MARCH/APRIL 2014

SprayFoam

INSULATION & ROOFING MAGAZINE

GO with a GREEN ROOF

INSULATING THE NEW AMERICAN HOME

TRENCH BREAKERS
SPF Supports Pipelines

Read Online Now

+ PLUS

- Spray rigs for any application
- Historic commercial insulation
- Crawlspace encapsulation

building science technology energy building codes materials equipment application

HIGHER GROUND

Spray foam application creates the foundation for an aesthetically pleasing green roof

By Juan Sagarbarria

(cont'd on the next page)

Top: outside view of the medical facility as construction resumed; **Bottom:** a view of the garden in progress

In medical facilities, it can be immensely beneficial for patients and employees to find a peaceful environment within the building: a relaxing and aesthetically pleasing haven defined by utter tranquility, wherein daily stressors have no influence. A newly constructed medical facility located in Katy, Texas, sought to provide that exact place by creating a green roof to promote high morale amongst the hospital staff and patients.

A green roof can be characterized as a man-made garden that is installed on the roof of a building. It is maintained the same way as a garden, covering a part of the roof with a growing medium and vegetation. Installed over a waterproof membrane, the green roof provides an extremely high R-value to the building.

The owners opted for an SPF roof system to provide a strong, monolithic foundation onto which the garden would be built, and to provide effective R-value to the whole building. It was a beneficial choice since an SPF roof system contributes to lower energy consumption and an optimal climate derived from ideal insulation for the hospital. The project also entailed the application of a reflective coating to protect the SPF and keep the roof cool before the green roof operation got underway.

Industrial Roofing and Insulation (IRI) spearheaded the first phase of a three-phase roofing project that took place while the interior of the building

was being finished by other subcontracting crews.

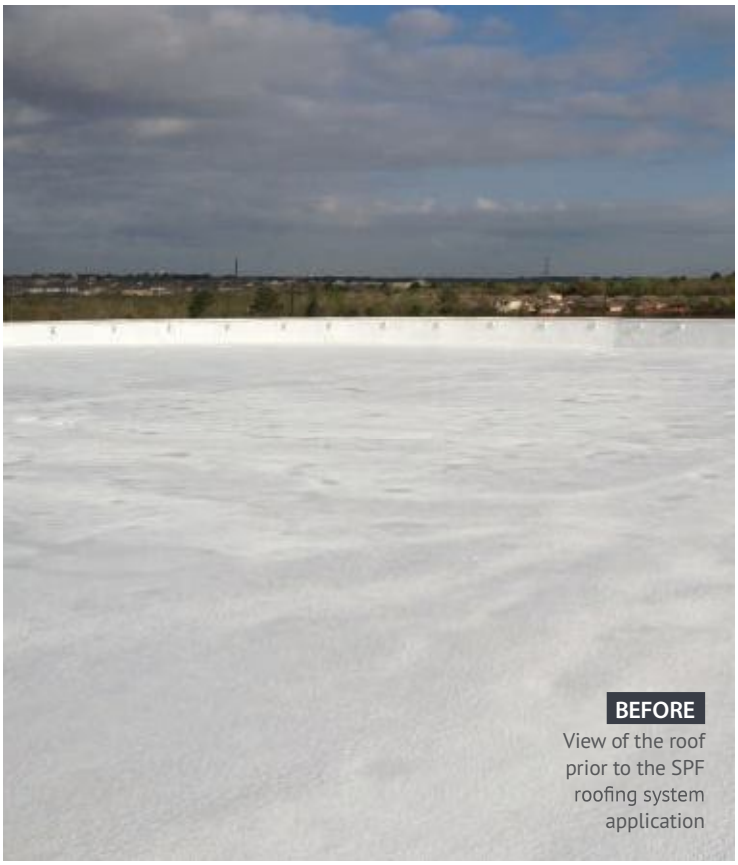
"The owners wanted to add longevity to the roof," said IRI's General Manager Dickie Russell. "An SPF roof system is the way to go if you want your garden to be sitting on a stable and rigid system that would need little, if any, maintenance in the long run."

