



**PERFORM
WITH
PRECISION™**

DELTA TIE

INSULATED
SANDWICH
PANEL
THERMAL
SYSTEM

FAST,
SIMPLE,
ECONOMICAL
TROUBLE-FREE



DAYTON®
SUPERIOR

ADVANTAGES

DELTA TIE AND DOW ADVANTAGES ON EVERY JOB:

Tested, Proven Performance

- Excellent loading behavior and load capacities with individual specimens and full-scale independent panel tests
- ASTM E-119 (4 Hour) approved
- NFPA 285 fire testing
- Superior truss design
 - Tension capacity is over 3,100 lbs.
 - Shear capacity (longitudinal) is over 3,200 lbs.
 - Secondary shear capacity (out-of-plane) is 2,510 lbs (4"); 2,570 lbs (3"); 3,005 lbs (2") and 3,395 lbs (1")

Uncomplicated

- Unmatched spacing: 2ft x 4ft
- Spacing can be adjusted to increase composite action %
- Can be used with any thickness of insulation — up to 4" on the P24 and 4" to 8" on the P24XL
- Tie does not require marked insulation
- No drilling tie through insulation
- Installed in seconds

Design versatility

- Geometric configured, two-dimensional truss design significantly increases panel stiffness
- Can be oriented in panel either on end or on side
- The same tie used for non-composite or composite design

No Thermal Bridges

- Low conductivity connector
- Insulation is not interrupted by connector block-outs
- Allows edge to edge insulation placement on panel, side to side and top to bottom

Labor and Material Savings

- Up to 75% *fewer ties* required vs. other systems, shortening installation times
- Typical savings 20-30% over competitive products.

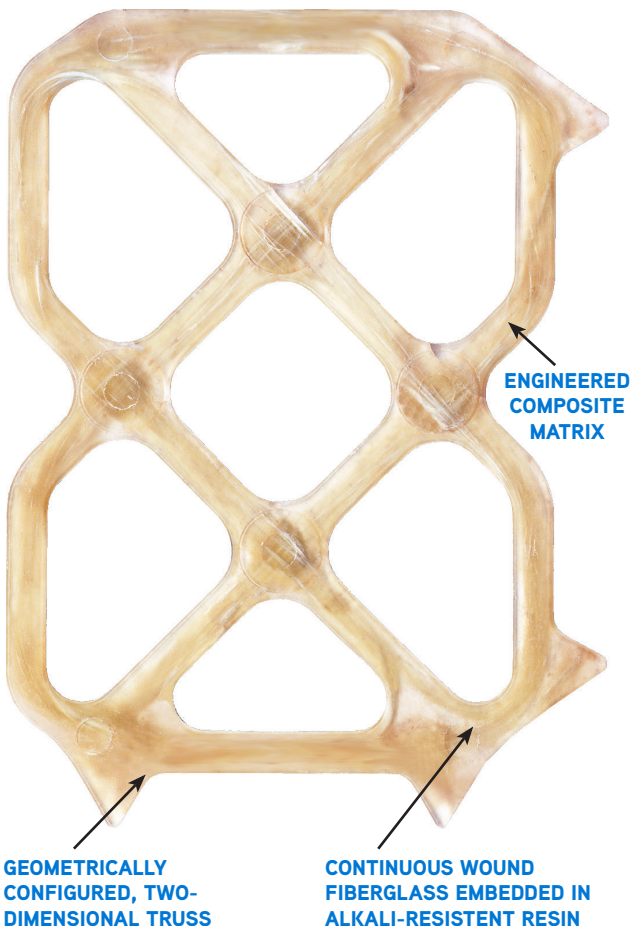
DOW Insulation

- Rigid insulation solutions from DOW Building Solutions such as ISOCAST-R™ and STYROFOAM™ Square Edge combine superior insulating capabilities and dew point control with the additional strength of concrete.



