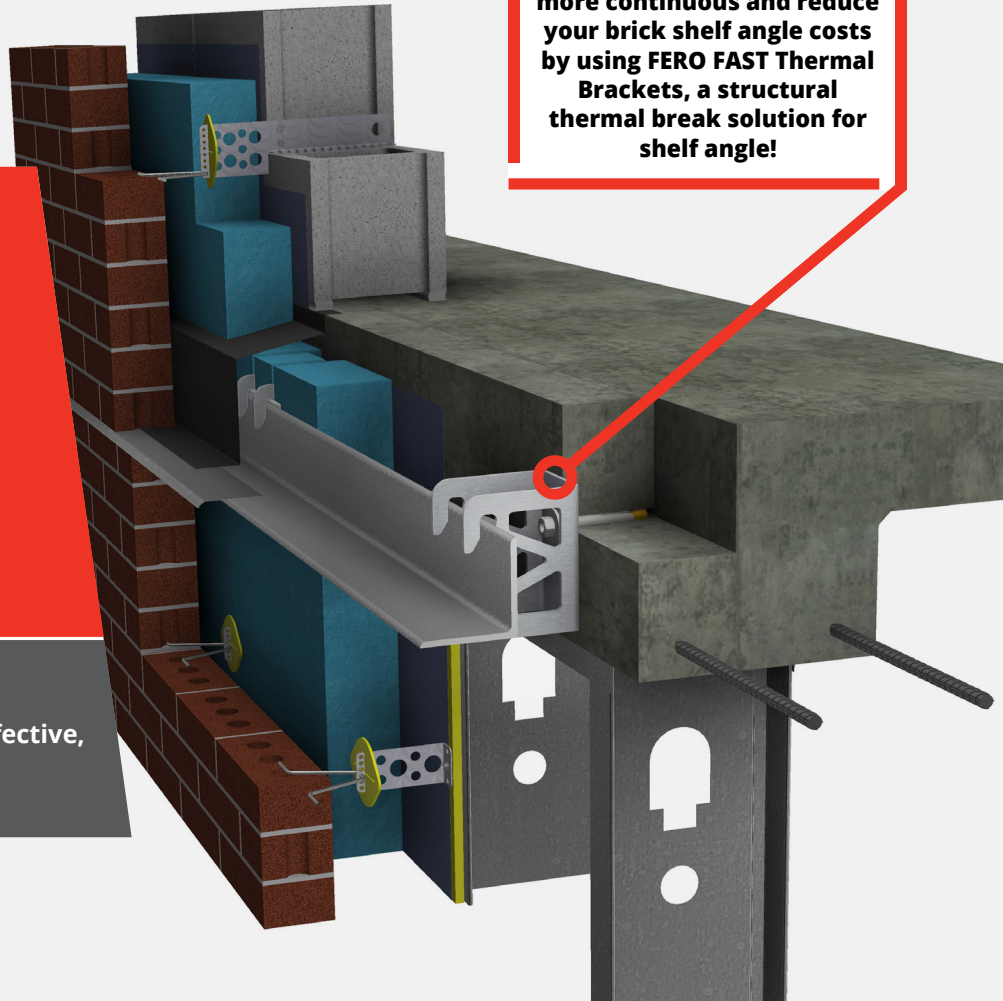




# FAST™ THERMAL BRACKETS

Use FAST Thermal Brackets to make your masonry shelf angle design smart, cost-effective, "thermally-broken" and energy efficient.

Make the insulation on your building significantly more continuous and reduce your brick shelf angle costs by using FERO FAST Thermal Brackets, a structural thermal break solution for shelf angle!



## STRENGTH. ADJUSTABILITY. PERFORMANCE.

Stand-off the masonry shelf angle from the backing using FAST Thermal Brackets to provide a "thermally broken" shelf angle and masonry veneer support system.



Make Your Building  
Energy Efficient



Speed Up  
Installation



Reduce  
Building Costs

See inside to choose the right FAST Thermal Bracket for your building needs

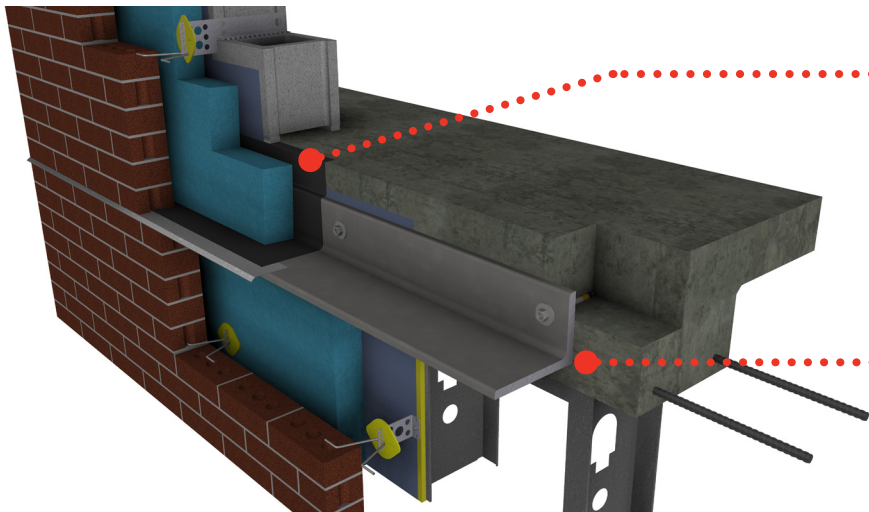
[FEROCORP.COM](http://FEROCORP.COM)

# THE FERRO FAST™ THERMAL BRACKET ADVANTAGE

## Challenge

Conventional masonry shelf angle designs compromise the effectiveness of exterior insulation, reducing the energy efficiency of the building. Conventional shelf angles are impractical and expensive, especially with thicker insulation and larger wall cavities.

