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## The sound of silence

### How metal quieted a racetrack

Can a racetrack be sound-proofed? Maybe not, but Perforated Metals Plus, Charlotte, N.C., did find a way to contain the noise considerably to the surrounding community through the use of metal panels and a sound-absorbing substance.

A few years ago Speedway Motorsports began plans to build a drag strip in Concord, N.C. Residents worried about the noise that the strip would create, according to Brian May, a sales representative for Perforated Metals, which is a subsidiary of Diamond Manufacturing Company, Wyoming, Pa. Some Concord residents opposed construction of the drag strip, and the racing company almost decided to build elsewhere.

“I read about it [in the newspaper], so I contacted Speedway Motorsports and said, ‘We’ve got a product here. If you put this wall up, it’ll probably help you,’” May said. “In between, they worked out a deal with the city and decided to stay, but part of the agreement was that they had to put up some type of sound barrier.”

The Acoustax panels, which originally were developed by Diamond Manufacturing for bridges, highways, and other noise-reduction applications are perforated on the side facing the noise and solid on the backside. They’re filled with mineral wool, 6 or 8 pounds per cubic foot, which helps prevent noise transmission through the wall. The company has been producing them for about six years.

“Sound is energy, and the noise goes into the perforations and is absorbed by the mineral wool,” said Lee Plank, developer of the panels and executive vice president and COO of Diamond Manufacturing. “It dissipates the noise energy.”

The aluminum panels also are used for chillers at schools and generator housings. They are manufactured in two parts—a front and a back—and then are roll formed, powder coated, and assembled. The support columns are wide flange beams that are hot-dip galvanized after being fabricated.

When it began producing the panels, the company manufactured them on a press brake. There weren’t many orders at first. As demand increased, bending the metal on the press brake became too cumbersome, Plank said. Operators had to transfer all of the material from the press brake to the paint operation, and it was tough to move the parts around.

To solve the problem, the company invested in a roll former, which it keeps at the paint line. As soon as the metal comes out of the roll former, it goes right into painting, simplifying and speeding assembly.

“We put the rivet holes and the drain holes in, and the fronts and backs go through the roll former onto the paint line,” Plank said. “At the end of the paint line, they’re assembled into the panels. It’s more consistent—you don’t have a lot of damage or bending of the parts [that occurred] between the brake and the paint line.”

“We roll form two different pans, put them together, and then they get pop riveted together after we put in the mineral wool filler,” May said.

The metal panels contain sound more effectively than concrete barriers, May said—most concrete barriers deflect noise, while the mineral wool-filled metal panels absorb it. In addition, the metal panels are lightweight and don’t require a large crew to assemble them into sound barriers on-site.



▲ Diamond Manufacturing’s Acoustax panels help reduce the noise output of this dragstrip in Concord, N.C.

“Our product’s not really complicated,” he said. “Our first panel goes down, you put a bead of rope caulk to help keep them in place, you put the next panel on top of it, and you keep stacking. For the most part, there’s no real skill involved, and it’s very quick.”

The sound wall was assembled at the end of the grandstand at the drag strip. After assembly, it stood 24 feet high and was 540 ft. long. For the speedway and the company, the project was a success. The drag strip itself couldn’t open until the acoustical barrier was assembled, and all of the necessary materials were delivered and assembled on the day that the project had to be finished. The speedway was completed on schedule, and the sound barrier cut the noise output considerably, Plank said.

This project prepared Perf Plus to tackle large jobs on a regular basis. Currently the company has an order for another large wall—about the same size as the racetrack barrier—at a large discount store in Virginia. That job and future projects should prove to be no sweat now that the company has learned that its use of metal and mineral wool can keep the noise from a racetrack under control.

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*Michael Bishop*

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