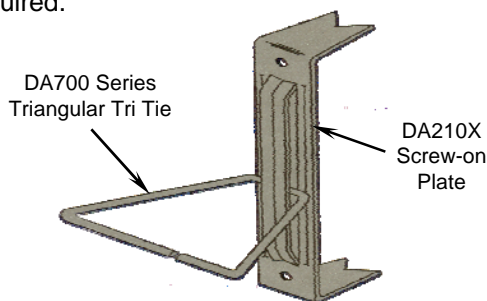


ADJUSTABLE MASONRY ANCHOR SYSTEM SUBMITTAL SHEET

DA210X SCREW-ON PLATE DA700 SERIES TRIANGULAR TIES

These two items are combined in the field to form a two part adjustable veneer anchoring system. This system has been especially designed for use in masonry cavity wall construction having a steel stud backing and clay brick veneer. System will work with or without having rigid insulation installed inside the cavity, next to the structural backing.

May be used in new exterior wall construction or in older veneer rehabilitation projects where partial or total removal of a masonry veneer is required.



DA210X SCREW-ON PLATE

Features 3" of vertical adjustment providing for ease of construction and to isolate in-plane brick veneer movements from the backing.

- Vertical slot does not clog with mortar.
- Uses two (2) DA807 or DA995 screws per plate for attaching to steel stud.
- Restricts out-of-plane movement restricted to 1/16".
- Veneer anchor is installed after insulation is in place which reduces construction time.
- Plate legs are sized to accommodate 5/8", 3/4", 1", 1 1/2", 2", 2 1/2", and 3" rigid foam or rigid fiberglass insulation/sheathing.
- Legs of veneer anchor pierce through rigid insulation and/or rigid glass fiber sheathing, transferring compression load directly to the metal studs.
- Compression loads do not damage insulation or sheathing.
- Raised formed metal stiffeners increases plate strength.

TRIANGULAR TIES

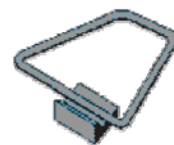
DA700 Triangular Ties are designed to anchor masonry veneer to a steel stud structure in Seismic Design Categories A, B, C, and D while Lite Duty Seismic Triangular Ties are designed for use in Seismic Design Categories E and F.

DA700QT Lite Duty Seismic Triangular Ties are supplied with a sheet metal shear lug that provides positive engagement with either our DA8706 Pencil Rod or DA320S Seismic Ladur Masonry Wall Reinforcement and a Triangular Tie.

Both types of Triangular Ties are available in the following sizes: 3" x 3", 4" x 4", 5" x 5", 6" x 6", 7" x 7" or 7" x 9".



Standard
Triangular Tie



Lite Duty Seismic
Triangular Ties

MATERIAL

- The DA210X Screw-on Plate is fabricated from 14 ga. sheet metal.
- Standard DA700 Triangular Ties are manufactured from 3/16" diameter wire.
- DA700QT Triangular Ties are manufactured from 3/16" diameter wire and 22 gauge sheet metal.

FINISH

Available in hot-dipped galvanized after fabrication or Type 304 stainless steel on special order.

ASTM SPECIFICATIONS

Dur-O-Wal DA210X and DA700 Series Triangular Ties are manufactured using materials that meet the following specifications:

- Carbon steel wire - A82/A82M-05a *Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.*

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- Carbon steel sheet metal - *A1008/A1008M-05a Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.*
- Hot-dipped galvanizing - *A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*, with a minimum zinc coating of 1 1/2 oz./sf of surface area.
- Stainless steel wire - *A580/A580M-98(2004) Standard Specification for Stainless Steel Wire, Type 304.*
- Stainless steel sheet metal - *A167-99(2004) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip*

BUILDING CODES

Dur-O-Wal masonry accessories are manufactured in accordance with the requirements of the 1997 *Uniform Building Code*, 2003 *International Building Code* and *Building Code Requirements for Masonry Structures (ACI 530-02/ASCE 5-02/TMS 402-02)*.

ANCHOR SPACING

When used to connect masonry veneer to its structural backing, the proper spacing of the DA210X /DA700 Series anchoring system depends on the Seismic Design Category in which the project is constructed. The ACI 530 *Building Code Requirements for Masonry Structures* specifies the following Seismic Design Categories and their associated anchor spacing.

Seismic Design Categories A, B and C

Provide at least one anchor for each 3.50 square feet of wall area. The maximum spacing for anchors is 32" horizontally and 18" vertically. Provide additional anchors around openings larger than 16" in either direction. Space anchors around perimeter of opening at 36" maximum centers and within 12" of the opening.

Seismic Design Category D

Provide at least one anchor for each 2.63 square feet of wall area. The maximum spacing for anchors is 32" horizontally and 18" vertically. Provide additional anchors around openings larger than 16" in either direction. Space anchors around perimeter of opening at 36" maximum centers and within 12" of the opening.

