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# SprayFoam

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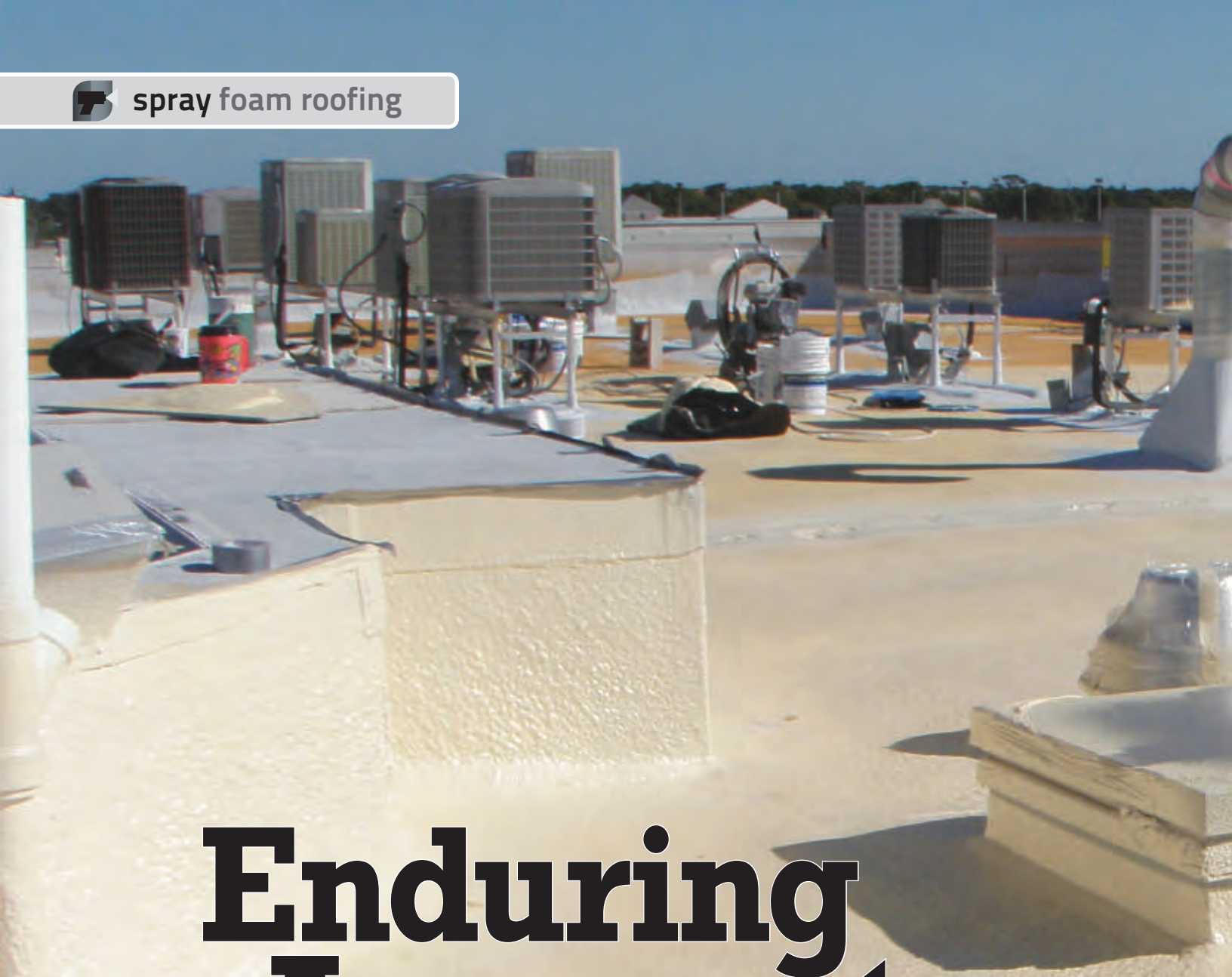
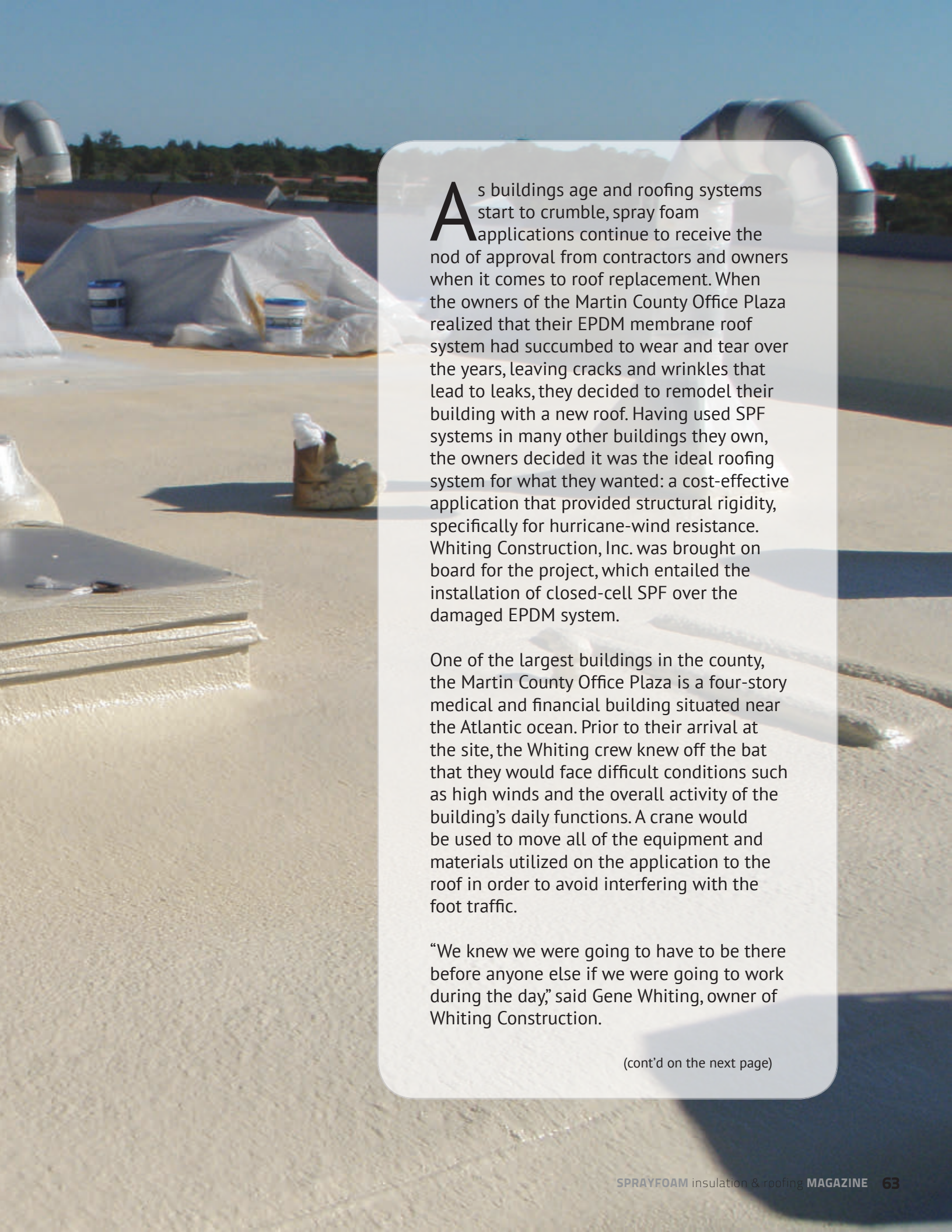


