Masonry Veneer Anchors And Air Barrier Systems

Presented by:

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Learning Objectives

- 1.) Learn the importance selecting the proper masonry veneer anchor for maintaining the integrity of the air barrier.
- 2.) Learn the various types or masonry veneer anchors.
- 3.) Learn how the various types of masonry veneer anchors are installed.
- 4.) Learn the hope the various types or masonry veneer anchors maintain the integrity of the air barrier, or not.

The installation of masonry veneer anchors creates exponentially more penetrations to the air barrier system than any other building component in the exterior wall.

GOVERNING STANDARDS AND CODES

Masonry veneer anchors used in exterior walls with air barrier systems must still comply with governing codes and standards.

These standards are:

- **American Concrete Institute ACI 530**

- **State & National Building Codes**

ACI 530 Requirements

6.1.1.4 Implicit within these requirements is the knowledge that the veneer transfers out-of-plane loads through the veneer anchors to the backing. The backing resists all anchors loads and is designed to resist all out-of-plane loads

When utilizing anchored masonry veneer, the designer should consider the following conditions and assumptions:

a.) The veneer may crack in flexure under service load.

b.) Deflection of the backing should be limited to control crack width in the veneer and provide veneer stability.

c.) Connections of the anchor to the veneer and to the backing should be sufficient to transfer applied loads.

d.) Differential movement should be considered in the design, detailing and construction.

e.) Water will penetrate the veneer and the wall system should be designed, detailed and constructed to prevent water penetration into the building.

f.) Requirements for corrosion protection and fire resistance must be included.

ACI 530 Requirements

6.2.2 Prescriptive requirements for anchored masonry veneer

6.2.2.1 Prescriptive requirements for anchored masonry veneer shall not be used in areas where the velocity pressure exceeds 25 lbs/sf.

6.2.2.2 Connect anchored masonry veneer to the backing with anchors that comply with Section 6.2.2.5 and Article 2.4 of ACI 530.1/ASCE 6/TMS602.

6.2.2.5..5.2Maximumclearancebetweenconnectingpartsofthetieshalbe1/16in.

6.2.2.5.5.3 Adjustable anchors shall be detailed to prevent disengagement.

6.2.2.5.5.4 Pintle anchors shall have at least two pintle legs of wire size W2.8 (3/16" diameter) and shall have an offset not exceeding 1 1/4"

6.2.2.5.6 Anchor spacing

6.2.2.5.6.1 For adjustable two-piece anchors, anchors of wire size W1.7 (9 gage), and 22 gage gage corrugated sheet metal anchors, provide at least one anchor for each 2.67 sf of wall area.

TABLE 1611.4
REFERENCE WIND PRESSURE (POUNDS PER SQUARE FOOT)

Height above grade	Zone 1			Zone 2			Zone 3		
	Exposure			Exposure			Exposure		
H (feet)	A	B	C	A	B	C	A	B	C
0 - 50	11	12	12	11	17	17	14	21	21
50 - 100	11	12	18	11	17	24	14	21	31
100 - 150	11	16	22	14	21	29	18	26	37
150 - 200	13	18	25	17	24	33	22	30	41
200 - 250	15	20	27	20	27	36	25	34	45
250 - 300	17	22	29	22	30	39	28	37	48
300 - 400	19	25	31	25	33	42	32	41	52
400 - 500	22	28	34	29	37	46	36	46	57
500 - 600	24	30	37	33	41	49	41	51	61
600 - 700	27	33	39	36	44	52	45	55	65
700 - 800	29	35	41	39	47	55	48	58	68
800 - 900	31	37	43	41	49	57	52	62	72
900 - 1000	33	39	45	44	52	59	55	65	74

See table 1611.1a for empirical wind pressure formulas

ACI 530 Requirements

6.2.2.5.6.2 For all other anchors, provide at least one anchor for each 3.5 sf of wall area.

6.2.2.5.6.3 Space anchors at a maximum of 32 in. horizontally and 18in. vertically.

6.2.2.5.6.4 Provide additional anchors around all openings larger than 16 in. in either dimension. Space anchors around perimeter of opening at a maximum of 3ft. on center. Place anchors within 12 in. of openings.

6.2.2.5.7 Joint thickness for anchors -

Mortar bed joints thickness shall be at least twice the thickness of the embedded anchor.

Air Barrier System Requirements That Apply to Masonry Veneer Anchors

General:

All penetrations of the air barrier and paths of air infiltration / exfiltration shall be made air tight.

Working loads imposed on the masonry veneer anchor and subsequently on the back up wall shall not create conditions where the seal of the air barrier system at the masonry veneer anchor fails.

Working loads can create deflection of the exterior wall systems resulting in differential movement of the back up wall at the point where the masonry veneer anchor is sealed to the air barrier system.

Masonry Veneer Anchor Selection Criteria

Vapor Permeable Air Barrier Systems and Air And Vapor Barrier Systems

1.) Fastening method of the anchor

2.) Ease of installation

3.) Vertical and horizontal alignment tolerances

4.) Repair of air barrier penetrations due to missed stud installations

5.) Sequencing of tasks and trades

Air And Vapor Barrier Systems

1.) Coordination with the installation of the insulation layer

2.) Mechanical fastening of the insulation layer

a.) Not required but provides a better system

Qualities To Look For In A Masonry Veneer Anchor:

Meets both code and standard requirements

Will perform as required when subjected to the loads experienced by the building

- **The taller the building, the higher the loads.**
- **Request copies of load tests performed by independent labs. You will be surprised at who does not have them and the amount of deflection of some anchor systems.**

Qualities To Look For In A Masonry Veneer Anchor:

Ease of installation

The more difficult it is to install, the more it will get screw it up in the field!!! (KISS Principle)

Coordination with the insulation layer

The anchor system MUST facilitate the effective installation of the insulation layer.

Requirement for Insulation

Substantial Contact: Insulation shall be installed in a permanent manner in *substantial contact* with adjacent surfaces in a manner which will prevent convection of air around the insulation……..

Qualities To Look For In A Masonry Veneer Anchor:

Repair

The masonry veneer anchor must facilitate effective repair of the AVB.

With the installation of ANY veneer anchor system, there will be missed studs and therefore repairs needed to the AVB.

Qualities To Look For In A Masonry Veneer Anchor:

Insulation Fastening

The masonry veneer anchor must facilitate the proper Fastening of the insulation to the substrate.

Both mechanical and adhesive fastening systems can be used, but mechanical fastening is more secure and has greater longevity.

Three Categories Of Anchors

Embedded In Back Up Wall

Surface Mounted To Back Up Wall

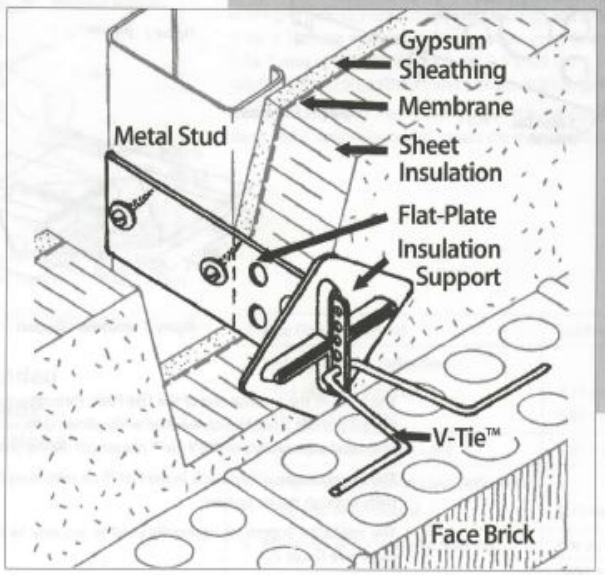
Post Insulation Installation

The Imbeds

SIDE MOUNTING

RAP-TIE

SIDE MOUNTING RAP-TIE APPLICATION



Side Mounting Rap-Tie System

The Side Mounting Rap-Tie System consists of a Flat-Plate, a V-Tie™, and an Insulation Support (optional), as shown in *Figures 1, 2 and 3*.

Lateral loads applied to the brick veneer are transferred through the V-Tie™ to the Flat-Plate, which is attached to the backup wall studs with two fasteners (see *Figure 4*). The fasteners transfer the load from the tie to the stud in shear. Note that this shear mode connection is much more desirable than the highly corrosion susceptible tension mode connection.

The vertical orientation of the Flat-Plate, in conjunction with the positive connections between the Flat-Plate and the V-Tie™, and between the Flat-Plate and the stud, results in the ability of the Side Mounting Rap-Tie to transfer vertical shear forces from the masonry veneer to the structural backup stud wall system. This shear transfer capability results in an increased stiffness of the wall system, thereby reducing the horizontal deflection of the wall.

FERO

Installation

Installation Method: Two to four screws into side of stud

Ease of Installation: Below average

Installation Sequence: After sheathing, prior to air barrier

Horizontal Installation Tolerance: Set by stud location

Vertical Installation Tolerance: Align with mortar joints

Performance

Vertical Movement: None

Horizontal Movement: 3/4" (width of vee tie at base)

Insulation Fastener: Plastic plate

Mortar Droppings Protection: Fair

Possibility Of Wire Tie Disengagement: No

Notes

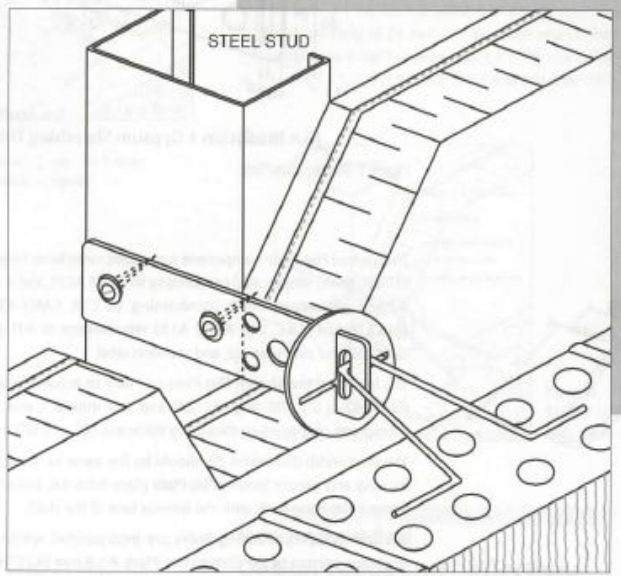
Base plate is installed through slots cut in the exterior sheathing. Base plate cannot be installed at internal corners, external corners, columns and beam flanges due to lack of access. Manufacturer recommends using the regular Rap Tie at these locations.

In / out location must be exact as the insulation retainer plate is one set dimension and, thus, does not allow for installation tolerances.

Manufacturer claims that this is a shear anchor and can be installed at 1 anchor per 3.5 sf of veneer under ACI 530 standards thus offsetting the premium cost of this anchor system.

SLOTTED SIDE MOUNTING

RAP-TIE



SLOTTED SIDE MOUNTING RAP-TIE APPLICATION

Introduction

The Slotted Side Mounting Rap-Tie system consists of a Slotted Flat-Plate, a V-Tie™ and an Insulation Support (optional), as shown in *Figures 1, 2, and 3* respectively.

Lateral loads applied to the brick veneer are transferred through the V-Tie™ to the Slotted Flat-Plate, which is attached to the backup wall studs with two fasteners, as illustrated in *Figure 4*.

The fasteners transfer the load from the tie to the stud in shear. Note that this shear mode connection is much more desirable than the highly corrosion susceptible tension mode connection.

The vertical orientation of the Slotted Flat-Plate, in conjunction with the slotted connection between the Slotted Flat-Plate and the V-Tie™, results in the ability of the Slotted Side Mounting Rap-Tie to allow for 30 mm (1.2") of vertical construction adjustability and differential movement between the masonry veneer and the structural backup stud wall system.

FERO

Installation

Installation Method: Two screws into side of stud

Ease of Installation: Below average

Installation Sequence: After sheathing, prior to air barrier

Horizontal Installation Tolerance: Set by stud location

Vertical Installation Tolerance: Align with mortar joints

Performance

Vertical Movement: 2 5/8" to 3 1/8" depending on base plate

Horizontal Movement: 3/4" (width of vee tie at base)

Insulation Fastener: Plastic plate

Mortar Droppings Protection: Fair

Possibility Of Wire Tie Disengagement: No

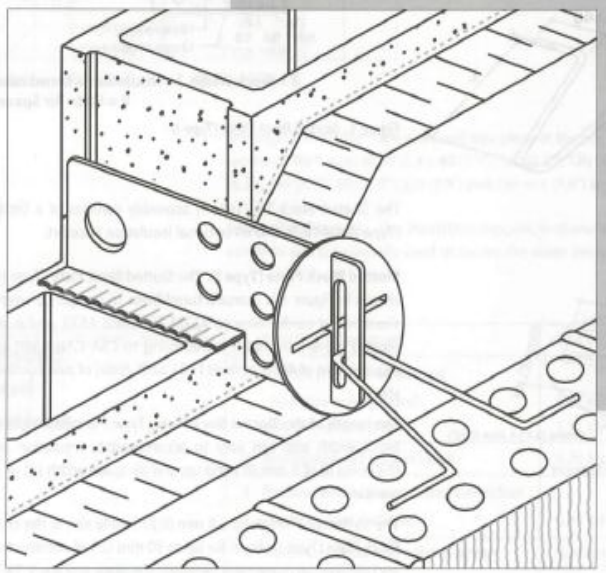
Notes

Base plate is installed through slots cut in the exterior sheathing. Base plate cannot be installed at internal corners, external corners, columns and beam flanges due to lack of access. Manufacturer recommends using the regular Rap Tie at these locations.

In / out location must be exact as the insulation retainer plate is one set dimension and, thus, does not allow for installation tolerances.

SLOTTED BLOCK TIE (TYPE I)

SLOTTED BLOCK TIE (TYPE I) APPLICATION



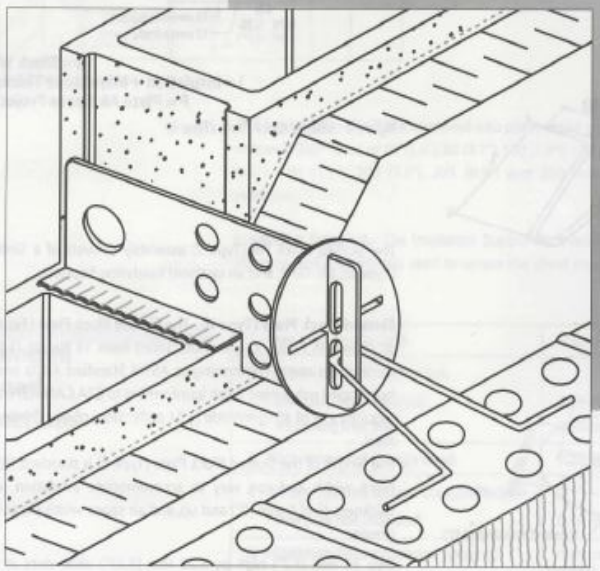
Introduction

The Slotted Block Tie (Type I) was developed for masonry cavity wall construction where significant differential movement between the veneer and the backup block wythe is expected, such as high walls or multi-storey buildings with full height veneer. The Slotted Block Tie (Type I) allows for up to 50 mm (2") of construction adjustability and differential movement between the veneer and the backup wythe.

