



Precast Wall Panels Beat the Competition



The Glenroy Expansion Project in Menomonee Falls, Wisc. featured 84 insulated wall panels.

By Tara Loomis, Senior Structural Engineer & Stephanie Kohl, Marketing

Precast concrete has continued to grow in popularity due to its efficiency, strength, and durability. Precast wall systems offer many benefits over conventional systems such as cast-in-place or tilt-up wall systems.

[Precast walls](#) are built in a controlled environment, therefore the key factors which regulate the quality of construction, such as curing, temperature, mix design, and formwork, are closely monitored when manufacturing precast walls, ensuring quality and strength.

Tilt-up walls and CIP are cast on the jobsite, where weather can often delay casting and extend the project schedule. Additionally, the curing environment is not controlled, and extreme weather can cause the concrete to have strength issues. Since precast concrete wall panels are manufactured indoors in quality-controlled facilities with their own batch plants, production is not delayed due to weather.

As precast walls are transported to the jobsite as needed, site constraints are generally not an issue for precast either. The same can't be said for CIP or tilt-up wall systems, as jobsite space is needed for both casting and curing. CIP walls are labor and time intensive, although they do offer great versatility. CIP requires contractors to first construct forms for the walls, then install necessary reinforcement and concrete mix. Pouring concrete and waiting to remove forms takes time, which extends the length of the project.

Precast wall panels can be insulated and composite. These wall panels are energy efficient and lighter in weight. They use less concrete and more insulation to reduce energy use and lighten the panel. The composite action offers superior load-bearing capacity while using less concrete. These walls reduce energy consumption of buildings. Precast wall panels offer long-term viability and flexibility. Walls can be easily changed, expanded, and removed with ease. Due to its modular design, the repurposing of a precast wall panel is also possible with minimal complexity.



Western Building Products in Germantown, Wisc. featured 277 wall panels and 2, 200 square feet of hollow core.

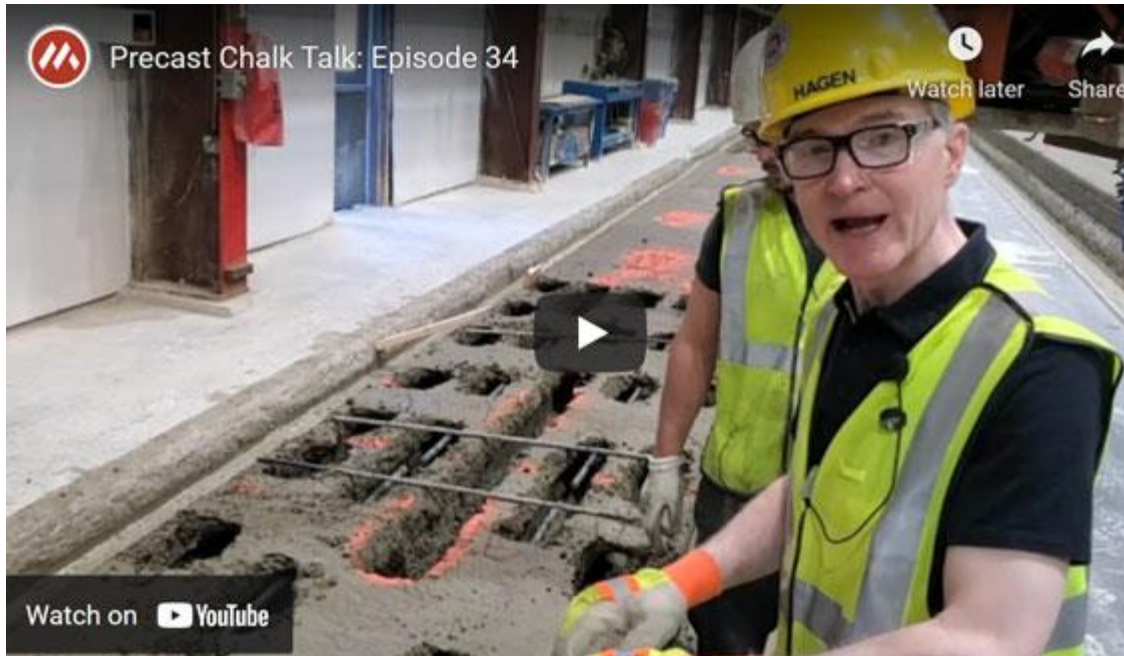
"Benefits of precast include energy performance and physical durability as well as economy of cost," said Mike Miksich, LEED AP BD+C, Vice President of [Briohn Building Corporation](#). "Our projects benefit from an expedited installation of the exterior wall with precast versus other exterior finish materials."

Briohn Building Corporation has partnered with Mid-States Concrete Industries on several [industrial projects](#) in recent years, including Western Building Products in 2019, which included 277 [Wall Panels](#) and 2,210 square feet of [Hollow Core](#); Glenroy Expansion in 2020, which included 84 Wall Panels and 17,782 square feet of Hollow Core; and Westminster II in 2020, which included 201 Wall Panels.

"Mid-States panels receive a lot of compliments for how well they look on our projects," Miksich said. "We've been pleased with the high quality of panels received. In addition, the engineering and management teams at Mid-States are responsive and thorough, which is just as important as panel aesthetics."

Miksich said the common reasons precast concrete wall panels edge out the competition on his projects are cost and schedule. With precast wall panels, he gets exterior walls fully erected in a short timeline on projects that are extremely schedule sensitive.

Precast Chalk Talk: Episode 34



In the latest episode of **Precast Chalk Talk** President Hagen Harker explores reasons we would fill a core solid in our hollow core slabs.

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Precast Wall Panels Part of Blast Resistant Facilities: Part 1



In 2016, Mid-States Concrete joined the team undertaking a \$50 million expansion project at [LyondellBasell](#) in Clinton, Iowa.

The expansion would include administrative offices, a control room, laboratory, and

maintenance shop. The LyondellBassell plant manufactures ethylene, the world's most widely used petrochemical. It also converts ethylene into polyethylene plastic resins which serve as building blocks for various products such as leak proof and shatter proof containers for industrial and household chemicals, packaging that protects foods, and children's toys that are safe and durable.

Mid-States manufactured and installed 165 [Wall Panels](#) (totaling more than 44,000 square feet) for the project, which was completed in 2018.

[Bush Construction](#) served as the General Contractor on the project. Director of Construction Ryan Welborn said the team considered both tilt-up and precast wall panels for this project, ultimately choosing precast and welcoming Mid-States to the project.

"The precast wall panels were selected as primarily a speed decision and a quality control decision - just a logistics deal," Welborn said. "We had two options. We could either do tilt-up or precast and from all the things I just mentioned, precast seemed like a significantly better option."

One of the things that made this project unique is that it's a facility that works with explosive materials.

"The idea was that they were creating a building that could withstand a blast if something ignited outside," Welborn said. "It could essentially protect everybody inside the building. It was a way for them to provide further protection for the team."

Welborn said this is a project everyone involved should be proud of, as it really was unique. Benefits he found working with precast wall panels include the fast installation process, which takes up much less space on the jobsite than alternatives, like tilt-up. It was also cost-effective, as his team always looks for the most cost-effective package to present to the owner.

In the future, Welborn said he would continue to utilize precast concrete, so long as it is the most cost-effective option. The quicker onsite process, quality control and safety aspects make it an attractive option.

While there is no denying the project came with its challenges, as most don't have a

ton of experience working with blast resistance requirements, Welborn was pleased with the Mid-States team's ability to keep on top of the design aspect of wall panels.



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