The fastest, most efficient and affordable path to high performance
ACCEL-E exceeds thermal codes for every climate zone.

CAVITY INSULATION R-VALUE VS. REALITY
Because steel is thermally inefficient, ASHRAE 90.1 2007 applies a correction factor to the R-value of insulation placed within steel stud cavities. This correction factor determines a wall’s actual or Effective R-value. Stud size and frequency determine the correction factor applied. For example, per ASHRAE 90.1, a wall with 2” x 6” steel studs installed 16” o.c. with R-19 cavity insulation actually provides only R-7.1 — a 63% reduction.

A PRESCRIPTION FOR WASTE
Until recently, the International Energy Conservation Code (IECC) only provided a prescriptive Product R-Value provision for insulating steel stud-framed walls. This provision requires minimum product R-values by climate zone, determined by adding the R-value of cavity insulation to the R-value of rigid outboard continuous insulation. Minimum prescribed Product R-values are intentionally inflated so that a reasonably efficient Effective R-value is achieved once ASHRAE 90.1 correction factors are applied.

For example, in order to achieve an Effective R-value of 13.5, the prescriptive code calls for a Product R-value of 20.5. By contrast, an efficient 8” ACCEL-E panel provides a far more robust Effective R-value 17, surpassing code requirements for the most stringent climate zones, 4-8, by 26%.

A NEW PERFORMANCE-BASED CODE
Now, IECC 2009 also provides a performance-based U-Factor provision to encourage the adoption of innovative, more energy- and material-efficient wall systems like ACCEL-E.

This IECC performance provision 502.1.2 calls for a maximum tested U-Factor for an exterior wall assembly for specific climate zones. U-Factor is a measurement — from 0 to 1 — of heat’s ability to be transmitted through a building envelope. The lower the U-factor, the greater a building envelope’s resistance to heat transfer and the better its insulating properties.

IECC SECTION 502.1.2 - PERFORMANCE REQUIREMENT

8” ACCEL-E PANELS FAR SURPASS THERMAL CODE REQUIREMENTS IN EVERY CLIMATE ZONE.

Architects and contractors aspire to build better buildings more efficiently and affordably, and today, a “better” building is one that maximizes energy efficiency for the life of a building.

The SYNTHEON ACCEL-E Steel Thermal Efficient Panel wall system combines framing and insulation, making the construction of highly energy-efficient buildings easier, faster, and more affordable than ever before.

ACCEL-E improves the way exterior walls are built by reducing framing and insulating processes down to one step.

Best of all, ACCEL-E doesn’t force architects to change the way they design walls or limit choice in exterior cladding types. Nor does ACCEL-E require contractors to learn new construction methods or invest in specialized equipment.

In fact, ACCEL-E is intentionally built with the very same time-tested building materials that building professionals know and trust, ensuring that system unfamiliarity is never a reason or excuse for not constructing better buildings.

Each 4’ wide ACCEL-E panel is comprised of two specially designed cold-formed steel framing studs.

High-density, rigid EPS insulation in your choice of 2-3/4”, 3-1/4”, and 4-3/8” thickness.

EPS insulation is factory formed and mechanically fused through steel studs, slotted to virtually eliminate thermal bridging.

Raise the performance of exterior walls.
theRmal BRidGinG thRouGh studs
Wall assemblies using insulation – either batt or spray foam – in the cavity between steel studs, create thermally inefficient walls due to thermal bridging through the studs.

To combat this problem, some suggest using continuous rigid insulation outboard of studs.

But, is outBoaRd insulation alWays Continuous?
No. For metal-clad wall assemblies, steel Z-girts interrupt rigid insulation, creating numerous thermal bridges. For masonry-clad assemblies, steel ties create hundreds of smaller but equally inefficient thermal bridges.

the aCCel-e solution
ACCEL-E panels insulate outboard of the cavity with superior insulating EPS. This eliminates the need for cavity insulation and vastly reduces thermal bridging, due to thermal slotting in the stud design. In addition, ACCEL-E readily supports direct connections for exterior products without compromising its thermal performance.

Materials that comprise a barrier wall should be highly moisture-resistant and should contain no paper or organic material that might support the growth of mold. Unlike batt insulation, the ACCEL-E system’s robust EPS is unaffected by moisture and is mold resistant.

Interlocking tongue-and-groove ACCEL-E joints tightly seal off air infiltration. Also, the open cavity design of ACCEL-E allows electrical, plumbing and mechanicals to be easily installed without impacting air and thermal performance.

**ACCEL-E PANEL DIMENSIONS**

<table>
<thead>
<tr>
<th>Panel Product Code</th>
<th>Overall Wall Panel Thickness</th>
<th>Steel Thickness</th>
<th>Panel Width</th>
<th>Panel Height¹</th>
<th>EPS Thickness</th>
<th>Open Cavity Dimension</th>
<th>Mechanical Knockout</th>
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</thead>
<tbody>
<tr>
<td>5-1/2 - 38</td>
<td>5-1/2&quot;</td>
<td>0.038&quot;</td>
<td>4’0&quot;</td>
<td>Cut to height</td>
<td>2-3/4&quot;</td>
<td>2-3/4&quot;</td>
<td>3/4&quot; x 4&quot;</td>
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<tr>
<td>6</td>
<td>6&quot;</td>
<td>0.054&quot;</td>
<td>4’0&quot;</td>
<td>Cut to height</td>
<td>3-1/4&quot;</td>
<td>2-3/4&quot;</td>
<td>3/4&quot; x 4&quot;</td>
</tr>
<tr>
<td>8 - 38</td>
<td>8&quot;</td>
<td>0.038&quot;</td>
<td>4’0&quot;</td>
<td>Cut to height</td>
<td>4-3/8&quot;</td>
<td>3-5/8&quot;</td>
<td>1-1/4” x 4”</td>
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<td>8 - 54</td>
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<td>0.054&quot;</td>
<td>4’0&quot;</td>
<td>Cut to height</td>
<td>4-3/8&quot;</td>
<td>3-5/8&quot;</td>
<td>1-1/4” x 4”</td>
</tr>
</tbody>
</table>

¹Panels are factory cut to specified heights, which are limited only by the mode of transport required for delivery.
**THERMAL BRIDGING THROUGH STUDS**

Wall assemblies using insulation – either batt or spray foam – in the cavity between steel studs, create thermally inefficient walls due to thermal bridging through the studs. To combat this problem, some suggest using continuous rigid insulation outboard of the studs.