Note that as the Slotted Block Tie (Type I) is only capable of transferring forces perpendicular to the wall and not parallel to the wall, composite action cannot be achieved between the masonry wythes. For the design of Shear*Truss* masonry cavity wall systems (i.e. composite masonry cavity walls), see *Fero Block Shear™Connector* product literature.

SLOTTED BLOCK TIE (TYPE II)

SLOTTED BLOCK TIE (TYPE II) APPLICATION



Introduction

The Slotted Block Tie (Type II) was developed for masonry cavity wall construction where significant differential movement between the veneer and the backup block wythe is expected, such as high walls or multi-storey buildings with full height veneer. The Slotted Block Tie (Type II) allows for up to 60 mm (2.4") of construction adjustability and up to 25 mm (1") differential movement between the veneer and the backup wythe.

Note that as the Slotted Block Tie (Type II) is only capable of transferring forces perpendicular to the wall and not parallel to the wall, composite action cannot be achieved between the masonry wythes. For the design of Shear*Truss* masonry cavity wall systems (i.e. composite masonry cavity walls), *see Fero Block Shear™ Connector* product literature.

FERO

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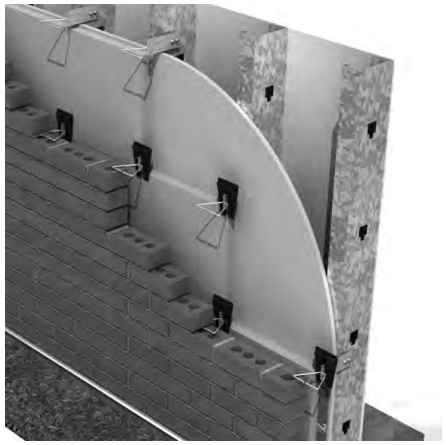
Veneer Anchors
BL-607S SHEAR ANCHOR



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

BL-607S
The BL-607S SHEAR ANCHOR has holes (instead of a slot) to limit vertical movement of the wall tie in wide cavity or high wind load conditions. A wire tie and plate combination system which provides adjustability, minimal free-play, strength, stiffness, positive connection, corrosion-resistance, and is test rated.

The anchor plate has been designed for mounting on the surface of the stud.

Plates tested to meet code compliance up to 8 in. long.

Dimensions:
Base Plate: 16 gauge (1.5 mm) thick x 2" (50 mm) wide
Length to accommodate various insulation thicknesses.

Base Plate Material:
16 gauge Carbon Steel ASTM A366, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
16 gauge Stainless Steel per ASTM 167

Flex-O-Lok Tie Material:
3/16" (4.76 mm) Diameter Wire
Carbon Steel per ASTM A 82, Hot-Dip Galvanized per ASTM ASTM A153 / A153M, C1 B2
Stainless Steel per ASTM A580 / A580M

Blok-Lok manufactures steel wire products from a minimum of 95% recycled material.

Finish:
- ☐ Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
- ☐ Stainless Steel Type 304 per ASTM A167

Note: Blok-Lok recommends Stainless Steel for maximum protection against corrosion.

Fastener:
- ☐ 1 ½" Self-Drilling, Self-Tapping / without Sealant Washer
- ☐ 2" Self-Drilling, Self-Tapping / with Sealant Washer

Insulation Thickness:

☐ 0"	☐ 1"	☐ 1 ½"	☐ 2"
☐ 2 ½"	☐ 3"	☐ 3 ½"	☐ 4"
☐ 4 ½"	☐ 5"	☐ 5 ½"	☐ 6"
☐ 6 ½"	☐ 7"		

Flex-O-Lok® Tie:
- ☐ BLT-9
- ☐ BLT-9 Seismic

Tie Length:

☐ 3"	☐ 4"	☐ 5"
☐ 6"	☐ 7"	

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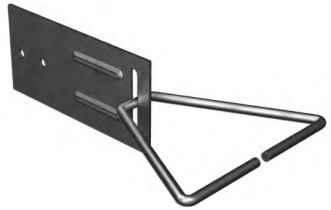
Veneer Anchors
BL-607



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

BL-607
The BL-607 is a wire tie and plate combination system which provides adjustability, minimal free-play, strength, stiffness, positive connection, corrosion-resistance, and is test rated. The anchor plate has been designed for mounting on the surface of the stud.

Dimensions:
Base Plate: 16 gauge (1.5 mm) thick x 2" (50 mm) wide
Length to accommodate various insulation thicknesses.

Base Plate Material:
16 gauge Carbon Steel ASTM A366, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
16 gauge Stainless Steel per ASTM 167

Flex-O-Lok Tie Material:
3/16" (4.76 mm) Diameter Wire
Carbon Steel per ASTM A 82, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
Stainless Steel per ASTM A580 / A580M

Blok-Lok manufactures steel wire products from a minimum of 95% recycled material.

Finish:
- ☐ Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
- ☐ Stainless Steel Type 304 per ASTM 167

Note: Blok-Lok recommends Stainless Steel for maximum protection against corrosion.

Fastener:
- ☐ 1 ½" Self-Drilling, Self-Tapping / without Sealant Washer
- ☐ 2" Self-Drilling, Self-Tapping / with Sealant Washer

Insulation Thickness:

☐ 0"	☐ 1"	☐ 1 ½"	☐ 2"
☐ 2 ½"	☐ 3"	☐ 3 ½"	☐ 4"
☐ 4 ½"	☐ 5"	☐ 5 ½"	☐ 6"
☐ 6 ½"	☐ 7"		

Flex-O-Lok® Tie:
☐ BLT-9 ☐ BLT-9 Seismic

Tie Length:

☐ 3"	☐ 4"	☐ 5"
☐ 6"	☐ 7"	

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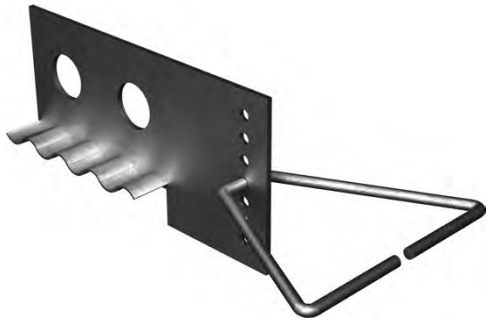
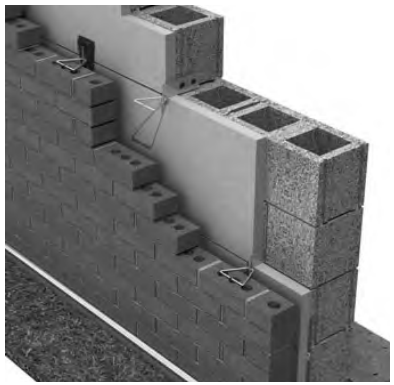
Anchors & Ties: Masonry to Masonry
BL-507S SHEAR ANCHOR





DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

The BL-507S SHEAR ANCHOR has holes (instead of a slot) to limit vertical movement of the wall tie in wide cavity or high wind load conditions. A wire tie and plate combination system which provides adjustability, minimal free-play, strength, stiffness, positive connection, corrosion-resistance, and is test rated. **The anchor plate is designed to be embedded in the masonry backup.**

Plates tested to meet code compliance up to 8 in. long.

Dimensions:
Base Plate: 16 gauge (1.5 mm) thick x 2 ½" wide
Length to accommodate various insulation thicknesses.

Base Plate Material:
16 gauge Carbon Steel ASTM A366, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
16 gauge Stainless Steel per ASTM 167

Flex-O-Lok Tie Material:
3/16" (4.76 mm) Diameter Wire
Carbon Steel per ASTM A 82, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
Stainless Steel per ASTM A580 / A580M

Blok-Lok manufactures steel wire products from a minimum of 95% recycled material.

Finish:
- ☐ Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
- ☐ Stainless Steel Type 304 per ASTM 167

Note: Blok-Lok recommends Stainless Steel for maximum protection against corrosion.

Insulation Thickness:

☐ 0"	☐ 1"	☐ 1 ½"	☐ 2"
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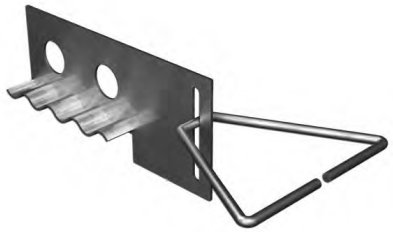
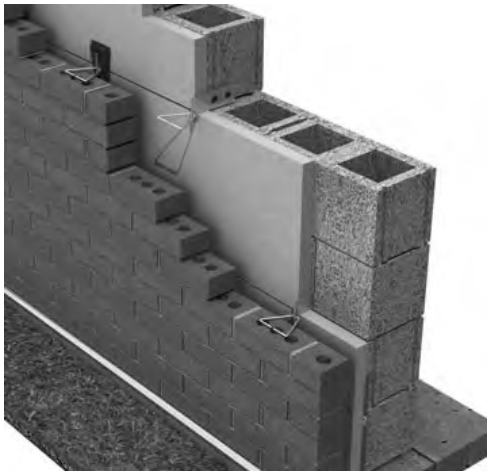
Anchors & Ties: Masonry to Masonry
BL-507





DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

BL-507
The BL-507 is a wire tie and plate combination system which provides adjustability, minimal free-play, strength, stiffness, positive connection, corrosion-resistance, and is test rated. The anchor plate is designed to be embedded in the masonry backup.

Dimensions:
Base Plate: 16 gauge (1.5 mm) thick x 2 ½" wide
Length to accommodate various insulation thicknesses.

Base Plate Material:
16 gauge Carbon Steel ASTM A366, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
16 gauge Stainless Steel per ASTM 167

Flex-O-Lok Tie Material:
3/16" (4.76 mm) Diameter Wire
Carbon Steel per ASTM A 82, Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
Stainless Steel per ASTM A580 / A580M

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Finish:
- ☐ Hot-Dip Galvanized per ASTM A153 / A153M, C1 B2
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Step 1

Step 2

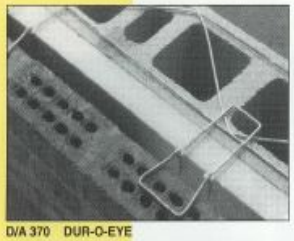
Step 3

MULTIWYTHE WALL SYSTEMS

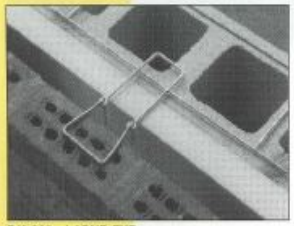
Description

DUR-O-WAL Multiwythe Wall Systems include DUR-O-EYE, LADUR-EYE, CRT, Adjustable CRT, DUR-O-TAB, and Adjustable DUR-O-TAB.

Each system consists of the appropriate DUR-O-WAL Truss or Ladur for the back up wythe and is manufactured in 10 ft. (3050mm) lengths with the eyes or tabs welded 15" (380mm) or 16" (400mm) on centers.

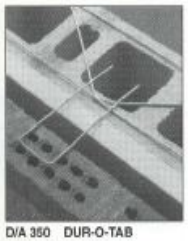


D/A 370 DUR-O-EYE

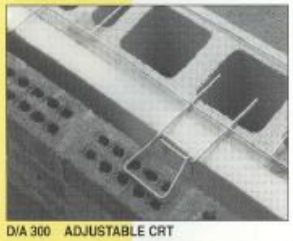


D/A 360 LADUR-EYE

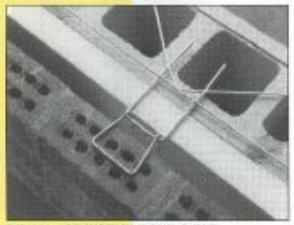
D/A 340 CRT



D/A 350 DUR-O-TAB



D/A 300 ADJUSTABLE CRT



D/A 330 ADJUSTABLE DUR-O-TAB

Basic Uses

- DUR-O-EYE/Ladur Eye/Adjustable Dur-O-Tab/CRT are designed to provide an easy-to-use combination of continuous joint reinforcement with adjustable wall ties for composite and cavity walls, especially where:
  - Adjacent wythes do not course out level with each other at the specified intervals.
  - It is desirable to erect one wythe ahead of another to close a building in or to avoid exterior wythe material delays.
  - It is desirable to hold rigid insulation in place with the pintles.
- Dur-O-Tab and CRT are designed to provide a combination of continuous joint reinforcement with rectangular ties when adjacent wythe mortar joints line up.

Installation

- Each system is installed in the same way as conventional Truss or Ladur type wall reinforcing.
- Adjustable systems are installed with the eye, plate or tab extending into the collar joint or just past the rigid insulation.
- Pintle sections are inserted into the eye or tab and their length must extend a minimum of 1-1/2" (40mm) into the exterior wythe.
- Pintle can be installed up or down.
- Dur-O-Tab and CRT are installed so the tab extends a minimum of 1-1/2" (40mm) into the exterior wythe.

Recommendation

- DUR-O-EYE is the system of choice for adjustable systems.
- Ladur-Eye should be used when the backup wythe is reinforced vertically.
- **DUR-O-WAL does not recommend the use of 3/16" (5mm) side rods for adjustable systems (ask for Technical Report #93-1).**
- **DUR-O-EYE/Ladur Eye and Seismic DUR-O-EYE/Ladur* have been tested per details in Detail Selection Guide or Seismic Brochure.**

ACI 530 states, for adjustable systems...
Use one tie for each 1.77 sq. ft. (0.16m²) of wall area, neither horizontal nor vertical spacing shall exceed 16 in. (400mm). Maximum misalignment of bed joints from one wythe to the other shall be 1 1/4" (30mm). Ties shall have at least two 3/16" (5mm) diameter pintle legs.

Finishes

- DUR-O-WAL recommends **Hot Dip Galvanized** (1.50 oz. psf) (458g/m²) for exterior applications. Other finishes (mill galvanized, Class 1, Class 3) and stainless steel available on request.
- Check local building code for specifications. See Page 2.
- DUR-O-WAL does not recommend epoxy coating.

*Refer to Seismic section for Seismic DUR-O-EYE and Seismic Ladur Eye.

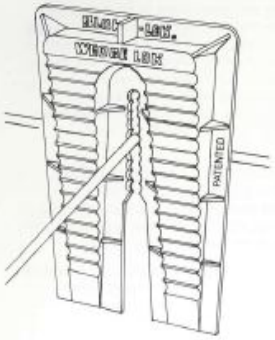
Systems do not include a mechanical insulation fastening Device.

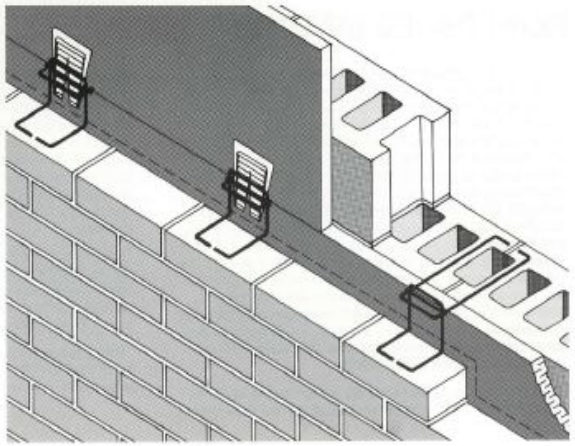
All wire reinforcing manufacturers Offer these types of systems.


