

Laurel School Upper Campus Building Features



INTRODUCTION

Laurel School Upper Campus is tucked into the Willows neighborhood in Menlo Park surrounded by residential housing on all sides. The oddly shaped lot is approximately 5.9 acres. The facility includes two buildings that are connected by a larger covered area that can be used for lunch and outdoor activities. The total square footage of the entire facility is approximately 60,000 square feet. The facility features 16 classrooms, two large STEAM classrooms, a music classroom, library, gym, stage, kitchen, collaboration areas, student support spaces, and administrative offices. The project was design by DLM Architecture of San Francisco and built by Roebbelen Construction of El Dorado Hills. RGM & Associates provided project and construction management services.

The new school was designed to enhance the student learning experience and foster teamwork and collaboration. Sustainability and energy conservation was a high priority. The following information provides a description of the school's systems and green features.

SUSTAINABLE SITE

print:

To maximize green space at the campus, the school was designed as a two story building and configured to optimize its largest playing field. Green space is beneficial to the environment and provides additional play area for our students. In fact, the new Upper Campus has more permeable green space than the old school. The playing field is about 75,000 square feet and can accommodate baseball, softball, soccer, and lacrosse sports.

To encourage bicycle and pedestrian traffic as an alternative to driving, the school has incorporated bike racks for over 120 bicycles. In the first week of school, all the bike racks were full. The District has also promoted the use of sidewalks and paths along the school zone which enhance bicycles and pedestrians safety. In collaboration with the City of Menlo Park, many new safety features such as new sidewalks, crosswalks, and parking restrictions have been implemented around the school to encourage walking and biking. The drop off/pick up system has been specifically designed to minimize car impacts to local streets, allowing access for the school bus to safely drop off and pick up students. New bus service is removing over 100 car trips per day to the school.

All the storm water collected from roof tops and paving areas are collected into 11 bioretention ponds placed throughout the campus. These bioretention ponds are designed to capture and filter the surge of stormwater, which is then slowly released into the local stormwater system. This benefits the environment by decreasing the load on our local drainage system and ensuring that the water drained into local creeks and the bay is clean.

OUTDOOR SURFACES

The school playground area features two outdoor basketball courts, a ballwall, four tether balls, and pavement marking for games such as four-square. The Upper Campus's play structure was chosen for its unique design that helps support upper and lower body strength growth for children in 3rd to 5th grade. The large field made of natural grass will allow students to play a variety of sports and the running track around the field will encourage walking, jogging, and running activities. The fields and playground are open to use by the public during non-school hours and weekends. Organized users can request use through the District website.

The school landscaping includes the planting of over 70 trees, many of which are local oak tree species. Drought resistant shrubs and plants have been chosen to minimize the use of water. The school was designed to save the large redwood tree and two Chinese Elms that were gifted to the school in 1963 from students in Galway, Ireland. The new trees will also add shade and help filter the air. Additionally, the landscaped areas will assist in reducing heat spots and will absorb more rainwater. Finally, well landscaped areas will become an enhancement to the school and community.

All of the schools roofs are “cool” to reduce heat islands. Cools roofs are either white or have reflective material that help reduce the temperature on both the exterior and interior by reflecting heat from the sun instead of absorbing it.

The school’s outdoor lighting system has been designed to limit light pollution but still provide lighting for safety and security. The lighting system is all LED and designed to be energy efficient and smart (i.e. automatically turning on when dark and turning off at a programmed time).

WATER CONSERVATION

Outdoor systems:

The irrigation system has been designed to reduce water usage through the use of drip irrigation, targeted water, and smart irrigation controls. The outdoor irrigation uses water from the O’Connor Water Cooperative.

Reduction of Potable Water Usage:

The school uses low-flow fixtures to reduce water usage. The bathroom faucets are on a timer to limit waste. The bathrooms include ultra low flush toilets to decrease water consumption and Dyson hand dryers to reduce waste.

