1. Product Name
ACCEL-E® Steel Thermal Efficient Panel Wall System

2. Manufacturer
SYNTHEON, Inc.
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Leetsdale, PA 15056-0442
888-922-2353
Fax: (412) 749-0446
E-mail: info@SYNTHEONinc.com
www.SYNTHEONinc.com/ACCEL-E

3. Product Description

Basic Use
The ACCEL-E® Steel Thermal Efficient Panel (S.T.E.P) is a thermally efficient, high performance building panel that exceeds the latest ASHARE 90.1.2007 and IEC 2009 requirements. Strong, light in weight and energy efficient, it is composed of two time-tested materials—coldformed steel and expanded polystyrene (EPS) insulation—uniquely fused together to provide superior strength and thermal performance. The ACCEL-E wall system simplifies framing, cavity insulation and continuous rigid foam sheathing into one installation process, providing savings by reducing on-site labor costs, shortening construction cycles and improving energy efficiency.

Composition & Materials
The ACCEL-E wall panel is a 4’ wide expanded polystyrene (EPS) panel with two embedded studs. The studs have a proprietary design and are formed in an “S” type cross-section comprised of three 1 5/8” flanges and two independent webs. EPS is fused through the outer web section to maximize structural and thermal performance. The inner web section, devoid of EPS, provides an open ACCEL-E cavity to allow the use of additional light gauge metal or structural steel framing members, and enables the use of industry standard electrical and mechanical construction practices. The panels interlock at each side with a tongue-and-groove configuration molded into the EPS. No joint treatment is required to join adjacent panels. All steel used in the ACCEL-E wall system is galvanized to building industry standards to prevent rust.

Sizes
ACCEL-E wall systems are available in the following sizes:
- Standard widths - 4’
- Custom heights limited only by mode of Transportation
- Overall panel thicknesses - 5 1/2” and 8”

See Table 1 for detailed size information

4. Technical Data

Applicable Standards
American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)
- ASTM A370 Standard Test Methods and Definitions for Mechanical Testing of Steel Products

<table>
<thead>
<tr>
<th>TABLE 1 ACCEL-E PANEL DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Product Code</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>5 1/2-38</td>
</tr>
<tr>
<td>8-38</td>
</tr>
<tr>
<td>8-54</td>
</tr>
</tbody>
</table>

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

2 EPS can be extended 1/2” past outer stud flange to increase overall EPS thickness for 1- and 2-family dwellings.
ACCEL-E wall panels can reduce labor costs and speed up construction time.

- ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
- ASTM E283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
- ASTM E413 Classification for Rating Sound Insulation
- ASTM E1332 Standard Classification for Determination of Outdoor-Indoor Transmission Class

National Fire Protection Association (NFPA)

Approvals
- Florida Product Approval No. 13722
- Southwest Research Institute (SwRI) Listing No. 08179-01-01, No. 08179-01-02, No. 08179-01-03 and No. 08179-01-04

Physical Material, Performance Properties
See Tables 2 and 3, respectfully

### TABLE 2 ACCEL-E PANEL MATERIAL PROPERTIES

<table>
<thead>
<tr>
<th>Steel stud properties (nominal)</th>
<th>Values 38</th>
<th>Values 54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stud base metal thickness</td>
<td>0.038”</td>
<td>0.054”</td>
</tr>
<tr>
<td>Minimum galvanized coating, ASTM A1003</td>
<td>G60</td>
<td>G60</td>
</tr>
<tr>
<td>Minimum yield strength</td>
<td>40 ksi</td>
<td>55 ksi</td>
</tr>
<tr>
<td>Flange width (all panels)</td>
<td>1 5/8”</td>
<td>1 5/8”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EPS Properties (nominal)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.5pcf</td>
<td>1.5pcf</td>
</tr>
<tr>
<td>R-value per inch thickness</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Color</td>
<td>Gray</td>
<td>Gray</td>
</tr>
</tbody>
</table>