08/22/2003

BLOK-LOK

WEDGE-LOK®





The Wedge-Lok fastener is a unique, plastic device manufactured by Blok-Lok Ltd. The Wedge-Lok system uses the principle of leverage to wedge between the masonry reinforcing or ties and cavity wall insulation. The wedge design and rib-faced locking system guarantees positive contact of insulation with the substrate.

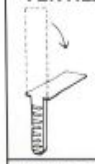
In addition, locking ridges in centre allow for use over cross wires in cavity.

Advantages

The simplicity of the Wedge-Lok fastener means that:
- No adhesives are required for insulation attachment.
- There's no penetration of the air/vapour barrier.
- Visual inspection can be made **after** installation.
- Standard masonry practices are employed.

These advantages add up to a practical, economical and permanent attachment of cavity wall insulation.
Wedge-Lok can be used in any cavity wall incorporating insulation and Blok-Lok masonry reinforcing or ties.
Wedge-Lok Patent #CAN 127164 US 4688363

WILCO WEEPHOLE VENTILATOR



ALUMINUM – Will not disintegrate due to exposure to sunlight.

PATENT #3257929

STRAIGHTENED AND CUT WIRE

Coiled wire. Various gauges and finishes cut to your specifications.

WALL PLUG BL-C

Mortar inserts for nailing.
10.58 (26 ga.).
57 mm x 57 mm
(2 1/4" x 2 1/4").

WEEP HOLES BL-D

Airplane type – cadmium plated.
20 gauge electro zinc plated after fabrication.

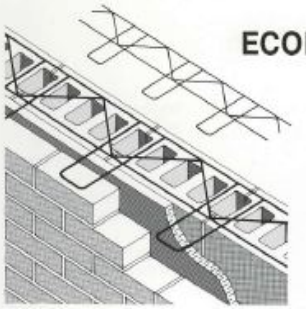
TITEWALL® BL-A CONTROL JOINT

Control joint designed to be used with standard sash block to provide a vertical control joint for expansion and contraction of masonry walls. Manufactured from high grade synthetic rubber compound conforming to ASTM D-2000 2AA-805 with a durometer hardness of 70.

PACKAGING: 10 pieces 101.6 mm (4') long 1016 mm (40') per bundle.

BLOK-LOK®

ECONO-CAVITY BLOK-TRUS® BL34

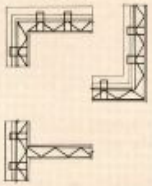


BL 34

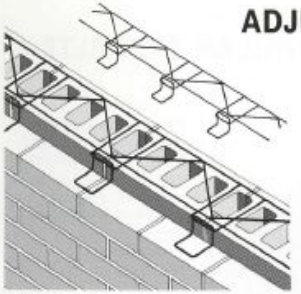
A truss type reinforcing with box ties welded every 400 mm (16") O.C. They extend across the cavity or collar joint into the outer wythe approximately 22 mm (7/8") from the outer face. Overall measurement is approximately 38 mm (1 1/2") less than the finished wall width.

PARTITION-LOK® and CORNER-LOK®

It is necessary to designate corners as inside or outside when using cavity wall design.



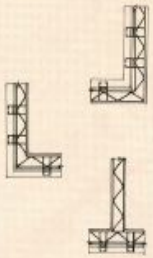
ADJUSTABLE ECONO-BLOK-TRUS® BL36



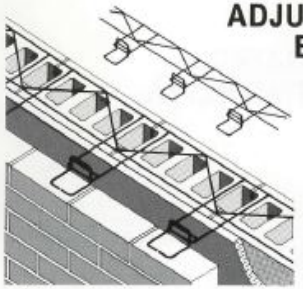
BL 36

A truss type masonry reinforcing for composite walls with box ties welded at each intersection and extending into the collar joint of a two wythe wall. A tie or a hooked box tie is then engaged to complete the system.

Not recommended for use in cavity wall design.



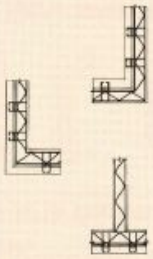
ADJUSTABLE ECONO-CAVITY BLOK-TRUS II® BL37



BL 37

A truss type masonry reinforcing with box ties welded at each intersection and extending into the cavity. A specially welded bar across the box tie restrains the transverse movement of the two wythes. A hook type box tie is engaged to complete the tie system.

All hook type box ties are 4.76 mm (3/16") hot dipped, galvanized steel wire.



PACKAGING:
Standard – 3048 mm (10') lengths. 25 pieces per bundle. 76200 mm (250').
Heavy Duty – 25 pieces per bundle. 76200 mm (250').
Extra Heavy Duty – 25 pieces per bundle. 76200 mm (250').
FINISHES: See page 3.

RECOMMENDED USES:

- As a crack control in single wythe, composite and cavity walls.
- As horizontal reinforcement to assure predictable flexural and axial, tensile wall strength.
- As a continuous tie for two wythe, composite or cavity walls.
- As a continuous tie for faced walls.
- As a reinforcing for stack bond masonry.

PACKAGING:
20 pieces per bundle. 800 mm x 800 mm (32" x 32") out to out measurements.
All gauges available.
FINISHES: See page 3

The Imbeds

Concerns

The seal at the interface of the AVB

Proper embedment / attachment

Deflection of the veneer anchor under loading
(eye & pintle type)

The Surface Mounteds

BLOK-LOK LIMITED

BL-407

A versatile anchor and tie system designed to meet the criteria of **CSA370-94 for Non-Conventional Connectors.** The system consists of a 16 gauge anchor plate, a 3/16" **Flex-o-Lok®** tie, plus the patented **Wedge-Lok® Insulation Retainer** (where required).

The **BL-407** anchor allows for 1 1/2" of vertical adjustability while allowing lateral loads be transferred to the back-up substrate. Compatible fasteners suitable for the design loads must be selected.

The **BL-407** anchor and tie is available to suit a wide variety of insulation thickness and cavity widths.

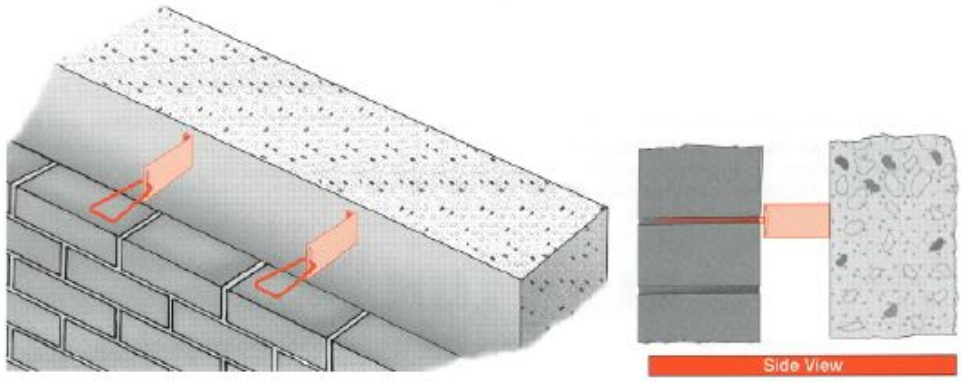
BL-407

Manufactured from 16 gauge material conforming to **ASTM A570** the **BL-407** anchor is available in hot dipped galvanized as well as stainless steel.

The **Flex-o-Lok®** tie is manufactured from 3/16" (4.76 mm) diameter wire conforming to **ASTM A82 or CSA G30-3** and is also available in hot dipped galvanized as well as stainless steel.

The patented **Wedge-Lok® Insulation Retainer** introduced in the mid 80's is an optional cavity wall insulation securement. Its' patented design allows for positive contact of insulation against the substrate.

Patent # CAN. 1271614 U.S. 4688363



Installation

Installation Method: Two screws

Ease of Installation: Average

Installation Sequence: Prior to installation of cavity insulation. Damage to air / vapor barrier can be seen and repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: Align with mortar joint. Preferable to intersect horizontal joints in insulation boards.

Performance

Vertical Movement: 1 1/2" (height of engagement slot)

Horizontal Movement: 1" (width of vee tie at base)

Insulation Fastener: Wedge shaped plastic plate with grooves

Mortar Droppings Protection: Good

Possibility Of Wire Tie Disengagement: No

Notes

Cavity insulation should be slotted to fit over protruding leg. Forcing the insulation over this leg can result in spalling of the face of the insulation and gaps between insulation sheets.

Insulation retainer wedge can be installed from the top or bottom depending on clearance of adjacent building components and / or location of wire tie within the engagement slot. Grooves in wedge plate will hold wedge in place against wire tie.

Step 1

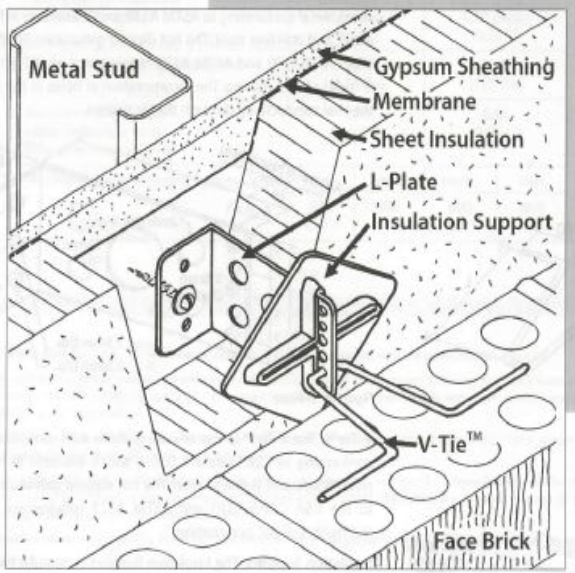
Step 2

Step 3

Step 4

RAP-TIE

RAP-TIE APPLICATION



Rap-Tie System

The Rap-Tie (Rod Adjustable Plate Tie) system consists of an L-Plate (a vertically orientated L-shaped plate), a V-Tie™ (a V-shaped wire), and an Insulation Support (optional). See *Figures 1, 2 and 3*.

Lateral loads applied to the brick veneer are transferred through the V-Tie™ to the L-Plate, which bears onto and is fastened to the structural backup wall as shown in *Figures 4 and 5*, for attachment directly to the steel studs and on top of the protected drywall, respectively. Note that "protected drywall" is defined by CSA Standard CAN3-A370 "Connectors for Masonry", ACI/ASCE/TMS/518 and U.B.C. The holes in the exterior end of the L-Plate through which the V-Tie™ is placed provide a positive connection while allowing for up to 36 mm (1.4") of vertical adjustability to the V-Tie™ placement during construction.

The Insulation Support is optionally used to securely fix the insulation sheathing in place.

FERO

Installation

Installation Method: One to two screws

Ease of Installation: Average

Installation Sequence: Prior to installation of cavity insulation. Damage to air / vapor barrier can be seen and repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: Align with mortar joints

Performance

Vertical Movement: None

Horizontal Movement: 3/4" (width of vee tie at base)

Insulation Fastener: Plastic plate

Mortar Droppings Protection: Fair

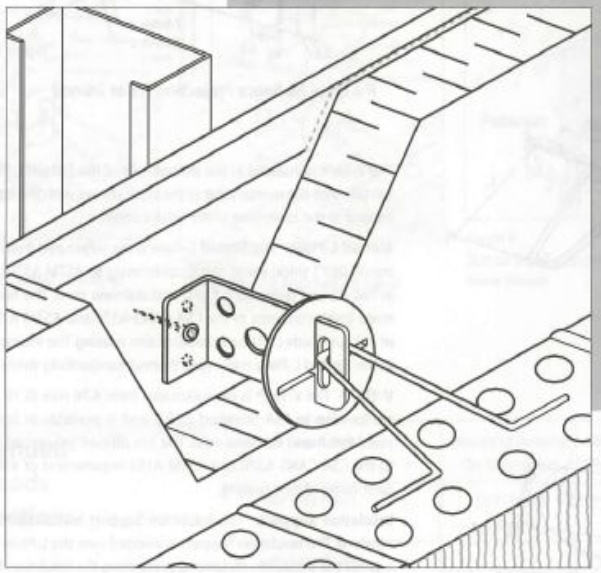
Possibility Of Wire Tie Disengagement: No

Notes

Installation problems can and have occurred due to metric conversion differences. Manufacturer warns of dimensional differences in their literature but states that they will not affect the installation of the anchor system. (See attached photos depicting the problem.)

SLOTTED
RAP-TIE

SLOTTED RAP-TIE APPLICATION



Introduction

The Slotted Rap-Tie System consists of a Slotted L-Plate, a V-Tie™ and an Insulation Support (optional). *See Figures 1, 2, and 3* respectively.

Lateral loads applied to the brick veneer are transferred through the V-Tie™ to the Slotted L-Plate, which bears onto and is fastened to the structural backup wall, as shown in *Figures 4 and 5*, for attachment directly to the steel studs and on top of the protected drywall respectively. Note that "protected drywall" is defined by CSA Standard CAN3-A370 "Connectors for Masonry", ACI/ASCE/TMS/518 and U.B.C.

The vertically orientated slot in the Slotted L-Plate through which the V-Tie™ is placed provides for 30 mm (1.2") of construction adjustability and differential movement between the masonry veneer and the structural backup wall system.

The Slotted Rap-Tie can accommodate a range of insulation thickness of 0 (0") to 102 mm (4"), and air space width of 25 mm (1") and greater.

FERO

Installation

Installation Method: One to two screws

Ease of Installation: Average

Installation Sequence: Prior to installation of cavity insulation. Damage to air / vapor barrier can be seen and repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: Align with mortar joints

Performance

Vertical Movement: 2 5/8" (height of engagement slot)

Horizontal Movement: 3/4" (width of vee tie at base)

Insulation Fastener: Plastic plate

Mortar Droppings Protection: Fair

Possibility Of Wire Tie Disengagement: No

Notes

Installation problems can and have occurred due to metric conversion differences. Manufacturer warns of dimensional differences in their literature but states that they will not affect the installation of the anchor system. (See attached photos depicting the problem.)

