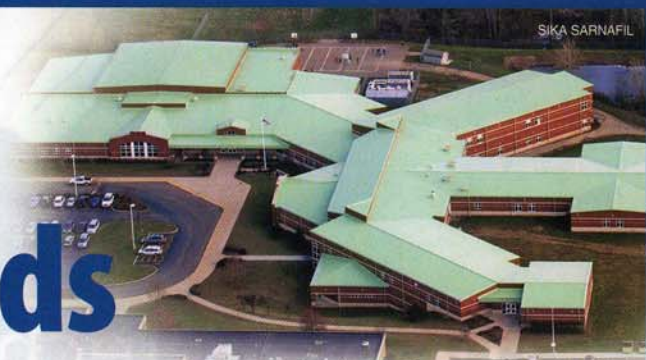


# Meeting Roofing Needs

## VINYL ADDRESSES A RANGE OF ROOFING REQUIREMENTS



The most difficult part about selecting a roof system isn't identifying one that resists leaks. It isn't finding one that can handle the specific challenges of a given building in a specific area, like high winds or exposure to harsh chemicals. Nor is it locating an option to reduce energy costs. If the project is a roof recover, the big challenge isn't finding a system to meet weight requirements. If the roof is prominently visible, the toughest task isn't uncovering a system that looks good.

What can be the most difficult task is finding a system that meets many or all of these criteria simultaneously. One roof system that offers a wide range of performance benefits is vinyl, says the Vinyl Roofing Division of the Chemical Fabrics and Film Association.

### Forces of Nature

A good example comes from the reroofing of the Miami Free Zone building. When it was time to replace the old 550,000-square-foot, Hypalon membrane, a key concern was finding a system that would stand up to the weather in southern Florida, says Esteban Acosta, property manager. "We are exposed to severe weather conditions quite often."

Vinyl met this criteria and had other

advantages, says Shaun Gallagher, Custom Roofing and Exteriors, project contractor. It weighed less than some options, and like other vinyl roofing systems, didn't require open flames or hot asphalt on the roof.

The membrane also is impervious to any aviation fuel that might spill from planes in the flight path above the facility. The seams are hot-air welded, creating a single membrane from two separate pieces, and reducing the risk of leaks. In addition, the roofing sections can be manufactured in large, custom-made sections, which are quicker and easier to install than smaller sections. Maintaining the roof requires nothing more than periodically cleaning the gutters and downspouts, and completing a light pressure wash, Acosta says.

Finally, the material can withstand high winds and hot sun. The roof is guaranteed in winds of up to 71 mph, says Jon Miller, Custom Roofing & Exteriors. If a roof failure results in damage to the interior, the contractor covers the cost.

To ensure the roof would stand up to the weather and meet the guarantee, the number of mechanical fasteners was significantly increased. In addition, the roofing membrane extends over the parapet, reducing risk of

water penetration.

"It has performed very well," Acosta says. "We expect to have a reliable roof over our heads for many years."

### Eliminating Leaks

In mid-2006, a new roof was installed on Staley Middle School in Frisco, Texas. The standing seam metal roof that had covered the building "had leaked since it was built" about a dozen years earlier, says Steve Alberico, consultant with Amtech Roofing Consultant, which advised on the project.

After battling more than 20 leaks with little success, the school decided to replace the roof. To work within the budget, a new vinyl roof was placed over the existing roof. Recovering the roof also meant installation could be completed during the 10-week summer break.

One concern about recovering the roof with, for example, another metal roof, was the additional weight and height. "It would have entailed some rather expensive modifications to the flashings at the adjoining walls," says Alberico.

The vinyl roofing system added only about 1.9 pounds per square foot to the roof, including insulation used to fill voids between standing seams of the metal

## VINYL ROOFING DIVISION OF THE CHEMICAL FABRICS AND FILM ASSOCIATION

Building owners, facilities executives and others looking for information on vinyl membrane roofing systems can turn to the Vinyl Roofing Division of the Chemical Fabrics and Film Association. The group represents many of North America's leading manufacturers of vinyl roofing systems.