The general contracting company installed scaffolding around the building, which enabled them to work around the 28,500 sq. ft. roof with ease. Additionally, the crew installed a six-foot high perimeter that consisted of a large screen affixed to the edge of the roof for added safety and overspray protection. According to Russell, his crew only worked on clear days to avoid the downtime that high wind activity and rain causes.

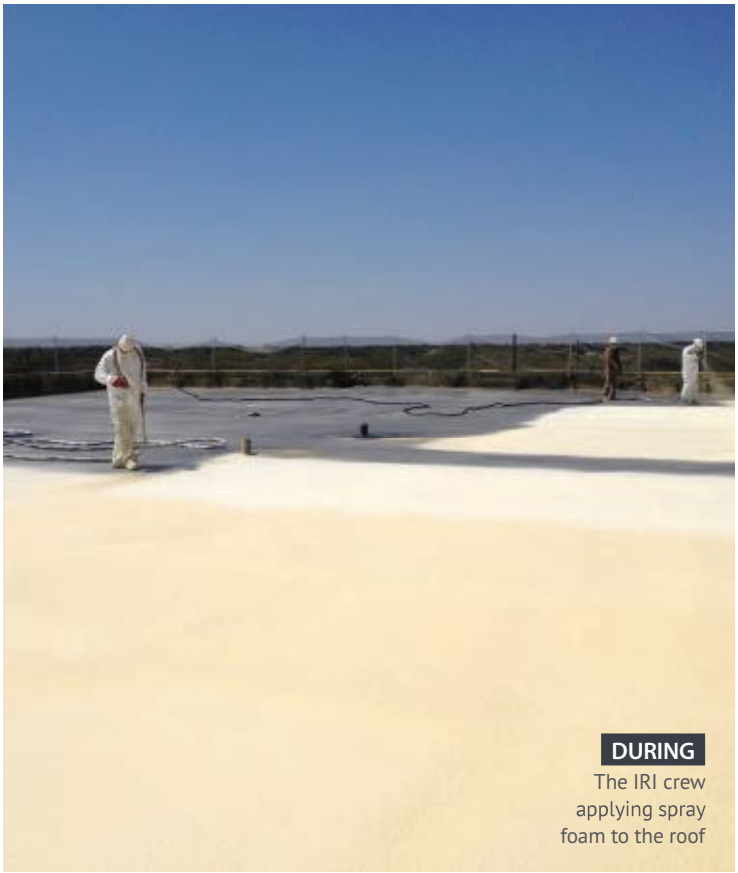
"It was better to wait for the best possible days to spray than to try to rush the project and cause overspray given the amount of people that came in and out of the property," said Russell.

The IRI crewmembers wore basic PPE, which included hard hats, safety glasses, and steel-toed boots. Russell noted that no restraints were needed for fall protection because the roof had a 40-inch parapet wall surrounding it. The crew parked their rigs close to the building, attached spray guns to the hoses, and pulled the hoses up to the roof. Prior to the SPF application, the IRI crew applied Thermo-Prime, a water-soluble, acrylic roof primer made by Lapolla Industires, to promote greater SPF adhesion.

(cont'd on the next page)



