functional, efficient, sustainable, and a residential fit? We answered by identifying the project's "wow moments" and prioritizing how we would spend the money. We designed repetitive building panels that were built off-site and efficiently installed on-site. We also utilized simple, inexpensive, durable, and easy-to-maintain materials. Building and site elements are strategically used to define outdoor collaboration spaces promoting communication between collaboration pods while providing a level of privacy for group discussion and informal gathering.

SCOPE OF WORK AND BUDGET

Project Name:
Scott Leaman Elementary School

Location:
Lincoln, CA

School District:
Western Placer Unified School District

Project Type:
Public/Education

Grade Level:
Elementary School

Project Size:
Site 9.4 Acres and Buildings 54,430 SF

Construction Cost:
$503.40 SF

Completed:
Fall 2020

SCHOOL AND COMMUNITY ENGAGEMENT

The Community:
Located in the heart of an established residential community in southwest Lincoln, CA, Scott M. Leaman Elementary School (SMLES) is a future-focused K-5 elementary school with 650 students. The site for SMLES was vacant for 15 years, leaving a void in the community. This project transformed an unused field into a 54,000 SF school, which became an anchor in this established community and a catalyst for the development of the adjacent planned park.

The Stakeholders:
The principals at each of the district elementary schools contributed to developing this new campus. The design team toured each of the existing schools, and the principals shared their successes and challenges in delivering education on each campus. These on-site meetings indicated that the design should emphasize collaboration spaces, outdoor connectivity, and central community space. We also met with the community to understand their needs and identify the project's "wow moments."

Main Challenges:
The district challenged the design team to develop the new Scott M. Leaman Elementary School as:

1. Functional, efficient, sustainable
2. Cost-effective
3. Built in a very tight time frame
4. Contextual to the residential neighborhood

Our Solution:
- Panelized construction. We designed a repetitive building panel to be built off-site and efficiently installed on site.
- Identified the project's "wow moments."
- Simple, inexpensive, durable, and easy-to-maintain materials.
- Partnered with the city through a joint-use agreement to share the park's fields next door.

SCHOOL AND COMMUNITY ENGAGEMENT

		MODULAR BUILDING		MODULAR DESIGN		TRADITIONAL DESIGN					
		Rate	Subtotal	Rate	Subtotal	Rate	Low	Rate	Med	Rate	High
Building Costs	59,328 SF	$210	$12,458,880	$275	$16,315,200	$259.75	$15,410,651	$295.43	$17,527,103	$357.63	$21,217,512
Site Work Costs	409,464 SF	$12.74	$5,216,196	$12.74	$5,216,196	$12.74	$5,216,196	$13.69	$5,606,946	$14.48	$5,930,744
Off Site Costs	12,650 SF	$38.19	$483,048	$38.19	$483,048	$38.19	$483,048	$38.19	$483,048	$38.19	$483,048
SUBTOTAL	59,328 SF	$306.06	$18,158,124	$371.06	$22,014,444	$355.82	$21,109,895	$398.08	$23,617,098	$465.74	$27,631,304
Cost Escalation (17 mos) *8% per annum	11.33 %		$2,057,921		$2,494,970		$2,392,455		$2,676,604		$3,131,548
TOTAL BUILDINGS COST	59,328 SF	$304.75	$20,216,045	$413.12	$24,509,414	$396.14	$23,502,350	$443.19	$26,293,702	$518.52	$30,762,852
Design Contingency		1.5 %	$303,241	3 %	$735,282	7 %	$1,645,164	7 %	$1,840,559	7%	$2,153,400
TOTAL BUILDINGS COST	59,328 SF	$345.86	$20,519,285	$425.51	$25,244,697	$423.87	$25,147,514	$474.22	$28,134,261	$554.82	$32,916,251