### Conventional Shelf Angles



#### Interrupted Exterior Insulation

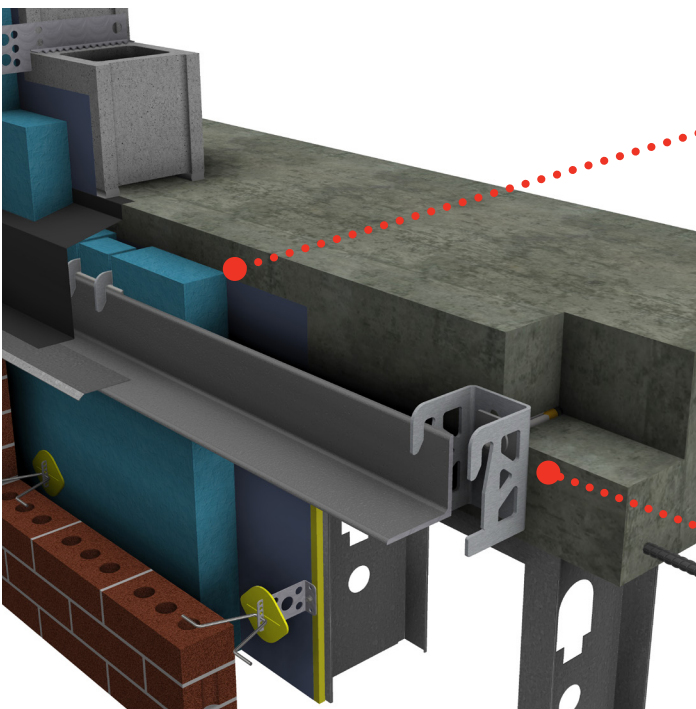
Conventional shelf angles interrupt the thermal plane of the exterior insulation, typically at every floor, reducing thermal efficiency.

#### Thermal Bridge at Every Shelf Angle

Shelf angles are made of highly conductive steel. A conventional shelf angle fully penetrates the insulation, causing a large linear thermal bridge along the entire horizontal length of every shelf angle on the building.

## Solution

FERO's innovative and proprietary FAST Thermal Brackets stand-off the shelf angle from the backing, allowing for continuous air/vapor barrier and insulation behind the shelf angle.



#### Offset to Reduce Thermal Bridging

FERO FAST Thermal Brackets offset the shelf angle from the backing, and dramatically improve the thermal performance of the building envelope by eliminating the large linear thermal bridge caused by a conventional shelf angle.

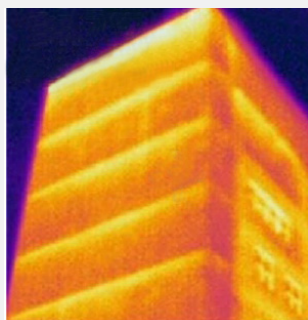
#### Structural Thermal Break Design Improves Energy Efficiency

FAST Thermal Brackets have a hole pattern designed to reduce the transfer of heat across the FAST Thermal Bracket, improving the overall thermal transmittance while maintaining structural strength of the bracket.

# COMPARE: Why Choose FERRO FAST™ Thermal Brackets Over Conventional Shelf Angles?

By standing off (offsetting) the shelf angle from the backup wall, FERRO FAST Thermal Brackets create a 'thermally-broken' shelf angle providing significant advantages over conventional shelf angle designs and installations.

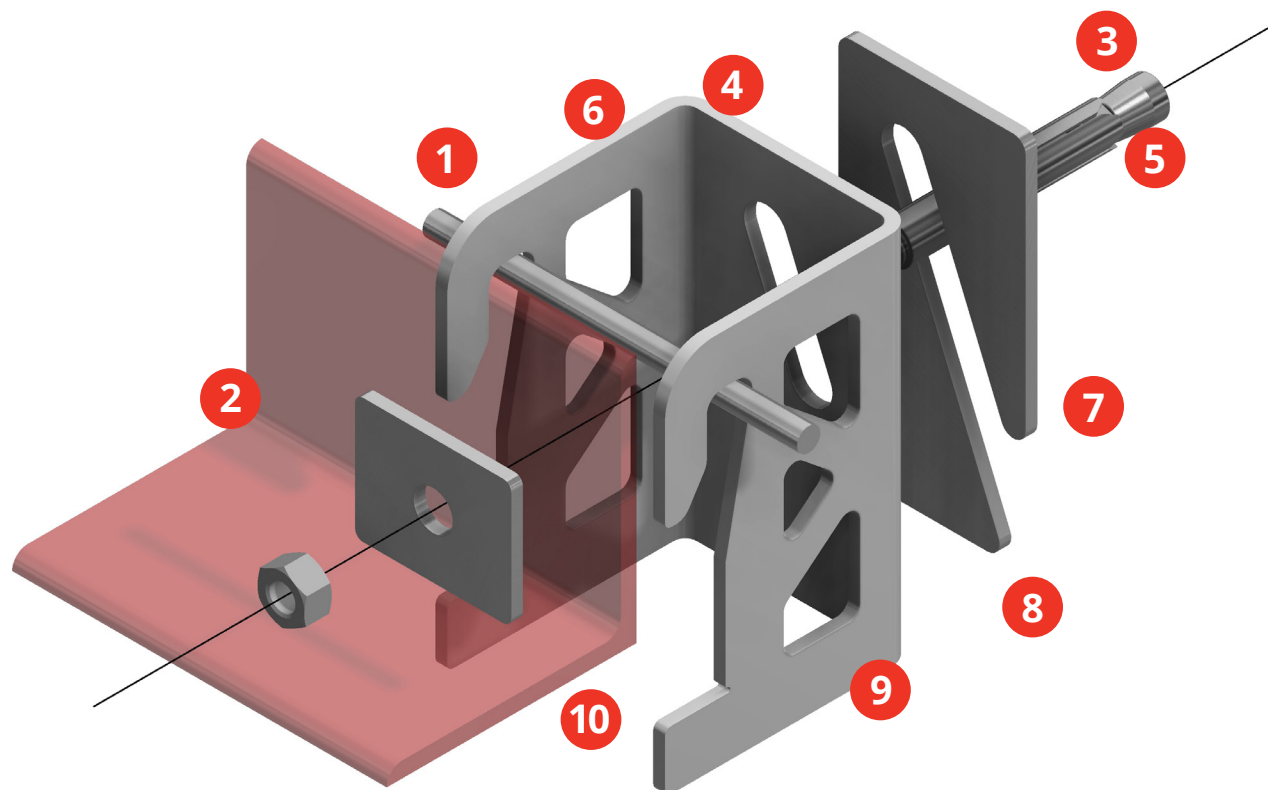
	CONVENTIONAL SHELF ANGLE	FERRO FAST THERMAL BRACKETS
Energy Efficiency	✗ Direct contact of shelf angle with backing creates a significant thermal bridge and limits effectiveness of insulation by 35–60% or more, depending on size of shelf angle.	✓ The stand-off shelf angle allows for continuous insulation, reduces thermal bridging, and limits effectiveness of insulation by less than 1%.
Wall Assembly R-Value	✗ R10.8 (Insulation R-Value 16.8)	✓ R16.7 (Insulation R-Value of 16.8)
Cost	✗ Complex installation and more expensive shelf angle result in higher overall costs.	✓ Ease of installation by a single trade and lower shelf angle costs reduce average cost by over <b>60%</b> .
Adjustability	✗ Direct anchoring to backing results in limited adjustability.	✓ Fully adjustable horizontally and vertically.
Ease of Installation	✗ Requires multiple trades to install.	✓ Can be quickly installed by a single trade.
Effectiveness with Thicker Insulation and Larger Wall Cavities	✗ Requires large, expensive and hard-to-install shelf angle.	✓ FAST Thermal Brackets can accommodate any cavity size, and because the FAST Thermal Bracket itself spans the cavity, it utilizes a much smaller (and more cost effective) shelf angle.
Thermal Break	✗ "Thermal break pads" behind conventional shelf angle are limited in ability to span wall cavities, do not allow for typical insulation behind the shelf angle, are expensive, and are not a structural thermal break.	✓ FAST Thermal Brackets are a structural thermal break providing superior R-Value without the use of expensive, load compromising thermal break pads.