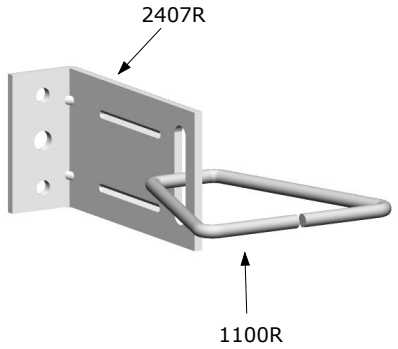

STANLEY
02/15/2003

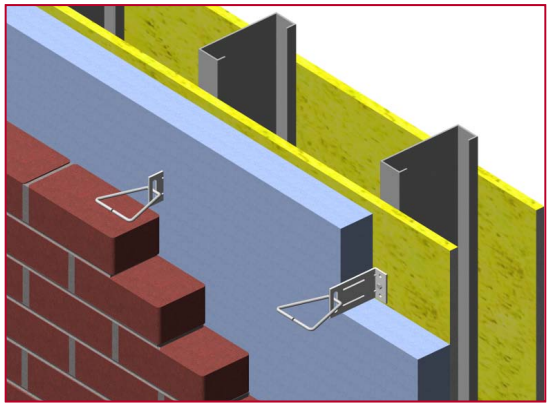

250
02/14/2003


02/14/2003

PRODUCT SUBMITTAL

2407 Adjustable Veneer Anchor





MATERIAL CONFORMANCE	SIZES / FINISHES
ASTM A82 / A82M - (Cold drawn steel wire) Tensile Strength - 80,000 psi Yield Point - 70,000 psi **ACI / ASCE 530** - (Building code requirements for masonry structures) **SHEET METAL** - (Carbon Steel) **ASTM A1008 / A1008M** Mill Galvanized / Zinc Coating: **ASTM A641 / A641M (0.10 0z per sq ft)** Hot Dip Galvanized after fabrication / Zinc Coating **ASTM A153 / A153M-B2 (1.50 oz per sq ft)** Stainless Steel **ASTM 580 / ASTM 580M Type 304** (Type 316 available on special order) **Recycled Content:** Mill Galvanized & Hot Dipped, 82.8% Post-Consumer 17% Post Industrial / Pre-Consumer, Stainless Steel, 60% Post Consumer V O C Content - 0%	**# 1100 Triangle Diameter:** ☐ 3/16" ☐ 1/4" **# 1100 Triangle Size:** ☐ 3" x 3" ☐ 4" x 4" ☐ 5" x 5" ☐ 6" x 6" ☐ 7" x 7" ☐ 7" x 9" Other _____ **# 2407R Plate:** ☐ 16 gauge ☐ 14 gauge ☐ 12 gauge **# 2407R Plate Length to accommodate insulation**: ☐ 0" insulation ☐ 2" insulation ☐ 3-1/2" insulation ☐ 1" insulation ☐ 2-1/2" insulation ☐ 4" insulation ☐ 1-1/2" insulation ☐ 3" insulation Other_____ **Finish:** ☐ Hot Dip Galvanized ☐ Stainless Steel

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TEL: (800) 849-6722 FAX: (704) 525-3761

Mailing Address: P.O. Box 240988 Charlotte, NC 28224

Memphis Plant: 2365 Harbor Ave. Memphis, TN 38113
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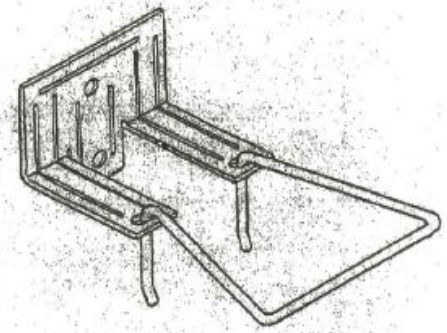
HB-200

NEW!



Insulation Thickness	H&B Part Number
0"	HB 200-0"
1"	HB 200-1"
1 1/2"	HB 200-1 1/2"
2"	HB 200-2"
2 1/2"	HB 200-2 1/2"
3"	HB 200-3"
3 1/2"	HB 200-3 1/2"

Thicknesses: 14 gauge and 12 gauge
Materials: Mill Galvanized, Hot Dipped Galvanized and Stainless Steel

OFFICES AND MANUFACTURING FACILITIES: NEW YORK • MARYLAND • TEXAS • ILLINOIS

Installation

Installation Method: Two screws

Ease of Installation: Below average unless bottom fastener hole is relocated.

Installation Sequence: Prior to installation of cavity insulation. Damage to the air / vapor barrier can be seen and repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: None

Performance

Vertical Movement: 2 1/2" (1 1/4" above and below base plate)

Horizontal Movement: 1/2" (width of engagement slots)

Insulation Fastener: None

Mortar Droppings Protection: Poor

Possibility Of Wire Tie Disengagement: Yes

Notes

Top edge of cavity insulation is used to locate base plate horizontally.

The base base can and has been modified to where the lower fastener hole is relocated up between the protruding arms. While this causes the majority of the tension load to be born by the lower fastener, the anchor has been tested to prove it will withstand expected tension loads in Massachusetts. The modified version is shown in the installation pictures.

Step 1

Step 2

Step 3

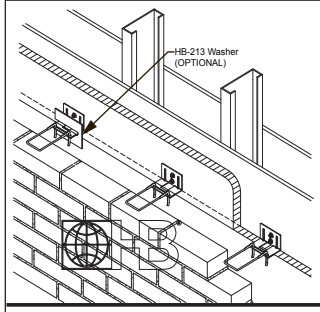
Result of improperly aligned base plate

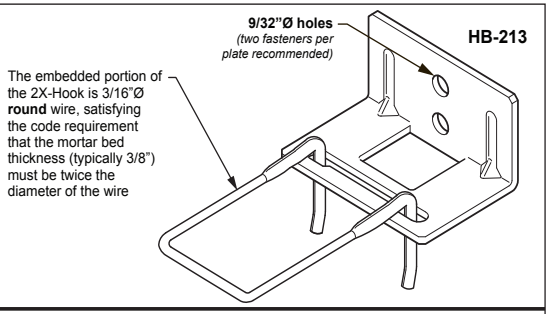
HOHMANN & BARNARD, INC.
a MiTek company

Veneer Anchor Plates

HB-213-2X

Adjustable Veneer Anchor





Hohmann & Barnard's 2X-Hook has been tested and designed to withstand over 200-lbf, in tension or compression, at maximum allowed offset (TMS 402/ACI 530 6.2.2.5.5.4) of 1¼" (disengagement of the pintle from the veneer anchor). These results exceed BIA recommendations and the capabilities of standard "round wire" hooks/pintles by over 100%, while maintaining the ASTM A1064/1064M wire specification.

HB-213 WITH 2X HOOKS (WORKING LOAD*)

CAVITY	0" OFFSET		⅝" OFFSET		1 ¼" OFFSET		TEST
	14 GA	12 GA	14 GA	12 GA	14 GA	12 GA	
4 ½"	723#	1059#	382#	436#	260#	332#	TENSION
4 ½"	1009#	1124#	402#	396#	267#	262#	COMPRESSION
7 ½"	556#	928#	435#	399#	293#	320#	TENSION
7 ½"	645#**	1128#	370#	300#	235#	251#	COMPRESSION

* WORKING LOAD DETERMINED AT .05" DEFLECTION

Tests were completed for 3" and 6" insulation with 1 ½" air cavity.

** HB-213 backplate buckled before .05" deflection.

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

MATERIAL CONFORMANCE
Wire (Carbon Steel):
Cold-drawn steel wire conforming to **ASTM A1064/A1064M**:
Tensile Strength - 80,000 psi | Yield Point - 70,000 psi minimum
Zinc Coating:
Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B2** (1.5 oz/ft²)

Wire (Stainless Steel):
ASTM A580/A580M - AISI Type 304 & Type 316

H&B manufactures steel wire products from a minimum of 95% post-consumer recycled material.

Sheet Metal (Carbon Steel)**: ASTM A1008/A1008M**
Zinc Coating: Hot-Dip Galvanized: (refer to wire above)
Sheet Metal (Stainless Steel)**:**
ASTM A666, **ASTM A480/480M**, and **ASTM A240/A240M**
AISI Type 304 or 316

2X-HOOK: U.S. Pat. No. 8,613,175

NOTES:
- State overall wall size & cavity or insulation thickness when ordering
- Two fasteners per plate recommended
- Needs 3/4 inch (19mm) to 1 inch (25mm) minimum air cavity
- For attachment to concrete, block or brick see 523 Brass Expansion Bolt
- For wide cavity conditions refer to the HB-213-HS

HB-213 Anchor Backplate Finish:
☐ Hot-Dip Galvanized
☐ Stainless Steel - Type 304 ☐ Stainless Steel - Type 316
H&B recommends Stainless Steel for maximum protection against corrosion

HB-213 Backplate (Equal to thickness of insulation)**:**
☐ 0" ☐ 1" ☐ 1 ½" ☐ 2" ☐ 2 ½" ☐ 3" ☐ 3 ½"
☐ 4" ☐ 4 ½" ☐ 5" ☐ 5 ½" ☐ 6"

Backplate Thickness:
☐ 14 ga. (1.9 mm) ☐ 12 ga. (2.7 mm)

3/16"Ø Compressed Leg Hook Length:
☐ 3" (300H-2X) ☐ 4" (400H-2X) ☐ 5" (500H-2X)
☐ 6" (600H-2X) ☐ 7" (700H-2X)

☐ **HB-213 Washer (Optional)**

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

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Branch/Subsidiary Locations:
ALABAMA - ILLINOIS - MARYLAND
NEW YORK - PENNSYLVANIA - TEXAS
UTAH - CANADA

Installation

Installation Method: Two screws

Ease of Installation: Average

Installation Sequence: Prior to installation of cavity insulation. Damage to the air / vapor barrier can be seen and repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: None

Performance

Vertical Movement: 2 1/2" (1 1/4" above and below base plate)

Horizontal Movement: 1/2" (width of engagement slots)

Insulation Fastener: Fur-Clip available for S.S. anchors

Mortar Droppings Protection: Poor

Possibility Of Wire Tie Disengagement: Yes

Notes

Horizontal location of base plate must be **exact**!!! This is best achieved by installing the cavity insulation, resting the anchor on the top edge of the insulation and marking the base plate location. The insulation below the base plate must be removed in order to install the bottom fastener.

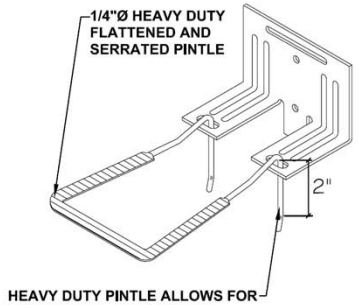
Step 1

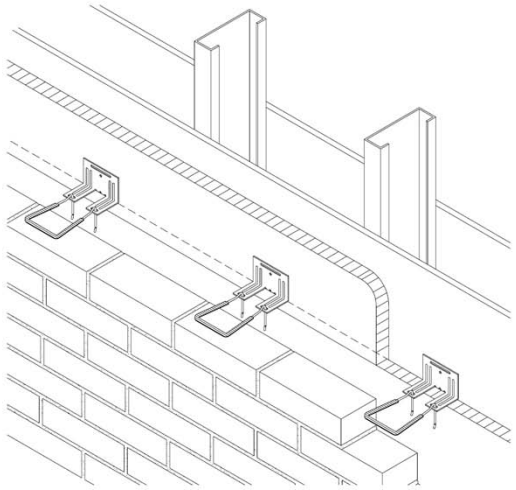
Step 2

Without insulation retention device, insulation will not seat tight to the back up wall at the base plate fasteners

BLOK-LOK
A HOHMANN & BARNARD COMPANY

Veneer Anchors
BL-200-HS





DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

Wire (Carbon Steel):
Cold-drawn steel wire conforming to ASTM A 82:
Tensile Strength - 80,000 p.s.i.
Yield Point - 70,000 p.s.i. minimum
Zinc Coating:
Hot-dip galvanized after fabrication: ASTM A 153 (1.5 oz/ft²)
NOTE: Blok-Lok will certify to a minimum of 2.0 oz/ft²

Wire (Stainless Steel):
ASTM A 580 - AISI Type 304 (Type 316 available on special order)

Sheet Metal (Carbon Steel):
ASTM A 366
Zinc Coating:
ASTM A 153 Class B (sheet metal ties and anchors hot-dip galvanized after fabrication).
NOTE: Blok-Lok will certify to a minimum of 2.0 oz/ft²

Sheet Metal (Stainless Steel):
ASTM A 666, ASTM A 480, ASTM A 240, ASTM A 167 - AISI Type 304 Stainless Steel (sheet metal ties and anchors)(Type 316 available on special order).
NOTE: Blok-Lok recommends Stainless Steel for maximum protection against corrosion.

U.S. Pat. No. 6,279,283. Other Patents Pending.

BL-200-HS Backplate

Style	Insulation Thickness
☐ BL-200-HS (0")	0"
☐ BL-200-HS (1")	1"
☐ BL-200-HS (1 ½")	1 ½"
☐ BL-200-HS (2")	2"
☐ BL-200-HS (2 ½")	2 ½"
☐ BL-200-HS (3")	3"
☐ BL-200-HS (3 ½")	3 ½"

Thickness:
☐ 10 Gauge
☐ 12 Gauge

3/16"Ø Pintle Length:
☐ 3" ☐ 4" ☐ 4 ¾"
☐ 5 ¼" ☐ Custom _____

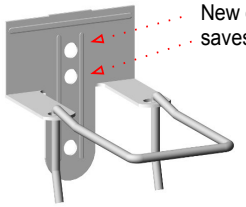
Finish:
☐ Hot-Dip Galvanized
☐ Stainless Steel

☐ Optional BL-200 Washer to hold insulation to back-up

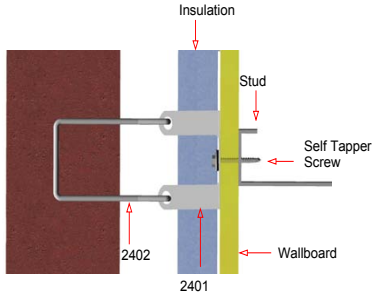
12 Ashbridge Circle | Woodbridge, Ontario, L4L 3R5, Canada
T: 905.266.2277 | **F:** 905.266.2272 | **USA:** 1.800.561.3026
sales@blok-lok.com | www.blok-lok.com

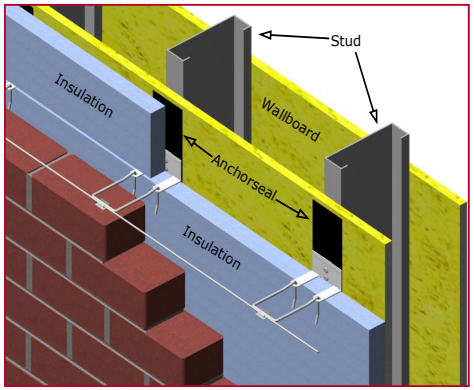
PRODUCT SUBMITTAL

 # 2401 RJ-711 Adjustable Veneer Anchor



New design with 2 screw holes above the legs
saves time while installing in insulation applications.





MATERIAL CONFORMANCE	SIZES / FINISHES
ASTM A82 / A82M - (Cold drawn steel wire) Tensile Strength - 80,000 psi Yield Point - 70,000 psi **ACI / ASCE 530** - (Building code requirements for masonry structures) **SHEET METAL** - (Carbon Steel) **ASTM A1008 / A1008M** Mill Galvanized / Zinc Coating: **ASTM A641 / A641M (0.10 0z per sq ft)** Hot Dip Galvanized after fabrication / Zinc Coating **ASTM A153 / A153M-B2 (1.50 oz per sq ft)** Stainless Steel **ASTM 580 / ASTM 580M Type 304** (Type 316 available on special order) **Recycled Content:** Mill Galvanized & Hot Dipped, 82.8% Post-Consumer 17% Post Industrial / Pre-Consumer, Stainless Steel, 60% Post Consumer V O C Content - 0%	**# 2401 RJ711:** ☐ 14 gauge ☐ 12 gauge Must be 3/4" more than insulation **Insulation:** ☐ 0" ☐ 1" ☐ 1-1/2" ☐ 2" ☐ 2-1/2" ☐ 3" ☐ 3-1/2" ☐ 4" **# 2402 Hook:** 3/16" Diameter Standard ☐ 3-1/4" ☐ 4-1/4" ☐ 5-1/4" ☐ Other _____ **FINISH:** ☐ Mill Galvanized ☐ Hot Dip Galvanized ☐ Stainless Steel

Corporate Office: 400 Rountree Rd Charlotte, NC 28217
TEL: (800) 849-6722 FAX: (704) 525-3761

Mailing Address: P.O. Box 240988 Charlotte, NC 28224

Memphis Plant: 2365 Harbor Ave. Memphis, TN 38113
TEL: (800) 441-8359 FAX: (901) 775-9449

Mailing Address: P.O. Box 13124 Memphis, TN 38113

www.wirebond.com

Installation

Installation Method: Two screws

Ease of Installation: Below Average

Installation Sequence: Prior to installation of cavity insulation. Damage to the air / vapor barrier can be seen and repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: None

Performance

Vertical Movement: 2 1/2" (1 1/4" above and below base plate)

Horizontal Movement: 7/16" (width of engagement slots)

Insulation Fastener: None

Mortar Droppings Protection: Poor

Possibility Of Wire Tie Disengagement: Yes

Notes

Horizontal location of base plate must be **exact**. This is best achieved by installing the cavity insulation, resting the anchor on the top edge of the insulation and marking the base plate location. The insulation below the base plate must be removed in order to install the bottom fastener.

