

**Project**

Taholah Education Center
Taholah, Washington

Owner

Taholah School District
Taholah, Washington

Roofing Consultant

KMB Design Groups, Inc.
Olympia, Washington

Roofing Contractor

Clark's Quality Roofing
Portland, Oregon

Roofing System

Adhered Sarnafil® Roof System,
using lead grey, 60 mil
G410 membrane

Project Size

84,000 square feet

Completed

November 2004

With Sarnafil® Adhered System, Taholah School Is "Dressed For Success"

When Al Josephy saw the climatic challenges facing the multi-system, leaking roof on the Taholah School on the Quinault Indian Reservation in Taholah, Washington, his advice was to "put a big wet suit on the roof." Josephy, project manager for KMB Design Groups, Inc., a general architectural design services firm based in Olympia, Washington, explained, "this school is in the wettest place in the US. This area receives over 100 inches of rain per year, and because the school is situated right on the ocean it is subjected to very high winds and horizontal rains."

The weather had been taking its toll on the metal portion of the roof since it was installed in 1991. "That year they finished construction on the high school part of the roof and also re-roofed some areas at the Middle and Elementary school areas," said John Brings Yellow, plant supervisor at the school. "That first year alone we had more than 30 roof leaks. Sometimes the water from the roof would leak on the smoke detectors or fire alarms at 2:00 in the morning — which meant I had to get out of bed and make sure the building was okay."

Students and school board members were also inconvenienced. "I remember walking into the school a few years ago and there

were these big drum barrels in the middle of the school halls to catch the water dripping from the roof," Josephy commented.

"Sometimes, after a heavy rainstorm, the students would have to abandon the English room, where the leaks were particularly bad, and move to another classroom." Even the school board suffered from the leaks. One member told Josephy there was a leak directly over his chair in the conference room.

A Watertight, Cost-Effective Answer

It soon became obvious that for everyone's benefit, something had to be done. KMB Design Groups was asked to come in and help the Taholah School District determine the most cost-effective solution to address the school's roofing problems. That's when Josephy came up with the wet suit approach.

"As we typically do with clients, we conducted some workshops to look at the different roofing options, and ensured that our recommended solution matched up with their budgets and the long-term use of the building," Josephy explained.

One solution that fit the bill was the Sika Sarnafil G410 60 mil, fully adhered system. Sika Sarnafil's G series thermoplastic, PVC membranes are fiberglass reinforced, which provide exceptional dimensional stability and a low coefficient of thermal expansion. Best



Sarnafil®

of all, because the Sika Sarnafil system is lightweight, it could be applied directly over the existing metal roof, saving a significant amount on the installation cost.

"Many metal roofs and their support structures are designed as a single package, which means when you replace the roof, you need to either re-engineer or replace the roof frame or structure to deal with the additional weight of the replacement roof. Not only does this expose the building to the elements, but it is also very expensive," Josephy said. "That isn't necessary with a single-ply system, because even with insulation it is lightweight enough to be applied right over the existing metal roof."

Josephy also appreciated Sika Sarnafil's total system approach. "Sika Sarnafil takes a comprehensive approach to the roofing system including the flashing and drain details." He added, "this is very important, because roofs that have different valleys, angles and odd details are susceptible to leaks, as was the case with the original metal roof."

Finally, Josephy appreciated the benefits of using an adhered, hot-air welded system in the "very wet and windy" environment. "We wanted an adhered system because that would eliminate any chance of the membrane flapping in high winds," Josephy pointed out. "We also wanted a system with hot-air welded seams because those seams won't allow the wind-blown water to penetrate the roofing system."

John Brings Yellow said, after reviewing other installed Sika Sarnafil roofs in the area, he was very impressed with KMB's recommendation to go with the Sarnafil® system. "Other single-ply systems didn't seem to offer the longevity of the Sika Sarnafil system, at least not in this area of the country," he said.

An Innovative Solution

Installation of the 84,000 square foot roof (which includes the gymnasium's small, asphalt- shingled roof) was done by Clark's Quality Roofing of Portland Oregon. "This was a very difficult installation because we were fighting the weather all the time," said Troy Fallon, northwest regional manager for



The Taholah School of Taholah, Washington is situated right on the ocean and experiences very high winds and driving rains. The area also gets about 100 inches of rain per year — all factors which prompted the need for a watertight roofing system.

Clark's Quality Roofing. "Rain storms come in quickly there, so we always had to be prepared for rain. We even worked under tarps at times. We had to make sure our crew was safe, since in most areas the roof has a 4/12 or 5/12 pitch."

Another challenge was dealing with unmarked conduits for lighting and other building systems. "We had to mark out where they were on the roof so we wouldn't hit them," Fallon stated.

In addition, school was in session during part of the five-month installation, so they had to be mindful of the students and avoid working on the perimeter of the roof when the school was open.

It was how Clark's handled one particular challenge, however, that made them heroes in the end. Some of the classrooms in the school had vaulted ceilings with windows two stories high. The cedar shingle walls of these vaulted ceilings met halfway down to form a valley, and the original specification was for the shingles to be removed and re-sided with wood.

"Clark's Quality Roofing came up with a great solution," Josephy stated. Since these particular walls were not visible from the ground, Clark's Quality Roofing suggested they install the Sarnafil membrane halfway

down the walls, across the valley, and up the top half of the next wall.

"The flexibility of the Sika Sarnafil system enabled them to hot-air weld the membrane up and down the valley, forming one continuous roofing surface. There is no place for the water to go but off the roof," Josephy added.

An Attractive Wet Suit

John Brings Yellow said he is pleased not only with the fact that the Sika Sarnafil roof has already survived one winter without problems, but also with the appearance of the very visible roof. "We are thrilled with the overall look of the roof," he stated. "I can't remember the last time the building looked this nice and it is great that with the gray membrane and red trim we were able to incorporate the school colors of silver, black and red."

Josephy added, "On a rainy day, when the sky and roof are the same gray color and the rain is sheeting off the roof...it is truly a beautiful sight."

Who thought a wet suit could be so functional *AND* attractive?

Sika Sarnafil

A Division of Sika Corporation
100 Dan Road
Canton, MA 02021
Telephone: 1-800-451-2504
Telefax: 781-828-5365
www.sikacorp.com

Sika Sarnafil

A Business Unit of Sika Canada Inc.
6820 Davand Drive, Unit 2
Mississauga, Ontario L5T 1J5
Telephone: 905-670-2222
Telefax: 905-670-5278
www.sika.ca

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