## Did You Know?

Conventional shelf angle design interrupts placement of exterior insulation and reduces thermal efficiency. A steel shelf angle is highly conductive. This interruption and full penetration of the insulation by the shelf angle negatively impact the effectiveness of the insulation along the entire length of the shelf angle at every occurrence, typically at every floor level. In this image, brick masonry veneer is supported at each floor level by a conventional shelf angle. Yellow banding at each floor level demonstratively shows heat loss caused by thermal bridging through the shelf angles.

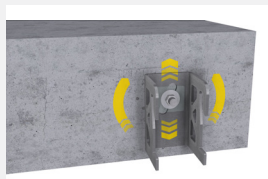
# FERO FAST™ THERMAL BRACKET FEATURES



- 1** A patented solution for stand-off shelf angles.
- 2** Offsets shelf angle from the backing to allow for continuous insulation behind the shelf angle, and with FERO's innovative flange hole pattern the FAST System significantly reduces the negative effects of thermal bridging.
- 3** Easily anchored to backing without welding or a need to drill holes in the shelf angle.

## Vertical Adjustability

The slot on the back of the FAST Thermal Bracket allows up to 1-3/4" of vertical adjustment.



## Horizontal Adjustability

Up to two FERO FAST Shim Plates can be used to adjust the FAST Thermal Bracket horizontally outward from the backing



- 4** Fully adjustable both horizontally and vertically, easily accommodating construction tolerances and any wall configuration or type of exterior masonry veneer.
- 5** Compatible with fasteners of all sizes and types, providing the full range of shelf angle adjustability without the need for separate embeds.
- 6** FAST Thermal Brackets are a structural thermal break, providing superior 'R' value, avoiding the use of expensive thermal break pads and avoiding associated load capacity, fire resistance and creep considerations.
- 7** No channels, knife edges, embeds or other types of components needed for shelf angle stand-off, offering simplicity and reducing cost of components, layouts, and installations.
- 8** FERO FAST wall assemblies deliver an R-Value (R16.7) within 1% of the insulation R-Value (R16.8). Conventional shelf angles reduce the effectiveness of insulation by 35-60% or more, depending on size of shelf angle.
- 9** Easy to install in less time and for lower cost with just a single trade onsite; no welding or inserts needed, or anchor channels required.
- 10** Can be sized for any wall cavity, creating significant cost savings by eliminating the need for larger, more expensive shelf angles. Larger wall cavities with thicker insulation simply utilize a deeper FERO Thermal Bracket to span the cavity with a standard sized, economical, shelf angle.

\*Documented by independent testing.

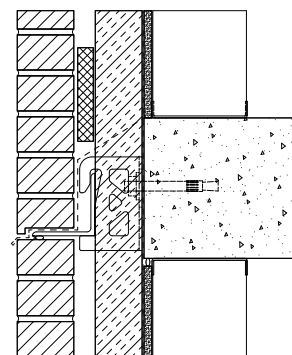
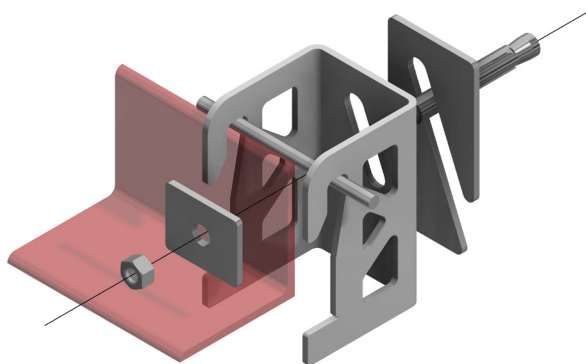


# FAST™ THERMAL BRACKETS

## FAST Thermal Bracket

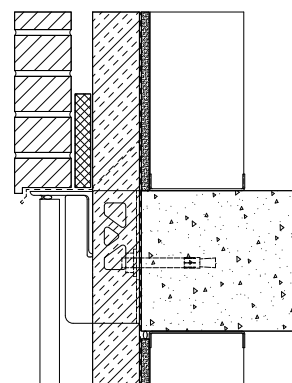
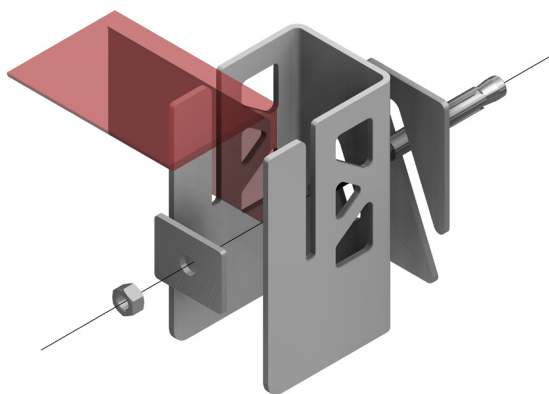
The FAST Thermal Bracket provides industry-leading thermal performance and quick and easy installation.

