



Properties of ThermaSteel Composite, Steel, Structural Insulated Panels

- [Eliminating Thermal Bridging with ThermaSteel](#)
 - [LEED Credits](#)
- [Wood / Stick Building vs. Steel and composite panels](#)
 - [Sound ratings](#)

Ratings, Certifications and Information

HUD - Department of Housing and Urban Development - Approval.

UL Online Certifications Directory - DRYX.R4775 - M77B (Smoke Spread).

ASTM E 90 (Sound), ASTM E - 72 (Rack and Shear), ASTM E 72-95 (Transverse Load).

Florida Department of Community Affairs Approval (Code 3859).

Hurricane Test Lab, Inc - Passed the Miami-Dade Hurricane Standards - Structural and Missile Impact and Cyclic Load Tests.

European BBA - Code #1449

Seismic Zone 9 in Russia

LEED Points - Per our LEED Accredited Professional Distributor - Possible LEED points for homes using ThermaSteel Panels - Total possible 23. Possible LEED Points for New Construction, Core, Steel, Commercial Interiors and Schools - Total possible 13+. (Panel can contribute to points only if all team members of the project are on board working toward that goal).

EPS Combustion Toxicity Report.

Screw Pullout Testing - Exceeds the uniform load pullout and concentrated point load pullout.

Fire and Sound Rate Tenant Separation Wall - STC 51 - Lab Report TL87098AX.

Recycle - Metal - Per Nucor Sheet Mill Group. Their Sheet Mill Group steel products contain between 42-48% recycled content.

Life Cycle - EPS insulation can return up to 200 times the amount of energy required to produce it and reduce emissions by up to 100 times the amount produced in the manufacturing process. The life cycle of using EPS insulation is not only substantial but also rapid, providing a 100% payback in all of North America in less than two years.

Energy Efficiency

Structural insulated panels are nothing new, but many SIP systems do not eliminate thermal bridging. One of the biggest advantages of building with ThermaSteel composite panels is the energy savings made possible by eliminating thermal bridging and using EPS (expanded polystyrene) to provide effective R-values from R-35 to R-47. Traditional insulation like fiberglass or cellulose will degrade over time, but ThermaSteel panels remain effective. Studies have proven that the 4-in-1 Wallframe Panel (a composite, steel SIP) reduces energy cost by **up to 75%** when compared to traditionally insulated walls. By providing a very efficient envelope the mechanical requirements are also reduced for heating and cooling, which is great news if you're looking to save on growing energy costs. Reducing energy use for some applications can provide even faster payback than solar panel installations.

The insulating properties of ThermaSteel panels make them ideal for cold storage applications, mid-rise hotels, industrial / institutional applications, and residential units from homes to apartments.

Learn more about [Thermal Bridging](#) and the difference between our composite panels vs. wood / stick frame or steel frame construction.

Learn more about LEED (Leadership in Energy and Environmental Design), [ThermaSteel and potential for LEED credits](#) when building with our panel system.

Learn more about our third-party testing for energy code approvals, including Uniform code approval IAPMO-ES 0128.

Structural Strength

Our steel, composite insulated panels undergo a patented process to thermally bond light-gauge steel studs and EPS foam. Many SIPs are only meant for providing insulation and sheathing with minimal load bearing and require a steel or wood frame for support. Our structural, double steel frames are bonded to EPS in a way that allows it to provide structural framing, insulation and vapor barrier in one product. These panels can be used in exterior walls, roofs, ceiling, floors, basements and will support multi-story loads.

The "H" or Hurricane panels have even passed the Southern Florida Hurricane test.

Learn more about the advantages of [building with steel vs wood stick frame construction](#).

Construction Efficiency and Versatility

ThermaSteel composite panels are made to build with minimal waste. Our system reduces structural framing from 4 steps to 1 and cuts framing time by more than 50%. We timed it, and five men installed 234 linear feet of 9' insulated wall panels in 7 hours, the very first time they used the system. Building with new and novel materials can be daunting, but our interlocking composite panels are easy to put together even for first timers.

First, the ThermaSteel Building System is delivered to the site numbered from the factory so that installation flows quickly. Second, the lightweight, but structurally strong system doesn't require heavy lifting or cranes. A typical 4-in-1 Wallframe Panel weighs less than 50 lbs. Third, field modifications are easily made. Changes like the resizing of windows, doors and adjustment for foundation issues can be made while the panels are in place without compromising the structural integrity of the building.

The strength of the steel studs allow the panels to be used as structural framing, and the EPS foam provides insulation and vapor barrier, and does not require any additional sheathing to attach cladding such as vinyl, brick, stucco or any other material. Interior walls can be finished with dry wall, plaster or any other type of finish.

This means framing is faster with fewer steps, there's less waste to dispose of, and you're going to save money on labor while meeting energy codes.

Sound Ratings

Sound transmission can be an important factor for many building projects, and ThermaSteel panels can shine in applications like dampening noise in mid-rise hotels. We have taken the time to gather [STC ratings](#) for our panels with an explanation of Sound Transmission Classes. Sound tests are also available on request.

Safety and Environmental Impact

SAFE Global Reach - Proven in over 70,000 projects in 28 countries and in all 50 states, the ThermaSteel Building System is approved for use in all climate regions and exceeds testing requirements for hurricane and seismic areas.

Fire safety - The ThermaSteel Building System is a fire-resistant system that, with various fire assemblies, meets one, two and three hour fire testing. These tests have also proven that our 4-in-1 Wallframe Panel gives off fewer toxins.

Exceeds wind safety codes - Meets or exceeds Dade County Hurricane Standards, withstanding 200 MPH winds and exceeding traditional building methods against flying debris.

No Mold - Our composite, steel structural insulated panels are comprised of closed cell expanded polystyrene that does not allow for mold and other fungi.

Environmentally friendly - Made with recycled materials, the system itself is completely recyclable. It takes 100 trees to build a 1500 sq. ft. home. Our system only requires steel from 2 recycled cars. Also does not "off gas". Our EPS (Expanded Polystyrene) has always been CFC and HCFC free, protecting the ozone layer.

Insect Deterrent - Uses steel and expanded polystyrene, neither of which are of nutritional value to wood-boring insects such as termites.

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