Cal Fire Ione Academy

Located on a gorgeous 420-acre site in the Sierra Nevada foothills, about 35 miles southeast of Sacramento, sits the Cal FIRE Ione Academy, a state-of-the-art training facility for California's future firefighters. Established in 1967, the Ione Training Center stands as a leader in innovative fire protection, law enforcement, and resource enhancement. An agency committed to the conservation of California's forests, Cal FIRE emphasizes conservancy in its operational facilities as well. The Training Center's new 20,000 square foot dormitory, designed and managed by DGS, pushed for LEED Silver certification but is on track for Gold, an impressive feat for a state project with a tight budget. However, with a holistic and rigorous approach to water use reduction and energy savings, Cal FIRE Ione, in collaboration with DGS and Lionakis, has accomplished what they set out to.

The building derives on-site renewable energy from a PV array over the parking lot. The parking lot alone holds PV canopies with capacity of 52,199 kWh of on-site renewable energy generated per year. This figure feeds right back into the campus, supporting 15% of the dormitory's energy needs. The project reported a 32% energy cost savings after implementing optimizations of energy performance as well.

Turning to the site's proposed water reduction plan, an inspiring frugality, particularly within the context of California's increasingly arid climate, is evident in both exterior and interior water use features. Native trees and shrubs such as live oaks, manzanita bushes, and deer grass were selected by the landscaping team for their drought tolerance. Some of these native plant species will be entirely self-sustaining, requiring no irrigation, after 18 months. Bioswale plantings maintain revegetation qualities and benefit from periods of inundation. Landscaping occurred in late spring to take advantage of two full summers of supplemental irrigation, helping the young plants develop and ultimately creating a visually appealing, yet resilient landscape. Utilizing water efficient systems within the buildings as well, such as low flow toilets, sinks, and showers, the project reduced water consumption by 40% from the baseline, 20% higher than the LEED requirement.

During project construction, the builder and general contractor took specific precautions and proactive steps to reduce the waste and development pollution. The project team implemented an Erosion and Sedimentation Control Plan according to the 2003 EPA Construction General Permit guidelines to prevent soil loss, sedimentation of storm sewers, and air borne pollution. The Construction Waste Management Plan has proposed diversion in the tons of concrete and reusable metal from the landfill through project reuse. Separation facilities, a key element in contamination prevention measures, isolated recyclable and reusable materials from waste. Post construction, 65,000 square feet of the site area remains a protected natural habitat, bolstering by the design team's landscaping schedule.

Besides water and energy use, the project promoted various sustainable elements in its design, fostering a more dynamic consideration of green measures. Preferred parking is provided for fuel-efficient and electric vehicles; wiring and signage sits waiting for a soon to be installed EV

charging station. Instead of paving more parking area, which would have increased the site's heat island effect, these green vehicle spaces were added to existing parking. Indeed, an awareness from the propensity of the built environment to cause heat islands informed the project's use of high albedo materials, covering 100% of the roof area and lowering significantly the radiant heat potential of the building. Regarding occupied spaces, the project employs several different techniques to engage occupants in the project's green aspirations. Friendly signage encourages use of the water bottle filling station at the drinking fountains to reduce wasteful plastic water bottle turnover. Task lighting at dorm room desks helps limit the necessity of continual overhead light usage. Further, each room has its own thermostat and operable window to enable individualized thermal comfort. After all, sustainable architecture is as much a consideration of occupant health and well-being as it is a cooperation with the natural environment. Returning to Cal FIRE's core value, conservation, a botanist surveyed the site twice prior to construction and found no protected plants. Existing trees on the site were protected from damage by construction equipment. A biologist visited the site as well, ensuring no raptors had begun nesting.

The Cal FIRE Ione Training Center is a prime example of practical, sustainable design. Its impressive, yet is feasibly pursuing, LEED Gold certification shines a light on the future of sustainability in state architectural projects. A round of applause to DGS, Cal FIRE and Lionakis for pushing one of California's most valuable institutions into the green future.