The Standard Bracket is used where veneer bearing is coincident with the structural slab and bearing support is concealed. Brackets are readily available in any size height or depth at a low cost, and can accommodate any size shelf angle and any size bolt.



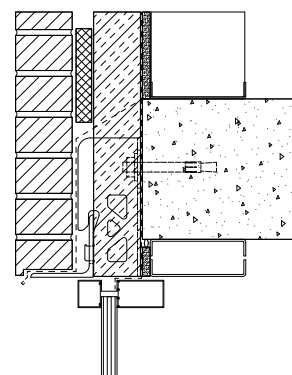
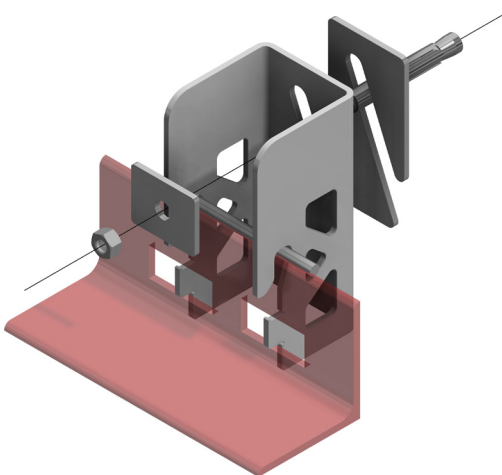
## FAST Thermal Bracket-Inverted

The FAST Thermal Bracket-Inverted supports the veneer flush to the top of the building foundation, or any other required elevation, by holding the shelf angle in an inverted position. The FAST Thermal Bracket-Inverted provides the same customization offered by all FAST Thermal Brackets.



## FAST Thermal Bracket Lintel System

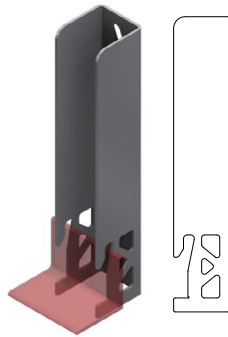
The FAST Thermal Bracket Lintel System makes it easy to maintain aesthetics and veneer elevations at the head of windows, doors and other openings by supporting the veneer on an angle installed flush with the underside of the bracket. FERO FAST Thermal Lintel Brackets are sold together with the FAST Punched Shelf Angle as a complete system. The FAST Thermal Bracket Lintel System can be made to fit any wall cavity and support veneer at any distance below floor level.



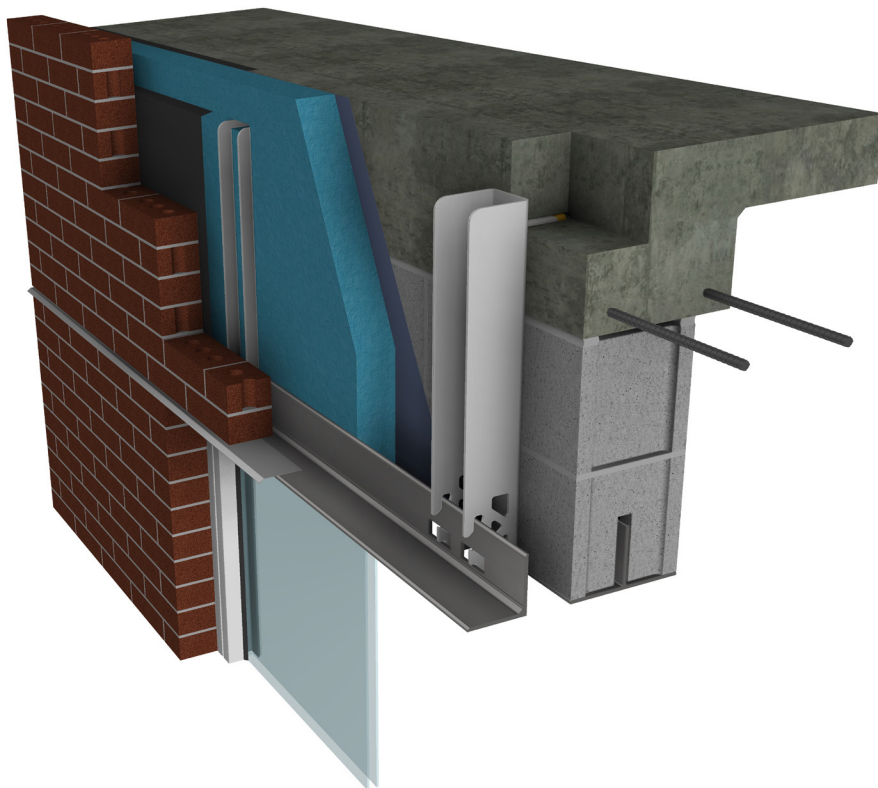
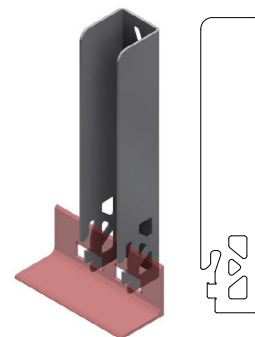
## FAST™ Thermal Bracket-Extended

FERO FAST Thermal Brackets can be extended downward to any elevation, permitting the support of a masonry veneer that extends from below a concrete slab or beam. This provides an ideal solution for angle above openings and significantly reduces material cost by replacing structural steel.

FAST THERMAL  
BRACKET-EXTENDED



FAST THERMAL LINTEL  
SYSTEM-EXTENDED



### Did You Know?

The thermal performance of a wall assembly can be further improved by using FERO thermal brick ties. ***Our thermal brick ties are ideal for use in large cavities and have been independently tested for thermal performance.*** FERO ties feature engineered thermal holes in the body of the tie that reduce thermal conductivity without affecting load resistance.