THE MODULAR DESIGN PATH WAS SELECTED AND SAVED THE DISTRICT $7.7M

SCHOOL AND COMMUNITY ENGAGEMENT

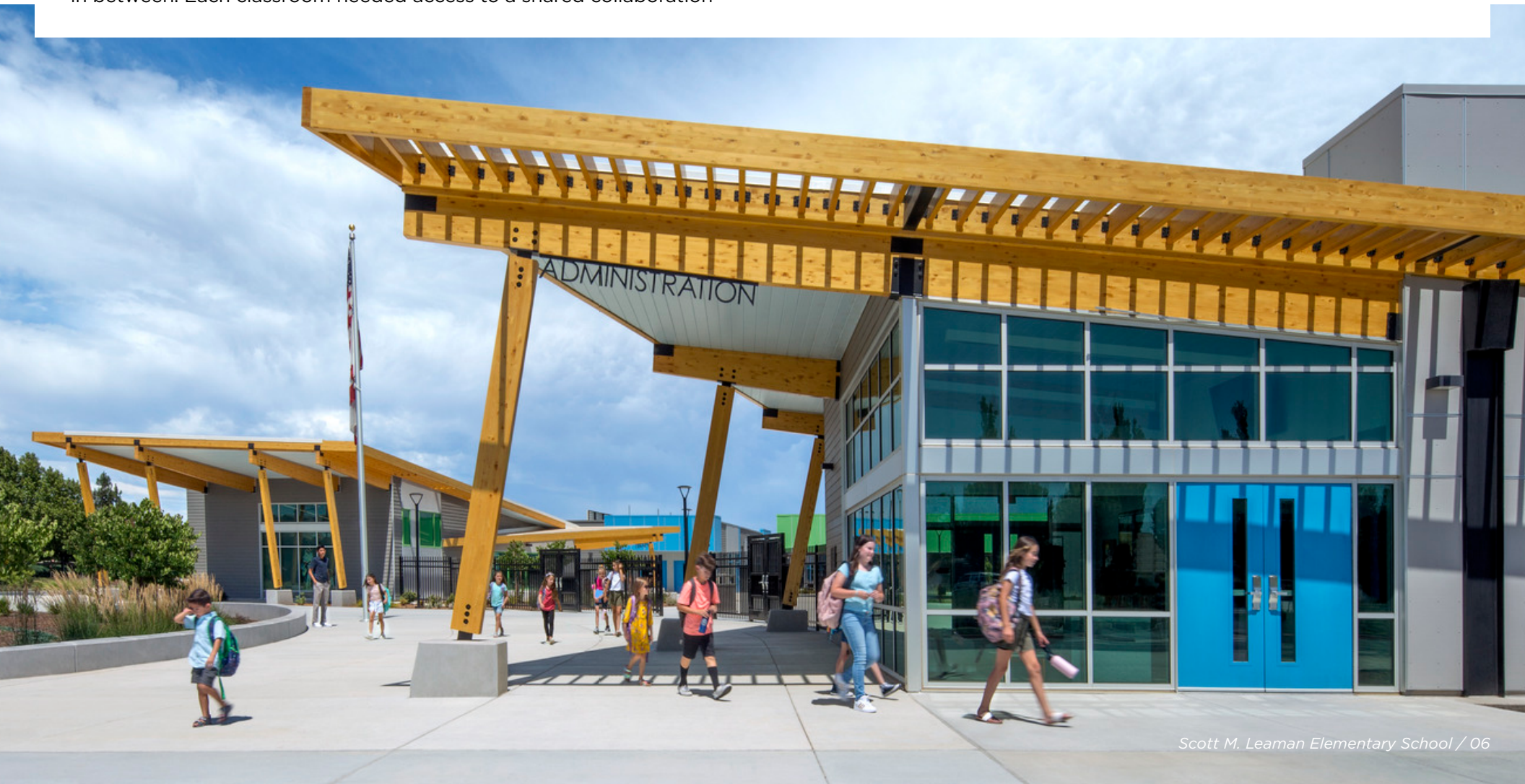
Community Integration:
The other main challenge we faced was how to help the architecture find its place within the residential community. The residential landscape of the neighborhood and the campus's structure inspired the idea of using angled masses. This design created dynamic shapes and established neighborhood context. When standing at the center of the unoccupied lot, one could see a horizon of overlapping sloped roofs around the community. Therefore, bringing the houses' skyline into the school's design established a coherent relationship between the school and the surrounding residential area by creating the same movement and context. Vertical reveals and accents were strategically used as a design element that brings equilibrium and a counterpoint to the linear buildings and axial campus structure. Additionally, the team uses different patterns and materials to promote interest and creativity for both kids and adults while still maintaining the overall cohesiveness of the design.

Available Asset:
The project team took advantage of the existing riparian zone that creates a natural edge to the campus and created connectivity to the community by creating pathways connecting to the south end of the campus. The developed streets and existing utility infrastructure (storm, sewer, water, electrical) provided quick and easy access to "plug" the project into the community with limited costs. The adjacent planned park will be a future asset to the school site and community, offering various opportunities for play and community connection.

EDUCATIONAL ENVIRONMENT

Vision and Goals:
The school focuses on empowering its students to take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration and work through the creative process. At SMLES, learning happens everywhere.

How the Environment Supports Curriculum:
The team paid equal attention to the design of the classroom spaces, collaboration spaces, outdoor learning environments, and every space in between. Each classroom needed access to a shared collaboration space to accommodate different learning styles. The design provides a fun and comfortable atmosphere for the students to feel inspired and welcomed. A broad main entry is flanked by low sloping roofs and large canopies that reflect the scale of the housing community and provide outdoor spaces for learning and engagement. The site plan focuses the heart of the campus on the multi-purpose room and library to emphasize learning and a communal student body. A variety of spaces offer many different teaching opportunities, including instructional, collaborative, social, active, demonstrative, and environmental.