**BUT, IS OUTBOARD INSULATION ALWAYS CONTINUOUS?**

No. For metal-clad wall assemblies, steel Z-girts interrupt rigid insulation, creating numerous thermal bridges. For masonry-clad assemblies, steel ties create hundreds of smaller but equally inefficient thermal bridges.

**THE ACCEL-E SOLUTION**

ACCEL-E panels insulate outboard of the cavity with superior insulating EPS. This eliminates the need for cavity insulation and vastly reduces thermal bridging, due to thermal slotting in the stud design. In addition, ACCEL-E readily supports direct connections for exterior products without compromising its thermal performance.

Interlocking tongue-and-groove ACCEL-E joints tightly seal off air infiltration. Also, the open cavity design of ACCEL-E allows electrical, plumbing and mechanicals to be easily installed without impacting air and thermal performance.

Patented ACCEL-E manufacturing process enables panels to span any height – limited only by mode of panel transport – so that multiple floors can be completed by installing a single panel.

**BUILD FASTER AND MORE EFFICIENTLY WITH ACCEL-E**

Building more efficiently helps to ensure a faster return on investment. ACCEL-E is the fastest, most efficient way to build high-performance exterior walls. Compared to traditional wall assemblies, ACCEL-E:

- Dramatically reduces construction time and labor cost.
- Enables buildings to get dried-in in a third of the time, allowing interior trades to commence work sooner.
- Panels arrive on the jobsite engineered and fabricated for a given project with pre-cuts for windows and doors.
- Features an open cavity and pre-punched knockout slots into the studs, which provides easy access for plumbers, electricians and HVAC contractors.
- Lightweight panels require no specialized tools or cranes.

Materials that comprise a barrier wall should be highly moisture-resistant and should contain no paper or organic material that might support the growth of mold. Unlike batt insulation, the ACCEL-E system’s robust EPS is unaffected by moisture and is mold resistant.

**ACCEL-E LABOR REDUCTION**

ACCEL-E vs. typical wall assemblies

<table>
<thead>
<tr>
<th>% Labor Savings Using ACCEL-E</th>
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<tbody>
<tr>
<td>Traditional Wall Assembly</td>
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<tr>
<td>ACCEL-E</td>
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</tbody>
</table>

**ACCEL-E CONSTRUCTION TIME REDUCTION**

ACCEL-E vs. standard stud wall construction

<table>
<thead>
<tr>
<th>Days</th>
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<tbody>
<tr>
<td>0</td>
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<td>10</td>
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</table>

For three-part specifications on ACCEL-E, visit www.SYNTHEONInc.com/ACCEL-E.

For more complete technical information about ACCEL-E, please visit www.SYNTHEONInc.com/ACCEL-E today, or call a SYNTHEON ACCEL-E expert at 888-922-2353.
MINIMUM IMPACT, MAXIMUM PERFORMANCE

NON-TOXIC AND SAFE
• No CFCs, HCFCs or VOCs (before or after installation)
• Certified for Indoor Air Quality by the GREENGUARD® Environmental Institute
• No pathogenic dust

RECYCLABLE
• Steel contains recycled content and is 100% recyclable
• EPS insulation can be recycled in a number of ways

SUSTAINABLE
• Won’t rust, rot or decompose
• Requires no maintenance
• Insulation won’t shrink, settle, offgas or diminish air quality

MINIMAL WASTE
• Pre-cut window and door openings
• Pre-cut headers and jambs
• No cutting of EPS to install electrical, plumbing or mechanicals

LEED® CATEGORIES | ACCEL-E | POTENTIAL POINTS
--- | --- | ---
ENERGY AND ATMOSPHERE
3 EA Prerequisite | Minimum Energy Performance | Required
3 EA Credit 1 | Optimize Energy Performance | 1 – 19 Points
MATERIALS AND RESOURCES
3 MR Credit 2.1 & 2.2 | Construction Waste Management | 1 – 2 Points
3 MR Credit 4.1 & 4.2 | Recycled Content | 1 – 2 Points
3 MR Credit 5.1 & 5.2 | Regional Materials | 1 – 2 Points
INDOOR ENVIRONMENTAL QUALITY
3 EQ Credit 7.1 | Thermal Comfort: Design | 1 Point

* Actual points may vary by project.

SYNTHEON VALUES ENGINEERED SUSTAINABILITY

ENGINEERED SUSTAINABILITY is the synthesis of common sense and innovative building materials and methods for the common good. ACCEL-E exemplifies this value by offering:
• Thermal efficiency that goes beyond standards and code requirements
• Highly durable materials that last the life of a structure
• 100% recyclable materials
• Panels engineered and fabricated to the specifications of a given job in the factory – where waste is carefully controlled, captured and recycled
• Vastly reduced jobsite waste by virtually eliminating field cuts, since panels also include cutouts for windows and doors
• No harmful chemicals in the make-up of the system

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