CAVITY WALL SYSTEMS

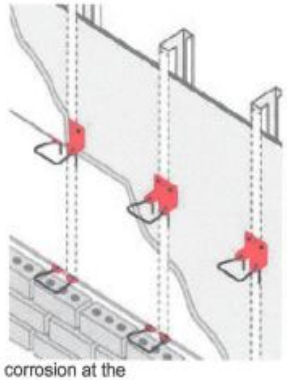
Masonry Anchors/Ties

HCL-711 Anchoring System

WIRE-BOND's HCL-711 Anchoring System installs quickly and easily on exterior walls with brick veneer while providing positive contact with metal stud and avoiding damage to wallboard.

With the metal studs spaced at 16" intervals, the system provides a 16" squared grid. This is accomplished with two easy steps:

1. First, 8-foot-wide insulation is installed as a guide from the footer of the wall. The 16" height of the insulation indicates where the next horizontal line of HCL-711s will attach at the vertical line of wallboard fasteners.
2. The insulation is then inlaid snugly between the legs of the uniform horizontal lines of HCL-711s.



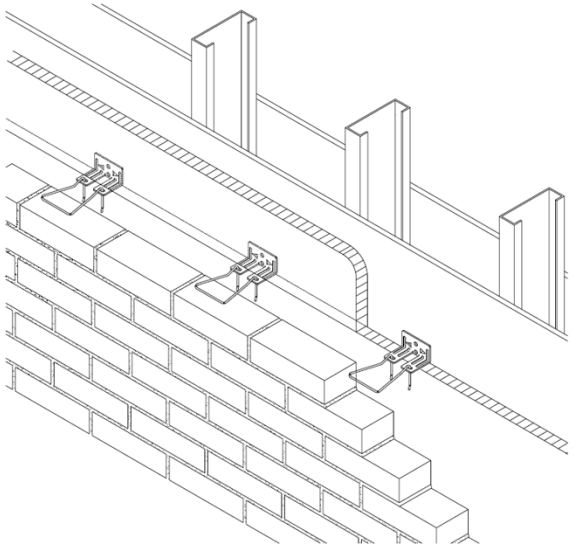
The "legs" of the HCL-711s provide the platform for the insulation. This eliminates potential insulation damage and improves thermal performance. R value is maintained. The installer does not have to penetrate varying amounts of insulation while guessing for direct contact with the stud. The pintles serve to secure the insulation to the exterior wallboard. The simplified installation procedure saves on labor costs.

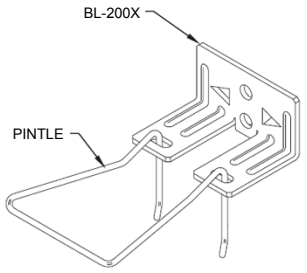
The HCL-711 System moves the dew point from within the stud to near the outer face of the rigid insulation, reducing potential corrosion at the screw locations.

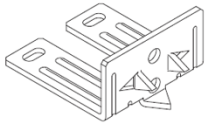
The RJ711 is also available with prongs so that contact with the LGMF framing through the exterior sheathing can be achieved if desired.

BLOK-LOK
A HOHMANN & BARNARD COMPANY

Veneer Anchors
BL-200X







DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

Wire (Carbon Steel):
Cold-drawn steel wire conforming to ASTM A 82:
Tensile Strength - 80,000 p.s.i.
Yield Point - 70,000 p.s.i. minimum
Zinc Coating:
Hot-dip galvanized after fabrication: ASTM A 153 (1.5 oz/ft²)
NOTE: Blok-Lok will certify to a minimum of 2.0 oz/ft²

Wire (Stainless Steel):
ASTM A 580 - AISI Type 304 (Type 316 available on special order)

Sheet Metal (Carbon Steel):
ASTM A 366
Zinc Coating:
ASTM A 153 Class B (sheet metal ties and anchors hot-dip galvanized after fabrication).
NOTE: Blok-Lok will certify to a minimum of 2.0 oz/ft²

Sheet Metal (Stainless Steel):
ASTM A 666, ASTM A 480, ASTM A 240, ASTM A 167 - AISI Type 304 Stainless Steel (sheet metal ties and anchors)(Type 316 available on special order).
NOTE: Blok-Lok recommends Stainless Steel for maximum protection against corrosion.

Patents Pending

BL-200X Backplate

Style	Insulation Thickness
☐ BL-200X (0")	0"
☐ BL-200X (1")	1"
☐ BL-200X (1 ½")	1 ½"
☐ BL-200X (2")	2"
☐ BL-200X (2 ½")	2 ½"
☐ BL-200X (3")	3"
☐ BL-200X (3 ½")	3 ½"

Thickness:
- ☐ 14 Gauge
- ☐ 12 Gauge

3/16"Ø Pintle Length:
- ☐ 3"
- ☐ 4"
- ☐ 4 ¾"
- ☐ 5 ¼"
- ☐ Custom _____

Finish:
- ☐ Hot-Dip Galvanized
- ☐ Stainless Steel

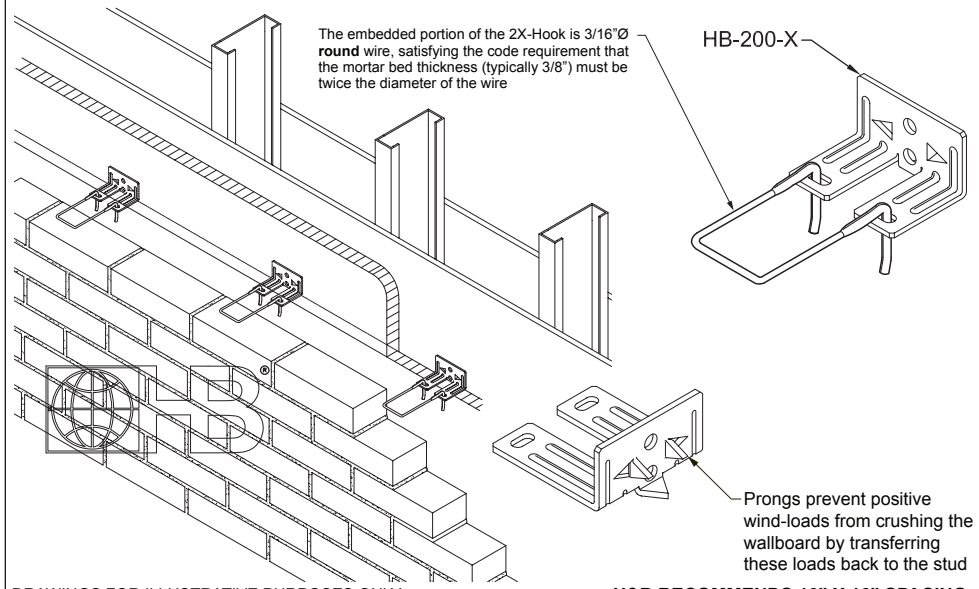
12 Ashbridge Circle | Woodbridge, Ontario, L4L 3R5, Canada
T: 905.266.2277 | **F:** 905.266.2272 | **USA:** 1.800.561.3026
sales@blok-lok.com | www.blok-lok.com

HOHMANN & BARNARD, INC.
a MiTek company

Veneer Anchors

HB-200-X

Adjustable Veneer Anchor with 2X-HOOK



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

Hohmann & Barnard's 2X-Hook has been tested and designed to withstand over 200-lbf, in tension or compression, at maximum allowed offset (ACI 530 6.2.2.5.5.4) of 1¼" (disengagement of the pintle from the veneer anchor). These results exceed BIA recommendations and the capabilities of standard "round wire" hooks/pintles by over 100%, while maintaining the ASTM A1064/1064M wire specification. ***Test results available upon request.***

2X-HOOK: U.S. Pat. No. 8,613,175

MATERIAL CONFORMANCE

Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A1064/A1064M**
Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum
Zinc Coating:
Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B** (1.5 oz/ft²)
Wire (Stainless Steel): **ASTM A580/A580M** - AISI Type 304 or Type 316

Sheet Metal (Carbon Steel)**: ASTM A1008/A1008M**
Zinc Coating:
Hot-Dip Galvanized: **ASTM A153/A153M Class B** (1.5 oz/ft²)
(sheet metal ties and anchors galvanized after fabrication)
Sheet Metal (Stainless Steel)**:**
ASTM A 666, **ASTM A480/480M**, and **ASTM A240/A240M**
AISI Type 304 or 316
NOTE: H&B recommends Stainless Steel for maximum protection against corrosion.

HB-213 Anchor Backplate Finish:

☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

H&B recommends Stainless Steel for maximum protection against corrosion

Backplate Style (Equal to thickness of insulation)**:**

☐ HB-200-X (0") ☐ HB-200-X (2") ☐ HB-200-X (3 ½")
☐ HB-200-X (1") ☐ HB-200-X (2 ½") ☐ HB-200-X (4")
☐ HB-200-X (1 ½") ☐ HB-200-X (3")

Backplate Thickness:

☐ 14 ga. (1.9 mm) ☐ 12 ga. (2.7 mm) ☐ CUSTOM _____

3/16"Ø Compressed Leg Hook Length:

☐ 3" (300H-2X) ☐ 4" (400H-2X) ☐ 5" (500H-2X)
☐ 6" (600H-2X) ☐ 7" (700H-2X)

3/16"Ø Compressed Leg Hook Finish:

☐ Hot-Dip Galv. Stainless Steel: ☐ Type 304 ☐ Type 316

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

HOHMANN & BARNARD, Inc.
CORPORATE HEADQUARTERS
30 Rasons Court | Hauppauge, NY 11788
T: 800.645.0616 F: 631.234.0683
www.h-b.com

Branch/Subsidiary Locations:
ALABAMA - ILLINOIS - MARYLAND
NEW YORK - PENNSYLVANIA - TEXAS
UTAH - CANADA

The Surface Mounteds

Concerns

Substantial contact of the insulation with the back up wall

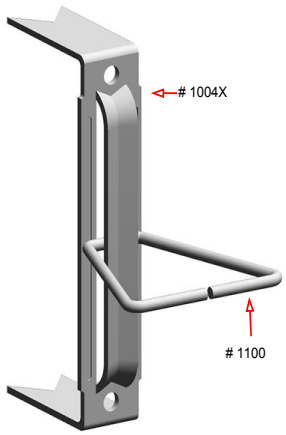
Installation and fastening of the insulation
(mechanical fastening is better)

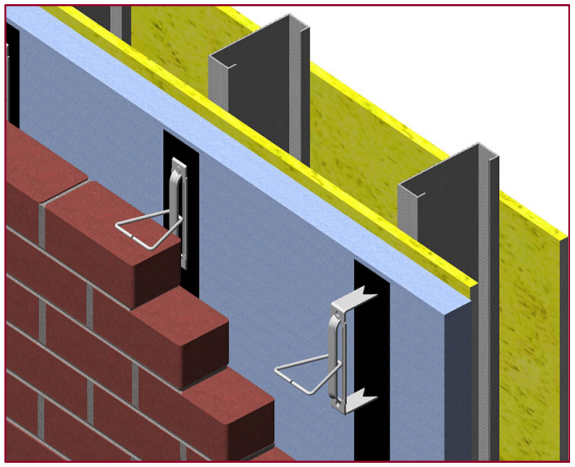
Coordination with the installation of the insulation

The PII's

PRODUCT SUBMITTAL

1004X Type III X Screw On Veneer Anchor





MATERIAL CONFORMANCE	SIZES / FINISHES
SHEET METAL - (Carbon Steel) **ASTM A1008 / A1008M** Mill Galvanized / Zinc Coating: **ASTM A641 / A641M (0.10 0z per sq ft)** Hot Dip Galvanized after fabrication / Zinc Coating **ASTM A153 / A153M-B2 (1.50 oz per sq ft)** Stainless Steel **ASTM 580 / ASTM 580M Type 304** (Type 316 available on special order) **ASTM A82 / A82M** - (Cold drawn steel wire) Tensile Strength - 80,000 psi Yield Point - 70,000 psi **ACI / ASCE 530** - (Building code requirements for masonry structures) **Recycled Content:** Mill Galvanized & Hot Dipped, 82.8% Post-Consumer 17% Post Industrial / Pre-Consumer, Stainless Steel, 60% Post Consumer V O C Content - 0%	**# 1004 Type III X:** 1-1/4" wide x 6" long ☐ 14 gauge ☐ 12 gauge (Prong length to accommodate insulation) **For Gypsum sheathing:** ☐ 5/8" ☐ 1/2" **INSULATION:** ☐ 1" ☐ 1-1/2" ☐ 2" ☐ 2-1/2" ☐ 3" **# 1100 Triangle:** ☐ 3/16" diameter ☐ 1/4" diameter ☐ 3"x3" ☐ 4"x4" ☐ 5"x5" ☐ 6"x6" ☐ 7"x7" ☐ 7" x 9" **FINISH:** ☐ Hot Dip Galvanized ☐ Stainless Steel

Corporate Office: 400 Rountree Rd Charlotte, NC 28217
TEL: (800) 849-6722 FAX: (704) 525-3761

Mailing Address: P.O. Box 240988 Charlotte, NC 28224

Memphis Plant: 2365 Harbor Ave. Memphis, TN 38113
TEL: (800) 441-8359 FAX: (901) 775-9449

Mailing Address: P.O. Box 13124 Memphis, TN 38113

www.wirebond.com

Installation

Installation Method: Two screws

Ease of Installation: Average

Installation Sequence: After insulation is in place. Air / vapor membrane cannot be inspected or repaired.

Horizontal Installation Tolerance: 1/2”

Vertical Installation Tolerance: 4”

Performance

Vertical Movement: 4”

Horizontal Movement: 1” with vee tie. 1 3/4” with box tie

Insulation Fastener: Base plate retains insulation

Mortar Droppings Protection: Fair

Possibility Of Wire Tie Disengagement: No

Notes

This veneer anchor system must be more exactly located within the flange of the stud due to the distance between the prongs.

Since the insulation is installed prior to the installation of the base plate of this anchor system, the penetrations through the air barrier system can be neither effectively inspected or tested. Also, repair of the air barrier system requires the removal of all the anchors within a sheet of insulation and then the removal of the insulation.

The Textroseal gasket does not appear to provide an air tight seal

Decreased horizontal alignment tolerance due to prongs.


