

# accel-E® S.T.E.P. wall system

Construction efficiency, energy efficiency all in one step.



## Description

The *accel-E*® Steel Thermal Efficient Panel (S.T.E.P.) is a thermally efficient, high performance building panel that exceeds the latest ASHRAE 90.1 2007 and IECC 2009 requirements. Strong, light in weight and energy efficient, it is composed of two time-tested materials – cold formed steel and expanded polystyrene (EPS) insulation – uniquely fused together to provide superior strength and thermal performance.

## Uses

The *accel-E*® STEP 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.

## Benefits

- Cost effective - Helps reduce onsite labor requirements and shortens construction cycles; results in faster installation, reduced construction defects and callbacks and lowered onsite waste and disposal costs
- Energy efficient - Contributes to lower heating and cooling costs
- Fire rated 1-hour assemblies available – Can be used in IBC Type I and Type II non-combustible construction
- Made from recycled materials and is itself 100% recyclable
- Resists mold, mildew and moisture
- May contribute toward LEED® project certification
- GREENGUARD certified

## 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*® S.T.E.P. wall system is galvanized to building industry standards to prevent rust.

## Sizes

*accel-E*® S.T.E.P. 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"
- Weight for 8" thick panel - approximately 40 lb based on a 4' x 8' panel
- Weight for 5 1/2" thick panel – approximately 30 lb based on a 4' x 8' panel

## Technical Data

ASHRAE 90.1 2007, ASTM International, ASTM A370, ASTM C518, ASTM C1363, ASTM D3574, ASTM E72, ASTM E84, ASTM E90, ASTM E96/E96M, ASTM E119, ASTM E283, ASTM E330, ASTM E413, ASTM E1332, ASTM E2235, NFPA 259, NFPA 285

TABLE 1: *accel-E*® Panel Physical Properties

Steel stud properties (Nominal)	Values	Values
Stud base metal thickness	0.038"	0.054"
Minimum galvanized coating,	ASTM A1003	G60 G60
Minimum yield strength	40 ksi	55 ksi
Flange width (all panels)	1 5/8"	1 5/8"
EPS Properties (Nominal)	Values	Values
Density	1.5 pcf	1.5 pcf
R-value per inch thickness	4.3	4.3
Color	Gray	Gray

## Approvals

- Code Compliance Research Report CCRR - 0121- Architectural Testing, Inc.
- Florida Product Approval No. 13722
- Southwest Research Institute (SwRI) Listing No. 08179-01-01, No. 08179-01-02 and No.08179-01-03

TABLE 2: *accel-E*® Panel Performance Properties

Panel Product Code	5 1/2 – 38	8 – 38	8 - 54
• Sound transmission class (STC) assembly ratings, ASTM E90	41 / 51 / 55	45 / 54 / 57	45 / 54 / 57
• Outside inside transmission class (OITC) assembly ratings, ASTM E90	30 / 34 / 37	31 / 36 / 40	31 / 36 / 40
• Rate of air leakage, ASTM E283	< 0.01 cfm/ft2	< 0.01 cfm/ft2	< 0.01 cfm/ft2
• Water vapor transmission (20.8 degrees C, 52.2% R.H.), ASTM E96/E96M	0.796 perms	0.632 perms	0.632 perms
• Smoke developed index, ASTM E84	< 450	< 450	< 450
• Flamespread index, ASTM E84	< 25	< 25	< 25
• Allowable bending moment (safety factor = 1.95), ASTM E72	25,750 in-lb	42,780 in-lb	59,820 in-lb
• Allowable axial load (8' height, safety factor = 1.95), ASTM E72	6,836 lb	8,502 lb	9,178 lb
• Allowable end reaction (safety factor = 1.95), ASTM E72	706 lb	722 lb	1400 lb
• Ultimate Racking shear (7/16" OSB + 1/2" gypsum), ASTM E72	679 lb/ft	751 lb/ft	N/A
• Ultimate Racking shear (4", 16 ga, 50 ksi x-brace), ASTM E72	3,776 lb/brace	4,304 lb/brace	4,602 lb/brace

## Physical Properties, Performance

See Tables 1 and 2.

## Environmental Considerations

Steel studs contain an average of 54% recycled steel and a minimum of 25% recycled steel. The studs and expanded polystyrene are 100% recyclable. 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-2009 International Energy Conservation Code and ASHRAE 90.1

## 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.

## Installation

Secure track with anchor bolts and fasteners. Install numbered panels according to project requirements. Secure and brace as needed. Frame

the door, window and other openings with precut framing members. Secure top track to the head of the wall. For complete installation procedures, refer to the SYNTHÉON installation manual.

## Warranty

For full warranty details, refer to [www.accel-E.com](http://www.accel-E.com)