Project Profile

Project
Waikane Hale Residence
Waikane Valley, Oahu Hawaii

Architect
Hawaii Architecture LLP
Honolulu, Hawaii

Roofing Contractor
Commercial Roofing
& Waterproofing Hawaii, Inc.
Honolulu, Hawaii

Roofing System
Décor Roof System, Adhered,
using patina green colored,
60 mil G410
feltback membrane

Project Size
3,921 square feet

Completed
March 2007

Sika Sarnafil Décor Roof System Gives Hawaiian Home Beauty and Durability

When Phillip Camp, AIA and principal partner of Hawaii Architecture LLP, designed a private beachfront residence in Oahu, he wanted the project to be cutting edge, yet still very fitting. To accomplish this, the design specifically employed natural lines that would play off of the natural surroundings. The building features indigenous construction material such as moss rock cladding and local fauna and flora, as well as a very distinctive, curvilinear roof with deep overhangs. The sweeping curves of the roof not only mimic the topography of the adjacent Ko'olau foothills, but also allow the house's rear neighbors to retain their ocean views.

The private 3,096 square-foot residence is situated in the Waikane Valley on the windward side of Oahu, an area known for its great beauty as well as for its frequent rainfalls and consistent trade winds. Because the roof plays such a dominant role in the building's design, it was important to select a roofing system that was aesthetically pleasing and could be easily applied to the roof's undulating curves. In addition, the roof would also have to be durable and able to stand up to the corrosive salt air of the area, and resist the frequent strong winds common to the area.

Durable yet Distinctive

Camp knew there was one roofing system that would meet both his aesthetic and performance needs: the Sika Sarnafil Décor Roof System. This system combines Sika Sarnafil's G410 thermoplastic single-ply roofing membrane with Décor profiles and/or battens, which are made of the same product formulation as the membrane, and are permanently fused to the Sarnafil® membrane with a hot-air welder to give the appearance of a standing seam metal roof.

"I've used the Décor system quite extensively in the past and knew it was a phenomenal product," Camp stated. "It has a high resistance to corrosion from the salt air and spray, which makes it a perfect application for Hawaii. Galvanized steel roofs start corroding after 10 or 15 years in this climate, whereas the thermoplastic membrane won't. This is an important consideration when specifying roofs on coastal areas like this."

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Camp also liked the flexibility of the membrane, especially since this roof had many different curves and slopes. "The Décor system could mold to the compound curves of the roof and still maintain the integrity of the assembly," he stated.

Finally, the "green" property of Sika Sarnafil roofing systems also was a plus. "We tried to incorporate energy saving practices whenever possible in this building. For instance, 95 percent of the house is naturally ventilated, which lowers the need for air-conditioning," Camp said. "The fact that the Sika Sarnafil assembly was one of the first 'green' roofs ever developed made the specification that much easier."

Tom Holland, director of operations at Commercial Roofing & Waterproofing (CRW) Hawaii, Inc. of Honolulu, installers of the roof, was pleased to be a part of this project. "We like working with Sika Sarnafil and consider them to be the top-of-the-line roofing membrane on the market," Holland explained. "They have the best material I've ever worked with, and, unlike metal roofing, the membrane can stand up to the ocean air in Hawaii. That's why we try to change metal roofing specifications to a Sika Sarnafil system whenever we can."

Dealing with Installation Curves

One of the biggest challenges facing CRW was figuring out how to lay out the gypsum roof board, membrane and the Décor profiles. "The roof deck started out flat, then continued up to a convex curve, and then changed to a concave shape," Holland said. "In addition the rakes gradually expanded outward as the slope continued upward. This meant the field membrane had to be laid out with the profiles in mind — the goal was to have the rakes appear balanced and install the profiles equidistant from each other, while still ensuring that the profiles also fell in place on the vertical seams." Holland said this was accomplished by planning in advance where the initial straight field sheet would have to be laid, then continuing on in one direction and backfilling in the field toward the other rake edge.

The sweeping curves of the Waikane Hale residence rooftop mimic the topography of the adjacent Ko'olau foothills in Oahu, Hawaii, while still enabling the homes to the rear of the residence to retain their ocean views.

After the patina green membrane was fully adhered to the gypsum roof board, the CRW crew began installing the patina green drip edge over the curved rake edges. This was done by using consistently spaced relief cuts to follow the slope, and then welding cover strips over the cuts.

Despite the difficulties and occasional rain showers, the CRW crew was able to complete the installation in just three days. "CRW did a terrific job, "Camp said. "They did what they said they were going to do and even helped out with things that weren't technically their job. They were very professional."

Camp added that the Décor's ease of installation was a huge help. "This would have been a hard nut to crack with a conventional metal standing seam roof," he said. "It would've been fairly problematic and would probably be leaking right now. But with the Décor system, the hot-air welded seams and flashing make the roof practically 'bullet proof'."

A Pleasing Solution

Today the residents of the Waikane Hale house are enjoying stunning views and a watertight roof, Holland said. "The house is in a beautiful location and looks out over a small island in the bay," Holland said. "The project turned out really well and the owner is very happy."

Camp is also very satisfied. "The Décor roof looks great, goes down really easy, is UV resistant, and wears very well," he said. "When all of the aesthetic, performance and energy efficient requirements were looked at collectively, the Sika Sarnafil Décor system was not only the best product for the job – it was the ONLY product that could meet the requirements."

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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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