02/13/2003


02/15/2003


02/15/2003

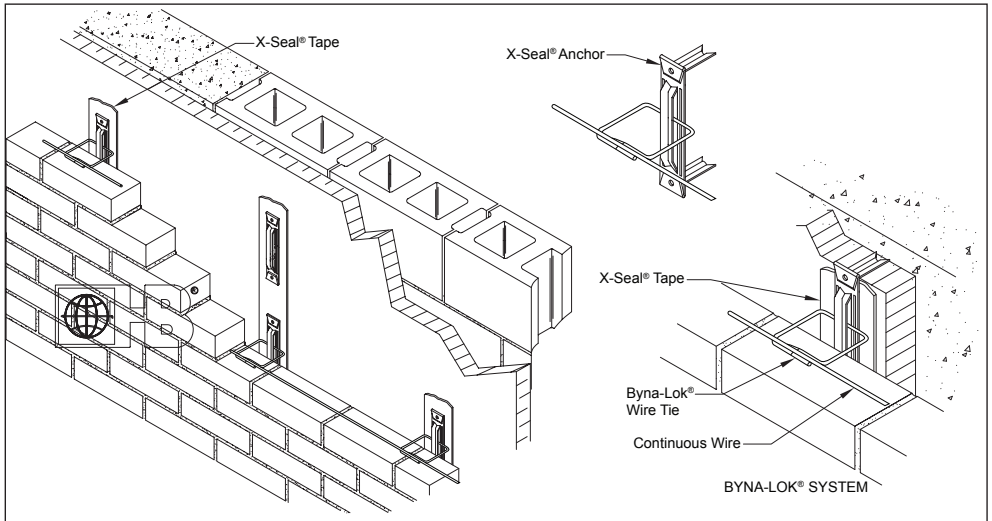

02/15/2003

Any **anchor that is installed after the exterior sheathing has been covered with the air barrier, moisture barrier or insulation has the potential to miss the studs due to changes in alignment of the studs. This can occur at areas such as floor to floor transitions.**

HOHMANN & BARNARD, INC.
a MiTek company

Seismic Anchors and Ties

X-Seal® / Byna-Lok®



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

Wire (Carbon Steel):
Cold-drawn steel wire conforming to **ASTM A1064/A1064M**:
Tensile Strength - 80,000 psi
Yield Point - 70,000 psi minimum
Hot-Dip Galvanized after fabrication: **ASTM A153** (1.5oz/ft²)
Note: Hohmann & Barnard will certify to a minimum of 2.0 oz/ft²

Wire (Stainless Steel):
ASTM A580/A580M - AISI Type 304 or Type 316

Sheet Metal (Carbon Steel):
ASTM A1008/A1008M
Zinc coating:
ASTM A153/A153M-B2 class B (sheet metal ties and anchors hot-dip galvanized after fabrication.)
Note: Hohmann & Barnard will certify to a minimum of 2.0 oz/ft²

Sheet Metal (Stainless Steel):
ASTM A666, ASTM A480/480M, and ASTM A240/A240M - (sheet metal ties and anchors) AISI Type 304 or Type 316

X-Seal™ Tape *(reinforced polyolefin base, laminated to a polypropylene layer)*:
ASTM D751-95, ASTM D4533-91, ASTM G154-98, ASTM E96-B

X-Seal® Anchor:
U.S. Patents 6,925,768, 6,941,717, 7,562,506, 7,587,874, 7,845,137
Canadian Patent 2,458,008

Finish:
☐ Hot-Dip Galv. Stainless Steel: ☐ Type 304 ☐ Type 316

Note: H&B recommends Stainless Steel for maximum protection against corrosion.

Leg Depth (Equal to thickness of wallboard/insulation)**:**

☐ X-Seal (1/2")	☐ X-Seal (3/4")	☐ X-Seal (1")
☐ X-Seal (1 ½")	☐ X-Seal (2")	☐ X-Seal (2 ½")
☐ X-Seal (2 ⅝")	☐ X-Seal (3")	☐ X-Seal (3 ½")
☐ X-Seal (4")	☐ X-Seal (4 ½")	☐ Other ____

Byna-Lok® Length: (Wire Diameter: 3/16"Ø)
☐ 3" ☐ 4" ☐ 5"

Continuous Wire:
☐ 9 gauge ☐ 3/16"Ø

☐ **X-Seal® Tape:** Adhesive backed 3" x 75 ft. rolls
(Seals around the shaft of the screws & legs of X-Seal™ Anchors at the point of penetration)

HOHMANN & BARNARD, Inc.
CORPORATE HEADQUARTERS
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T: 800.645.0616 F: 631.234.0683
www.h-b.com

Branch/Subsidiary Locations:
ALABAMA - ARIZONA - ILLINOIS
MARYLAND - NEW YORK
PENNSYLVANIA - TEXAS - UTAH
CANADA

HECKMANN Building Products, Inc.
1501 N. 31st Avenue
Melrose Park, IL 60160-2911
800-621-4140 or 708-865-2403
FAX: 708-865-2640
www.heckmannanchors.com
Email: info@heckmannanchors.com

ARCHITECTURAL SPECIFICATION INFORMATION

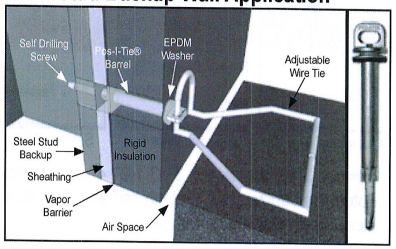
THE ORIGINAL Pos-I-Tie®

BRICK VENEER ANCHORING SYSTEM

1. Provides positive connections. The Barrel Section actually penetrates sheathing and makes a Positive Lateral Connection with the backup for transfer of compression and tension loads to structural backup.
2. EPDM washer completely seals the hole blocking ALL air and moisture penetration.
3. Offers speedy cost-saving installation. The screw is built-in to the barrel. No inferior screws can be substituted. Only one barrel needs to be installed, unlike other systems which require two screws for installation.
4. Slotted Barrel allows for differential movement due to temperature variations. Tie design provides for allowable ACI 530 code vertical adjustment of 1-1/4" above & below the barrel.
5. Allows for use of 4' x 8' insulation sheets. The Pos-I-Tie® holds the insulation in place!
6. Pos-I-Tie® Barrel section is made of highly corrosion resistant Zamac 3, a 92% zinc alloy.
7. Pos-I-Tie® system fully complies with the ACI 530 Code. The barrel and screw install as one unit. No more plates, screws and gaskets. Installs in seconds.
8. The Pos-I-Tie® conforms with the Energy Conservation Requirements of the Massachusetts State Building Code (780 CMR 13 Envelope).

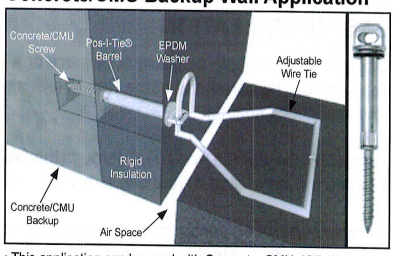
Pos-I-Tie® Products are ONLY Available Through Heckmann Building Products!

Steel Stud Backup Wall Application



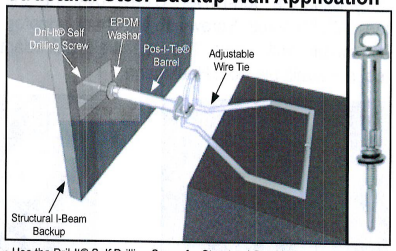
- Drills directly through insulation, vapor barrier and dens glass to the steel stud backup.
- EPDM washer completely seals the hole blocking ALL air and moisture penetration.

Concrete/CMU Backup Wall Application



- This application can be used with Concrete, CMU, ICF, Wood, and Brick backup walls.
- Pre-drill pilot hole using the Con-Drive® Adapter and drill bit as explained on the reverse side of information sheet.

Structural Steel Backup Wall Application



- Use the Dril-It® Self Drilling Screw for Structural Steel I-Beams. No pre-drilling required for up to 1/2" thick steel. Steel Thicker than 1/2" may require a pre-drilled pilot hole.

Installation

Installation Method: Single screw

Ease of Installation: Most efficient once accurate stud layout is determined.

Installation Sequence: After insulation is in place. Air / vapor membrane cannot be inspected or repaired.

Horizontal Installation Tolerance: 1 1/2" (width of stud)

Vertical Installation Tolerance: Align base plate at least 3/16" above of below centerline of mortar joint.

Performance

Vertical Movement: 1 3/4" above and 1 3/4" below base plate engagement point.

Horizontal Movement: 3/8" (width of engagement slot)

Insulation Fastener: Base plate retains insulation

Mortar Droppings Protection: Poor

Possibility Of Wire Tie Disengagement: No

Notes

Since the insulation is installed prior to the installation of the base plate of this anchor system, the penetrations through the air barrier system can be neither effectively inspected or tested. Also, repair of the air barrier system requires the removal of all the anchors within a sheet of insulation and then the removal of the insulation.

Locating studs is more time consuming and problematic with the cavity insulation in place.

Step 1

Step 2


DOW


PERM-A-BARRIER


11/10/2006

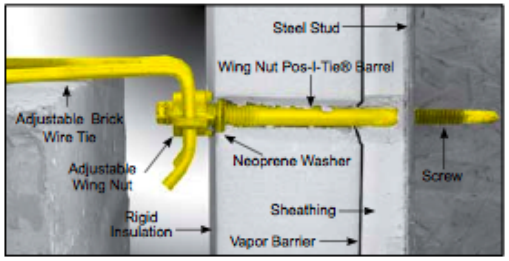
HECKMANN Building Products, Inc.

1501 N. 31st Avenue
Melrose Park, IL 60160-2911
800-621-4140 or 708-865-2403
FAX: 708-865-2640
www.heckmannanchors.com
Email: info@heckmannanchors.com

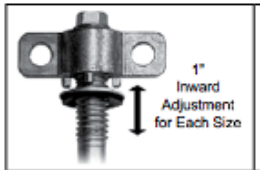
ARCHITECTURAL SPECIFICATION INFORMATION

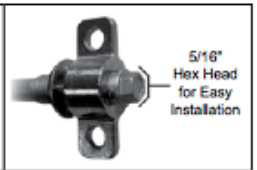
THE WING NUT Pos-I-Tie®

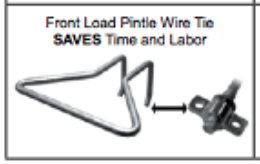
BRICK VENEER ANCHORING SYSTEM

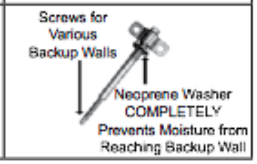


U.S. Patent # 7,415,803









NO. 77 WING NUT POS-I-TIE® FEATURES:

1. U-Seal Technology™ allows up to 1" inward adjustment to fit a variety of combinations of insulations and sheathing, and creates a water-tight seal preventing moisture from reaching the backup wall.
2. Easy installation with standard 5/16" hex socket. NO special adapters required.
3. Front loading of Pintle Wire Tie to save time and labor.
4. The Pintle Wire Tie style allows full vertical adjustment of up to 1 ¼" up or down for easy and proper embedment in mortar bed.
5. The Pintle Wire Tie can be furnished with a seismic clip, where required.
6. Provides positive lateral support directly against the backup wall.
7. Delivers a two-pronged symmetrical and flexible connection, which allows differential thermal expansion and bending.
8. Barrel screws available for steel stud, concrete, CMU, ICF, brick and wood backup walls.
9. Available in Zinc Plated Carbon Steel or Stainless Steel.

Contact us or visit www.HECKMANNANCHORS.com for more information and test data

Wing Nut Pos-I-Tie® 8 Barrel Lengths:

Barrel screws available for:
Steel Stud • Concrete • CMU • ICF • Brick • Wood

Installation Instructions for the Wing Nut Pos-I-Tie® to steel studs:

*Always wear eye protection.
*When using drill, keep fingers away from rotating wing nut.

1. Line Up screw at stud location

2. Push screw into insulation as far as possible with your hand

3. Use a standard drive for 5/16 hex head

4. Drill into stud at approximately 2000-2500 RPM

5. Hand tighten Wing Nut until washer dimples into the insulation

6. Install Pintle Wire Tie

REV 0311

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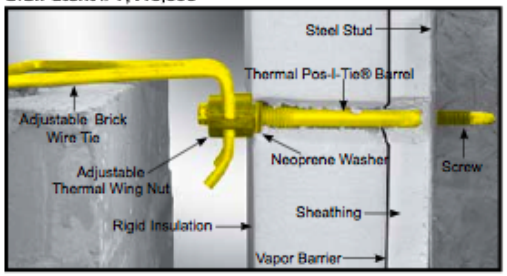
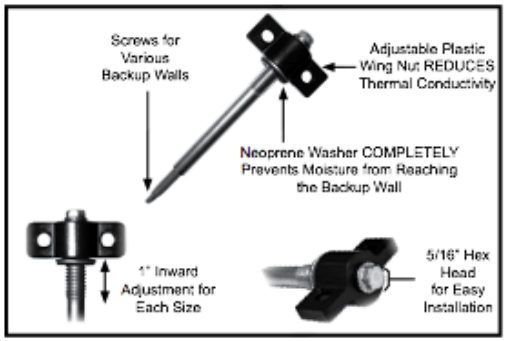
ARCHITECTURAL SPECIFICATION INFORMATION

THE THERMAL POS-I-TIE®

U.S.Patent # 7,415,803





NO. 77 THERMAL POS-I-TIE® FEATURES:

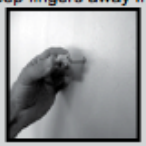
1. The thermal break is created by the Thermal Wing Nut, made from a high quality proprietary plastic material which decreases the thermal transfer through the rigid insulation. It has very low thermal conductivity, over 100 times less than metals such as steel.
2. The plastic wing nut is highly flame resistance with a UL 94 V-0 rating.
3. Refer to ACI 530 Code Veneer Chapter section 6.2.1. Alternative design of anchored masonry veneer.
4. U-Seal Technology™ allows up to 3/4" inward adjustment to fit a variety of combinations of insulations and sheathing, and creates a water-tight seal preventing moisture from reaching the backup wall.
5. Easy installation with standard 5/16" hex socket. NO special adapters required. Front loading of Pintle Wire Tie to save time and labor.
6. Barrel screws available for steel stud, concrete, CMU, ICF, brick and wood backup walls.
7. The Pintle Wire Tie style allows for full vertical adjustment of up to 1 ¼" up or down for easy and proper embedment in mortar bed.
8. The Pintle Wire Tie can be furnished with a seismic clip, where required.
9. Provides positive lateral support directly against the backup wall.
10. Delivers a two-pronged symmetrical and flexible connection, which allows differential thermal expansion. and bending.
11. Available in Zinc Plated Carbon Steel or Stainless Steel.

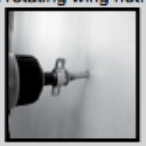
Contact us or visit www.HECKMANNANCHORS.com for more information and test data

Installation Instructions for the Wing Nut Pos-I-Tie® to steel studs:

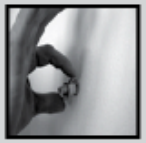
*Always wear eye protection.
*When using drill, keep fingers away from rotating wing nut.