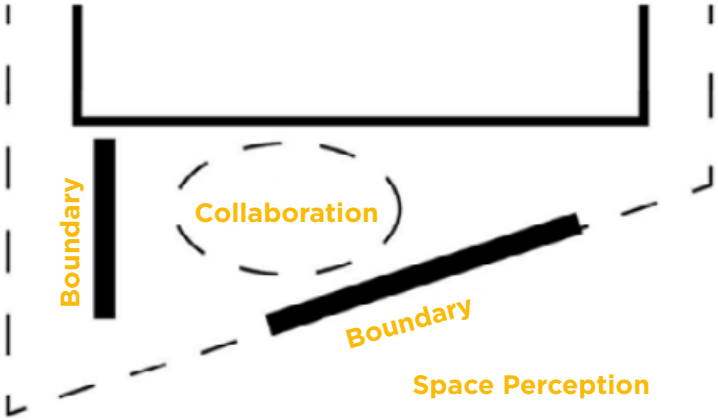
EDUCATIONAL ENVIRONMENT

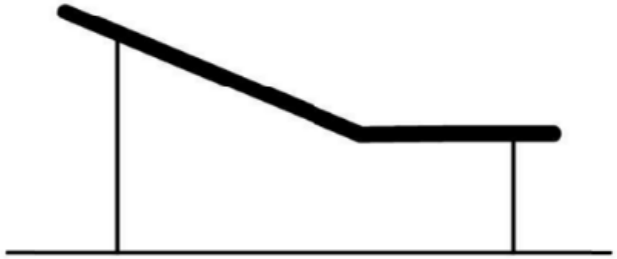
Learning and Teaching:

Building and site elements are used to define the different outdoor collaboration spaces. The roof plane and buildings' vertical elements create a perception of boundary and space definition. This method allows better lines of sight and communication between collaboration pods while providing a level of privacy for group discussion or informal gatherings.

Adaptability and Flexibility:

Classroom buildings maximize efficiency with multi-use areas, indoor/outdoor classrooms, and a building system that utilizes refined repeating elements for a cost-effective solution. An outdoor amphitheater provides flexible space for eating, teaching, and assembly. Natural woods, bright colors, and light filtering trellises elicit peace and joy for the students and community alike. A flex lab is incorporated into a classroom wing of the quad with a roll-up door allowing teachers to expand their instruction to the outdoors.





Sloped Roofs- From High to Low Helps to Bring Down the Scale

PHYSICAL ENVIRONMENT

The Site:
The campus design concept provides students and teachers with an environment where they can truly thrive. Central to the design strategies are concepts of scale, context, balance, space perception, indoor-outdoor learning, and collaboration. These concepts are infused into the learning environment, shaping the design for SMLES.

Special attention was given to making all spaces bright and fun with a distinctive exterior and interior color palette, enhancing the student experience. The campus is defined by rich, warm wooden beams providing shade and comfort to the students inside while reaching out to and inviting the community.

SITE PLAN

LEGEND

A. Administration & Multi-Purpose Building
B. Library Building
C. Classroom Building
D. Classroom Building
E. Classroom Building
F. Future Classroom Building
Pa-Parking (42 Stalls)
Pb-Parking (25 Stalls)
WS-Seasonal Wetland Swale

BUILDING DATA

	BUILDING NAME	BUILDING SF
A	ADMINISTRATION & MULTI-PURPOSE	13,067
B	LIBRARY	2,308
C	KINDERGARTEN/CLASSROOM	13,686
D1/D2	CLASSROOM	12,135
E	CLASSROOM	6,037
F	FUTURE CLASSROOM	6,037
	TOTAL:	53,270

BUILDING DATA

	BUILDING NAME	BUII
A	ADMINISTRATION & MULTI-PURPOSE	
B	LIBRARY	
C	KINDERGARTEN/CLASSROOM	

PHYSICAL ENVIRONMENT

Project Inspires and Motivates:

Nestled against the riparian campus edge, sounds of nature abound as flora and fauna become part of the biophilic campus experience. Careful attention was paid to the scale of the campus to respond both to the community context and to student and teacher's comfort. The playful color palette softens the campus and makes this campus a **FUN** place to learn and grow. Thinking beyond the classroom, the team created meaningful connections to both outdoor and collaboration spaces that allow for flexibility of instruction and **meaningful student engagement**. When these strategies are paired with the beauty of this natural setting, the result is an inspired campus design.

The Larger Context Within the Community:

Proposed in 2003 to meet the district's growing needs, budget restrictions and economic uncertainty put SMLES on hold. But the community of Lincoln never gave up on their vision for a new school. Neighbors have been very excited to see this project come to life and have shown incredible support for the design and construction.

