



Cool Roof Tops Off Environmentally Friendly Cold Storage Facility

7.5 Million-Cubic-Foot Facility Expected to be Nation's First LEED-NC Gold Certified Cold Storage Building

Compared to commercial buildings, attaining LEED® certification for an industrial building is not easy, as evidenced by the fact that only 2 percent of all Leadership in Energy and Environmental Design for New Construction (LEED-NC) registered buildings are designated as industrial.

However, that did not deter Innovative Cold Storage Enterprises (ICE) of San Diego, CA. The firm recently completed a huge, new facility that is expected to be the nation's first LEED-NC Gold certified cold storage building.

Included among the environmentally responsible features of the new facility is an energy-conserving cool roof that reduces

refrigeration loads by preventing heat from penetrating the interior of the building.

New Topcoat Used on New Facility

Designed and built by Hamann Construction of San Diego, the facility, known as ICE-2, houses 7.5 million cubic feet of freezer space. It is the second cold storage facility built by Hamann for Innovative Cold Storage. The first — ICE-1 — was constructed in 1998.

The roof on ICE-2 consists of two inches of sprayed polyurethane foam over six inches of rigid polystyrene insulation over a 1 1/2-inch high fluted steel deck, which produces a thermal insulation value of R-42. A polyurea vapor barrier was then applied followed by


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Project:
ICE-2: Cold Storage Facility
San Diego, CA

Coating:
Kymax®

Coating Supplier:
Quest Construction Products,
Home of United Coatings
Phoenix, Arizona



an acrylic coating and finally a white fluoropolymer topcoat.

The ICE-2 roof construction is essentially the same as ICE-1 except for the topcoat. "On ICE-1, the finish coat is an acrylic coating onto which roof granules were broadcast," Hamann project architect, Paul Giese, said.

Wanted Longer Life Expectancy

Giese said on ICE-2, "We wanted a finish coat that had a longer life expectancy and much higher solar reflectivity, not only to comply with California Title 24 cool roof requirements, but also to provide long-term energy savings."

Chosen as the topcoat on ICE-2 was Kymax®, a thin-build elastomeric coating from United Coatings Corporation that provides high initial and aged solar reflectance, color stability, and weather resistance over new or existing roof surfaces.

Available with a 20-year warranty from United Coatings, the coating is based on Kynar Aquatec®, a new emulsion-based, low-VOC PVDF fluoropolymer technology developed by Arkema Inc. to deliver the same durability and performance as Kynar 500® PVDF resin-based coatings.

Solar Reflectance a Key Concern

With Solar Reflectance and Thermal Emissivity values greater than 0.85 each, Hamann LEED project administrator, Phoebe Hamann, noted that the bright white Kymax® topcoat not only complied easily with Title 24, but also generated an extremely high SRI of 110 for use in LEED credit calculations.

Hamann also noted winds from the Pacific Ocean deposit a considerable amount of dirt onto the roof surface. However, the topcoat's ability to shed dirt allows it to remain white, a key factor in the coating's ability to retain its solar reflectance over time.

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