



THE USE OF POLYFOAM WITH THIS TILE ROOF INSURES ADHESION EVEN IN STRONG WINDS.



Tile Securement

Keeping Roof Tile in its Place in Denver, Colorado

by Tony Matter, freelance writer for the construction industry



Unlike its Rocky Mountain cousins, Aspen and Vail, Denver, Colo., receives very little annual snowfall, settling instead for a much milder and drier climate that experiences approximately 300 days of sunshine a year. So, whether it's a warm summer day or a brisk winter afternoon, the sun is almost always shining in Denver.

But while the Mile High City has its moments in the sun, there is one weather condition it cannot escape – wind. Located 5,300' above sea level along the eastern foothills of the Rockies, Denver is perfectly situated to receive hurricane-like winds in its non-hurricane-like setting. While the high winds in Denver have not caused cata-

strophic destruction like the hurricanes in Florida or Louisiana, many Denver rooftops have been damaged due to severe windstorms.

For David and Carolyn Greene, homeowners that live in the historic Bonnie Brae section of Denver, wind was a major consideration when they decided to reroof their house. "The asphalt shingles on our house were constantly falling off during high windstorms," said Carolyn Greene. "With the recent addition to our garage we thought it was a perfect time to replace the old, worn-out roof on our house."

Since they live in an historic part of town, the Greenes wanted to install architectural roof tiles that were reminiscent of the time the house was built. The couple

knew that tiles were a risky choice because of the tendency to be blown off during high winds. "A lot of our neighbors have tile roofs that are constantly blowing off during windstorms due to the way they are attached," said Greene. "Usually attached to the rooftop with only one nail or screw, tiles are very free-flapping and are easily blown-off."

While the addition on their garage was being constructed, the Greenes were doing their homework, researching alternative tile attachment methods that would protect their roof during the strong Denver windstorms. When the time came to make a decision, the Greenes chose to use the Polyset® Professional Tile Roofing System from Polyfoam Products, Inc., a Texas-based company

with additional operations in Florida. "Some of our friends and family members from Florida were telling us about an alternative attachment method that is being used down there," said Greene. "They said people started using this method because their roofs were constantly being destroyed by hurricanes. Everyone they knew was impressed with the product's performance."

Polyset features a unique, two-component polyurethane free-rise foam adhesive that provides two to three times more holding power than traditional tile-attachment methods. The Polyset system has become a popular tile-attachment method in Florida, where hurricanes are commonplace, and is now gaining popularity in the western part of the country. It is currently being used in over 25 states throughout the continental U.S., Hawaii, Guam, Japan, Central and South America and the Caribbean Islands.

"We developed the Polyset system after the devastating destruction that Hurricane Andrew caused in Florida 13 years ago," said Bob Ferrante, vice president of adhesive products at Polyfoam. "The product's popularity has really taken off in the southeast and people in the west are beginning to see its benefits, as well." Not only does the Polyset system offer superior tile staying power for winds exceeding 100 mph, the system's adhesive, Polypro® AH-160, offers a host of other benefits, too. The Polypro AH-160 adhesive rises after it is applied to the underlayment. When the tiles are set in place, the adhesive expands to create a solid surface underneath the tiles providing additional support, forming a more impact- and traffic-resistant roof tile system.

To install their new tile roof, the Greenes turned to Vincent Hobson, owner of Custom Tile Roofing, Inc., in Denver. Hobson is one of the premier resources for tile roofing products in the United States, owning one of the largest collections of historic roof tiles and having written a book on the topic, as

well. Although Hobson had never used the Polyset system before, he was more than willing to take on the challenge. "A lot of roofs in Denver get damaged due to the wind, so I was definitely interested in learning about an alternative attachment method," explained Hobson. "Polyfoam offered us training courses to become a certified installer of the system and we quickly saw that Polyset was effective and easy to use."

Before Hobson's crew adhered the Greenes new tiles with the Polyset system, they had to tear off the existing roof deck and replace it with 5/8" plywood. Custom Tile installed the plywood and then covered it with a 40-mil self-adhesive waterproofing underlayment manufactured by Protecto Wrap®, located in Denver. Next, Custom Tile's five-man crew stapled batten strips over the top of the waterproofing underlayment. The battens were installed to maintain the plane of the roof slope, while they also offered a mechanism for the lugs on the tiles to hook onto. In traditional tile installation, the battens provide an additional material for a nail to be installed into, but this is not necessary for the Polyset application because the adhesive is applied directly to the underlayment and not the battens.

After the batten strips were stapled down, Hobson's crew went to work installing the Greenes' new tiles. For their roof, the Greenes selected a high profile, Capistrano tile manufactured by Eagle Roofing Products, Inc., Rialto, Calif. The lightweight, concrete tiles offer a distinctively aesthetic style to the roof as well as provide increased impact resistance. Together with the Polyset system, which can increase impact and foot traffic resistance by 40-70%, Eagle concrete tiles provided the Greenes with a strong roof that will last.

To install the tiles, Custom Tile used Polyfoam's ProPack® 100 field application

kit. The ProPack 100 is a portable, self-contained kit that comes standard with everything a contractor needs to install the Polyset system, including the AH-160 foam adhesive, 25' hoses and the foam dispenser. Because of the size of the tiles, which measured 17" x 13", and the tiles high profile, Custom Tile used a large paddy to adhere the Capistrano tiles. Paddy is the term given to the adhesive after it is sprayed onto the roof deck. According to Polyfoam's specifications, a large paddy measures 2" x 10" prior to expansion. "With traditional tile installation there is a lot of play around the nails or screws," said Hobson. "The large paddy creates a much larger fastening area that eliminates a lot of the room that can create tile uplift and chatter."

An additional benefit of using the large paddy versus traditional tile application methods is the added R-value it provides to the roof. Based on a Guarded Hot Box test conducted Geoscience LTD in San Diego, Calif., the Polyset system offered an R-value of 6.17 versus traditional tile attachment that only had an R-value of 2.59. "Everyone knows the price of fuel is skyrocketing," said Greene. "The additional insulation should help keep our house warmer and reduce our heating bill."

As Hobson's crew was installing the new roof, they were continually shooting test paddies to make sure that the adhesive was mixing correctly and that the paddies were the proper size and thickness. According to Hobson everything went smoothly and the 3,500 square-foot roof was installed in only four days. After the roof was complete, Hobson described the Polyset system as a high-quality roof that is beneficial to the Denver area. "Polyset definitely meets the needs of wind-prone areas like Denver," said Hobson. "But it's not just the wind. Polyset addresses a number of other issues as well, and that's what makes it such a quality system."



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