

Ohio Prison Increases Security, Saves Time and Money with SIPs Panels & Blazeguard

Prison construction offers its own particular challenges. Prison buildings must, first and foremost, be secure. They must also be durable enough to withstand constantly changing populations. Finally, publicly-financed correctional facilities are always under budget pressure.

General contractor Peterson Construction Co. of Wapakoneta, Ohio, found a way to build the fastest, most secure and most cost-effective roof addition to prison dormitory facilities in Marysville, Ohio. Peterson uses Structural Insulated Panels (SIPs) from PaceMaker Building Systems, constructed with Blazeguard® fire-rated sheathing.

SIPs are factory-constructed wall and ceiling panels formed by laminating a foam core between two sheets of oriented strand board (OSB). The resultant "all-in-one" panel features an OSB outer shell, expanded polystyrene foam (EPS) insulation in the middle and an inner panel of OSB.

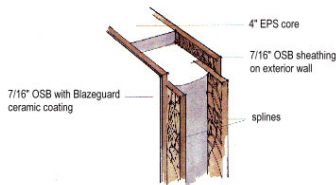


Figure 2: Cross-section of Structural Insulated Panel (SIP).



Figure 1: Workers place an 8' x 24' jumbo SIPs panel in Marysville, Ohio.

Since SIPs are designed and constructed in the factory and shipped pre-assembled to job sites, contractors and builders are spared the time and expense of estimating and ordering materials as well as the time and expense of constructing traditional 2' x 4' stud walls or roofs and blowing or placing insulation.

In Marysville, crews were spared even more time and expense, since PaceMaker coated the inside face of its panels with Blazeguard®, a factory-applied fire retardant coating with a Class A flame spread and 20-minute thermal barrier, meeting or exceeding local construction codes without the additional expense of gypsum wallboard.

Speed of construction and ease of use are among SIPs' primary advantages, says Matt Becker, project manager on the Marysville prison project for United Church Structures, the company hired to construct the roof.

"With SIPs, we have been able to set up to 10,000 square feet per day," Becker says. "They give you a lot of already-insulated roof very quickly."



Figure 3: Blazeguard's cementitious coating offers a Class A flame spread rating, 20-minute thermal barrier and meets all relevant fire codes.

Accelerated construction offers several benefits, Becker adds.

“If we can save you 2-3 weeks onsite, you don’t have to have job-site trailers there, don’t have to insure your crews, and can move on to the next job,” he notes. “Contractors can also get ahead of their schedules, which makes everyone happy.”



Figure 4: The 40,000 square foot Marysville prison dorm roof is 432 feet long.

For Becker’s crews, working with SIPs means greater efficiency and less time on the road. “That’s one of the things we like best about SIPs – less time away from home for our workers,” Becker says.

Roger Nourse, president of roofing subcontractor Nourse Construction Products in Columbus, Ohio, provided SIPs for both the Marysville project as well as a project several years ago at the Southeastern Correctional Institute in Lancaster, Ohio. He sees three key advantages to using SIPs and Blazeguard over other roof construction methods.

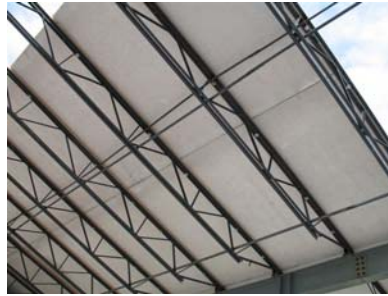


Figure 4: Blazeguard (white) on the inside provides fire protection.

“I think the toughness of the interior was the most important,” Nourse states. “The Blazeguard and OSB next to each other are tougher than nails. If you put on some sort of metal deck with drywall, it can be punched through. But this surface is tougher than the prisoners.”

Why Build with SIPs?

Save up to 60% in energy costs
Superior Structural Strength
Reduced Labor Costs
Environmentally Responsible
Fast Construction
Noise Remediation

Nourse adds that an R-factor of 24 makes the roof energy efficient and air-tight, and the third factor contributing to the use of SIPs is strength. Marysville needed jumbo 8’ x 24’ panels made of of 5/8” OSB, he notes, in order to support 432 feet of metal decking on the roof.

Codes required a thermal barrier on the underside of the panels, so Nourse had to choose between Blazeguard and gypsum wallboard. “Drywall would have made the roof 1/3 heavier,” he says, “not to mention requiring a bunch of taping and spackling. Blazeguard gives it the fire protection it needs to meet the codes, without all of that.”

Blazeguard on SIPs:

- Class A Flame Spread
- 20-minute Thermal Barrier
- No gypsum needed
- Factory applied; pre-approved fire rating
- Impact resistant
- Paintable interior surface
- No construction delays
- Price included in SIP quote; no hidden costs

Pre-assembled, pre-coated panels may have been the clincher, Nourse says. “The panels go together with splines and there is sealant in between. With other systems they would have had to add insulation. With SIPs, everything is put tight, assured of a long-term use of the building without any heat loss.”

“These prisons are the perfect use for SIPs,” Nourse comments. “It is basically a low-cost, low-maintenance system.”