



Photo courtesy of McElroy Metal, Bossier City, La.

# Educated roofing

Rio Roofing corrects leak issues on  
Roma High School in Texas

by Christine Elle Hanus



**R**oma High School is the only high school in the Roma Independent School District located on the Texas-Mexico border in Starr County. A provider of prekindergarten to twelfth-grade education for more than 6,000 students, Roma Independent School District comprises 10 campuses, including six elementary schools, two middle schools, one alternative learning center and a high school in Roma, Texas.

Roma High School's roof system replacement was a long time coming. For more than 25 years, leaks at various transition points were causing excessive damage to the building. In 2016, school district management hired Amtech Solutions, Pharr, Texas, a roof consultant company, to investigate the leaks, and Rio Roofing Inc., Harlingen, Texas, to perform the roofing work.

### The investigation

When Amtech Solutions arrived on-site, the water infiltration issues were considerably worse than anyone realized. Most of the leaks were associated with walls and transitions between the roof and walls, which required designing an aluminum saddle from the low eave, an aluminum saddle

from the high eave and an aluminum saddle from the gable and façade.

"When we got involved, [school district management] was unsure of what the real causes of all the problems were," says Mike Hovar, AIA, RRO, LEEP AP, an architect formerly with Amtech Solutions. "When we saw water running down a wall, immediately we thought the problems were related to the roof. But once we got a closer look, it wasn't just the roof but the walls and the drainage over the walls. No one had any idea how bad it was. The original design contributed to all the problems, and the installation made it all worse."

A new roof system design would help correct the leaks, but district leaders were undecided regarding the type of roof system to install. There were some who wanted to use tile again to maintain the roof's original design, but others simply wanted a solution that would eliminate the leaks.

"We talked about the advantages of metal as opposed to tile, including it would be easier to get a properly functioning roof system and less expensive," Hovar says.

The school district approved the metal roofing option, and Rio Roofing would install the new roof system during the second phase of work.

"Our scope of work was considered phase two," says

Hedley Hichens, vice president of Rio Roofing, “Phase one was performed by Restoration Services Inc. from Houston. The existing roof system was bad, but roof replacement alone would not have addressed the entire building’s envelope issues. Phase one addressed all the existing wall issues and was performed during the summer of 2016.”

## Improved roof systems

Following phase one, Rio Roofing began work on Roma High School in October 2016. Phase two included new roof systems on the campus’ main roof areas, band hall, gymnasium, agriculture building, kitchen and locker rooms.

“A lot of the scope in phase one was coordinated by Amtech Solutions to integrate with the details for phase two,” Hichens says. “For example, a new through-wall flashing height had to be correct for installation of the roof system in phase two.”

## Main roof areas

Rio Roofing workers removed the existing tiles from the 190,000-square-foot steep-slope main roof areas. Because of the project’s location, it was not cost-effective to haul the tiles back to the shop.

“With the school’s permission, we gave as much of it away as possible,” Hichens says. “A lot of it was used by local ranchers and farmers, who used the tile for filling in driveways.”

The Rio Roofing crew then mechanically fastened 3-inch-thick polyisocyanurate insulation to the existing layer of 5/8-inch-thick plywood on the metal deck. Next, workers laid self-adhering Polyglass Polystick® MTS followed by fastening 141,800 lineal feet of McElroy Metal 16-inch-wide, 24-gauge 138T symmetrical standing-seam Galvalume® panels in PVDF Brite Red.

“We brought out the roll-former on weekends to run the panels because it draws a crowd,” Hichens says. “Obviously, with a school there are fewer people around on the weekends. Instead of having to deal with the cost and logistics of bringing in 190,000 square feet of 45-foot-long panels, we’re certified by McElroy Metal to manufacture the 138 and 238T panels with our own roll-former. All the panels on this project were site-formed. We also purchased a SnapTable Pro from Swenson Sheer to cut panels we installed in the valleys and to notch the panels.”

## Band hall, gymnasium and agriculture building

On the 43,000-square-foot low-slope roof areas over the band hall, gymnasium and agriculture building, workers fastened McElroy Metal 24-inch-wide, 24-gauge 238T symmetrical standing-seam Galvalume Plus® panels over RoofHugger Model T retrofit steel purlins that were fastened to the existing 3-inch structural trapezoidal panels on the structural steel framing.