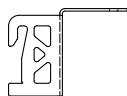
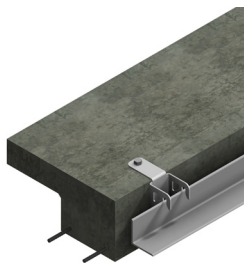
FERO ties are conveniently surface mounted to the outboard face of the backing or side mounted to the stud. Available with slot connection to accommodate differential movements, or holed connection to provide composite action between veneer and backing. Available in lengths to accommodate any width of cavity including large cavities.

# **FAST™ BRACKETS:** Choose The Right Thermal Bracket For Your Construction Needs.

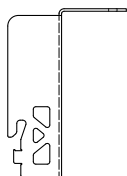
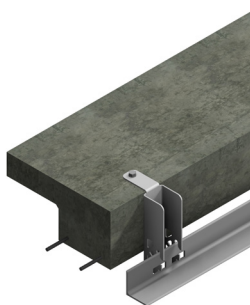
## **FAST Thermal Bracket Additional Configurations**

FAST Thermal Brackets are available in a wide variety of configurations to accommodate any type of wall assembly. Contact FERRO, and we'll provide a design solution to meet your needs.

**FAST THERMAL  
BRACKET-TOS**



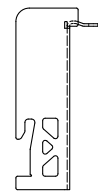
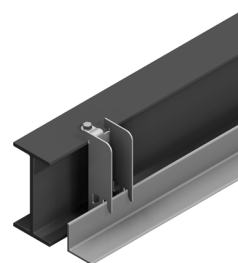
**FAST THERMAL  
BRACKET-TOS LINTEL**



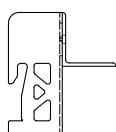
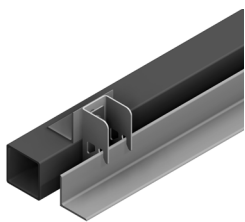
**FAST THERMAL  
BRACKET-DOUBLE**



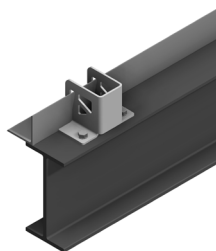
**FAST THERMAL  
BRACKET-IBeam**



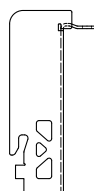
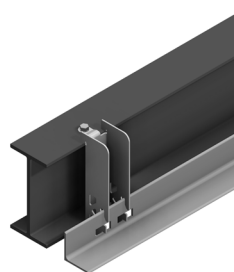
**FAST THERMAL  
BRACKET-HSS**



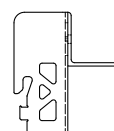
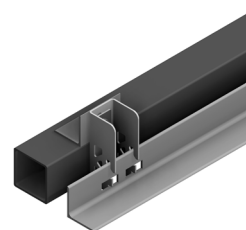
**FAST THERMAL  
BRACKET-HAB**



**FAST THERMAL  
BRACKET-IBeam LINTEL**



**FAST THERMAL  
BRACKET-HSS LINTEL**

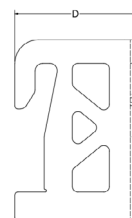


# LOAD TABLE AND DESIGN INFORMATION

FAST™ BRACKET DEPTH "D"	MAXIMUM ALLOWABLE VERTICAL LOAD PER BRACKET	MAXIMUM BRACKET SPACING	MAXIMUM ALLOWABLE VENEER HEIGHT			
			CLAY BRICK	LIGHTWEIGHT CONCRETE BLOCK	NORMAL WEIGHT CONCRETE BLOCK	NATURAL STONE
in. (mm)	lb. (kN)	ft. (mm)	ft. (m)	ft. (m)	ft. (m)	ft. (m)
1.0 (25)	1500 (6.7)	2 (600)	18.7 (5.6)	25.0 (7.6)	19.7 (6.0)	15.3 (4.6)
		3 (900)	12.5 (3.8)	16.6 (5.0)	13.1 (3.9)	10.4 (3.1)
		4 (1200)	9.3 (2.8)	12.5 (3.8)	9.8 (2.9)	7.7 (2.3)
1.5 (38)	1400 (6.2)	2 (600)	17.5 (5.3)	23.3 (7.1)	18.4 (5.6)	15.3 (4.6)
		3 (900)	11.6 (3.5)	15.5 (4.7)	12.2 (3.7)	10.4 (3.1)
		4 (1200)	8.7 (2.6)	11.6 (3.5)	9.2 (2.8)	7.7 (2.3)
2.0 (51)	2100 (9.3)	2 (600)	26.2 (7.9)	35.0 (10.6)	27.6 (8.4)	23.3 (7.1)
		3 (900)	17.5 (5.3)	23.3 (7.1)	18.4 (5.6)	15.6 (4.7)
		4 (1200)	13.1 (3.9)	17.5 (5.3)	13.8 (4.2)	11.6 (3.6)
2.5 (64)	2100 (9.3)	2 (600)	26.2 (7.9)	35.0 (10.6)	27.6 (8.4)	23.3 (7.1)
		3 (900)	17.5 (5.3)	23.3 (7.1)	18.4 (5.6)	15.6 (4.7)
		4 (1200)	13.1 (3.9)	17.5 (5.3)	13.8 (4.2)	11.6 (3.6)
3.0 (76)	2100 (9.3)	2 (600)	26.2 (7.9)	35.0 (10.6)	27.6 (8.4)	23.3 (7.1)
		3 (900)	17.5 (5.3)	23.3 (7.1)	18.4 (5.6)	15.6 (4.7)
		4 (1200)	13.1 (3.9)	17.5 (5.3)	13.8 (4.2)	11.6 (3.6)
3.5 (89)	2100 (9.3)	2 (600)	26.2 (7.9)	35.0 (10.6)	27.6 (8.4)	23.3 (7.1)
		3 (900)	17.5 (5.3)	23.3 (7.1)	18.4 (5.6)	15.6 (4.7)
		4 (1200)	13.1 (3.9)	17.5 (5.3)	13.8 (4.2)	11.6 (3.6)
4.0 (102)	1925 (8.6)	2 (600)	24 (7.3)	32.0 (9.7)	25.3 (7.7)	21.4 (6.5)
		3 (900)	16 (4.8)	21.3 (6.4)	16..8 (5.1)	14.3 (4.4)
		4 (1200)	12 (3.6)	16.0 (4.8)	12.6 (3.8)	10.6 (3.2)
4.5 (114)	1750 (7.8)	2 (600)	21.8 (6.6)	29.1 (8.8)	23.0 (7.0)	19.4 (5.9)
		3 (900)	14.5 (4.4)	19.4 (5.9)	15.3 (4.6)	13.0 (4.0)
		4 (1200)	10.9 (3.3)	14.5 (4.4)	11.5 (3.5)	9.7 (2.9)
5.0 (127)	1575 (7.0)	2 (600)	19.6 (5.9)	26.2 (7.9)	20.7 (6.3)	17.5 (5.3)
		3 (900)	13.1 (3.9)	17.5 (5.3)	13.8 (4.2)	11.7 (3.6)
		4 (1200)	9.8 (2.9)	13.1 (3.9)	10.3 (3.1)	8.7 (2.7)
5.5 (140)	1400 (6.2)	2 (600)	17.5 (5.3)	23.3 (7.1)	18.4 (5.6)	15.5 (4.7)
		3 (900)	11.6 (3.5)	15.5 (4.7)	12.2 (3.7)	10.4 (3.2)
		4 (1200)	8.7 (2.6)	11.6 (3.5)	9.2 (2.8)	7.7 (2.4)
6.0 (152)	1250 (5.6)	2 (600)	15.6 (4.7)	20.8 (6.3)	16.4 (4.9)	13.9 (4.2)
		3 (900)	10.4 (3.1)	13.8 (4.2)	10.9 (3.3)	9.3 (2.8)
		4 (1200)	7.8 (2.3)	10.4 (3.1)	8.2 (2.4)	6.9 (2.1)
6.5 (165)	1100 (4.9)	2 (600)	13.7 (4.1)	18.3 (5.5)	14.4 (4.3)	12.2 (3.7)
		3 (900)	9.1 (2.7)	12.2 (3.7)	9.6 (2.9)	8.2 (2.5)
		4 (1200)	6.8 (2)	9.1 (2.7)	7.2 (2.1)	6.1 (1.9)
7.0 (178)	1020 (4.5)	2 (600)	12.7 (3.8)	17.0 (5.1)	13.4 (4.0)	11.3 (3.4)
		3 (900)	8.5 (2.5)	11.3 (3.4)	8.9 (2.7)	7.5 (2.2)
		4 (1200)	6.3 (1.9)	8.5 (2.5)	6.7 (2.0)	5.6 (1.7)