Seismic Categories E and F

Same as Seismic Design Category D except requires a 9 gauge DA8706 Masonry Joint Reinforcement spaced at a maximum of 18" on center vertically in the veneer. The MJR is to be mechanically attached using a seismic veneer anchor.

NOTE: Due to the difficulty in shipping DA8706 MJR without it becoming damaged in shipment, Dur-O-Wal recommends the use of DA3200S Seismic Ladur Masonry Joint Reinforcement instead.

High Wind Areas

The following applies where the basic wind speed exceeds 110 mph but does not exceed 130 mph and the mean roof height of the structure is equal to or less than 60 feet. Reduce the maximum wall area supported by each anchor to 70% of that specified from the appropriate Seismic Design Category. Space anchors at a maximum of 18" horizontally and vertically. Provide additional anchors around openings larger than 16" in either direction. Space anchors around openings at 18" maximum centers. Place anchors within 9" of opening.

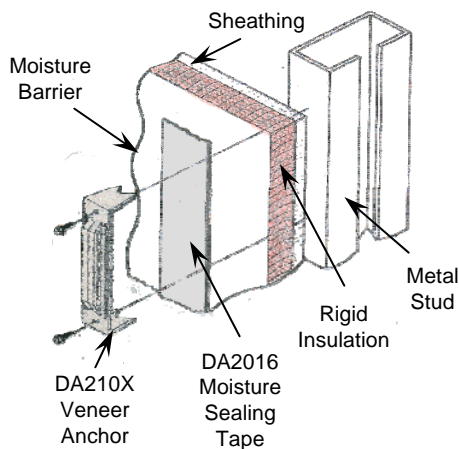
INSTALLATION

The legs of the DA210X pierce the rigid insulation and sheathing proving direct bearing against the metal stud framing material. Attachment of each veneer anchor is by the use of two (2) #10 or #12 DA807 or DA995 self-drilling and self-tapping screws.

At the point where the legs of the DA210X penetrates the moisture barrier and sheathing, the weather resistance of the wall will be enhanced by applying a 9" length of DA2016 Dur-O-Barrier Barrier Tape to the wall prior to installing the DA210X Screw-on Plate.

Triangular Ties must be embedded at least 1 1/2" into the brick veneer with a minimum mortar cover of 5/8" from the outside face of the veneer.

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Installation Detail

Ultimate Compression Values				
Stud (ga.)	Deflection at 100 lbs.	Screw Size	Stiffness (lbs./in.)	Ultimate Capacity (lbs.)
16	0.060"	#12	1,650	891
16	0.028"	#10	3,575	882
18	0.064"	#12	1,550	939
18	0.025"	#12	4,000	1,060

Note: All tension failures were due to screw pullout from a metal stud. Compression failures were due to bending of the Triangular Tie.

PACKAGING

Leg Length	Carton Quantity
5/8" and 3/4"	250 pcs.
1"	150 pcs.
2", 2 1/2" and 3"	100 pcs.

TEST RESULTS

The DA210X Veneer Anchor and DA700 Series Triangular Ties have been extensively tested to failure under both tension and compression modes. All tests were conducted with the Triangular Tie centered on the Screw-On Plate, a 4" cavity and various thickness of sheathing and insulation.

The average ultimate tensile values are:

Ultimate Tension Values				
Stud (ga.)	Deflection at 100 lbs.	Screw Size	Stiffness (lbs./in.)	Ultimate Capacity (lbs.)
16	0.033"	#12	3,025	1,096
16	0.018"	#10	5,550	908
18	0.033"	#12	3,025	612
18	0.018"	#10	5,550	491
20	0.029"	#12	3,450	322

RECOMMENDED SCREW LENGTHS

Leg Length	Screw Length
5/8"	1 1/2"
3/4"	1 1/2"
1"	2"
1 1/2"	2 1/2"
2"	3"
2 1/2"	4"
3"	4"

CERTIFICATE OF COMPLIANCE

Dur-O-Wal will issue a Certificate of Compliance for specific projects. Required information is:

- Description and location of project.
- Name of architect.
- Name of general contractor
- Name of mason or sub-contractor.
- Products and quantity to be certified.

A certification is issued with the understanding that when granted, an Order will be placed with a Dur-O-Wal dealer for the materials certified.

Dur-O-Wal retains the right to rescind any Certificate of Compliance issued for which an Order is not received within thirty (30) days of the issue date of the Certificate.

ADJUSTABLE MASONRY ANCHOR SYSTEM SUBMITTAL SHEET

LEEDS

May qualify for LEEDS *Materials Credit 4.1* as carbon steel anchors are manufactured from material consisting of approximately 70% post-industrial and 20% post-consumer recycled materials. Stainless steel anchors are manufactured from material containing 80% - 85% recycled content.

NOTICE

The information contained in this publication does not constitute any professional opinion or judgment and should not be used as a substitute for competent professional determinations. Each construction project is unique and the appropriate use of these products is the responsibility of the engineers, architects and other professionals who are familiar with the specific requirements of the project.

WARRANTY

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