



ASLAN™ 700 GFRP REBARS

NU-TIE™ SANDWICH WALL CONNECTOR

**INSULATED
CONCRETE WALL
PANEL SYSTEMS**

**EDGE-TO-EDGE
INSULATION**

ENERGY EFFICIENCY

LIGHT WEIGHTING

THEY ARE USING ASLAN™ SOLUTIONS





ASLAN™ 700 SOLUTIONS

**BENEFITS & MECHANICAL
PROPERTIES**

**DESIGN GUIDANCE
& PRODUCTION STEPS**

BENEFITS & MECHANICAL PROPERTIES



BENEFITS

- › Full composite action between concrete wythes can be achieved with proper distribution of Nu-Tie™ connectors
- › Fully insulated wall panels with no thermal bridges from connectors
- › Use less concrete ~ overall wythe thickness reduced
- › Lighter Weight Wall Panels: easier erection, easier transportation and to greater distances
- › Use the insulation of your choice from multiple suppliers (EPS or XPS)
- › Straight Forward and Validated Design Methodology
- › More Energy Efficient Buildings

Aslan™ 700 Nu-Tie™ Shear Connectors are a key component of the THiN-Wall™, composite action insulated concrete wall panel system. (Patent Pending) www.ThiN-Wall.com

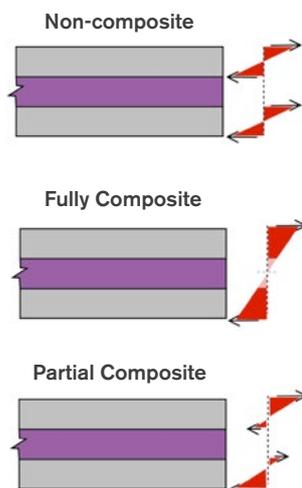
Using the Aslan™ 700 Shear Connector, it is possible to achieve a fully composite action, insulated concrete sandwich wall panel with edgeto-edge insulation and no thermal penetrations. Typical precast concrete sandwich wall panels are composed of two concrete wythes with insulation placed in the center. The concrete wythes are generally connected through the insulation using steel, concrete or thermoplastic or glass fiber reinforced polymer (GFRP) connectors. Steel connectors and concrete penetrations significantly degrade the insulating performance of the insulated wall panel. Typical GFRP or thermoplastic “pin-type” connectors do NOT offer the advantages of structural composite action between the interior and exterior wythes of concrete.

NU-TIE™ CONNECTOR ENABLE A BUILDING ENVELOPE

- > Energy Efficient Structure
- > Less Concrete Used – up to 30% Thinner Wall Panels
- > Low Transportation Cost
- > Enables a Building “System”

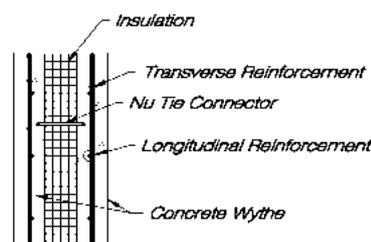
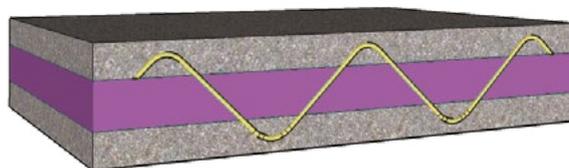
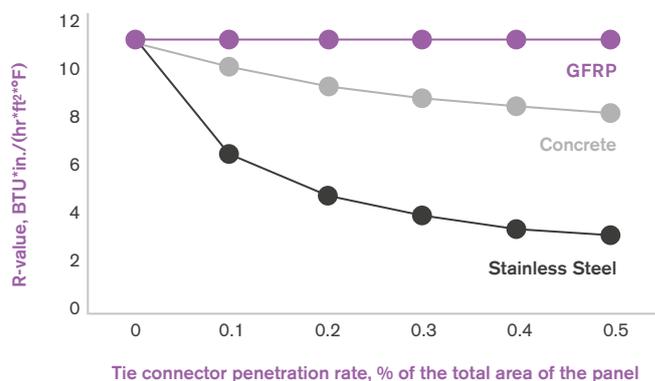
COMPOSITE ACTION INSULATED WALL PANELS