**Notes:** **1.** Design loads are the maximum allowable vertical loads that a FAST Thermal Bracket can support using its standard L4x4x1/4" (L102x102x6mm). Tests used a stiffened backing and shelf angle in order to isolate FAST Thermal Bracket capacities. Brackets were anchored using a 5/8" (16mm) bolt vertically centred in the bracket slot and a point load was applied 0.79" (20mm) o/c from the end (toe) of the angle. Tabled allowable loads are (unfactored) service loads, and have been established by test and calculation, and demonstrate a level of safety and performance consistent with North American design standards. Tabled allowable veneer heights are calculated as (maximum allowable vertical load per bracket) ÷ (weight of veneer per unit area x bracket spacing). **2.** Anchor bolt slip resistance is higher than the stated design loads with proper FAST Thermal Bracket installation. Slots must be alternating and bolts should be tightened to snug plus half turn. **3.** Veneer weights used are: 40lb/ft² (195kg/m²) for clay brick; 30lb/ft² (146kg/m²) for 105lb/ft³ (1682kg/m³) lightweight concrete block; 38lb/ft² (185kg/m²) for 125lb/ft³ (2002kg/m³) normal weight concrete block; and 45.0lb/ft² (220kg/m²) for natural stone. **4.** The typical FAST Thermal Bracket slots are sized for a 5/8" (16mm) diameter anchor bolt, but brackets can be made for other anchor bolt diameters upon request. Comply with all manufacturer's design and installation requirements pertaining to capacity, edge distances, torquing etc. FERRO does not assume responsibility for the design of the anchorage of the FAST Thermal Brackets. The values shown in this FAST System Load Table assume that the FAST Thermal Bracket is adequately anchored. **5.** Where the FAST™ system is designed/intended to support masonry veneer having panel height exceeding 30' (9.1m), contact FERRO for additional design information. **6.** The bracket spacing may vary by ±4" (100mm). **7.** Use the FERRO Rectangular Washer when installing the FAST Thermal Bracket (required). **8.** The FAST System Load Table applies to the FAST Standard, FAST Lintel, and FAST Inverted. This table will generally apply to the Extended FAST systems and custom FAST Thermal Brackets as well, but additional engineering may be required. Contact FERRO for more information. **9.** FERRO recommends not installing over gypsum sheathing (unless otherwise engineered) as tension from the anchor bolt may crush gypsum sheathing; unrelated to the FAST Thermal Brackets.

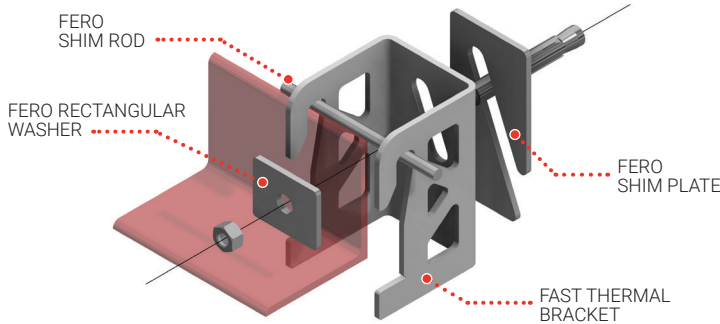
**FAST Thermal  
Bracket Depth "D"**





# FAST Thermal Bracket™ Installation Instructions

## 1. System Components



Note that for use with FAST Lintel Brackets, FERRO must supply the FERRO Punched Lintel Angle for use with FAST Lintel Brackets as a proprietary system.

## 2. Installation of FAST Thermal Brackets are Typical and Straightforward

Installation procedure is generally applicable to all FAST Thermal Bracket configurations. For installation of the anchors, follow the installation instructions from the manufacturer. Adapt the FAST Thermal Bracket installation procedure for various wall assembly types.



