General test Information

Steelcraft doors and frames are designed for virtually all construction requirements in commercial building applications. Their construction, durability and flexibility have been proven in both operation and physical testing of all types.

Storm Resistance H and HE Series

The Hurricane (H and HE Series) exterior doors are suitable for installation in all types of building construction, but are specifically designed to resist cyclic and static wind pressures, and windborne debris impact loads, as prescribed by the Florida Building Code. The continuously bonded cores and full height mechanically interlocked edge seams provide attractive, flat and very durable doors to the commercial construction industry. Many options are available in this product series including edge construction, core variations and finishes.

Approvals and Geographic applications

For up to date online Approvals and instructions to access, go to Steelcraft.com > Support > Steelcraft > Selection, Usage, and Approvals.

The *Authority Having Jurisdiction* is the final authority in issues related to the installation and use of any building products.

Steelcraft has conducted extensive testing on various product configurations to meet the severe storm applications related to coastal areas ex posed to the ravages of extreme high windstorm systems. Inland and Coastal storm regions are designated by FEMA and local codes. Products and approvals fall into the following categories:

- **Inland Regions with less severe exposure to windstorm damage.** Tests and approvals are based on structural uniform load methods. Several standard frame and door constructions have been successfully tested to meet the requirements for Inland Regions.
- **Wind-Borne Debris (Coastal) Regions with severe exposure to storm damage.** Tests and approvals are based on the Florida Building Code Test Protocols for High Velocity Hurricane Zone (HVHZ) TAS 201, TAS 202 & TAS 203. Steelcraft H Series door constructions have been tested and meet the requirements for Coastal Regions.
- **Enhanced Hurricane Protection Area (EHPA):** typically found in educational facilities, constructed in accordance with the State Requirements for Educational Facilities (SREF) and Florida Building Code. EHPA requirements include resistance to higher windload pressures and windborne debris impacts.
- Steelcraft H Series door assemblies have been tested and meet the requirements for EHPA.
- Refer to the Hurricane Resistant Approval pages of this manual for applicable products.

Sizes and performance

All doors and frames are manufactured and supplied to meet the dimensional standards and performance levels as published in ANSI A250.8-2014 (SDI 100).

Special size products are available to meet the unique construction, performance and aesthetic requirements of the architectural community. Contact Steelcraft for those requirements.

Usage and application

To help simplify the use, selection and specification of Steelcraft storm resistant door products, the following guidelines for base material selection can be used:

Material Gauge: the following base material thickness values were taken from the Underwriters Laboratories, Inc. publication for gauge number and equivalent thickness and describe the sheet steel products available from Steelcraft:

- **H and HE Series doors: 16 Gauge [0.053" (1.3 mm)]** for Extra Heavy Commercial and Institutional applications having the potential of very high use.
- **H Series doors: 14 Gauge [0.067" (1.7 mm)]** for Extra Heavy Commercial and Institutional applications with extremely high use.

Material Selection:

- Galvannealed Steel: conforming to ASTM A924 and ASTM A653 is standard on all H and HE Series doors.

Installation

Installation of all Steelcraft frames and doors shall conform to the published Steelcraft installation instructions, ANSI A250.11-2012 (formerly SDI 105) *Recommended Erection Instructions for Steel Frames and HMMA 840*.

Installation of all H and HE Series doors must conform to corresponding Miami-Dade County Notice of Acceptance (NOA) and/or the Florida Building Code (FBC) statewide approval.

All Fire Rated doors must be installed in accordance with the National Fire Protection Association Pamphlet 80 (NFPA 80), and/or the local *Authority Having Jurisdiction*.

See page 205 under "Design pressure ratings and hardware configurations" for online resource links to the most current approvals.

H16 and H14 Series flush doors

About the product

The H16 and H14 Series doors have been specifically designed and tested to meet the performance-based provisions of the Florida Building Code (FBC) while providing architects, designers and building owners with the broadest choices for their specific applications.

Specifiable options include glass lights, transom and sidelights, louvers, exit hardware, cylindrical or mortise single point locks, as well as a variety of door core and edge construction options.

All H Series doors have been tested to protocols TAS 201, 202 and 203, indicating their ability to withstand the missile impact, structural load and cyclic wind pressure tests prescribed by the Codes.

Approvals, design pressure ratings and hardware configurations

Design Pressure Ratings are based on ongoing testing for door, frame and hardware configurations. Applications are limited to the configurations tested.