The once vacant field has been transformed into a beacon of learning and an anchor in the neighborhood, providing hundreds of kindergarten to fifth-grade students with an environment in which they can thrive.

SUSTAINABILITY AND WELLNESS

During the process, the team performed a study to evaluate the impact of the following: building orientations, building locations, mechanical system types, wall/roof construction and insulation, glazing performance, and shading.

On a tight budget, the energy efficiency-solution used passive natural measures, such as east-west building orientation and large and evenly distributed classroom windows to provide ample controlled daylight into learning spaces. The team also incorporated equipment that ensures thermal comfort while minimizing energy use, such as high-efficiency AC Units, and designed ductwork that minimizes pressure loss to reduce the fan operating power. Areas with high occupancy density were provided with demand control ventilation that varies the outside air ventilation based on the carbon dioxide levels in the space. Energy-efficient water heating solutions, including highly efficient tank-type water heaters, small electric water heaters, and tankless water heaters, were used. Low flow plumbing fixtures were also used to reduce overall water consumption.

The team chose materials for durability to help support future maintenance. Including:

- Fiber cement panels for most of the exterior skin (Do not have to be painted. Great resistance to fading, chipping, cracking, and wear.)
- Alaskan yellow cedar for outdoor covered areas (Exceptional longevity.)
- Single Ply TPA (No maintenance and is easy to patch)
- Luxury vinyl tile flooring (Easy to clean and does not require any topcoat.)

The team emphasized using green materials that meet or exceed CALGreen requirements and the pollutant emission limits. Additionally, carpets have Institute's Green Label Plus Program 80 percent of the floor area receiving resilient flooring shall be compliant with CHPD criteria as certified under the Greenguard Children's and Schools Programs.

In building a healthy environment for the students and staff, the team ensured that there was zero use of chlorofluorocarbon (CFC)-based refrigerants. To provide quality indoor air, the team also ensured ventilation meets or exceeds the requirement of Title 24 and ASHRAE 62.1.

THE RESULT AND PROCESS

School's Vision (Read Here)// Actions

Empower students to take thoughtful risks and become persistent problem-solvers.

- We designed and provided a fun and comfortable atmosphere for the students to feel inspired and welcome.

Support students and staff in engaging in experiential learning and work through the creative process.

- We created a variety of spaces for different teaching opportunities, including instructional, collaborative, social, active, demonstrative, and environmental learning.

Encourage students to embrace collaboration.

- Set the multi-purpose room and library at the heart of the campus to emphasize learning and a communal student body.

District' Goals (Read Here) // Actions

Foster a safe, caring environment where individual differences are valued and respected.

- We used natural woods, bright colors, and light filtering trellises to elicit peace and joy for the students and community alike.

Provide facilities for all district programs and functions that are suitable in terms of function, space, cleanliness, and attractiveness.

- The large garage-style doors in classrooms and the multipurpose center were designed to welcome in outdoor airflow and expand indoor spaces to make them feel larger.

Promote student health and nutrition in order to enhance readiness for learning.

- Even though the school's design and construction were well underway before the current pandemic, the forward-thinking design allowed students and teachers to practice safe social distancing, extend learning outdoors, and take advantage of natural airflow.

Community's Goal/District Vision Statement (Read Here) // Actions

Students, parents and the local community will recognize our excellence and see our schools as desirable places to be enrolled.

- We created a quality campus of which the community is proud.

The unique opportunities available include a strong emphasis on the local environment, technology, and the arts, in addition to a strong academic curriculum.

- We built connections to nature and created collaboration spaces between various programs.

The education process will be structured to encourage parental involvement and enlist community support in the education of our children.

- We created a clear sense of entry and public gathering spaces that engage the community.

All students will have the opportunity to be educated to their maximum potential limited only by their interest, ability, and effort.

- We created learning spaces that maximize the learning potential of each student by creating flexible and adaptable learning environments.

RESULTS AND ACHIEVEMENT

When exploring the site design, our team studied how an axial grid could create clear connections between buildings. For the building's design, the sloped to straight lines of the low roof canopies minimize the scale of the built environment, making a comforting environment for both staff and students.

The campus design concept provides its occupants with an environment they truly appreciate and thrive in. The design supports educators and students in their daily activities. The concepts, scale, context, balance, indoor-outdoor learning, and collaboration are infused into the campus environment, shaping the design for Scott M. Leaman Elementary School. The school's design and construction were underway before the COVID-19 pandemic. But, the forward-thinking design focused on flexibility with a blend of indoor and outdoor spaces, concepts that helped the school easily transition back to in-person learning. Large garage-style doors welcome outdoor airflow and expand indoor spaces to make them feel larger. Flexible furniture is easily reconfigured to encourage student creativity and movement. This adaptable design made it easier for SMLES to open safely, practice safe social distancing, extend learning outdoors, and take advantage of natural airflow without disruption.