

Project Profile



Project

RC Willey Intermountain
Distribution Center
Salt Lake City, UT

Owner

RC Willey Home Furnishings

Architect

Valentiner Crane Brunjes Onyon
Salt Lake City, UT

General Contractor

Layton Construction

Roofing Systems

Mechanically Attached Sarnafast System
using 60 mil, S327 membrane in
EnergySmart Roof® in white

Project Size

865,000 sq. ft.

Completed

January 1997

The Challenge:

In 1996, RC Willey, a furniture retailer based in Salt Lake City, Utah was experiencing exceptional business growth. Due to strong consumer demand, RC Willey needed to build a new warehouse/distribution center to satisfy the logistical requirements of the western region that it serviced. To accommodate present and future needs, a massive 865,000 square foot facility was designed. During the material selection phase, one of the greatest challenges was to find a proven roofing system. It was obvious that the performance of the roof would play a vital role in protecting RC Willey's entire operation. Faced with an accelerated construction schedule, the roofing material chosen for this project would need to be suitable for cold-weather application. The other important considerations that needed to be addressed prior to selecting the most appropriate roofing material for this large and challenging project included: wind resistance to accommodate typical gusts reaching 60 mph, exposure to high ultra violet (UV) radiation, chemical resistance to jet fuel, and

historical performance.

Special Recognition

The experience and input of Roy Bosley from Layton Construction became instrumental in helping the project team reach a practical decision to select a world class roofing system manufactured by Sika Sarnafil.

Subsequently, the roof on the RC Willey furniture warehouse was featured in a Newsweek™ magazine article. The article detailed an effort by NASA to calculate the environmental benefit generated by light-colored (highly reflective) roof surfaces. The featured story focused on roofing's scientifically prescribed role in helping to reduce energy consumption, cool oppressive urban air temperatures, decelerate smog formation and ultimately improve air quality.

The Choice

Over the past decade, researchers from the U.S. Department of Energy (DOE), the U.S.

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Environmental Protection Agency (EPA), national laboratories, electric utilities, and NASA have been investigating both the energy saving and environmental air quality benefits that can be attributed to increased use of reflective roofing. Investigators have focused on a theory that reflective roofing can reduce a building's air conditioning energy use, and if installed community-wide, can simultaneously help to cool oppressive urban air temperature and thereby improve overall air quality. The evidence is compelling. Durable, reflective roofing products make more sense. Professionals from NASA's Global Hydrology and Climate Center personally visited the RC Willey Intermountain Distribution Center in 1998 to study the surface characteristics of the roof. Their curiosity regarding the building was heightened due to the absence of any significant heat detection at the building's geographic location. Dr. Jeff Luvall is one of the NASA scientists that recorded thermal images of the Salt Lake valley with aerial, heat-sensing equipment. Dr. Luvall commented; "Quite honestly, (because of its reflective properties) I didn't know that the building existed until the day I was escorted onto the roof."

This revelation is noteworthy given the size of the massive building. The integral surface properties of the Sarnafil roofing membrane shield the warehouse by reflecting most of the incoming solar radiation. The utilization of Sika Sarnafil's unique, single-ply membrane ultimately made detection of the warehouse extremely difficult. The RC Willey building is effectively "camouflaged" by a highly reflective roof. A "heat camouflaging" roof is ideal. Technological resources have confirmed that less beneficial, dark-colored roofing surfaces (wide-spread across city landscapes throughout our country and the world) typically absorb most of the incoming solar radiation to which they are exposed. When dark colored roofs absorb solar radiation, they begin to radiate additional heat. Most ordinary roofing materials have been identified as unnecessary contributors to oppressive urban air temperatures. These



The RC Willey Intermountain Distribution Center in Salt Lake City, Utah utilizing the Sarnafil membrane.

uncomfortable conditions are often magnified within geographic boundaries commonly known as **urban heat islands**.

The air temperature in a heat island is typically 5-10 degrees (F) warmer than in surrounding rural areas. Higher temperatures foster an increase in energy demand to run air-conditioning equipment which triggers a deadly cycle creating airborne pollutants, smog formation and unhealthy, ground level ozone. Such a deteriorating condition has made the promotion of environmentally preferable, highly reflective roofing materials an issue of national priority.

EPA launched the ENERGY STAR® Roof Products Program. Sika Sarnafil is a Charter Partner in this program. EPA and DOE created ENERGY STAR label programs to help consumers quickly and easily identify products that can save them money and protect the environment by saving energy. ENERGY STAR programs are based on voluntary agreements between EPA and product manufacturers. By entering into the program, a product manufacturer commits to develop specific products that meet agreed-upon, energy-efficient criteria. Sika Sarnafil is the

first and only commercial single-ply membrane manufacturer to label roofing products under the EPA ENERGY STAR Roof Products Program that can also demonstrate more than 40 years of a unique, historically proven roofing technology.

The Solution

In a collaborative effort, executives from RC Willey along with the architect, general contractor and roofing contractor all reached the same conclusion; Sika Sarnafil Roofing & Waterproofing Systems' 35-year performance history presented a desirable remedy to the conditions affecting the roof on this important building. Sarnafil's light colored, mechanically attached roofing system was chosen and eventually installed by Redd Roofing. This roofing system comprises 2.7 inches of Sarnatherm polyisocyanurate insulation over a steel deck, and is recognized as a UL Class A (fire rated) roofing assembly. This roofing system exceeds the compliance requirements of the EPA ENERGY STAR Roof Products Program.

To learn more:

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