For up to date online Approvals and instructions to access, go to http://us.allegion.com/en/home/products/categories/doors-and-frames/steelcraft-h.html. Go to Approvals.

The *Authority Having Jurisdiction* is the final authority in issues related to the installation and use of any building products.

Features and benefits

Steelcraft's H Series doors offer the following standard unique features, which enhance long term performance and durability:

1. **A-60 Galvannealed steel** face sheets
2. **Core Systems** that enhance structural integrity:
   - **Honeycomb** (Standard): 1" (25 mm) cell kraft honeycomb configuration that increases structural integrity while reducing overall weight
   - **Polystyrene** (optional): enhanced thermal performance
   - **Polyurethane** (optional): extreme thermal performance
   - **Mineral Board** (optional): rigid, temperature rise control
   - **Steel Stiffened** (optional): welded hat section stiffeners
3. **Full Height, Epoxy Filled Mechanical Interlock Edges** provide structural support and stability the full height of the door edges. Available edge options:
   - **Visible Edge Seam (standard)**: full height, epoxy filled mechanical Interlocked edges
   - **Filled Edge Seam (optional add to standard):** seam filled with structural adhesive and dressed smooth. Includes tack welds above and below edge cutouts for hinges, locks, etc.
   - **Welded Edge Seam (optional add to standard):** intermittently welded using 1" long welds, then seam filled with structural adhesive and dressed smooth. Option available on L18, L16 and L14 doors.
4. **Full Height Lock Side Reinforcement Channel** ensures structural stability and locking hardware functionality under extreme pressure conditions.
5. **Universal Hinge Preparations** (patented) allow for easy field conversion from standard weight .134" (3.3 mm) hinges to heavy weight .180" (4.7 mm) hinges.
6. **14 Gauge [0.067" (1.7 mm)]** Top and Bottom Channels provide stability and protection for the top and bottom edges from abuse.
7. **⅜" undercut** is standard on all H Series doors, to accommodate hurricane code requirements.
8. **Beveled Hinge and Lock Edges** allow for tighter installation tolerances, ensure easier operation and eliminate binding and sticking.
9. **Recessed Dezigner™ Glass Trim** provides a clean, neat and flush finish with the door surface.
10. **Screwed-in top caps** provide additional weather protection to exclude water and debris from exterior outswing doors.
11. **Factory Applied Baked-On Rust Inhibiting Primer** paint in accordance with ANSI A250.10-2011.

Specification compliance

1. Door construction for Steelcraft H Series full flush doors meets the requirements of ANSI A250.8-2014 (SDI 100).
2. Hardware preparations and reinforcements are in accordance with ANSI A250.6-2003 (R2009). Locations are in accordance with ANSI/DHI A115.
3. Florida Building Code test protocols TAS 201, TAS 202 & TAS 203.

Florida building code label

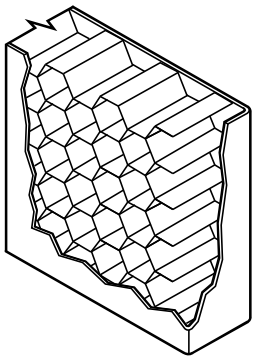
A Florida Building Code Label is applied to all H Series doors. An optional Miami-Dade County label is also available.

Fire ratings

Steelcraft H Series doors meet fire rating requirements. They are listed for installations requiring compliance to both neutral pressure testing UL-10B and positive pressure standard UL-10C.

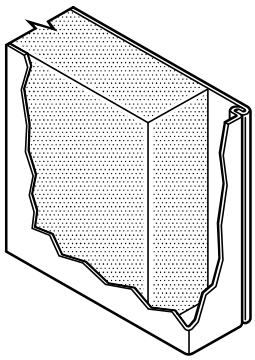
Cores

Rigid Honeycomb Core



Standard H Series Core

- 1" (25 mm) cell, 99 pound Kraft honeycomb
- Honeycomb surfaces sanded for maximum adhesion
- Impregnated with phenolic resin (resists mildew and vermin)
- Laminated to both face sheets with contact adhesive
- Assembled door is run through high pressure pinch rollers, achieving ultimate bond



Optional Polystyrene Core

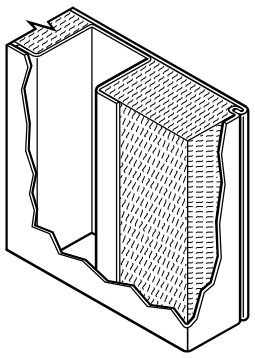
- 1 pound (453.6g) per ft^3 density slab
- Laminated to both face sheets with contact adhesive
- Labeled applications

