



Keeping the faith

Thomson Roofing and Metal Co.
installs a PVC membrane roof
system on a Georgia temple

by Krista Reisdorf

The Walton Way Temple Congregation Children of Israel-Reform was built during the mid-1960s and featured a contemporary design with a curved parabolic roof profile. Although the temple's original roof system designer proposed the use of flat-seam soldered copper pans to fit the curvature of the roof, budget concerns would not allow for the use of copper, and a built-up roof (BUR) system was installed instead.

However, about 30 years and another BUR system later, the building required a reroof and tear-off. The temple owner wanted a more attractive roof system, especially because the building was highly visible from the street. Therefore, the decision was made to have a standing-seam metal roof system installed.

Thomson Roofing and Metal Co., Thomson, Ga., was one of the companies invited by the architect to bid on the project.

Different opinions

Mark Jenkins, general superintendent of Thomson Roofing and Metal, describes the roofing contracting company as “a smaller-sized roofing company that specializes in jobs most roofing contractors refuse to do because the projects are tricky, detail-oriented or labor-intensive.” This proved to be true for the temple project.

“The proposed job was not your standard reroofing project where you can put a few men on the job with little supervision,” says Cameron Scott of Cheatham Fletcher Scott Architects, Augusta, Ga., architect for the project. “It required a roofing contractor to carefully plan out the installation process while keeping in mind the importance of the finished product.”

But the project hit a snag during the bidding process.

“The owner and architect desperately wanted to install a standing-seam metal roof system,” Jenkins says. “They wanted the look of a metal roof system without the cost of using copper.”

However, the architect’s and owner’s desire to install a standing-seam metal roof system was opposed from the beginning by almost all the bidding roofing contractors. Bidding contractors determined there was not an economical way for a standing-seam metal roof system to conform to the curving profile of the temple’s structural roof deck.

“A traditional metal roof panel would have had to accommodate



Top: The temple’s built-up roof system before the tear-off
Bottom: The new PVC membrane roof system Photos courtesy of Thomson Roofing and Metal Co., Thomson, Ga.

opposing slopes across the width of the panel to be able to follow the direction of the roof’s profile,” Scott says. “This would have created a bow in the panel around the midspan. The only metal roof system we could find to accommodate the roof curvature was too expensive. The cost to use the product was in the same price range as the flat-seam copper pan system.”

At the final pre-bid session, Thomson Roofing and Metal recommended a Sarnafil PVC membrane roof system that incorporated heat-welded standing-seam décor ribs. The roof system was approved.

“We were asked to find a solution that would work on the rolling shape of the roof line,” Jenkins says. “The Sarnafil system with heat-welded standing seams gives the appearance of a metal roof system. We introduced the owner and architect to the Sarnafil products, and the rest is history.”

Learning to adapt

The temple’s roof system consisted of an 11,700-square-foot (1087-m²) gravel-surfaced built-up roof (BUR) system installed over ½-inch- (13-mm-)

thick perlite insulation, which covered another BUR system that was installed over 2-inch- (51-mm-) thick perlite insulation. The exposed deck consisted of a 3-inch (76-mm) tongue-and-groove wood plank. In addition, both roof system layers and flashings contained asbestos, so the company took the appropriate precautions, which included isolating debris from an adjacent children’s playground; ensuring the material was adequately wet; and removing the debris in a pan with a boom truck and putting it in a double-lined trash bin, among other things.

When the time came to perform the tear-off, Thomson Roofing and Metal had to adjust its process.

“We had the challenge of removing the entire roof while keeping the contents of the building dry,” Jenkins says. “We decided to completely tear off all the existing roof systems and install a temporary roof. This would make laying out the PVC much simpler and reduce the margin of error. Exact layout of the roof seams was a must because the Sarnafil décor ribs weld ¼ of an inch (6 mm) offset to the field seams. If a field seam was out of alignment, the décor rib was out of alignment,



The seams on the temple project needed to lay parallel to the slope to accommodate the décor ribs.

as well. So each day, we installed a self-adhering underlayment as our temporary roof.”

Without the temporary roof, the tear-off, rotted wood replacement, new insulation and PVC membrane installation would have had to be done almost simultaneously to ensure the building was kept dry at all times. The temporary roof allowed the roofing crew to take the time needed to properly install the roof insulation and lay out the PVC membrane field seams. Although traditional membrane roof systems have seams installed perpendicular to roof slope, the seams on the temple project needed to lay parallel to the slope to accommodate the décor ribs.

