WALL SYSTEM HITTING STRIDE?

STORY AND PHOTOS BY DON PROCTER

With the help of a contractor experienced with exterior insulation and finish systems, and a major stucco coating manufacturer, a Canadian steel fabricator has produced a promising new exterior wall system for commercial one- and two-story buildings. The system is unusual and, with several patents in place, it is unique.

A key distinction between the system and its competitors is that the exterior cement board is thermally separated from a non-load bearing steel frame via polyurethane spray foam. Unlike conventional hard board wall systems, which use screws or bolts to fasten the two together, with the new product, it is the foam that bonds the two substrates together.

The new product, called Hard-wall, promises to eliminate such problems. It was developed by Murox, a division of The Canammanac Group, a fabricator of steel building products based in Montreal, Quebec. Mike Strickland, vice president of research and development of Canam Systems, says he got the idea of using polyurethane foam, rather than
screws, to fasten the cement board to the frame purely by accident. On a jobsite in London, he watched contractors using spray foam insulation to secure new windows and doors. No screws or other fastening devices were used. “They told me they’d been doing it like that for 15 years,” Strickland said. “I was flabbergasted.”

If it worked for windows and doors, Strickland figured it should work for exterior cement board panels. Through extensive work with research and development departments of polyurethane manufacturers in Europe, Ontario, Canada; and Maryland, U.S., the company developed a product that would
adhere and hold the cement board to the steel frame.

The aim was to develop a product primarily for one-story commercial buildings that offered clients more than the traditional steel prefabricated industrial building could offer. “People wanted something that was more dressed up,” Strickland says. And that is exactly what Hard-wall aims to be. The product can be coated in a variety of colors and textures. Accessories, such as hard foam moldings, are easily applied with adhesive.

**Still in Its Infancy**

But as simple as it sounds to design the wall system, it has taken the company close to five years to reach this stage of development, and the product is still in its infancy. In that time it has faced a
battery of tests at the Underwriters Laboratory of Canada and other labs. The product’s fire resistance, bonding strength, coating impact resistance and dew-point are among key tests. Strickland says U.S.-based Factory Mutual approved the product for use in single-story buildings.

A seminal point in the development process so far occurred about two years ago, when the company went into partnership with Dryvit to develop an acrylic stucco coating that would offer the best performance. Dryvit also helped tailor a product that was user friendly — straightforward for on-site or factory applications. “They had a great idea, but how to finish it and how to market it was somewhat foreign to them,” says Peter Culyer, manager of marketing and technology, Dryvit Systems Canada, based in Stouffville, north of Toronto.

Shortly after Dryvit came aboard, Murox representatives contacted Granolite Company Ltd. for assistance ironing out wrinkles in the panel system. A major EIFS contractor in Toronto, Granolite also has a wealth of experience with coatings and the fabrication of architectural moldings.
Granolite’s Nic Faienza was apprehensive about the system at first. Experience taught him that panel units in which cement board was fastened to metal studs had unsatisfactory results. Common problems he’d seen included thermal bridging and stress cracks in the cement board due to expansion and contraction. But after a series of meetings with Murox executives and representatives from Dryvit, the cynical Granolite executive changed his mind. “A mock-up of the system convinced me that it was truly a thermally broken system (cement board doesn’t contact the metal studs),” Faienza says.

What the research and development team at Murox did in effect was mimic an EIF system but without the steps or complexity of EIFS, he says.

The panel is designed for easy installation and is highly resistant to blows, making it ideal for areas where vandalism is a concern. Before applying the stucco coating, the cement board must first be primed with a product developed by Dryvit. This acts as a weather and vapor barrier and ensures that the
acrylic stucco coating will adhere to the cement board.

**Putting It to Use**

While Hard-wall is a promising new system, company executives are taking a cautious approach to market entry. Its first Canadian installation has been at a new horse racetrack and casino being constructed near the city of Barrie, 60 miles north of Toronto. Architect for Georgian Downs John Sinopoli suggests the product has a bright future. Quality control, ease of prefabrication off-site and quick on-site erection are key reasons for his optimistic review of the system. “It’s still essentially an EIF system except it is manufactured in sections in a shop,” says Sinopoli, project manager of Climans Green Liang Architects Inc., the Toronto-based architect for the race-track.