Optional Polyurethane Core

- 1.8 pound (816.5g) per ft^3 density slab
- Laminated to both face sheets with contact adhesive
- Non-Labeled applications

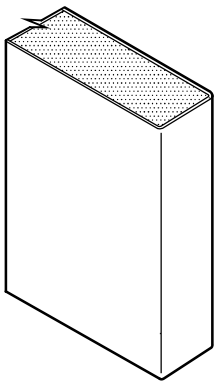
Optional Mineral Fiber Board Core

- TH Series 250°F (121°C) or 450°F (232°C) Temperature Rise Hurricane door



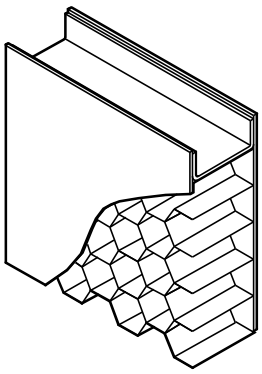
Optional Steel Stiffened Core

- Stiffeners welded to inside of face sheets
  - Located 6" (152.4 mm) on center
  - Weld spacing 6" (152 mm) maximum along the full height of each stiffener
- Areas between stiffeners filled with 1 pound (453.6g) per ft3 density fiberglass batt



STANDARD Edge Construction

- Beveled hinge & lock edges
- Full height mechanical interlock with epoxy adhesive
- Visible edge seam standard
- Seamless edge optional



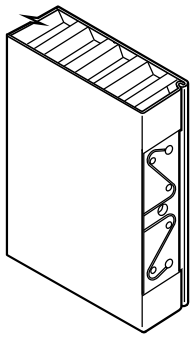
STANDARD Rigid 14 gauge End Channel Construction

- 14 gauge inverted galvannealed top & bottom channels
- Projection welded to both face sheets
- For optional caps, see "Weather seals" on page 75

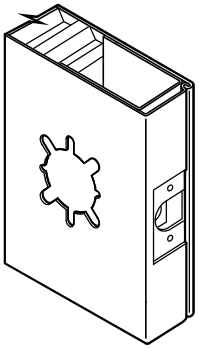
Door Application and Usage

Series	Steel Thickness	Opening	Usage Frequency	
H16	16 Ga (1.3 mm)	Exterior: Galvannealed Steel	Extra Heavy Duty	Extra Heavy Commercial & Institutional applications with potential of very high use
H14	14 Ga (1.7 mm)	Exterior: Galvannealed Steel	Maximum Duty	Extra Heavy Commercial & Institutional applications with extremely high use

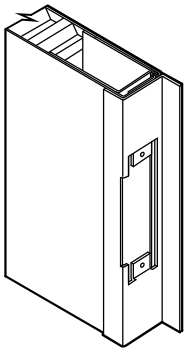
Standard hardware preparations



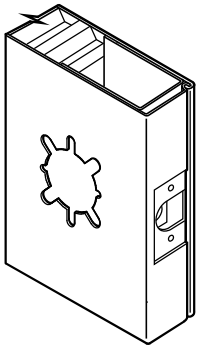
Universal mortise hinge prep



6IL lock preparation



Inactive leaf: ASA strike preparation



Optional 14 gauge closer reinforcement

Standard: mortised and reinforced for

- Patented Universal hinge preparations allow for easy field conversion from standard 4 ½" (114 mm) x .134" (3.3 mm) standard weight hinges to 4 ½" (114 mm) x .180" (4.7 mm) heavy weight hinges. Optional hinge preparation for 5" (127 mm) x .146" (3.7 mm) standard weight hinges or for 5" (127 mm) x .190" (4.8 mm) heavy weight hinges is also available.
- The cylindrical 161, 61L and mortise 86 lock preps are the most commonly used active leaf preparations. The 4 ⅞" (124 mm) strike prep is the most commonly used inactive leaf preparation.
- Optional reinforcements for surface closers are available.

Product Selection

Door Sizes and ANSI A250.8 Conversions

Steelcraft product selection for H Series doors has been matched to SDI designations for Level and Model. Recommended minimum frame gauge also applies to the frequency of operation of the opening.