Figure 1: Snap Chalk Line

- A** Snap a chalk line, mark the design location of the anchors, and install anchors per the manufacturer's instructions. (Figure 1)



Figure 2: Ensure alternating left-right slots

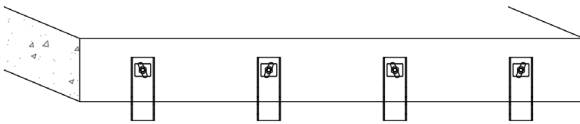


Figure 3: Install FAST Brackets loosely

- B** Install FAST Thermal Brackets ensuring that the slots are left-and-right alternating to lock Bracket from slip. Finger tighten anchor bolts. An oversized 4.76 mm (3/16") thick rectangular FAST Washer is supplied by FERRO and is required for use with the anchor bolt. (Figures 2, 3)

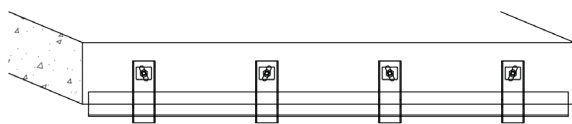


Figure 4: Insert Shelf Angle

- C** Insert shelf angle and adjust Brackets so that shelf angle is level and positioned correctly. Tighten anchor bolts securely to structural backing. (Figure 4)

### Optional Step

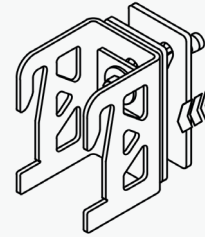


Figure 5: FERRO Shim Plates

- D** Install FERRO Shim Plates (if required) to accommodate construction tolerances. FAST Shim Plates are placed between the structural backing and the backside of the FAST Thermal Bracket. The FAST Shim Plates must bear directly against the structural backing and extend. (Figure 5)

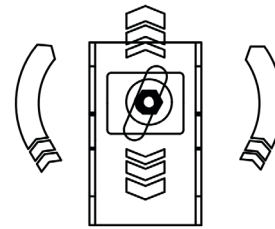


Figure 6: Adjusting

- E** Each FAST Thermal Bracket is installed so that the shelf angle rests firmly on the lower supporting legs of the Bracket. After adjusting and positioning the Brackets, the anchor bolts are seated by torquing in accordance with the manufacturer's recommendations. (Figure 6)

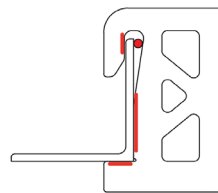


Figure 7: Shim Rod Standard

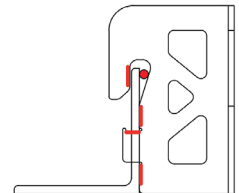


Figure 8: Shim Rod Lintel

- F** The lower end of the angle's vertical leg (heel) must rest against the back of the Bracket slot and the upper end of the leg (toe) should be in direct contact with the Bracket claw. To temporarily brace a shelf angle so that it will not dislodge from the FAST Bracket during construction (by vertical impact, before placement of the veneer), FERRO provides a hot dip galvanized steel Pin (FAST Shim Rod) that is driven between the the backside of the vertical leg of the angle and the Bracket claw. Install FERRO Shim Rods to ensure that the vertical leg of angle is in contact with (back of) Bracket claw/(front of) Bracket slot. The FERRO Shim Rod locks the shelf angle in place during construction. One FERRO Shim Rod is used for each length of angle, e.g., for an angle being held by four Brackets, the one shim rod can go in any of the Brackets holding that angle. Care must be taken to ensure that the shelf angle properly contacts and bears against the Bracket so the angle will not rotate or drop under the weight of the veneer. (Figure 7, 8) The FAST Shim Rod is hot dipped galvanized and can be left in-place if desired.

### 3. Additional Considerations

#### A FAST Thermal Brackets Alternating Slots

FAST Thermal Brackets have a single skewed slot on their back to receive the anchor bolt, and are manufactured with two different and opposing slot orientations. Orientation of the slots on adjacent brackets must be alternated (left and right) during installation. The slot is placed at a +/- 22.5 degrees on either side of vertical, which reduces the likelihood of Bracket slippage under load. When two or more Brackets are used, adjacent Brackets are installed to alternate the orientation of the slot so that Bracket slippage becomes restrictive. Vertical slippage prevention does not rely solely on the installation torque of the anchor bolt and the vertical frictional resistance developed between Bracket and backing. Because of the angled and opposing slot orientations between adjacent Brackets, the Brackets must slide laterally in-plane to slip vertically. The frictional resistance between the continuous shelf angle and adjacent Brackets helps to prevent in-plane lateral displacement of Brackets and reduces the likelihood of vertical displacement.

#### B Shimming

To accommodate tolerances in the position of the structural backing that otherwise cannot be accommodated by selecting a different size Bracket, FAST Shim Plates are placed between the structural backing and the backside of the Bracket. The FAST Shim Plates must bear directly against the structural backing and are sized and configured to fit the back surface of the bracket and provide full bearing.

For typical 3/16" shims where the number of FAST Shim Plates per bracket would exceed two, a larger depth FAST Thermal Bracket should be installed in lieu of shimming. The further the FAST Thermal Bracket is shimmed, the more eccentricity is applied onto the anchor, resulting in more tension force and potential bolt bending. Anchors are typically the limiting factor for spacing of the FAST Thermal Bracket.

#### C Shelf Angle and FAST Shim Rods

Once all adjustments have been made, veneer can be laid on the angle, respecting the requirements of all applicable standards for veneer installation and positioning with respect to the toe of the angle.

#### D FAST Washers

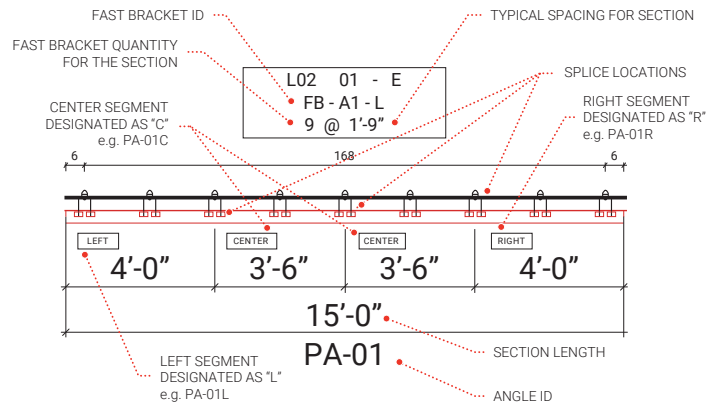
(Supplied with FAST Thermal Brackets) Must be used at every nut. Only FERO FAST Washers can be used. FAST Washers should not be used for any other purpose and particularly should not be used as shims or spacers.