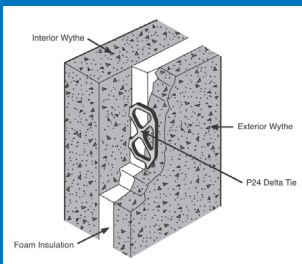
DELTA TIE SYSTEM

INSULATED SANDWICH PANEL CONNECTOR



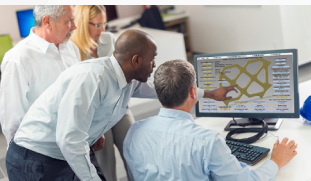
"After first using Dayton Superior's Delta Tie 10 years ago, it remains the only insulated panel connector that my company, Tilt Wall Ontario, will use. The Delta Tie provides dependability with an ease of use that saves time and money on the jobsite."

Len Overbeek
Tilt Wall Ontario Inc.



DESIGN SOFTWARE

The Delta Tie design software technology provides a useful set of tools for both designers and fabricators. It provides quick answers to many of the common questions about Delta Tie applications in an insulated concrete panel.



The reliability of data from this technology has been validated by incorporating the results of numerous test programs directly into the program's code.

Functions Primarily Intended For The Panel Designer:

- Details the Panel Construction
- Wythe Thicknesses
- Delta Tie Spacing and Type (P24, P24XL)
- Concrete Mix Design
- Insulation Properties and Layout

Determines the Resulting Panel Mechanical Characteristics

- Area Density
- Panel Weight
- Center-of-Gravity
- Tensile and Shear Factor of Safety
- Composite Action % and Moment of Inertia
- Bending Moments, Stresses, and Deflection Estimates

Calculates the Panel Thermal Properties (Unmodified Areas Only)

- Composite R-Value
- Heat Flux and Transfer Rate
- Heat Deflection
- Fire Rating

Functions Primarily Intended For The Delta Tie Installer:

Automatically Creates Layout Drawings

- Provides a Drawn-To-Scale image of the Installation
 - Details Tie Positioning for both views (End and Face)
 - Key Dimensions are labeled
- Marks the Center of Gravity and Dunnage Locations
- Includes Delta Tie Bill-of-Materials
- Displays a Unified Panel Identification on Each Printout
- Provides Insulation Layout

Defines Areas Where the Panel Construction Needs to be Modified

(Mitered Edges, Thickened Sections, etc.)

- Documents the Location and Dimensions of each Area
- Displays each area on the Layout Drawing
- Positions Ties adjacent to modified Area automatically and adjusts the Bill-of-Materials

Information about the Delta Tie design software technology is available at: www.daytonsuperior.com/deltatie

INSTALLATION

INSTALL IN SIX SIMPLE STEPS:

1. After installing the required exterior wythe's welded wire fabric, place and screed the concrete to the specified thickness. Flat sheet mesh and concrete design mix using a superplasticizer admixture are recommended.
2. Cut the first strip of foam to the required width (4"-12" max) per placement drawings and place it tightly against the side of the form.
3. Add full sheets of insulation to within 4"-12" of opposite edge; place filler piece to edge.
4. Insert Delta Tie vertically per placement drawings between insulation sheets. Delta Ties can work with 24" or 48" wide sheets of insulation; the width of the sheets determines the row spacing. If the tie hits the reinforcing mesh, prior to reaching its minimum embedment depth, move the tie slightly so that the reinforcing mesh sits in the depressed "V" section of the tie. NOTE: The minimum Delta Tie embedment into the fresh concrete is 1½".



Alternative Method: Cut the first strip of insulation, then insert the first row of Delta Ties spaced vertically as required. Add the remaining courses of insulation and connectors. Foam-back tape is available for sealing the insulation joints, if necessary.

5. When all of the sheets of insulation and connectors have been placed in the panel, the top concrete wythe is poured and screeded as necessary.
6. After proper concrete set, the panel may be removed from the form and the process repeated.

IMPORTANT:

- It is critical that Steps #1 through #4 be completed immediately after the bottom wythe has been consolidated and leveled to its required thickness, no later than 15-20 minutes after placement of the concrete to ensure it is still plastic. If the Delta Tie is not embedded into the concrete while the concrete is still plastic, the concrete will not properly engage the Delta Tie.
- Care must be taken to ensure that Delta Ties are installed in their intended orientation in the panel.
- When using the Dayton Superior P24 and P24XL Delta Tie, the lifting inserts and brace anchors are installed in the structural wythe ONLY, resulting in no thermal bridge.



DAYTON[®]
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1125 Byers Road
Miamisburg, OH 45342
937-866-0711
888-977-9600

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