Series	ANSI A250.8 - SDI 100			Edge Construction	Maximum Sizes		Recommended Gauge of Frame
	Level	Model	Description		Single	Pair	
Level 3 - Extra Heavy Duty Commercial & Institutional							
H16	3	1	Full Flush	Visible	4' 0" x 8' 0" 1219 mm x 2438 mm	8' 0" x 8' 0" 2438 mm x 2438 mm	14 Gauge [0.067" (1.7 mm)] 16 Gauge [0.053" (1.3 mm)]
HF16		2	Seamless	Filled			
HW16				Welded			
Level 4 - Maximum Duty Commercial & Institutional							
H14	4	1	Full Flush	Visible	4' 0" x 8' 0" 1219 mm x 2438 mm	8' 0" x 8' 0" 2438 mm x 2438 mm	12 Gauge [0.093" (2.3 mm)] 14 Gauge [0.067" (1.7 mm)]
HF14		2	Seamless	Filled			
HW14				Welded			

Code Compliance

- Florida Building Code test protocols TAS 201, TAS 202 & TAS 203.
  - A mylar Florida Building Code label is included as standard
  - Optional mylar Miami-Dade County label

Door edge construction

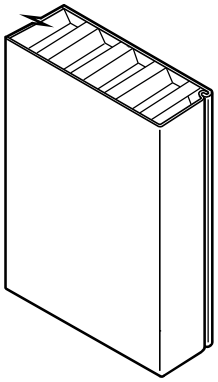
Optional Edge Seams available in the L Series doors:

- **H:** Standard feature includes visible edge seams with full height interlocked edges.
- **HF:** The mechanical edge seam is filled and dressed smooth prior to applying the factory primer.
- **HW:** The mechanical edge seam is welded and dressed smooth prior to applying the factory primer.

Standard visible edge seam

H Series Visible Seam Features

- Full height mechanical interlock
- Interlock filled with epoxy adhesive
- Visible edge seam



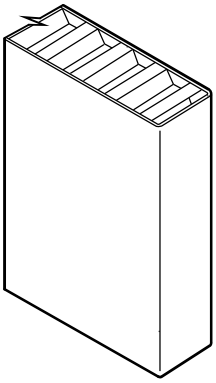
Optional seamless edge

HF Series Seam Filled Features

- Standard Visible Edge Seam is tack welded above and below edge cutouts for hinges, locks, etc.
- Edge Seam is then filled with structural adhesive and dressed smooth
- No visible edge seam

HW Series Seam Welded Features

- Standard Visible Edge Seam is intermittently welded using 1" long welds
- Edge Seam is then filled with structural adhesive and dressed smooth
- No visible edge seam

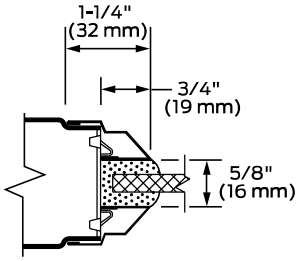


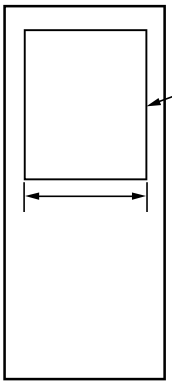
Glass light options

(Refer to the Lights section for further details and options)

Dezigner® Trim

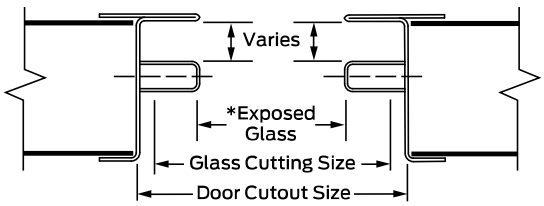
- Standard for ½" Thick Glass
- Optional for ¼" Thick Glass





Note: Glazing type and thickness vary per job requirements.

Typical Optional Overlapping Steel Trim for Glass Over ¼" to ⅝" or ¾" to 1" Thick



Divider Muntins Are Not Available

Note:

1. Glazing material and methods of glazing are subject to approval by applicable authorities and may change without notice. Refer to the applicable product approvals.
2. Doors used in elevations must use ½" or 9/16" glass only per NOA.

HE16 Series embossed doors

About the product

The HE16 Series embossed panel doors have been specifically designed and tested to meet the performance-based provisions of the Florida Building Code (FBC) while providing architects, designers and building owners with the broadest choices for their specific applications.

Specifiable options to meet application, specification and performance requirements include mechanical and electrical hardware preparations for exit hardware, cylindrical or mortise single point locks and double locks. No glass lights are allowable.