#### E Air Vapour Barrier

If an air/vapour barrier membrane is installed behind the FAST Thermal Bracket, only use one layer of membrane, and scuff the plastic finish (if present) to reduce the likelihood of Bracket rotation and slip under load.

### Angle Map Key

FERO Punched Lintel Angles get cut down into shorter segments and are joined at FAST Thermal Lintel Brackets. An Angle Map will be provided for these cuts when FERO Punched Lintel Angle is supplied. The Angle Map Key below shows how to read the Angle Map.



### 4. Contractor and/or Installer Disclaimer

The contractor shall verify all dimensions and components with the project drawings prior to commencing work. Resolve all discrepancies with FERO prior to construction.

The installer of any FERO components is responsible for installing accordingly with FERO installation instructions. The installer shall clarify with FERO of any ambiguities or uncertainties with the installation. For all non-FERO components, follow the specifications and instructions provided by the manufacturer.

The contractor is solely responsible for site safety.

All steel components supplied by FERO, including the FAST Thermal Brackets, Shim Plates and Shim Rods and FAST Washers are hot dip galvanized after fabrication in accordance with ASTM A123. FAST Thermal Brackets, FAST Shim Plates and FAST Washers are manufactured from 4.76 mm (3/16") mild steel plate. FAST Brackets are also available in stainless steel if required.

### FERO Corporation

1-877-703-4463 or 1-780-455-5098

engineering@ferocorp.com

[www.ferocorp.com](http://www.ferocorp.com)

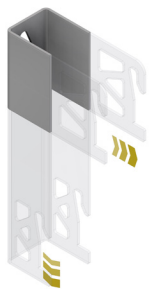
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The FERO FAST family of masonry supports, as installed may fall within the scope of one or more US or foreign patents or patent applications. Those patents include US 9,316,004; US 9,447,585; US 10, 323,419; US 10,294,676; US 11,041,315; US 11,162,265; and other pending applications. Other US and Foreign Patents Pending.

# FAST™ BRACKET COMPONENTS

## FULLY CUSTOMIZABLE

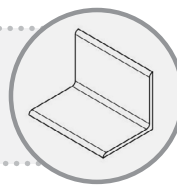
- ✓ any depth
- ✓ any height
- ✓ any anchorage
- ✓ any angle



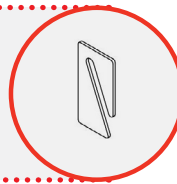
## Included with every order of FAST Thermal Brackets:

- ✓ FEROWashers
- ✓ FEROW Shim Rods

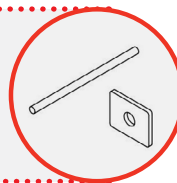
**Angle Iron:** Standard angle sizes as required and can be supplied locally



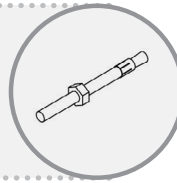
**FERO Shim Plate (Optional):** Used to add distance to help meet construction tolerances perpendicular to the wall



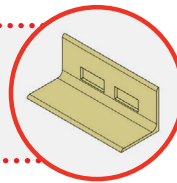
**FERO Wedge Rod and Washer:** Included with every FAST order and required to use with the FAST system



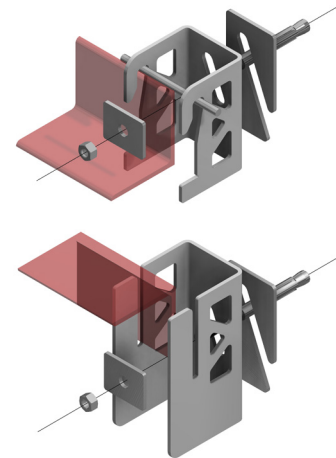
**Anchor Bolt/Fastener:** Specified by the structural engineer based on required structural performance



**FERO Punched Angle:** Supplied by FERO as part of the patented FAST Lintel system



## FAST THERMAL BRACKET



## FAST THERMAL BRACKET LINTEL SYSTEM-EXTENDED



## Any Size Shelf Angle

All FAST Bracket configurations (other than the FAST Thermal Lintel System which comes with FAST punched lintel) can be used with any size shelf angle obtained from local suppliers.

## FAST Thermal Lintel System



**FERO's FAST Punched Angle.** The FAST Thermal Lintel System includes both FAST Thermal Lintel Brackets and FERO's proprietary FAST Punched Angle which can be manufactured to any size.

## Shims



**FAST Bracket Shim Plates** accommodate construction tolerances horizontally, perpendicular to the structural backing. FERO recommends ordering FAST Shim Plates with FAST Thermal Brackets so they are readily available onsite as needed. FERO Fast Shims are hot dipped galvanized or stainless steel, both fabricated in accordance with ASTM A123.

## Fastener Requirements (Anchorage)

FAST Thermal Brackets are typically connected to the backing with one 5/8" (16mm) diameter fastener, but can be fabricated for any fastener diameter or type of fastener, including embeds and anchor channels, if desired, for a project. **All fasteners are specified by the designer of the masonry veneer and are not supplied by FERO, allowing for installers to source fasteners locally and economically.**



## Expert Support

Talk to FERO for help determining the FAST™ Thermal Bracket solution for your building project. We can engineer and customize all types of FAST Thermal Brackets including for use with curved veneer walls.

**Technical Support:** [engineering@ferocorp.com](mailto:engineering@ferocorp.com)



## Download Specifications & Resources


Download FERO FAST Thermal Bracket specs, CAD files, and installation guides to start designing your project.

[www.ferocorp.com](http://www.ferocorp.com)



## Contact Us

Talk to our sales team for any other inquiries.

 780.455.5098 or Toll Free 1.877.703.4463

 [sales@ferocorp.com](mailto:sales@ferocorp.com)

 [www.ferocorp.com](http://www.ferocorp.com)



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US 10, 323,419; US 10,294,676; US 11,041,315; US 11,162,265 and other pending applications.

Other US and Foreign Patents Pending.