“As the RoofHugger purlins were installed, custom profile-cut EPS boards were used to tightly fill the existing trapezoid panels, and a top layer of 1½-inch polyisocyanurate insulation was used to bring the insulation flush with the top of the RoofHugger system,” Hichens says. “The entire field of the roof then was covered in a layer of Polystick MTS. The beauty of the retrofit system was there was no tear-off. We were able to install the roof system with minimal disturbance to the school.”



Photos courtesy of Rio Roofing Inc., Harlingen, Texas

Rio Roofing workers removed the existing tiles from the 190,000-square-foot main roof areas.



All the metal panels for the project were formed on-site by Rio Roofing craftsmen.



One area on the gymnasium with existing R-panels received an additional layer of 3/8-inch SECUROCK cover board between the EPS and Polystick MTS membrane.

### Kitchen and locker rooms

The existing 330-square-foot low-slope areas on the kitchen and locker rooms consisted of a granular surface with a polymer-modified bitumen cap sheet mopped over two layers of felt, 1/2 of an inch of perlite, and a mechanically fastened base layer of tapered 5- to 10-inch-thick polyisocyanurate insulation over a metal deck.

“We saved these areas for the summer of 2017 because of the sheer amount of mechanical equipment on the roof,” Hichens says. “The low-slope areas are small and packed with duct work, condensing units, package units, exhaust fans and mechanical supports; we couldn’t walk five feet without running into something. The existing tapered insulation was thick, and it was a slow tear-off. Much of the work was beneath mechanical platforms, so it all had to be done by hand. Add the heat of the Roma, Texas, summer, and it was pretty rough.”

As the existing roofing material was removed, workers torch-adhered one ply of Siplast Paradiene 20TG over a mechanically fastened layer of 1/2-inch SECUROCK on the metal deck to act as a temporary roof. Then, workers poured sloped Siplast Insulcel RT over the temporary roof followed by torch-adhering a base layer of Siplast Paradiene 20TS capped with a layer of Siplast Paradiene 30 FR TG BW.

“We also had to deal with the challenge of sloping the lightweight concrete to the drains on an irregularly shaped roof and maintain a constant perimeter height,” Hichens adds.

In addition to installing the roof systems, Rio Roofing craftsmen custom-fabricated metal detail work.

“We pride our shop’s ability to fabricate anything required for a metal roof system,” Hichens says. “We’re a member of NRCA’s UL certification program, so we take advantage of being able to fabricate and install UL-listed edge metal. Our welding and machine shop takes up a corner of our sheet metal shop floor, and we take advantage of it as much as possible. All the custom aluminum curbs, downspout boots and end wall saddles were fully welded in-house.”

### Time to celebrate

In November 2017, Rio Roofing successfully completed its work on time, with no safety incidents. Since the new roof systems have been installed, there have been no leaks in the many valleys and transitions between sections and walls.

“It’s always rewarding to complete a project like this on time, where nobody gets injured and the owner is happy,” Hichens says. “However, on this project, the most rewarding aspect was the community’s response. I’ve never seen such enthusiasm for a school reroof.”

After contending with aggravating leaks for decades, the school district celebrated with a ceremony complete with catered food for guests and a band for entertainment.

“It was nice to see the positive reactions of Roma High School alumni, who really appreciated the improvements to their school,” Hichens says. “There were a lot of issues to deal with, but we were committed to one detail at a time.” 🌟🌟🌟

**CHRISTINE ELLE HANUS** is *Professional Roofing’s* associate editor and NRCA’s director of communications.

**Project name:** Roma High School

**Project location:** Roma, Texas

**Project duration:** October 2016-  
November 2017

**Roof system types:** Galvalume® and  
polymer-modified bitumen

**Roofing contractor:** Rio Roofing Inc.,  
Harlingen, Texas

**Roofing manufacturers:** McElroy Metal,  
Bossier City, La.; Polyglass U.S.A. Inc.,  
Deerfield Beach, Fla.; Roof Hugger LLC,  
Lutz, Fla.; Siplast,® Irving, Texas



Photos courtesy of McElroy Metal, Bossier City, La.

Rio Roofing workers fastened 141,800 lineal feet of McElroy Metal symmetrical standing-seam Galvalume® panels in PVDF Brite Red.



An aerial view of Roma High School's new metal roof system