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 edge-to-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-Ties Enable a “Green” Building Envelop**

- More Energy Efficient Structure
- Less Concrete Used – up to 30% Thinner Wall Panels
- Lower 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.**
**Benefits of Aslan 700 Nu-Tie**

- Full Composite Action Between Concrete Wythes CAN Be Achieved with Proper Distribution of Nu-Ties
- 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

<table>
<thead>
<tr>
<th>Material</th>
<th>Conductivity BTU in / (hr ft² °F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>13.3</td>
</tr>
<tr>
<td>Foam Insulation</td>
<td>0.2</td>
</tr>
<tr>
<td>Metal Tie</td>
<td>314.4</td>
</tr>
<tr>
<td><strong>Nu-Tie</strong></td>
<td><strong>0.2</strong></td>
</tr>
</tbody>
</table>

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Aslan 700 Nu-Tie Shear Connector

<table>
<thead>
<tr>
<th>HB Part Number</th>
<th>Insulation Thickness</th>
<th>Color Code</th>
<th>Unit Weight - lbs (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNU3-2I6H-45</td>
<td>2” (50mm)</td>
<td>Green</td>
<td>0.40 (0.18kg)</td>
</tr>
<tr>
<td>RNU3-3I7H-44</td>
<td>3” (75mm)</td>
<td>Red</td>
<td>0.45 (0.20kg)</td>
</tr>
<tr>
<td>RNU3-4I8H-44</td>
<td>4” (100mm)</td>
<td>Yellow</td>
<td>0.50 (0.23kg)</td>
</tr>
</tbody>
</table>

Design Guidance

The design of structural load bearing walls for the THiN-Wall system follows the methodology of the PCI Handbook. The Nu-Ties are 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
  \[ \sim 75\% \text{ composite} / I = 0.75I_g \text{ & 25\% for Deflection} \]
The design methodology for THiN-Wall panels utilizing the Nu-Tie 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-Ties 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-Ties, the general protocol for the installation of Nu-Ties 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 is inserted into the slot. Note: the Nu-Ties are color coded by insulation thickness. When the appropriate Nu-Tie is used, the ends will rest directly on the insulation.

**Step #3:** The Nu-Tie 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 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.

Note: Photos show a test panel, just 5ft wide without any cut-outs.

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. See the examples on the next page.