BEFORE
View of the roof prior to the SPF roofing system application



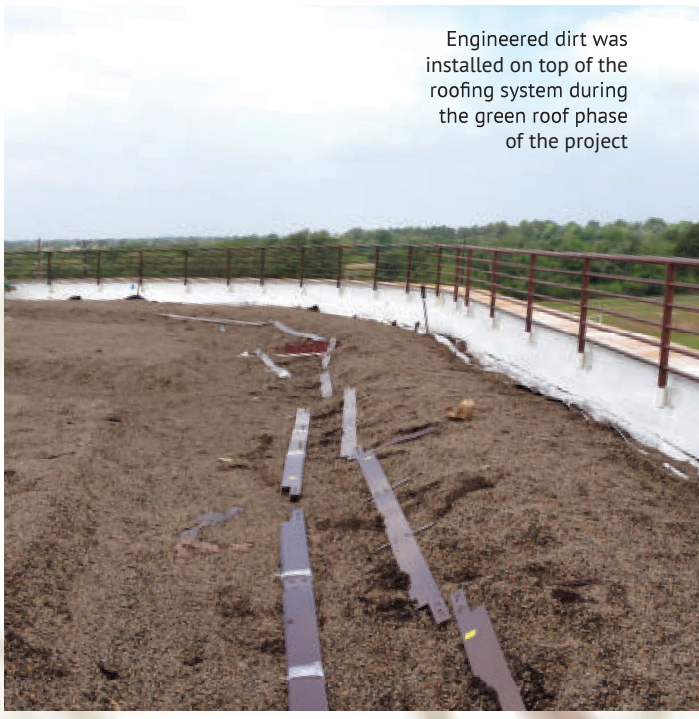
DURING
The IRI crew applying spray foam to the roof

View of the roof after the application of acrylic coating over the SPF

"SPRAY FOAM OFFERS A GREATER R-VALUE AND GREATER STRUCTURAL INTEGRITY THAN MATERIALS SUCH AS INSULATION BOARD."

With the roof surface primed, the crew sprayed the roof with two inches of Foam-LOK, a closed-cell spray polyurethane foam made by Lapolla. The spray area totalled 25,250 sq. ft. of the roof, which covered the entire roof surface, minus the entryway access tower and the surfaces under the rooftop's HVAC units. According to Russell, the crew installed 16 sets of closed-cell foam during the SPF application.

"Spray foam offers a greater R-value and greater structural integrity than materials such as insulation board can," said Russell. "In this case, it provided an R-13 that complemented the R-64 that the green roof provided."



Engineered dirt was installed on top of the roofing system during the green roof phase of the project

Russell explained that the green roof's high R-value derived from the dirt and the mulch covering the roofing system is substantially thick. He added that the R-value of a green roof varies depending on the depth of the soil and mulch that is utilized.

Once the spray polyurethane foam cured, the IRI crew applied two passes, equaling 28 mils, of Lapolla's Thermo-Flex 1000QS, an acrylic elastomeric coating. The coating system consisted of a grey basecoat, followed by a white reflective topcoat.

The crew had three foam rigs and three coating rigs on site: three were used during the SPF application and were equipped with Graco Reactor E-30 Reactors with 310' of hose per unit, while the other three rigs were used in the coating application and were equipped with Graco GH 733 coating pumps with 300' of hose per unit.

After the SPF roof was installed, the crew waited two weeks to let the materials cure before they proceeded with the green roof application. Russell noted that this was done to see if any issues arose with the SPF system during that time.

Prior to the green roof application, the general contractor had handrails installed around the garden's section of the roof, which not only exceeded OSHA's criteria for safety, but it would also allow future visitors to move safely around the roof garden.

Once underway, IRI worked alongside two subcontractors during the green roof segment of the project. The IRI crew laid a 90-mil root-block membrane over the SPF system with an eight-inch overlap. Then, an 80-mil drainage mat membrane was rolled out over the root-block membrane

The fully completed green roof

with a six-inch overlap at the seams. After that, engineered dirt and mulch was laid over the entire system for growth medium. The engineered dirt is specifically cultivated dirt that is free of all species of unwanted seeds and insects, which significantly reduces landscape maintenance over the years. According to Russell, a landscaping subcontracting crew utilized lava rock and other landscaping materials to create walkways and separation points within the green roof system. He added, the weight of the dirt and mulch kept the root block and drainage mat in place. Finally, another subcontracting crew installed a sprinkler system to fully complete the roof garden.

It took the eight-man IRI crew three weeks to complete the SPF green roof project. According to Russell, this is the third green roof IRI has installed in the past five years. He mentioned that the building owners were so pleased with the end result that they have requested IRI's services to install two more green roofs on different properties in the next two years.

For more information on Industrial Roofing & Insulation, please visit www.industrial-roofing.com.