White or light-colored vinyl roofs reflect heat, while dark roofs absorb heat. Light-colored roofs can cut energy use 10 percent.

Equally important, vinyl resists fire. It is slow to catch or spread fire, and extinguishes when the heat source or flame is removed.

The expected life of a roof depends on many factors, including quality of design and installation. Longevity of a vinyl roof also will vary with the material's composition and thickness. However, many vinyl roofs are going strong after decades.

Vinyl roofs require little maintenance. Typically, regular inspections and cleaning will keep the roof in good shape. Vinyl roofs that require repair can be welded throughout their lives.

For more on vinyl roofs, go to [www.vinylroofs.org](http://www.vinylroofs.org).



roof, a gypsum hard-board laid over the existing roof to create a smooth surface and the vinyl membrane itself.

A metal roof would have added an additional one-half pound per square foot and about two inches to the height of the roof. The vinyl roof added only three-fourths of an inch.

While the school district wanted to eliminate leaks, the staff still wanted the look of a metal roof. In addition, they wanted to retain the hunter green color of the old roof, which would remain in place on part of the building.

The district met these goals with a vinyl roof. Vinyl profiles were welded to the membrane, creating the look of a metal roof. Because vinyl roofs come in a range of colors, the school was able to match the hunter green it wanted.

"Despite all the angles and changes in planes, we were able to install vinyl ribs uniformly, perfectly mimicking metal's appearance," said Brian Kimbrell, president of Merit Roofing Systems. "This roof was very visible so aesthetics were very important and required a great attention to detail in installation."

The roof has been earning high marks since it was installed, according to Blake

Vaughn, director of maintenance for the school district. "We are very pleased with the roof and most definitely would use this system again in the future," he says. "We thought it would be a good match and it has been. In fact, most people driving by don't realize it is a different roof, although the building occupants appreciate staying dry during rainstorms."

### Keeping Cool

The roof originally installed on Grand Casino Hinckley in Hinckley, Minn., was black rubber and showing its age after 15 years. "After every rain storm, it seemed it had leaks somewhere," says Jim Lincoln, vice president of facilities. Many leaks were caused by rubber shrinking over time and beginning to pull away from the parapet. Given the volume of electronic equipment in the facility, Lincoln was particularly sensitive to the risk of water damage.

In several projects taking place between 2003 and 2005, a new vinyl roof was installed over the existing roof. Because the old roof would continue to shrink, contractors placed cuts in it about every 10 feet, so additional shrinkage wouldn't cause further pulling.

One big advantage of the new roof is

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**A light-colored vinyl roof can reduce a building's cooling costs.**

its impact on cooling costs, Lincoln says. The roof is white and reflects heat from the sun. In contrast, the old black roof retained heat. In fact, a thermometer placed on the black roof during installation of the new membrane showed a temperature of 100 to 125 degrees F. The temperature on the vinyl roof at the same time was about 75 degrees F, the same as the ambient temperature. "It takes less energy to keep the casino cool," Lincoln says.

### A Win/Win Situation

The roof of Carver-Hawkeye Arena at the University of Iowa in Iowa City performed well from the building's opening in 1983 until April 2006, says Jeff Hayes, an engineer with the university. That's when a tornado hit the town and caused damage to the membrane. "There was a risk of leakage and damage to floors from water infiltration," Hayes says.

The 158,000-square-foot roof was replaced. While many roofs on other university buildings are black EPDM, the heat effect of the dark membrane would have dramatically increased temperatures inside the arena, which isn't air conditioned.

Hayes decided to install another vinyl roof, given the performance of the previous one. The roof was priced competitively with similar materials, he says. In addition, the manufacturer recycled all 40,000 pounds of the previous roof and uses the material to create roofing walkway membranes.

The project benefited the university, and the environment. "I think this will be something that owners will want to be a part of," said Hayes. "It's a win/win situation for everyone." ■

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