# Enduring Aggregate

## Gravel combines with spray foam to produce a long lasting roofing system

By Juan Sagarbarria

Photos Courtesy of Whiting Construction



As buildings age and roofing systems start to crumble, spray foam applications continue to receive the nod of approval from contractors and owners when it comes to roof replacement. When the owners of the Martin County Office Plaza realized that their EPDM membrane roof system had succumbed to wear and tear over the years, leaving cracks and wrinkles that lead to leaks, they decided to remodel their building with a new roof. Having used SPF systems in many other buildings they own, the owners decided it was the ideal roofing system for what they wanted: a cost-effective application that provided structural rigidity, specifically for hurricane-wind resistance. Whiting Construction, Inc. was brought on board for the project, which entailed the installation of closed-cell SPF over the damaged EPDM system.

One of the largest buildings in the county, the Martin County Office Plaza is a four-story medical and financial building situated near the Atlantic ocean. Prior to their arrival at the site, the Whiting crew knew off the bat that they would face difficult conditions such as high winds and the overall activity of the building's daily functions. A crane would be used to move all of the equipment and materials utilized on the application to the roof in order to avoid interfering with the foot traffic.

"We knew we were going to have to be there before anyone else if we were going to work during the day," said Gene Whiting, owner of Whiting Construction.

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At the site, the crew underwent extensive prep work. Instead of removing the existing system from the flat roof, the Whiting team tried a more practical approach: since the existing system was fully adhered to the substrate, they decided it would save time and cost to install half-inch Gypsum boards over the remaining EPDM system. The Gypsum board would act as a recovery system onto which the spray polyurethane foam could be applied since the EPDM membrane system was not the ideal surface for SPF application, according to Whiting.

The recovery system was installed using stress plates and screws, which had to be installed by hand due to the length of fasteners it required. The lightweight cement deck was pitched to drain, with the thickness anywhere from 2 to 12 inches between the deck surface and the underlying steel deck.

As per Florida Building Code, all rooftop A/C units were remounted on raised stands. Whiting's crew then masked off all roof top equipment including roof hatch and parapet wall, hoping to protect these items from overspray. Whiting said his goal was to install a fully functional, professional-looking SPF roof.

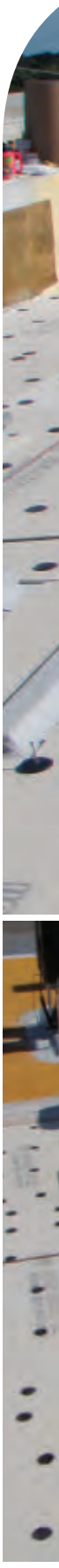
A four-story building surrounded by a parking lot near the Florida coast can pose difficulty to installing an SPF roof without overspray claims. Most days the weather did cooperate, but when needed, Whiting's crew used burlap wind screens during spraying. There were no overspray claims on this project.

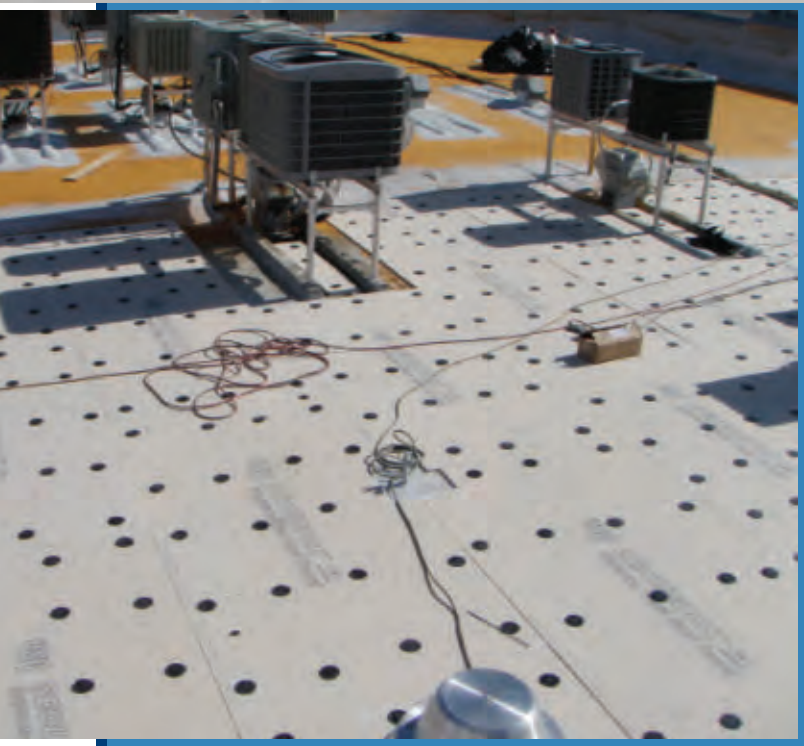
The only EPDM membrane that was removed from the entire roof structure came off the parapet walls. The Whiting team decided they would apply the SPF directly onto the plywood of the parapets. Whiting said that the removal of the EPDM membrane from the parapet, which exposed the bare substrate for direct application of SPF to the wall, made it impossible for the spray foam to separate from the substrate, even in the worst of hurricanes.