The temporary roof, which was TAMKO® 40-mil Moisture Guard, served its purpose; the company experienced three hurricanes during the tear-off, and the roof did not leak. Roofing workers also faced problems with the existing deck during tear-off.



The PVC membrane roof system was chosen for its metal appearance and ability to accommodate the roof line.

“Rotted wood became a big scheduling issue,” Jenkins says. “We had to add crews so the schedule could be maintained. Our crew members spent nearly two weeks working on the wood deck.”

To make matters more complicated, the company discovered the building’s lighting conduit ran on top of the deck and under the original insulation. Roofing workers had to cut the first 1½-inch- (38-mm-) thick layer of rigid polyisocyanurate insulation to fit around the conduit, as well as bridge the second layer over the conduit.

“Because of the rolling nature of the roof and electrical conduits on top of the deck, it was a constant battle to keep water out,” Jenkins says. “We had to determine the flow of water and add several layers of material in certain areas. Electrical junction boxes and conduits caused the material to bridge naturally. In some areas of the roof, the slope carried the water almost side-

ways. The bridging became an issue that we had to verify at each box or conduit, because the water drained from the building horizontally at certain places.

“Foot traffic during tear-off made the job even more difficult,” he continues. “The foot traffic and material transfer caused a problem at all the areas of

electrical conduits and junction boxes where the membrane had to bridge. The slightest bump or kick would split the material.”

Precise movement

The company installed a Sarnafil PVC membrane, which was 60-mil- (0.06-inch- [1.5-mm-]) thick G410 fleece-back material in lead gray. The matching heat-welded décor ribs were installed 18 inches (457 mm) on center, and two layers of 1½-inch- (38-mm-) thick polyisocyanurate insulation were mechanically attached to the deck at one fastener per 2 square feet (0.2 m²).

However, precise placement was crucial during the installation.

“The challenge was making sure the roofing seams were laid out perfectly on the concave roof deck,” Jenkins says. “In some places, the deck was concave by 1 foot (0.3 m) or more. We could not have one single patch on the roof because of aesthetic reasons.”

“To make matters worse, each gable end of the two buildings projected in opposite directions, making it more difficult to decide which direction to run the seams,” Scott says. “The decision finally was made to run the seams perpendicular to the eave line and let them run out when they got to the angled rake lines at each gable.”

The installation and layout of the décor ribs involved following the field seams. So when the field sheets were installed in the correct location, the ribs were welded into place using the SarnaMatic heat-welding machine.

“During installation of the décor ribs, we invented and crafted several tools that quadrupled the installation rate,” Jenkins says. “I invented a tool that enabled one worker to align and weld the tails of the décor ribs. The Sarnamatic décor rib welder would not weld the ribs on the perimeter of the building. The remaining 18 inches (457 mm) of rib were hand-welded.

“The other tool we invented was a punch that cut the end pieces to each rib. We were able to punch all the end

pieces for the job with one worker in less than an hour.”

The roof slope varied from 2-in-12 (9 degrees) to 8-in-12 (34 degrees), and Thomson Roofing and Metal's safety plan for the project included the implementation of fall-protection systems, such as the installation of a guardrail system around the entire work area. Workers wore full body harnesses, lanyards and slack adjusters when completing all work near the perimeter. The tie-off point was a steel anchoring device that was screwed into the deck. The company also implemented a warning-line system with a full-time safety monitor for the low-slope roof areas.

Standard personal protective equipment, such as hard hats, gloves and safety glasses, was required. The Occupational Safety and Health Administration did not require respiratory protection for the roof system

Project name: The Walton Way Temple Congregation Children of Israel-Reform

Project location: Augusta, Ga.

Project duration: July 2004-October 2004

Roof system type: PVC membrane

Roofing contractor: Thomson Roofing and Metal Co., Thomson, Ga.

Roofing manufacturer: Sarnafil Inc., Canton, Mass.

Architect: Cheatham Fletcher Scott Architects, Augusta, Ga.

removal method used for the temple project.

Good choices

The company began the project in the middle of September 2004 and finished the first week of October 2004. Although project completion took several weeks longer than anticipated because of the rotted wood deck and rain and winds from the hurricanes, the company was happy with the end result, especially in light of the early issues about material choice.

“Metal roof systems are not for every building,” Jenkins says. “Now, roofing contractors have a viable—and undetectable—solution for building owners who want the look of metal.

“The best part of the project was to be able to satisfy all parties involved by installing a good-looking, quality product that will last for years to come.” ■

Krista Reisdorf is associate editor of *Professional Roofing* magazine.

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