methods for Water Vapor Transmission of Materials

### TABLE 3 ACCEL-E PANEL PERFORMANCE PROPERTIES

<table>
<thead>
<tr>
<th>Panel Product Code</th>
<th>5 1/2&quot; - 38</th>
<th>8&quot; - 38</th>
<th>8&quot; - 54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Transmittance (U-Factor)</td>
<td>0.075</td>
<td>0.051</td>
<td>0.061</td>
</tr>
<tr>
<td>Sound transmission class (STC) assembly ratings, ASTM E90</td>
<td>51 / 55</td>
<td>45 / 54 / 57</td>
<td>TBD</td>
</tr>
<tr>
<td>Outside inside transmission class (OITC) assembly ratings ASTM E90</td>
<td>30 / 34 / 37</td>
<td>31 / 36 / 40</td>
<td>TBD</td>
</tr>
<tr>
<td>Rate of air leakage, ASTM E283</td>
<td>&lt;0.01 cfm/ft²</td>
<td>&lt;0.01 cfm/ft²</td>
<td>&lt;0.01 cfm/ft²</td>
</tr>
<tr>
<td>Water vapor transmission (20.8 degrees C, 52.2% R.H.), ASTM E96/E96M</td>
<td>0.796 perms</td>
<td>0.632 perms</td>
<td>0.632 perms</td>
</tr>
<tr>
<td>Smoke developed index, ASTM E84</td>
<td>&lt;450</td>
<td>&lt;450</td>
<td>&lt;450</td>
</tr>
<tr>
<td>Flamespread index, ASTM E84</td>
<td>&lt;25</td>
<td>&lt;25</td>
<td>&lt;25</td>
</tr>
<tr>
<td>Allowable bending moment², ³, ASTM E72</td>
<td>25,750 in-lb</td>
<td>42,780 in-lb</td>
<td>59,820 in-lb</td>
</tr>
<tr>
<td>Allowable axial load², ⁴, ASTM E72</td>
<td>6,836 lb</td>
<td>8,502 lb</td>
<td>9,178 lb</td>
</tr>
<tr>
<td>Allowable end reaction², ASTM E72</td>
<td>706 lb</td>
<td>722 lb</td>
<td>1,400 lb</td>
</tr>
</tbody>
</table>

¹ See CCRR-0121 for full ACCEL-E panel performance properties
² Safety factors for bending, axial and end reactions are all 1.95, except 2.05 for 5 1/2 axial load
³ Listed allowable moments are for 12 ft height for all panels except 14 ft for 8 - 54 panel
⁴ Listed allowable axial loads are for 8 ft height
Environmental Considerations

- Manufacturing facility is accredited under the ISO-14001 Environmental Management System Standards and maintains an operating objective of essentially zero process waste via industry recycling.
- Steel studs in the ACCEL-E wall system contain an average of 54% recycled steel and a minimum of 25% recycled steel.
- Steel studs and expanded polystyrene are 100% recyclable.
- Use of ACCEL-E may contribute toward LEED® project certification under MR Credit 2 and 4, EA PRQ 2 and EA Credit 1, and IEQ Credit 7.
- GREENGUARD Indoor Air Quality Certified.
- GREENGUARD Children & SchoolsSM Certified.
- Exceeds IECC International Energy Conservation Code and ASHRAE 90.1

5. Installation

Preparatory Work

Deliver products in manufacturer’s original, unopened, undamaged containers with labels intact. Store materials protected from exposure to harmful environmental conditions. Store panels on a solid level surface as close to the installation area as possible. Space blocking under the first panel approximately 1’ from each end and then every 4’ for support. Cover panels to protect them from dirt and debris. Verify that site conditions are acceptable for installation. Do not proceed with installation until unacceptable conditions are corrected.

Methods

Secure the track with anchor bolts and fasteners. Install numbered panels according to project requirements. Secure and brace as needed. Snap in and secure the lock bar at all panel joints. Frame the door, window and other openings with precut framing members. Secure the top track to the head of the wall. Upon final erection of the ACCEL-E wall system, if required by code, install a water-resistant barrier before applying a cladding to the wall system.