1. Line Up screw at stud location


2. Push screw into insulation as far as possible with your hand


3. Use a standard drive for 5/16 hex head


4. Drill into stud at approximately 2000-2500 RPM


5. Hand tighten Wing Nut until washer dimples into the insulation


6. Install Pintle Wire Tie

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ARCHITECTURAL SPECIFICATION INFORMATION

Pos-I-Tie® Thermal® Clip

PATENTED

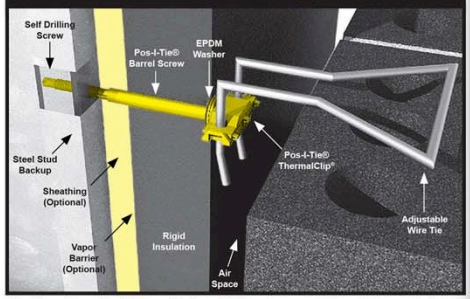
Eliminates Thermal Shorts

Designed exclusively for:
THE ORIGINAL Pos-I-Tie®
Veneer Anchoring System

Pos-I-Tie® ThermalClip®

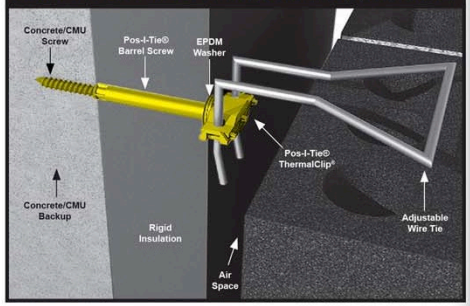
- **ThermalClip®** creates a break in the thermal transfer between the veneer wire tie and the barrel.
- **ThermalClip®** allows for use of dissimilar metals between the veneer anchor and barrel screw.
- The Pos-I-Tie® **ThermalClip®** system fully complies with all code requirements.
- Offers efficient labor and cost-saving installation.
- Safe to install. No "spinning wings" that can potentially cause damage to fingers.
- Pos-I-Tie® Barrel section is made of Zamac 3, a 92% zinc alloy which is highly resistant to corrosion. No need for stainless barrels in the backup wall.
- Allows for use of 4' x 8' insulation sheets. The Pos-I-Tie® holds the insulation in place!
- EPDM washer completely seals the hole blocking ALL air and moisture penetration. There is no need for an internal washer.
- Pullout & compression loads exceed code requirement.

Steel Stud Backup Wall Application



- Drills directly through insulation, vapor barrier and dens glass sheathing to the steel stud backup.
- EPDM washer completely seals the hole blocking ALL air and moisture penetration.
- Tested and passed E-331 moisture and vapor barrier test.

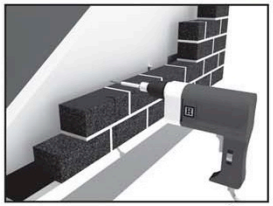
Concrete/CMU Backup Wall Application



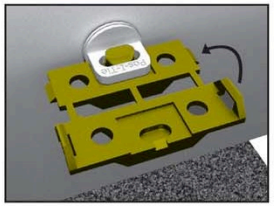
- This application can be used with **Concrete**, **CMU**, **ICF**, **Wood**, and **Brick** backup walls.
- Pre-drill pilot hole using the Con-Drive® Adapter and drill bit as explained in the INSTALLATION section.

MADE ENTIRELY IN USA

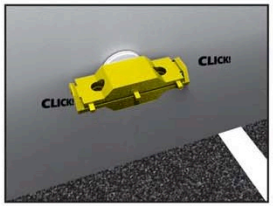
Pos-I-Tie® ThermalClip® Installation



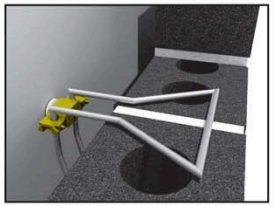
Install the Original Pos-I-Tie® into the backup wall using a chuck adapter and power drill.



Insert the ThermalClip® as shown and fold over the head of the Original Pos-I-Tie® Anchor.



The ThermalClip® is secured when both sides are **snapped** into place.



Insert the pintle wire tie or stone anchor into the two holes of the ThermalClip®.

Composite Resin Material:

- High strength composite resin acts as a thermal break between the wire tie and the Barrel Screw.
- The proprietary composite resin has very low thermal conductivity; over 100 times less than metals such as steel.
- Flame resistant with a UL 94 V-0 rating
- Meets “freeze-thaw” conditions
- No reaction with alkalines in mortar

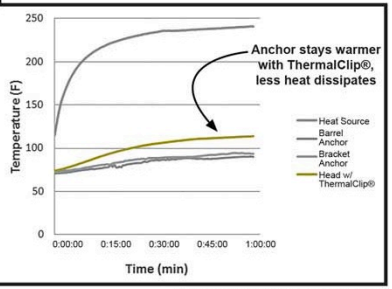
Screw Types

3 types of screws for various types of backup walls.

Concrete / CMU ICF / Wood Screw | Steel Stud Screw | Structural Steel Screw

Thermal Testing

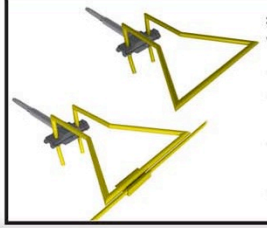
- Thermal break head transfers less heat from inside to outside
- Reduces the impact of the steel connector thermal short
- May improve overall wall system R-value 1% to 3%



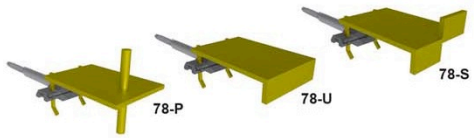
Barrel Lengths

The Original Pos-I-Tie® is available in 9 Barrel Lengths - from 5/8” to 4-1/2”

Wire Ties & Stone Anchors



#282-N Double Pintle Wire Ties:
3/16” diameter x 3”, 3-1/2”, 4” & 5”. Special Lengths are available. Seismic Clip available. Hotdip After Fabrication, Stainless Steel.

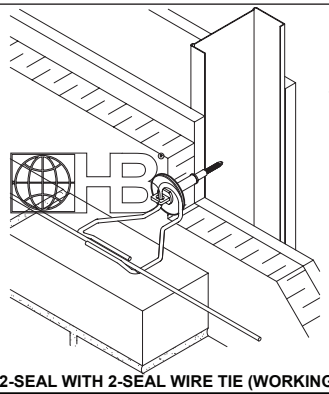


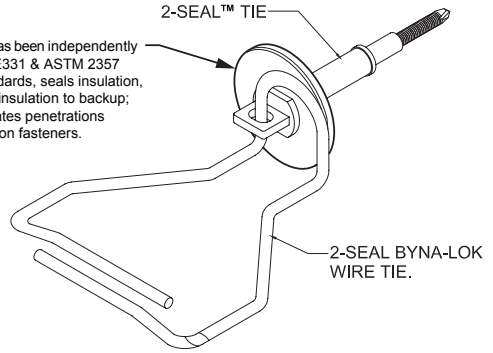
#78 Stainless Steel Pintle Stone Anchors:
1/8” thick x 2” wide. Made to Order.
See **Pos-I-Tie® KeyBolt** for heavier applications.

HOHMANN & BARNARD, INC.
a MiTek company

Veneer Anchors

2-Seal™ Tie





2-SEAL WITH 2-SEAL WIRE TIE (WORKING LOAD*)

CAVITY	0" OFFSET	5/8" OFFSET	1 ¼" OFFSET	TEST
6 ½"	573#	N/A	206#	TENSION
6 ½"	402#	N/A	166#	COMPRESSION

SCREW PULL-OUT (ULTIMATE LOAD)

STUD GA	18 GA	16 GA	14 GA	12 GA
	611#	743#	1096#	1394#

* WORKING LOAD DETERMINED AT .05" DEFLECTION

Tests were completed for 4 ½" insulation with 2" air cavity.

Pullout values assume wire 2-Seal Byna-Lok Wire Tie is fully engaged into 2-Seal Tie with "0" eccentricity.

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

2-Seal™ Tie
An innovative single screw veneer tie for metal stud construction. The 2-Seal™ Tie has a dual-diameter barrel with factory-installed EPDM washers to seal both the face of the insulation and the air/vapor barrier.

- #12 screw integrated into the dual-diameter barrel
- Available for 5/8" - 4½" wallboard + insulation combination

The 2-Seal Byna-Lok Wire Tie is adaptable for seismic zones with the simple addition of 9 gauge or 3/16" continuous wire (just drop into the integral track formed by the swaged, overlapping legs of the wire tie.)

Barrel (Zamac Zinc): **ASTM B86** (92% Zinc Alloy) with protective polymer coating for corrosion resistance

Screw (Carbon Steel): **ASTM A510** (Carbon Steel)
ASTM C954 (1000-hour polymer coating)

Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A1064/A1064M**
Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum
Zinc Coating:
Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B** (1.5 oz/ft²)

Wire (Stainless Steel): **ASTM A580/A580M** - AISI Type 304 or Type 316

U.S. Patent No. 8,037,653
Canadian Patent No. 2,690,819

2-Seal™ Tie Finish*:
☐ Polymer Coated
***For Stainless Steel, refer to Thermal 2-Seal™ Anchor or the Thermal 2-Seal™ Wing Nut Anchor.**

2-Seal™ Tie Style (Equal to thickness of wallboard + insulation)**:**
☐ ⅝" ☐ 1" ☐ 1 ½" ☐ 2" ☐ 2 ½" ☐ 3" ☐ 3 ½"
☐ 4" ☐ 4 ½" ☐ 5" ☐ 5 ½" ☐ 6" ☐ 6 ½"

2-Seal Byna-Lok™ Wire Tie Finish:
☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

2-Seal Byna-Lok™ Wire Tie Length: (3/16"Ø)
☐ 3" ☐ 4 " ☐ 5" ☐ Custom _____

Continuous Wire Finish:
☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

Continuous Wire Diameter: ☐ 9 gauge ☐ 3/16"Ø

Note: Hohmann & Barnard recommends Stainless Steel for maximum protection against corrosion.

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

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www.h-b.com

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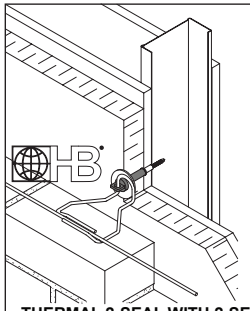
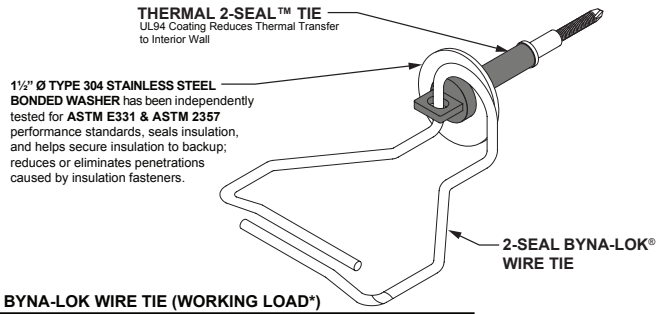
MARYLAND - NEW YORK
PENNSYLVANIA - TEXAS - UTAH
CANADA

HOHMANN & BARNARD, INC.
a MiTek company

Veneer Anchors

Thermal 2-Seal™ Tie





THERMAL 2-SEAL WITH 2-SEAL BYNA-LOK WIRE TIE (WORKING LOAD*)

CAVITY	0" OFFSET	5/8" OFFSET	1 ¼" OFFSET	TEST
6 ½"	573#	N/A	206#	TENSION
6 ½"	402#	N/A	166#	COMPRESSION

SCREW PULL-OUT (ULTIMATE LOAD)

STUD GA	18 GA	16 GA	14 GA	12 GA
	611#	743#	1096#	1394#

* WORKING LOAD DETERMINED AT .05" DEFLECTION

Tests were completed for 4½" insulation with 2" air cavity.

Pullout values assume wire 2-Seal Byna-Lok Wire Tie is fully engaged into 2-Seal Tie with "0" eccentricity.

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

Thermal 2-Seal™ Tie
An innovative single screw veneer tie for metal stud construction. The 2-Seal™ Tie has a dual-diameter barrel with factory-installed EPDM washers to seal both the face of the insulation and the air/vapor barrier.

- #12 screw integrated into the dual-diameter barrel
- Available for 5/8" - 4½" wallboard + insulation combination

The 2-Seal Byna-Lok Wire Tie is adaptable for seismic zones with the simple addition of 9 gauge or 3/16" continuous wire (just drop into the integral track formed by the swaged, overlapping legs of the wire tie.)
The anchor is FULLY COATED, except for the small barrel and screw, with a proprietary material tested in accordance to UL94 (The Standard for Flammability of Plastic Materials). The material reduces thermal transfer through rigid insulation.

Barrel (Stainless Steel): **ASTM A580/A580M** - AISI Type 304
Screw (Carbon Steel): **ASTM A510** (Carbon Steel)
ASTM C954 (1000-hour polymer coating)
Coating: ASTM D792 (density), **ASTM D785** (Hardness), **ASTM D955** (Mould Shrinkage), **ASTM D638** (Tensile Strength), **ASTM D790** (Flexural Strength), **ASTM D256** (Izod Impact Strength), **ASTM D1525** (Softening Temp) **ASTM D648** (Heat Distortion Temp.), **UL94** (Flammability)
Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A1064/A1064M**
Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum
Zinc Coating:
Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B** (1.5 oz/ft²)
Wire (Stainless Steel): **ASTM A580/A580M** - AISI Type 304 or Type 316

U.S. Patent No. 8,037,653 & 9,140,001 | Canadian Patent No. 2,690,819
OTHER PATENTS PENDING

2-Seal™ Tie Barrel Finish:
☐ Type 304 Stainless Steel Barrel

Thermal 2-Seal™ Tie Style (Equal to thickness of wallboard + insulation)**:**
☐ ⅝" ☐ 2" ☐ 3½" ☐ 5" ☐ 6½"
☐ 1" ☐ 2½" ☐ 4" ☐ 5½"
☐ 1½" ☐ 3" ☐ 4½" ☐ 6"

2-Seal Byna-Lok™ Wire Tie Finish:
☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

2-Seal Byna-Lok™ Wire Tie Length: (3/16"Ø)
☐ 3" ☐ 4" ☐ 5" ☐ Custom _____

Continuous Wire Finish:
☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

Continuous Wire Diameter: ☐ 9 gauge ☐ 3/16"Ø

Note: Hohmann & Barnard recommends Stainless Steel for maximum protection against corrosion.

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

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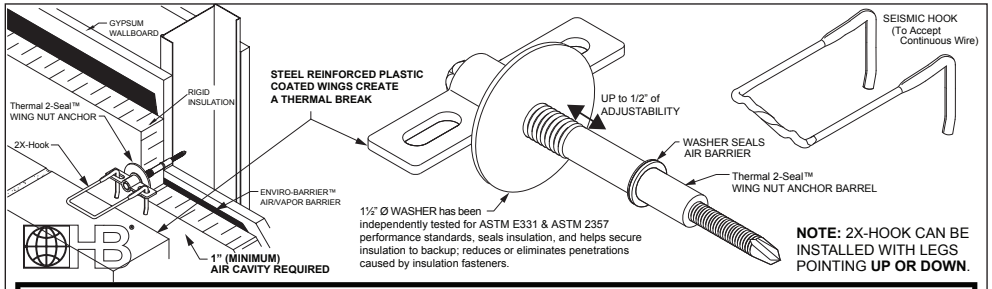
PENNSYLVANIA - TEXAS - UTAH
CANADA

HOHMANN & BARNARD, INC.
a MiTek company

Veneer Anchors

Thermal 2-Seal™ Wing Nut Anchor



NOTE: 2X-HOOK CAN BE INSTALLED WITH LEGS POINTING **UP OR DOWN**.