Another key advantage is all details such as moldings, modular sections, connections and corners are worked out in advance with the supplier. A more conventional building design would have the architect submitting architectural drawings to the builder, which would then create shop drawings. “What we did here is help them through the shop-drawing stage to make sure that what they detailed is what we wanted. We worked in close hand with them right from the start,” Sinopoli explains.

In the Ontario market, Hard-wall will compete with precast concrete for a share of the booming one- and two-story commercial building market. Granolite’s Faienza believes it will do well. “As an engineered building envelope, in my opinion it is far superior to precast in terms of giving you a lightweight, highly insulated cladding.”

At five to 10 pounds per square foot, the system is much lighter and than precast. And once it is up, even if the stucco hasn’t been applied, the building is weather tight. “If this (Georgian Downs) was a field-applied stick-built structure, we wouldn’t have been able to get the interior trades inside near as quickly,” Faienza says.
Installing unfinished panels and applying stucco in situ is the most economical means of erecting the system. It can be pre-finished, but special care is required to avoid damaging the panels in shipment. The panel acts as a substrate to the decorative moldings and features such as banding and pilasters, which are applied on site with an adhesive. Application is straightforward.

A New Market

For Granolite, the raceway contract is worth about $700,000, a medium-size job for the big Toronto company. Of the 25,000 to 30,000 square feet of stucco cladding, approximately 12,000 square feet is with the new Hard-wall panel units. That ratio will probably be typical on many jobs, suggests Faienza. Non-repetitive sections of a building, such as gable ends and the tower of the horse raceway, were field applied. “It wouldn’t have been economical to do this in the factory,” Faienza says.

Faienza sees the new system taking off. “This is definitely going to be a growth market. It’s making the pie bigger in terms of the available work that stucco contractors can bid on.”

Will that mean less work for EIFS contractors? Faienza doesn’t think so. “You are introducing a cost savings on a portion of a contract by offering these panels (instead of precast), but you are still continuing on with your core business of installing EIFS.”

Praise aside, Canam executives have chosen to ease Hard-wall into the Ontario marketplace. That cautious approach is in direct contrast to an aggressive marketing campaign it implemented in the United States, where the exterior wall system was first launched. In 1996 a large American pharmaceutical chain with major expansion plans looked to Canam to supply its Murox system but with a “dressed up” siding for the construction of up to 400 new drug stores annually, says Strickland. Canam did about 55 stores with Hard-wall before the drug company hit troubled financial times, and the relationship ended.

The company closed its panel fabrication plant in Point of
Rocks, Md., and moved the operation to Quebec. Its new strategy is to take it slow and focus on the Canadian marketplace, in particular the Greater Toronto Area and southern Ontario. “Panelization is much more popular in Canada, so we know we’ll get good constructive criticism of our product here as we move ahead,” Strickland explains.

Why the cautious approach? “It would be a terrible thing to have the product out there prematurely. We could be liable if things go wrong. It’s better to go slow and refine the thing,” Strickland says.

In the Ontario marketplace, Hard-wall goes up against tough competition in precast concrete, a widely accepted cladding for one- and two-story commercial buildings. Strickland says it will be price-competitive with precast concrete.

“It’s a wonderful testing market to gauge the acceptance of this panel system against precast,” says Dryvit’s Culyer.

Strickland says Murox is close to signing two contracts in Ontario. Along with Ontario, the company will be marketing the system in the northeastern United States.

Faienza sees good reason for launching the product in Ontario, particularly the Greater Toronto Area, which is one of the leading centers of prefabricated wall cladding systems in the world. “I think Canadians are very innovative,” he says. “We’re always looking at faster and better ways of doing things.” He suggests that in a lot of centers, including many cities in the United States, a building like the Georgian Downs raceway would have been field-built.

“We partnered with Murox, and we went after this job (Georgian Downs) to make a showpiece for their product—to make an introduction into the Ontario and Canadian market,” he explains. “It’s pretty much ready to go to the next stage to be a commodity product.”

About the Author
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