Project Profile

Project
National Fire Protection Headquarters
Quincy, MA

Owner
National Fire Protection Association

Consultant
CASE/LEA
Boston, MA

Roofing Contractor
Titan Roofing Co.
Chicopee, MA

Roofing Systems
Sarnafil Adhered Roof System, using white, 60 mil G410 EnergySmart Roof® membrane

Project Size
32,000 square feet

Completed
1996

The Challenge

The existing ballasted single-ply roof system had seen its day. The building owner's representative, Spaulding & Slye, hired a Massachusetts engineering firm to determine the cause of leaks and to design the new roof system. It was determined masonry repairs and sealant joints were in need of reworking and a new roof was in order.

The Choice

Jim Russo, a registered roof consultant and principal at CASE/LEA at the time, and the owner's representative, Spaulding & Slye, had previously selected Sika Sarnafil to solve their roofing problems on other buildings.

"I have specified millions of square feet of Sarnafil and have been very pleased with long term performance of their roof systems. With Sarnafil, the hot air welded seam is a strength, not a liability, as with other roof systems," says Russo. Sika Sarnafil's high quality roofing and waterproofing membranes are recognized throughout the world for their long-term reliability and performance.

The Solution

The eight-story building is home to the NFPA (National Fire Protection Agency), where much of the research for the United States is conducted and standards created.

Recognizing the importance of fire and other performance properties of the roof system, Russo and Spaulding & Slye selected a Sika Sarnafil Class A rated roof assembly.

Russo specified the existing roof system to be removed down to the steel deck. The steel deck was replaced where it had deteriorated.

Three inches of Sarnatherm insulation was secured to the steel deck. Sika Sarnafil's 60 mil G410 membrane was adhered to the insulation.

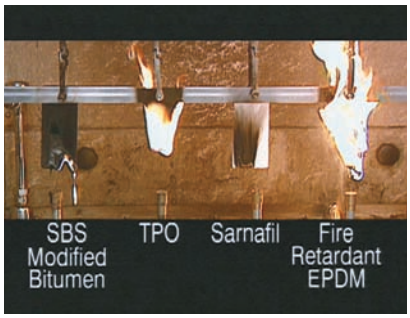
Superior Fire Performance

What are sometimes overlooked are the fire characteristics of a roofing membrane. Vinyl by its basic formulation is very fire resistant. This is why PVC is utilized in many critical applications such as electrical wire jackets.

Sika®

Sarnafil®

One of the strengths of PVC roofing membranes is the ability to self extinguish and resist spread of flame. In a laboratory experiment, a flame source was applied for ten seconds to the underside of SBS modified bitumen, fire-retardant TPO, Sarnafil, and fire-retardant EPDM.



With Sarnafil, the fire stops when the flame is removed. With the other options, the alternative membranes continue to support combustion. With both the TPO and EPDM membranes, burning embers fall, which could spread the fire or contribute to internal fire.

Sika Sarnafil's roofing membranes have been widely tested and meet fire code requirements in over 20 countries worldwide.

F.M. and U.L. Approved

In the U.S., Sarnafil membranes have been tested and approved by Factory Mutual and Underwriter's Laboratories. Sika Sarnafil has extensive Class A and Class B rated roof assemblies.

One of the most difficult approvals to achieve for any roofing product is a Class A or B fire rating at high slope. This is especially true for adhered systems, as the adhesive adds combustible materials. In addition, as the incline increases, there is greater tendency for flames to spread quickly than if the surface is at a flatter plane.

To achieve Class A or B high slope fire ratings, additional materials are used directly under the membrane as a thermal barrier. Materials used include a gypsum-based product like 1/4 inch Dens-Deck®. Sika Sarnafil roof systems have unlimited slope approvals.

First-Hand Fire Experience

A fire started at a heat stack at the Ballantyne facility in Omaha, Nebraska. The Sarnafil membrane resisted the spread of the fire while another type of roof system may have resulted in much more damage.

The fire was self-contained on the roof in an area approximately 15 feet around the stack. When it was out, the Sika Sarnafil roof was easier to repair.

The damaged roof area was removed and replaced with new Sarnatherm insulation to match the height of existing insulation.

After cleaning the existing Sarnafil membrane, new S327 membrane was hot air welded to the original membrane, creating a completely reliable and watertight condition.

Many owners who recognize the importance of fire resistance in a roof system demand Sarnafil:

- Massachusetts State Fire Authority, Sudbury, MA
- Logan Airport Rescue Fire Station, Boston, MA
- Salt Lake City Airport Fire Station, Salt Lake City, UT
- Chicago Fire Company #91, Chicago, IL
- Firehouse 11, San Francisco, CA
- Belmont Fire Station, Belmont, MA
- Agawam Fire Station, Agawam, MA
- UNR Fire Academy, Carlin, NY
- Central Fire Station, Bangor, ME

For more information on approved fire rated roofing systems, fire testing or any code approvals, please contact Sika Sarnafil's Technical Department.

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