Hohmann & Barnard's 2X-Hook has been tested and designed to withstand over 200-lbf, in tension or compression, at maximum allowed offset (TMS 402/ACI 530 6.2.2.5.5.4) of 1¼" (disengagement of the pintle from the veneer anchor). These results exceed BIA recommendations and the capabilities of standard "round wire" hooks/pintles by over 100%, while maintaining the ASTM A1064/1064M wire specification.

2-SEAL WING NUT WITH 2X HOOKS (WORKING LOAD*)

CAVITY	0" OFFSET	5/8" OFFSET	1 ¼" OFFSET	TEST
6 ½"	704#	325#	251#	TENSION
6 ½"	470#	273#	250#	COMPRESSION

* WORKING LOAD DETERMINED AT .05" DEFLECTION

Tests were completed for 4 ½" insulation with 2" air cavity.

SCREW PULL-OUT (ULTIMATE LOAD)

STUD GA	18 GA	16 GA	14 GA	12 GA
	611#	743#	1096#	1394#

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

Thermal 2-Seal™ Wing Nut Tie - An innovative single screw veneer tie for metal stud construction.

Features: A dual-diameter barrel with factory-installed EPDM washers to seal both the face of the insulation and the air/vapor barrier (an **extra large washer helps secure insulation to backup)**. Projecting **Thermal Wings are steel reinforced and coated with highly flame resistant plastic** to *create a thermal break, decreasing thermal transfer through rigid insulation*. The Wings accept a standard or seismic hook, spin to easily orient pintles/hooks to masonry joints, and provide up to 1/2" of adjustability to account for variations in wall thickness. Install with a standard 5/16" hex socket.

Barrel (Stainless Steel): **ASTM A580/A580M** - AISI Type 304
(Type 316 available on special order)

Screw (Carbon Steel): **ASTM A510** (Carbon Steel)
ASTM C954 (1000-hour polymer coating)

Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A1064/A1064M**
Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum
Zinc Coating: Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B** (1.5 oz/ft²)

Wire (Stainless Steel): **ASTM A580/A580M** - AISI Type 304 or Type 316

Thermal 2-Seal™ Wing Nut Anchor: US Pat. No. 7,415,803
2X-HOOK: U.S. Pat. No. 8,613,175

Thermal 2-Seal™ Wing Nut Anchor Barrel Finish:

☐ Stainless Steel - Type 304

Thermal 2-Seal™ Wing Nut Anchor Style*:
(Equal to thickness of wallboard and/or insulation)

☐ ⅝" ☐ 1" ☐ 1 ½" ☐ 2" ☐ 2 ½" ☐ 3" ☐ 3 ½"
☐ 4" ☐ 4 ½" ☐ 5" ☐ 5 ½" ☐ 6" ☐ 6 ½"

NOTE: This anchor requires a 1" (minimum) air cavity.

Hook Finish:

☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

3/16"Ø Compressed Leg Hook Length:

☐ 3" (300H-2X) ☐ 4" (400H-2X) ☐ 5" (500H-2X)
☐ 6" (600H-2X) ☐ 7" (700H-2X)

Compressed Leg Seismic Hook: - Length (Model), 3/16"Ø (5mm) wire

☐ 3" (300-S-2X) ☐ 4" (400-S-2X) ☐ 5" (500-S-2X)

Continuous Wire Finish: (Diameter ☐ 9 ga. ☐ 3/16"Ø**)**

☐ Hot-Dip Galvanized | Stainless Steel ☐ Type 304 ☐ Type 316

Note: H&B recommends Stainless Steel Wire Ties for maximum protection against corrosion.

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

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Branch/Subsidiary Locations:
ALABAMA - ARIZONA - ILLINOIS
MARYLAND - NEW YORK
PENNSYLVANIA - TEXAS - UTAH
CANADA

PRODUCT SUBMITTAL

Sure-Tie for Steel

Sure-Tie quickly and accurately pierces insulation and/or wallboard to abut with steel/studs in brick veneer applications.

- One-piece design provides superior strength.
- 12-24 Self Driller.
- Accommodates 1/2" and 5/8" wallboard and various thicknesses of insulation.
- Silver-gray Climaseal® finish resulted in 0% red rust at 1000 hours exposure to ASTM B-117 salt spray testing.

The Sure-Tie System complies with ACI 530 Code. The adjustable Sure-Tie triangle allows a maximum of 1-1/4" vertical movement both up and down. Maximum clearance between connecting parts of the tie is 1/16" or less. Design permits no disengagement.

Sure-Tie allows positive contact with steel stud backup. Compression and tension loads in the veneer are transferred to the backup.

High strength barrel and slotted head fabricated from carbon steel. Manufactured and tested in conformance with SAE J78 (self-drilling and tapping screws).

Sure-Tie holds insulation in place, permitting contractors to install 4' x 8' sheets with ease, saving time, and money.

Sure-Tie meets seismic code requirements by simply adding the WIRE-BOND® welded clip and 9 gauge or 3/16" pencil rod.

PERFORMANCE DATA

PULLOUT - STEEL STUD					
Measurements in pounds					
20 Gauge	**18 Gauge**	**16 Gauge**	**14 Gauge**	**12 Gauge**	
365 (1)	722 (1)	931 (1)	1215 (1)	1369 (2)	
462 (1)	730 (1)	962 (1)	1178 (1)	1429 (2)	
412 (1)	653 (1)	986 (1)	1203 (1)	1169 (2)	
438 (1)	700 (1)	957 (1)	1200 (2)	1161 (2)	
318 (1)	594 (1)	976 (1)	1220 (2)	1181 (2)	
399	680	962	1203	1262	Averages
58	57	21	16	127	Std. Dev.

(1) Pullout from Steel
(2) Cap/Anchor Separation

PULLOUT FORCE TEST REPORT
"The Sure-Tie samples were pulled from the steel plates at a rate of 0.2 inches per minute. The plates were flat test plaques, except for the 12 gauge, which was cut from steel decking. The testing was performed using ITW test equipment. ITW personnel operated the test equipment. Trace Laboratories personnel witnessed the testing. The results were recorded and appear in the data section of this report. There were no abnormal occurrences to report".

Corporate Office
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Memphis Plant
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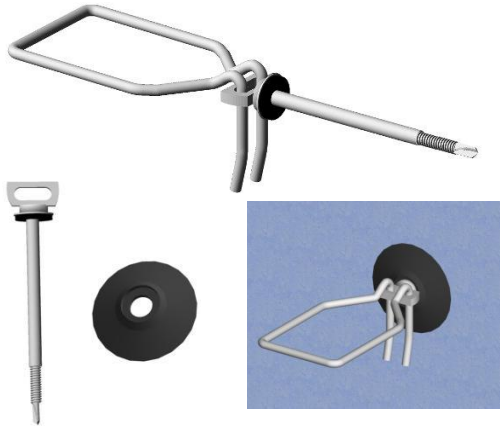
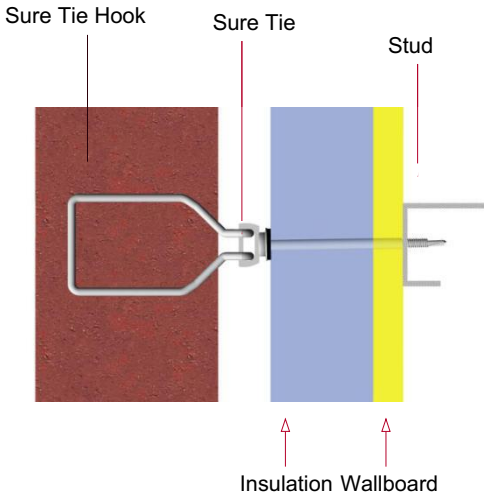
PRODUCT SUBMITTAL

Sure Tie WS Anchoring System





Optional Insulating Washer: 2" Diameter , flattens on surface of insulation. Stiffened center "Target" ring prevents fastener pull through.
Prevents air, wind and moisture penetration.

MATERIAL CONFORMANCE	SIZES / FINISHES
ASTM A82 / A82M - (Cold drawn steel wire) Tensile Strength - 80,000 psi Yield Point - 70,000 psi **ACI / ASCE 530** - (Building code requirements for masonry structures) Hot Dip Galvanized after fabrication / Zinc Coating **ASTM A153 / A153M-B2 (1.50 oz per sq ft)** Stainless Steel **ASTM 580 / ASTM 580M Type 304** (Type 316 available on special order) **Recycled Content:** Mill Galvanized & Hot Dipped, 82.8% Post-Consumer 17% Post Industrial / Pre-Consumer, Stainless Steel, 60% Post Consumer V O C Content - 0%	☐ **# 4522 Suretie** Silver-gray climaseal finish resulted in 0% red rust at 1000 hours exposure to ASTM B-117 salt spray testing. ☐ **# 4532 Suretie** Blue climaseal finish resulted in 0% red rust at 1000 hours exposure to ASTM B-117 salt spray testing. **Insulation:** ☐ 0" ☐ 1" ☐ 1-1/2" ☐ 2" ☐ 2-1/2" 3" 3-1/2" 4" 4-1/2" **GYP Board** : ☐ Yes ☐ No **GYP Board** : ☐ 1/2" ☐ 5/8" **#4515 Sure Tie Hook** 3/16" ☐ 3" ☐ 4" ☐ 5" **FINISH : (Sure Tie Hook)** ☐ Hot Dip Galvanized ☐ Stainless Steel

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2012 & 2015 IBC

"704.10 Exterior structural members. Load bearing structural members located within *exterior walls* or on the outside of a building or structure shall be provided with the highest *fire resistance rating* as determined in accordance with the following:

- As required by Table 601 for the type of building element based on construction of the building.

- As required by Table 601 for exterior bearing walls based on the type of construction; and

- As required by Table 602 for *exterior walls* based on the *fire separation " distance*."

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	 3 3[a]	 2 2[a]	 1 1	 0 0	 2 1	 2 0	 2 1/HT	 1 1	 0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	$1\frac{1}{2}$[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, d, g]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[e]	OCCUPANCY GROUP F-1, M, S-1[f]	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2, U
$X < 5^{b}$	All	3	2	1
$5 \le X < 10$	IA Others	3 2	2 1	1 1
$10 \le X < 30$	IA, IB IIB, VB Others	2 1 1	1 0 1	1[c] 0 1[c]
$X \ge 30$	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. See Section 706.1.1 for party walls.

c. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

d. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

e. For special requirements for Group H occupancies, see Section 415.6.

f. For special requirements for Group S aircraft hangars, see Section 412.4.1.

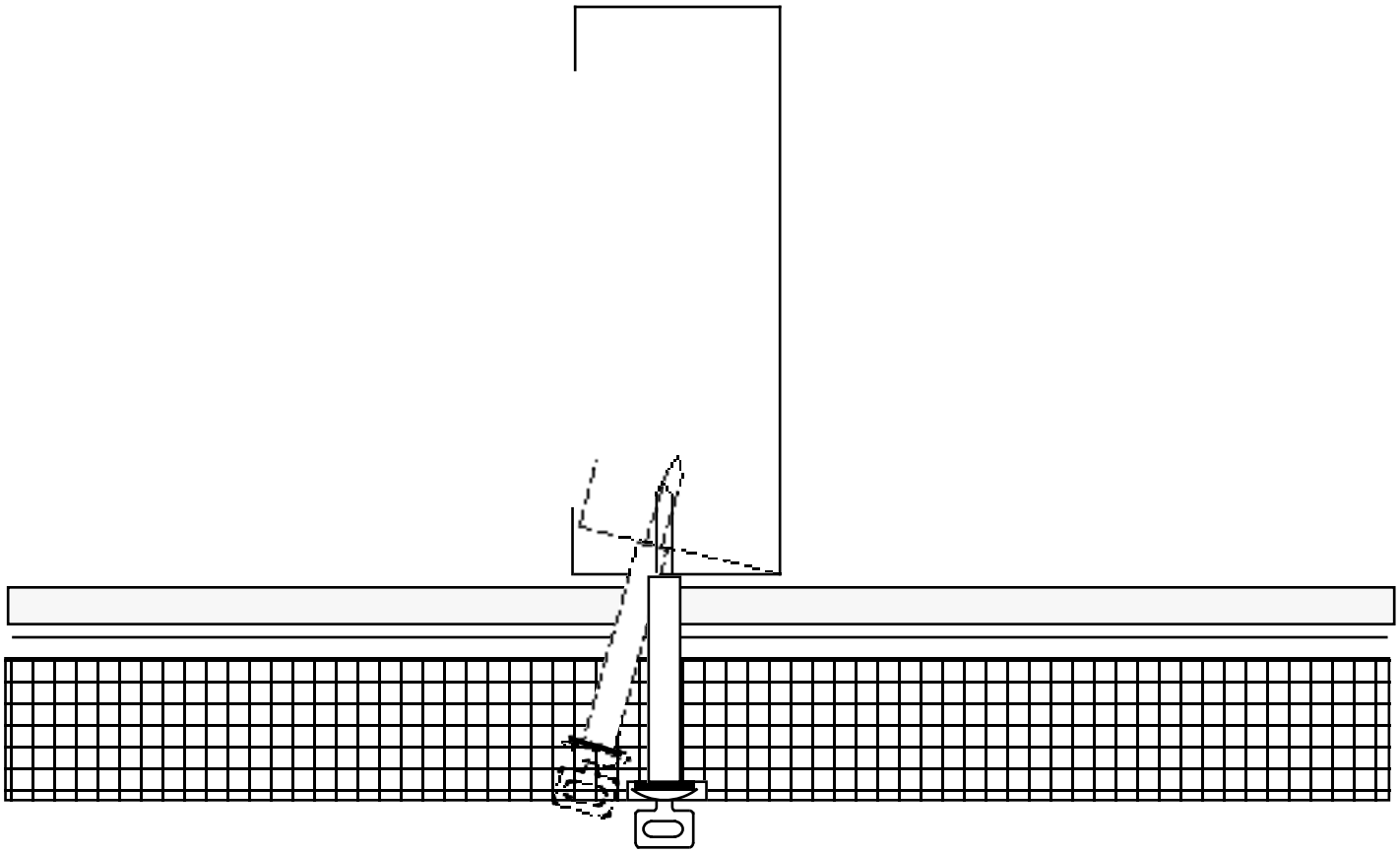
g. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

Testing

The only test available right how for testing the water tightness of a fastener penetration through a waterproofing membrane is:

ASTM D1970

The test if for the water tightness of a nail driven through a roofing Underlayment method that is applied to plywood.



Without contact against the exterior sheathing, these types of veneer anchors can exert point loads directly on the the “ leg “ of the stud least capable of bearing these loads. The result can be the deflection of this “ leg “ of the stud and a rotation of the anchor’s base plate if the load is large enough. This can be avoided increasing the gage of the LGMF so that zero or near zero deflection occurs under the maximum expected loads.

The PII's

Concerns

Can the studs REALLY be located through the insulation EVERY time?

When a stud is missed, how do you repair the AVB

How is continuity of the AVB achieved?
(Change of plane of air tightness)

Can the studs withstand the load on the weak leg
Without damaging the air/vapor barrier or veneer?


Questions?


Thank You