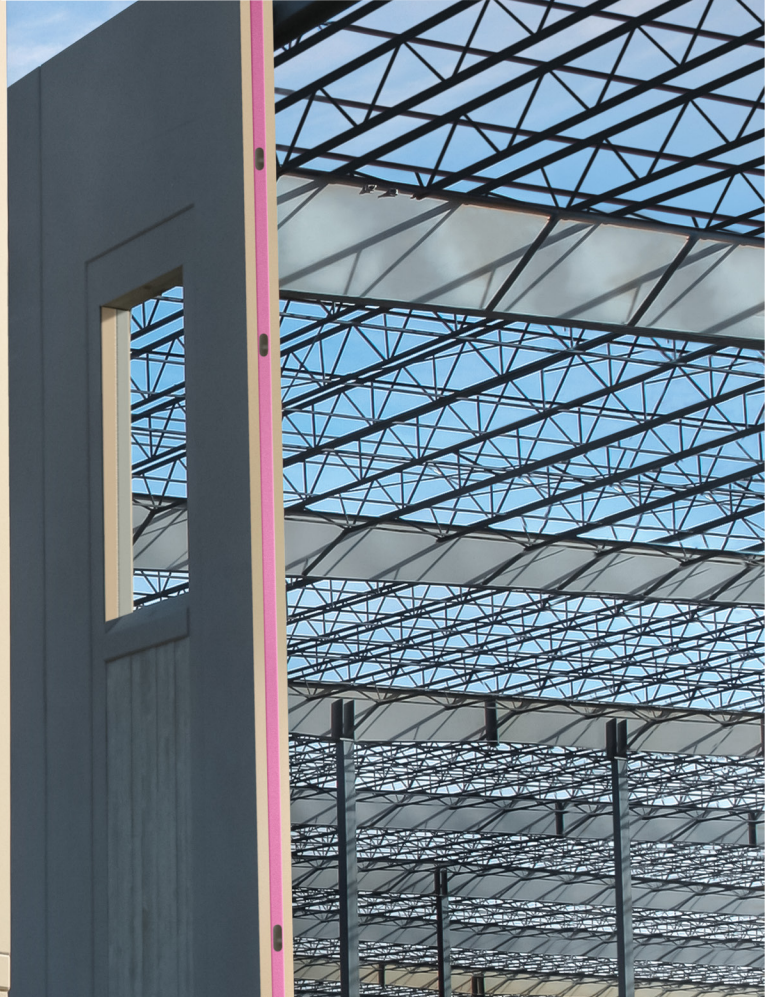




# INFRASTRUCTURE SOLUTIONS

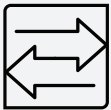


## **THIN-WALL™** TRUSTED SOLUTION FOR INSULATED SANDWICH WALLS

## REDEFINING INSULATED PRECAST WALL PANELS

A patented process for designing and producing insulated sandwich wall panels, THIN-WALL™ from Owens Corning Infrastructure Solutions is a structural load-bearing insulated precast building envelope system that features composite action between concrete wythes.

- Enables a sustainable and energy-efficient building with edge-to-edge EPS or XPS insulation without thermal bridges.
- Can be produced more efficiently and using less concrete than most traditional structural wall panels.
- Creates a high-strength building envelope with virtually limitless design flexibility.



**EFFICIENT**



**HIGH STRENGTH**



**DESIGN FLEXIBILITY**



**SUSTAINABLE**

## PRODUCT BENEFITS

### Less Materials Used

- Less concrete is used with comprehensive composite action between the interior and exterior wythes. With this design, a thinner cross section of wall panel achieves a greater load-bearing capacity.
- An integrated system allows the pre-caster to use a relatively small total thickness of concrete to achieve the various requirements for moisture barrier and fire resistance.
- With less concrete, sandwich wall panels are lighter weight, less costly, and easier to erect.

### High Strength & Flexibility

- The strength of the GFRP truss connector, also known as the Nu-Tie, is nearly twice that of conventional Grade 60 ksi reinforcing bars. This provides excellent wall strength with minimal concrete in the two wythes and very few connectors.
- Low modulus of elasticity of the connector for panel bowing, caused by exterior/interior temperature differential, is minimized.
- The Nu-Tie is thermally non-conductive and cannot create a short in the insulation.

