



CEM-FIL® MINIBARS™ REINFORCED INSULATED WALL PANELS PROVIDE EXTRA SPACE IN OFFICE BUILDING

In this total-precast, two-story, 24,000 ft² (2200m²) office building, the load-bearing prestressed insulated wall panels support the double tee floor and roof (spanning 40 feet (12m)), providing extra column-free space in the offices.

Project Profile

Category: Insulated Wall Panels

Owner & Developer: Liberty Development, USA

Architect: Infusion Architects, USA

Structural Engineer: Voss and Associates, USA

General Contractor: Schmeeckle Bros. Construction, USA

Precast Concrete Producer: Concrete Industries, USA

Completion: Commercial Office Building - Colorado, USA, 2018.

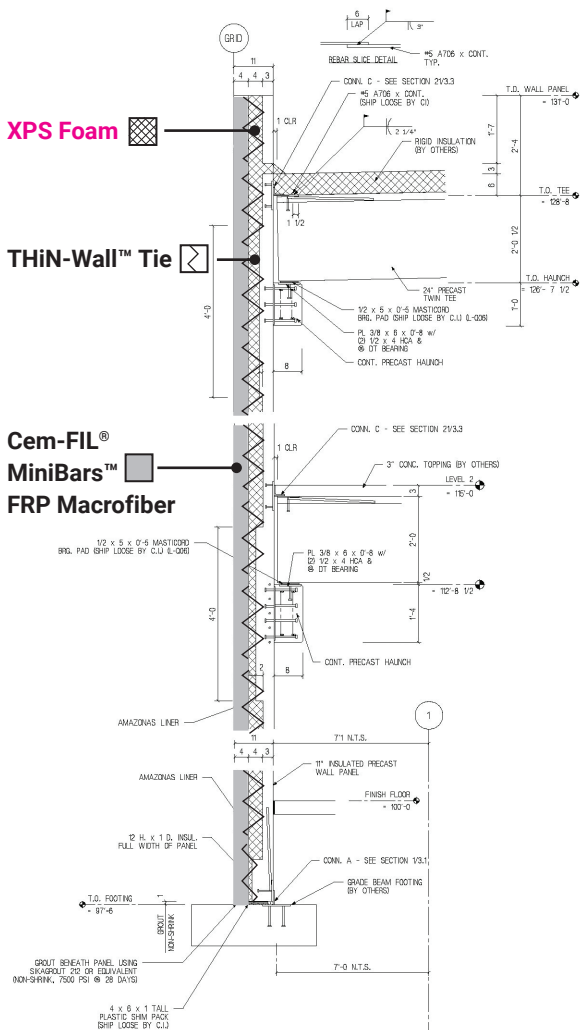
Technical Details

Panel Configuration: Load Bearing 4/4/3 (100mm/100mm/75mm) incorporating THiN-Wall™ Nu-Tie connectors, cast on a form liner. 35'-6" (10.8m) tall x 10'-0" (3m) wide.

Concrete Type: 8,000 psi (55 MPa) @ 28 Days.

Composite Reinforcement Soution: Cem-FIL® MiniBars™ High Performance Composite Macrofiber, 43mm at 6 lbs/yd³ (3.6kg/m³) to replace transverse steel rebar for temperature and shrinkage.

Other: Panels were hauled 450+ miles (700+ km) from the precast plant to the jobsite.



Providing Extra Column-Free Space in the Offices

The THiN-Wall™ System virtually eliminated thermal bridging with 4" FOAMULAR® XPS Insulation sandwiched between predominantly 4" exterior and 3" interior wythes reducing wall thickness without sacrificing strength or approach for energy efficiency. Further increasing performance, #5 (16mm) GFRP rebar was incorporated into the roof return to transfer lifting forces without creating thermal bridging.

This ability for the assembly to bear load with no more than a 2 inch increase in thickness without the need of highly conductive structural steel creates more usable, flexible space for the building occupants without sacrificing comfort or operational expenses.

Extended Hauls without Sacrificing Highest Quality

The project was more than 450 miles (700km) from the concrete plant. Cem-FIL® MiniBars™ composite macrofiber reinforcing allowed the general contractor to purchase a quality product from his preferred precast concrete supplier even with an extended haul. After erection, there were no visible cracks in any of the panels.

A Solution Offered by Owens Corning Combining Products From the Composites and Insulation Divisions



THiN-Wall

Replacing Steel With Cem-FIL® MiniBars™ FRP Macrofiber

The exterior wythe was dosed with 6 lbs/yd³ (3.6kg/m³) of 43mm (1.69in) Cem-FIL® MiniBars™ FRP macrofiber. This replaced the typical lateral #3 (10mm) steel rebar spaced at 16" to 32" (400mm to 800mm) on center which is intended to control temperature and shrinkage cracking. The panels were painted to create their final color scheme.



Owens Corning in collaboration with



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