Precautions

Secure panels to prevent them from becoming airborne during windy conditions. Wear work gloves to protect hands from cuts and injuries when working with steel and when handling panels. Wear safety goggles at all times when working with panels.

Building Codes

Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

6. Availability & Cost

Availability

The ACCEL-E wall system is available throughout the U.S. from a network of sales representatives and distributors.

Cost

The ACCEL-E wall system is designed specifically to meet the unique requirements of each individual project, and includes precut panels and all associated parts needed for installation. Architectural design and structural engineering assistance is also included. Since project requirements can vary greatly, cost per square foot can vary as well. A good faith estimate is provided to prospective customers at no charge based on initial project plans. A final cost is provided when all project plans are submitted and an engineering review is completed. Because the ACCEL-E wall system simplifies framing, cavity insulation and continuous rigid foam sheathing into one installation process, cost savings can be realized through a reduction of on-site labor costs, shorter construction cycles, and greater energy efficiency.

7. Warranty

SYNTHETON warrants that its products shall be free from defects in materials and workmanship at the time of shipment and are manufactured in accordance with company standards. Refer to the ACCEL-E website at www.SYNTHETONinc.com/ACCEL-E for complete warranty details.

8. Maintenance

The ACCEL-E wall system requires no maintenance and will last for the life of the structure when installed properly in a designed and maintained wall assembly that includes the proper interior and exterior finish.

9. Technical Services

Staff engineers are available to provide preliminary design consulting. Architectural designers provide assistance by completing detailed drawings and material lists. Sealed engineered drawings and calculations are provided. Technical installation specialists can provide onsite training at the beginning of each project.

10. Filing Systems

- Sweets Catalog
- Additional product information is available from the manufacturer on www.SYNTHETONinc.com/ACCEL-E
DECLARATION OF COMPLIANCE

The SYNTHEON ACCEL-E® Steel Thermal Efficient Panel has undergone rigorous testing to meet some of the industry’s most demanding standards. Below is a list of standards to which the SYNTHEON ACCEL-E wall system currently conforms.

- **GREENGUARD® Indoor Air Quality Certified**
  
  **Reference Standard:** GGPS.001 GREENGUARD IAQ Standard for Building Materials, Finishes, and Furnishings  
  **Reference Type:** Insulation and HVAC Products  
  **Website:** [www.greenguard.org/en/QuickSearch.aspx](http://www.greenguard.org/en/QuickSearch.aspx)

- **GREENGUARD Children & SchoolsSM Certified**
  
  **Reference Standard:** GGPS.002 GREENGUARD Children & Schools Standard  
  **Reference Type:** All products  
  **Website:** [www.greenguard.org/en/QuickSearch.aspx](http://www.greenguard.org/en/QuickSearch.aspx)

- **ATI Evaluation Service, A Division of Architectural Testing**
  
  **Reference Standard:** Code Compliance Research Report CCRR-0121  
  **Reference Type:** ASTM Standards  
  **Website:** [www.architecturaltesting.com](http://www.architecturaltesting.com)

- **Southwest Research Institute**
  
  **Reference Standard:** 08179-01-01,02,03  
  **Reference Type:** ASTM Standards, NFPA Life Safety Requirements  
  **Website:** [www.listedproducts.swri.org](http://www.listedproducts.swri.org)

- **Florida Dept. of Community Affairs**
  
  **Reference Standard:** Florida Product Approval - FL 15165  
  **Reference Type:** TAS (Testing Application Standard)  
  **Website:** [www.floridabuilding.org/pr/pr_app_srch.aspx](http://www.floridabuilding.org/pr/pr_app_srch.aspx)

FOR MORE INFORMATION PLEASE VISIT [www.SYNTHEONinc.com/ACCEL-E](http://www.SYNTHEONinc.com/ACCEL-E)