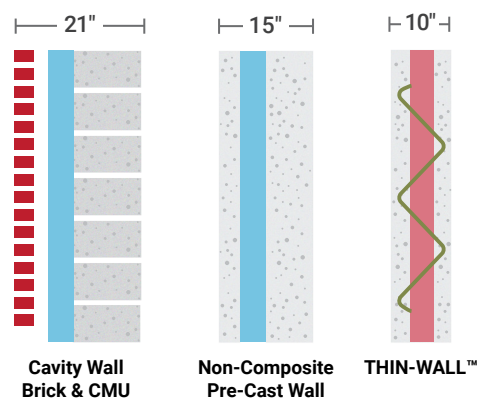
### Design Flexibility/Aesthetics

- Thin brick, form liner patterns, smooth and heavy textures, and different colors allow nearly limitless exterior design opportunities while providing a smooth interior finish surface.

### Sustainable

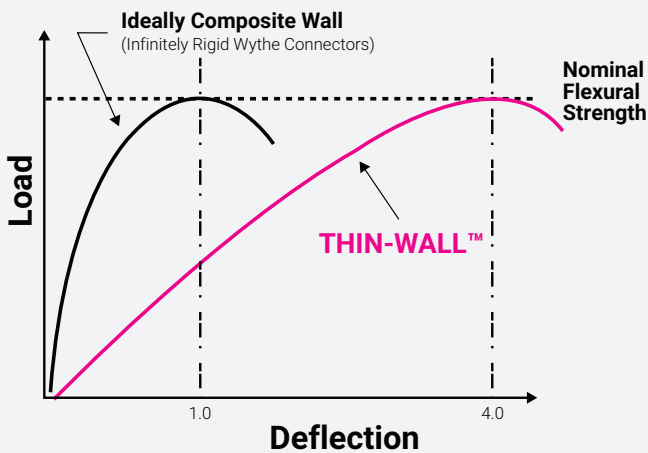
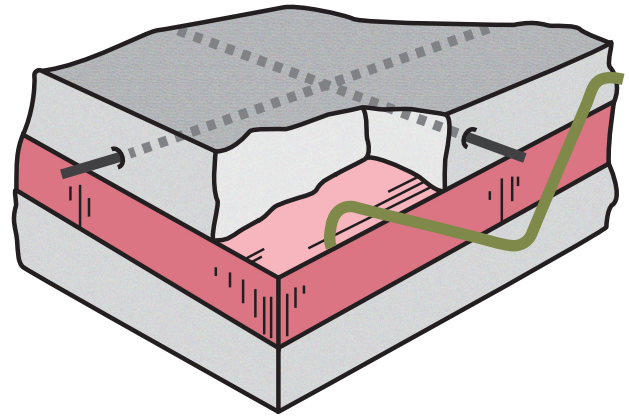
- No thermal penetration through the insulation means buildings will be less costly to heat, cool, and maintain than other types of structures.
- Production of panels is efficient with resources, using less materials to create thin wall panel sections.
- Light-weight panels are easily transported and erected, saving energy used for transportation.
- Less construction time is needed compared with site-built masonry, saving labor, hours, and resources.

The THIN-WALL™ panel system uses a proprietary glass fiber reinforced polymer (GFRP) shear connector to achieve composite action between the exterior and interior concrete wythes.



## THERMAL DESIGN

- A non-composite precast concrete wall, which depends on the interior wythe for structural capacity, is generally 15 inches (total width), with the interior 8-inch wythe designed to support the full load.
- With a THIN-WALL™ system, only 10 inches (total width) is often adequate — a 3-inch interior wythe, plus XPS insulation, plus 3-inch interior wythe. Both wythes would be designed to share in resisting the load. The exterior could be clad with half-inch-thin brick facing that is integrally precast with the panel or other architectural features, such as reveals.

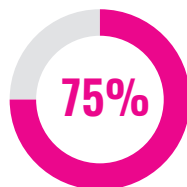


One important advantage of THIN-WALL™ is the low modulus of elasticity of the connectors, which reduces the amount of thermal bowing. They stretch and shorten as the outside temperature changes relative to the inside conditioned space. More pronounced bowing would result when stiff concrete block-outs and/or steel connectors are used to achieve composite action.

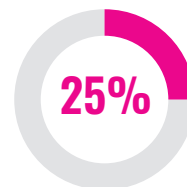
## THIN-WALL™ Design



Composite Action for  
"Nominal Flexural Strength"



Composite Action for  
"Flexural Cracking Checks"



Composite Action for  
"Deflection Analysis"



**HOW WE BUILD NOW™**



## **INFRASTRUCTURE SOLUTIONS**

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