- > Interior and Exterior Wythes Act Together Structurally
- > Eliminates Need for a Thick Structural Concrete Wythe
- > Wall Panels that are Structurally AND Energy Efficient
- > Wall Panels are Thinner AND Stronger
- > Structurally Equal with ANY Insulation Type (XPS or EPS)



NU-TIE™ SHEAR CONNECTOR

- > Very High Tensile Strength
- > Thermally Non-Conductive
- > Low Stiffness (Modulus) Mitigates Thermal Bowing
- > Strong yet Flexible
- > Best Balance of Strength and Stiffness for Wall Panel Construction



Material	Conductivity BTU in/(hr ft² °F)
Concrete	13.3
Foam Insulation	0.2
Metal Tie	314.4
Nu-Tie™ connectors	0.2

HB Part Number	Insulation Thickness	Color Code	Unit Weight lbs / kg
RNU3-2I6H-45	2" (50 mm)	Green	0.40 / 0.18
RNU3-3I7H-44	3" (75 mm)	Red	0.45 / 0.20
RNU3-4I8H-44	4" (100 mm)	Yellow	0.50 / 0.23

DESIGN GUIDANCE & PRODUCTION STEPS

The design of structural load bearing walls for the THiN-Wall™ system follows the methodology of the PCI Handbook. The Nu-Tie™ connector is oriented vertically and positioned as per the latest version of the THiN-Wall™ design software.

DESIGN BASICS OF THIN-WALL™ PANELS

- › Follow PCI Handbook Example
- › Ties are Oriented in the Vertical Direction in the Wall
- › Check that the Flexural Strength is Adequate (100% Composite)
- › Check that there is No Cracking Under Service Loads
~ 75% composite / $I = 0.75I_g$ & 25% for Deflection

The design methodology for THiN-Wall™ panels utilizing the Nu-Tie™ connector has been thoroughly analyzed, documented and verified using several full-scale tests. Complete results along with design software and sales and marketing support are available to THiN-Wall™ Licensees.



PRECAST PRODUCTION EFFICIENCIES GAINED

In addition to being the most structurally efficient precast insulated wall panel on the market, there are tremendous production efficiencies to be gained with the THiN-Wall™ system as well. One of the key tenets of the THiN-Wall™ system is the prefabrication of insulation elements prior to work at the casting bed. Foam blanks are prefabricated and staged in a batch mode prior to the concrete placing. This maximizes the use of personnel at the casting bed. Foam Blanks with Nu-Tie™ connectors pre-installed are simply laid in place across the casting bed. **NO WALKING ON THE FOAM IS NECESSARY**, which greatly aids in the production of a higher quality wall panel.

PRODUCTION STEPS FOR NU-TIE IMPLEMENTATION

After the structural engineer has determined the number and location of Nu-Tie™ connectors, the general protocol for the installation of Nu-Tie™ connectors is as follows:

- > **Step #1** The Slot Former tool (available at cost to Licensees) is used to form slots in the locations shown in the shop ticket.
- > **Step #2** The Nu-Tie™ connector is inserted into the slot. Note: the Nu-Tie™ connectors are color coded by insulation thickness. When the appropriate Nu-Tie™ connector is used, the ends will rest directly on the insulation.
- > **Step #3** The Nu-Tie™ connector is locked in place and the gap sealed by injecting expansive foam in the remaining gap in the insulation. Dow Great-Stuff works well and is also a closed cell foam.
- > **Step #4** Reinforcing in the first wythe is positioned in the casting bed. Nu-Tie™ connectors requirements for transverse reinforcing steel are very accommodating for the Nu-Tie™ connector
- > **Step #5** First wythe of concrete is placed. Most firms would use some variation of SCC concrete.
- > **Step #6** Fabricated insulation blanks are placed across the bed.
- > **Step #7** Any minor openings, cutouts, side lifts, or recesses for back lifts are made to the insulation, which is dry fit or tweaked.
- > **Step #8** The top wythe reinforcing steel and concrete are immediately placed.
- > **Step #9** If available, a vacuum lift eliminates the need for back lifts. The result is an interior wall face that is perfectly smooth.





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