All HE16 Series doors have been tested to protocols TAS 201, 202 and 203, indicating their ability to withstand the missile impact, structural load and cyclic wind pressure tests prescribed by the Codes.

Design pressure ratings and hardware configurations

Design Pressure Ratings are based on ongoing testing for door, frame and hardware configurations. Applications are limited to the configurations tested. For up to date online Approvals and instructions to access, go to http://us.allegion.com/en/home/products/categories/doors-and-frames/steelcraft-h.html. Go to Approvals.

The *Authority Having Jurisdiction* is the final authority in issues related to the installation and use of any building products.

Features and benefits

Steelcraft's HE16 Series doors offer the following standard unique features, which enhance long term performance and durability:

1. **A-40 Galvannealed Steel** face sheets.
2. **Polystyrene Core (Standard)**: enhances the structural integrity of the door with enhanced thermal capabilities
3. **Full Height, Epoxy Filled Mechanical Interlock Edges** provide structural support and stability the full height of the door edges. Available edge options:
   - **Visible Edge Seam (standard)**: full height, epoxy filled mechanical Interlocked edges
   - **Filled Edge Seam (optional add to standard):** seam filled with structural adhesive and dressed smooth. Includes tack welds above and below edge cutouts for hinges, locks, etc.
   - **Welded Edge Seam (optional add to standard):** intermittently welded using 1" long welds, then seam filled with structural adhesive and dressed smooth. Option available on L18, L16 and L14 doors.
4. **Full Height Lock Side Reinforcement Channel** ensures structural stability and locking hardware functionality under extreme pressure conditions.
5. **Universal Hinge Preparations** (patented) allow for easy field conversion from standard weight .134" (3.3 mm) hinges to heavy weight .180" (54.7 mm) hinges.
6. **14 Gauge [0.067" (1.7 mm)] Inverted Top and Bottom Channels** provide stability and protection for the top and bottom edges from abuse.
7. **⅜" undercut** is standard on all H Series doors, to accommodate hurricane code requirements.
8. **Beveled Hinge and Lock Edges** allow for tighter installation tolerances, ensure easier operation and eliminate binding and sticking.
9. **Screwed-in top caps** provide additional weather protection to exclude water and debris from exterior outswing doors.
10. **Factory Applied Baked-On Rust Inhibiting Primer** paint in accordance with ANSI A250.10-2011.

Specification compliance

1. Door construction for Steelcraft HE16 Series embossed panel doors meets the requirements of ANSI A250.8-2014 (SDI 100).
2. Hardware preparations and reinforcements are in accordance with ANSI A250.6-2003 (R2009). Locations are in accordance with ANSI/DHI A115.
3. Door construction for the HE16 Series embossed panel doors meets ANSI A117.1-1998 (ADA) requirements for minimum 10" (254 mm) bottom rail height measured from the floor.
4. Florida Building Code test protocols TAS 201, TAS 202 & TAS 203.

Florida building code label

A Florida Building Code Label is applied to all H Series doors. An optional Miami-Dade County label is also available.

Fire ratings

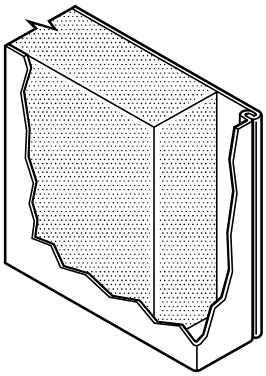
Steelcraft HE16 Series doors meet fire rating requirements.

They are listed for installations requiring compliance to both neutral pressure testing UL-10B and positive pressure standard UL-10C.

Cores

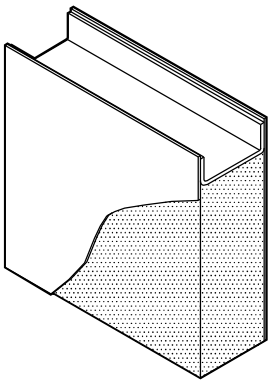
Insulated Core

- 1 pound (453.6 g) per ft^3 density slab
- Preferred for extreme temperature variations
- Laminated to both face sheets with contact adhesive
- Assembled door is run through high pressure pinch rollers achieving ultimate bond



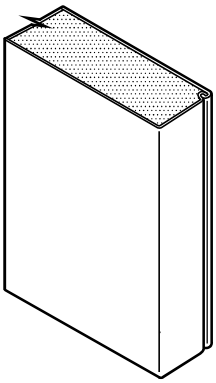
Standard Rigid 14 gauge End Channel Construction