> "We made it even greener by actually using an aggregate of recycled crushed concrete."

The crew sprayed two inches of NCFI's InsulStar, a 2.8 lb. closed-cell spray foam, to the flat roof deck and the parapet walls for a total spray area of 9,000 square feet. They had one rig on site equipped with a Graco H-20/35 Pro. For the application, a Binks 43P spray gun was used, which not many applicators in the SPF industry handle for their operations in spite of its remarkable benefits, according to Whiting.

"It's a solvent-purge gun rather than an air-purge gun. It doesn't create blisters and lays out a flatter and smoother profile," stated Whiting. "I can always tell when I walk up on





**Clockwise from Top Right:** the building's roof with its exisitng EDPM system prior to the project; the Gypsum board, which was installed as a recover system before the SPF application

**Top:** the crew applied SPF to the parapet walls; **Bottom:** the roof with the SPF application over the Gypsum boards

a roof if it's been sprayed with a round-pattern gun because they're either reasonably flat or not flat at all."

Whiting explained that the Binks gun has more of an elliptical pattern vs. a round cone that the average spray gun has. The pattern, he claims, is what generates the kind of spraying that lays out a flatter roof.

The crew then added a half-inch layer of aggregate serving as a protective barrier for the SPF below.

"Spray foam is a green roof system," said Whiting. "We made it even greener by actually using an aggregate of recycled crushed concrete, material that was once used is beginning to be used again, and it looks and works great.

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The crew had to place the roof's A/C units on stands for the duration of the project

The aggregate was not added on the flashing areas of the roof since it would end up falling off. Instead, the crew covered the flashing areas with 30 mils of NCFI EnduraPlus elastomeric acrylic coating using a Graco G-Max sprayer. To avoid hanging coating hoses down the side of the building with potential to burst on the walls and pedestrian traffic, the coating and pump were hoisted to the roof.

The crew had to be very careful working around street traffic of the building in terms of the daily operations and the parking lot.

"We tried to get as many things as we could on the roof before people showed up; we put cones around all of our equipment and materials and created traffic ways so people could get in and out of the building without being in the way," said Whiting. "Once everything was up on the roof, there was very little interference."

> "Over the long haul, aggregate-covered spray foam roofs are more fireproof, more hail proof, and they require less maintenance."

Whiting noted that the cones and caution tape were put around the spray rig and they kept a crewmember monitoring equipment and traffic flow full-time.

It took the five-man crew six days to finish the job. The end result was a brand new SPF roof replacing a system that had been leaking for

The restored roof system finished with gravel aggregate

years. Whiting and the Whiting team claim that, if properly maintained, this will be the last roof the Martin County Office Plaza owners will ever need.

"Whiting Construction is proud to have installed a hurricane-proof roof on one of the most aesthetically pleasing buildings in Martin county," said Whiting.

Whiting went on to say that Whiting Construction has been doing aggregate-covered SPF roof systems for 30 years. Whiting also installs fully coated SPF roofing systems, but aggregate-covered systems have been field-proven.

"Over the long haul, aggregate-covered spray foam roofs are more fireproof, more hail proof, and they require less maintenance," said Whiting. "With a regular coated roof, you would have to recoat over time, whereas with an aggregate foam roof, the only thing you have to worry about recoating is the flashing areas, so it greatly reduces the expense of maintenance."

For more information about Whiting Construction, please visit www.whitingconstruction.com.