ENERGY CONSERVATION

The school was designed to meet or exceed the latest Title 24 Energy Code requirements. This will lower energy costs for the District and help the environment by decreasing overall energy consumption. The entire design of all building systems was designed to reduce energy usage and increase comfort. The building envelope (exterior walls and roofs) and building mass (interior walls) will help keep the building cool in the summer and warm in the winter. The building relies on natural air ventilation and reduced reliance on air conditioning, which will help reduce energy usage. Through these efforts, the District will leave a smaller carbon footprint and use less of our limited natural resources. The energy reduction efforts will be achieved using the following methods:

All indoor and outdoor lighting systems are the latest LED technology with dimming features to reduce light levels based on natural lighting, occupancy sensors, and a fully automated lighting system to control usage during non-occupied hours.

The electrical lighting systems have been designed to provide flexible lighting to classrooms and spaces depending on usage, and lights are adjustable for audio-visual vs. teaching mode.

The windows are all dual glazed (Solarban 70), tinted, and have thermally broken frames to limit heat gain or loss. Windows will be operable to allow better ventilation. The windows will also be controlled automatically by the building's energy management system to open and close as needed to allow fresh air into the building and control temperature.

To limit heat gain or loss, the building has thick walls of approximately 12 inches that are insulated (R-30) and thermally separated from the interior walls. The same insulation and thermal separation has been designed in the roofs. This important design will help keep the building cool during warm days and warm during the cold days.

All the spaces have been designed with operable windows and mechanical systems (HVAC) that will provide fresh outside air. The classrooms include ceiling fans to facilitate air circulation. The fans will help push warm air down in the winter and pull cool air up in the summer. The atrium has been designed with large exhausts to pull air out of the classrooms spaces where it will either naturally vent through 4 large "garage door" openings or be mechanically vented if needed. The atrium also includes three large fans that will help circulate air. This simple but ingenious system will make all the rooms more comfortable and reduce energy use. Better ventilation will decrease the need for air conditioning and provide a more comfortable interior environment.

The facility has an energy management system (EMS) that monitors and manages the use of the lighting, windows, fans, and HVAC system. The system will be run by a computer and managed through a website interface. The EMS will allow for optimization and customization for reduced energy usage and occupant comfort.

While the Upper Campus does not have photo-voltaic solar panels at this time, it has been designed so that panels can be added in the future when funds are available.

MATERIALS

One area of focus for the District is the use of sustainable materials. By using sustainable materials, the District will be encouraging responsible use of ecological resources and balance in the environment.

Recycled Content Materials on the project include:

- Carpet - Ceiling Tiles - Tack Board - Insulation - Cabinetry and Casework - Base Rock - Playground Surfaces - Sports Flooring - Rebar - Structural Steel - Light Gage Metal Framing - Various Wood Products

Sustainable or Rapidly Renewable Materials in District projects

- o Flooring

INDOOR ENVIRONMENTAL QUALITY

To enhance the performance of students and provide a comfortable learning environment, the District has designed the facility to maximize natural lighting in classrooms and work spaces. The orientation of the building, placement of windows, large open atrium, and interior windows were all used to increase natural lighting. Solar tubes were installed in the covered lunch area to bring in natural light where windows could not be installed.

Lighting systems were designed to provide the appropriate level of light for classrooms and work spaces. Studies have shown that student and employee performance increases with better lighting systems.

Studies have shown that view windows increase performance for students and employees who work in areas for extended periods of time. The school's spaces were designed to maximize view space. The second floor collaboration areas and the STEAM labs provide unique view windows to inspire the students learning experience.

Providing clean air is an important component for healthy and productive students and employees. To achieve better indoor air quality, the District has specified use of low emitting products for the following:

The mechanical systems (HVAC) include a filtration system on the fresh air intake. These systems also use ducted returns to prevent dust and other issues associated with plenum returns. The classrooms are outfitted with CO² sensors which will automatically start the HVAC system if levels rise above a certain level.

The classrooms and all the spaces have been acoustically designed to reduce noise pollution and keep the spaces quiet in order to facilitate increased learning and communication between teachers and students. This has been accomplished with quiet HVAC systems, dual glazed windows to keep exterior noise out, and acoustical treatments on walls, flooring, ceilings, and orientation of the walls.