- 14 gauge inverted galvannealed top & bottom channels
- Projection welded to both face sheets
- For optional caps, see ""Weather seals" on page 145



Standard Edge Construction

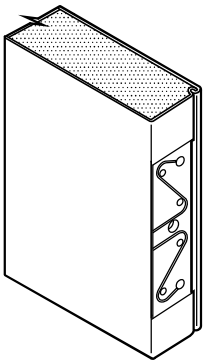
- Beveled hinge & lock edges
- Full height mechanical interlock with epoxy adhesive
- Visible edge seam standard
- Seamless edge optional



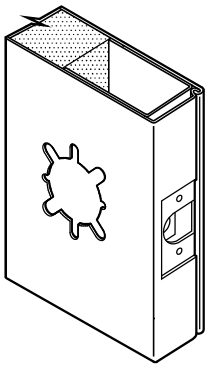
Door Application and Usage

Series	Steel Thickness	Opening	Usage Frequency	
HE16	16 Ga (1.3 mm)	Exterior - Galvannealed Steel	Extra Heavy Duty	Extra Heavy Commercial & Institutional applications with potential of very high use

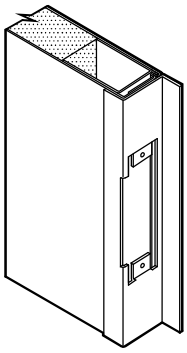
Standard hardware preparations



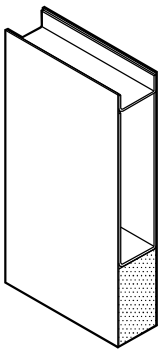
Standard Mortise Hinge Prep 4 ½" x .134" or 4 ½" x .180"



61L Lock Preparation



Inactive Leaf: ASA Strike Preparation and Astragal



Optional 14 Gauge [0.067" (1.7 mm)] Closer Reinforcement

Standard: mortised and reinforced for

- Patented Universal hinge preparations allow for easy field conversion from standard 4 ½" (114 mm) x .134" (3.3 mm) standard weight hinges to 4 ½" (114 mm) x .180" (4.7 mm) heavy weight hinges. Optional hinge preparation for 5" (127 mm) x .146" (3.7 mm) standard weight hinges or for 5" (127 mm) x .190" (4.8 mm) heavy weight hinges is also available.
- The cylindrical 161, 61L and mortise 86 lock preps are the most commonly used active leaf preparations. The 4 ⅞" (124 mm) strike prep is the most commonly used inactive leaf preparation.
- Optional reinforcements for surface closers are available.

SDI Conversion Chart

Steelcraft product selection for HE Series doors has been matched to SDI designations for Level and Model. Recommended minimum frame gauge also applies to the frequency of operation of the opening.

Code Compliance

- Florida Building Code test protocols TAS 201, TAS 202 & TAS 203.
  - A mylar Florida Building Code label is included as standard
  - Optional mylar Miami-Dade County label

Product Selection

Door Sizes and ANSI A250.8 Conversions

Series	ANSI A250.8 - SDI 100			Edge Construction	Maximum Sizes		Recommended Gauge of Frame
	Level	Model	Description		Single	Pair	
Level 3 - Extra Heavy Duty Commercial & Institutional							
HE16	3	1	Full Flush	Visible	3'0" x 8'0"	6'0" x 8'0"	14 Gauge [0.067" (1.7 mm)]
HEF16		2	Seamless	Filled	914 mm x 2438 mm	1829 mm x 2438 mm	16 Gauge [0.053" (1.3 mm)]

Door edge construction (H, HF, HE, HEF)

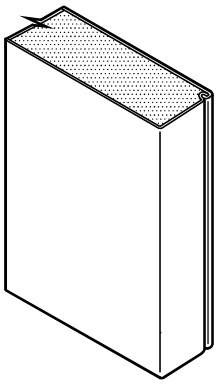
Optional Edge Seams available in the HE Series doors:

- **HE**: Standard feature includes visible edge seams with full height interlocked edges.
- **HEF**: the mechanical edge seam is filled and finished prior to applying the factory primer.

Standard visible edge seam

HE Series Visible Seam Features

- Full height mechanical interlock
- Interlock filled with epoxy adhesive
- Visible edge seam



Optional seamless edge

HEF Series Seam Filled Features

- Standard Visible Edge Seam is tack welded above and below edge cutouts for hinges, locks, etc.
- Edge Seam is then filled with structural adhesive and dressed smooth
- No visible edge seam