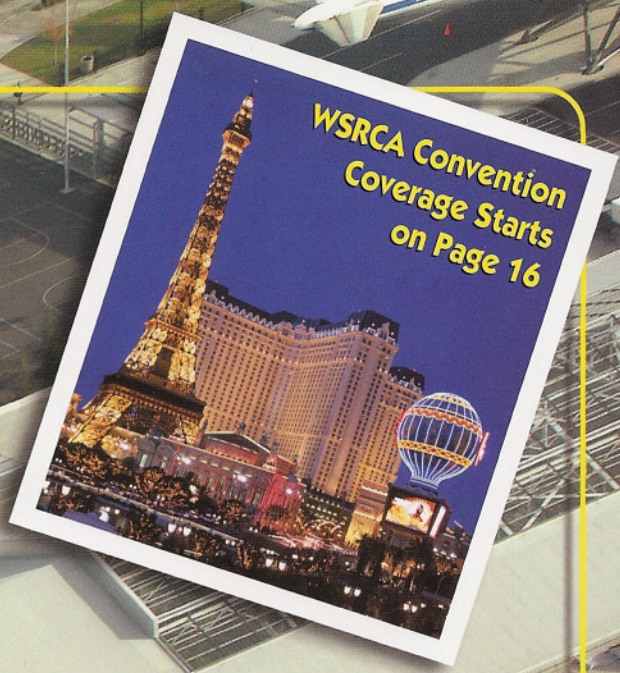


WESTERN ROOFING®

INSULATION AND SIDING

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California Science Center

Green Roof: The Science of Roofing Meets the Science of Education in Los Angeles

by Robert Felber, Felber & Felber Marketing

When the Los Angeles Unified School District set out to build a unique, science-focused facility, they knew the bland, brick, featureless school building of days gone by would not work. They partnered with the California Science Center to develop a structure worthy of their mission. The end result in South Los Angeles is the Science Center School, a facility that includes an elementary school located near world-class museums as well as a major university. The students enjoy a curriculum that celebrates all that is intriguing about science, mathematics, and technology.

The school resides on the Science Center Complex and includes the renovated Wallis Annenberg Building for Science Learning and Innovation. To protect a facility dedicated to preparing students for a technical world, whether from rain or weather-

ing would require a technical team. This team included Morphosis Architecture, Santa Monica, Calif.; Bernard Brothers Contractors, San Fernando, Calif.; Letner Roofing Company, Orange, Calif.; and Wadsworth, Ohio-based roofing products manufacturer Soprema.

To protect this project from the elements, Morphosis Architects utilized traditional roofing systems as well as a state-of-the-art technique for waterproofing called "green roof." A green roof or "vegetated roof" combines several processes into a very unique system. The green roof phenomenon is not new. In fact, green roof structures date back to the first adobe houses with roofs of grass and earth built right into the hillside. The recent popularity is following nearly 40 years of research, design, and use in Europe. Modern-day designers and city planners have discovered

that green roofs are more than aesthetics. Green roofs can retain storm water. Additionally, green roofs can ease the work of the cooling systems for a building, decreasing energy usage as well as impacting overall design of intended HVAC equipment. With respect to the Soprema membrane, the building owner can expect a prolonged roof life due to the protection from UV rays by the vegetation over the membrane. Green roofs also have an impact on the urban heat effect common in most large cities, reduce air pollution by trapping particulates, and provide more sound protection for building occupants. And, the beautiful landscaping certainly impacts quality of life and facility value.

The green roof waterproofing system, provided by Soprema, consisted of 215 mil. reinforced hot rubber membrane with SBS flashings and

protection. A specially designed drainage board to capture and retain the moisture for hydration of the plants was also utilized, thus reducing the amount of additional water needed for irrigation of the roof plants.

A metal deck roof covered the adjacent Wallis Annenberg Building. The Science Center roof is 23,000 sq. ft. and included a cover board of DensDeck from Georgia Pacific and a Soprema manufactured SBS torch applied membrane consisting of the field base ply of Soprafix-e, a field cap-ply of Sopralene Flam 180 FR GR, and the flashing base-ply membrane was Soprema's self-adhered Sopralene Flam Stick. The flashing cap-ply was Sopralene Flam 180 FR GR.

Dennis Olson, President of Letner Roofing noted several of the challenges for the two roofs, commenting, "We encountered a project that would need many different types of roofing products and those products would need to be compatible. It was highly desirable and economically effective to have a single source manufacturer that could fulfill all the warranty requirements. Soprema was able to provide not only the products, but the experience, knowledge, and on-site technical support this job required." The concrete deck of the Science Building featured a 28,200 green roof structure. The roof designed called for a significant slope



and the 4' high walls separating the areas for planting required special attention. The flexibility of Soprema allowed Letner to utilize several products to ensure waterproofing throughout the system.

To test the roofs waterproof integrity, special dams were built in sections and water was run for 24 hours straight. "Prior to installation of a green roof it is imperative to ensure the system is watertight. We took significant time to water test the roof. Due to the extreme slope of the

substrate and the high walls, the testing took almost as much time as the installation of the waterproofing system itself," described Olson. Before the irrigation system could be installed and the roof turned over to the landscape architects for the building of the green roof, the following had to be installed:

- Insulation, Dow Plazamate 2";
- Waterproofing system of Soprema's Sopraseal HR, 215 mils reinforced hot rubberized asphalt membrane, protected by a SBS sheet of Sopralene 350 GR;
- Drainage mat of SopraDrain 650 and a root inhibitor/water retention system of RS 100; and
- A flashing-ply of Sopralene Flam 180 and a flashing cap-ply of Sopralene Flam 180 FR GR completed the waterproofing system.

Now, the students, faculty, and people of South Los Angeles have a facility as sharp, intelligently-designed, and as integral to the economic success and quality of life as the people who use it every day. The entire design and construction team can look back on a facility that will aid the environment, provide sustainability, and the growth of both the mind and spirit that embodies all that scientists strive to achieve.

