

# DUR-O-WAL, INC.

## BRICK REPLACEMENT ANCHOR GUIDE

### I General

Dur-O-Wal has coupled our new masonry construction experience, with our masonry restoration experience, to create a line of anchors specifically for brick replacement. The Dur-O-Wal Veneer Tie Assembly anchors combine a veneer tie assembly with a substrate fastener for a system that can be tailored to any project. The designer can specify the Dur-O-Wal anchor and be assured that they will be getting the best veneer tie and substrate anchor that will work together as a system. The Dur-O-Wal Brick Replacement Anchor system reduces the need to evaluate substrate fastener performance both in the design phase, and after the project is released for bid.

**The Substrate Anchor:** The anchor portion the Brick Replacement System consists of a 1/4" (6mm) diameter bolt with a brass expanding shell, and a brass expansion cone. This anchor will perform in any substrate from soft brick to hard concrete. This is important when considering

the varying quality in existing substrates of older buildings. Be sure to specify the following performance criteria as a minimum.

**The Veneer Ties:** All the veneer ties by Dur-O-Wal are available in both Hot Dipped Galvanized 1.5 oz/sq ft (ASTM A153 B-2) and 304 series Stainless Steel (ASTM A167). For brick replacement, Dur-O-Wal recommends the use of 304 series Stainless Steel.

### II Products

**The Selection Chart:** The chart allows the designer to select the best system based on the available information. Quality, or type of backup, will not be a consideration because the Dur-O-Wal anchor will work in any type substrate. The selection chart is based on cavity width, insulation, the need for adjustable systems, and if the structure needs to be designed to current seismic and/or high wind parameters.

### Brick Replacement Anchor Selection Chart

Cavity Width	Insulated (Y/N)	Adjustability Required (Y/N)	Seismic/High Wind Considerations	Dur-O-Wal Product System
0" to 1/2"	No	No	No	5801 Stainless Steel
3/4" to 4"	Yes or No	Yes	No	5213 Stainless Steel
0" to 3"	No	No	Yes	5431 Stainless Steel
3/4" to 4"	Yes or No	Yes	Yes	5213S Stainless Steel

## Product Descriptions of Brick Replacement Systems and Recommended Applications

### DA 5801

Systems include both the veneer tie and the substrate anchor in a one piece assembly. Recommended for non-insulated cavity walls. The channel base plate is secured to the back-up and has a 1 1/4" (30mm) slot for slight coursing adjustability. The 3/16" (5mm) triangular tie is mortared in the veneer. The system is available in Hot Dipped and Stainless Steel finishes.

slight coursing adjustability. The tie is mortared into the veneer along with the new brick wythe. The system can or can not be used with pencil rod or seismic ladur. The use of these products in conjunction with the DA 5431, will meet UBC requirements or seismic zones 3 and 4. The 9 gauge pencil rod or seismic ladur must be placed in the lugs at the end of the DA 5431 as required by the UBC. The lugs resist compression and tension in the new veneer. The system is available in both Hot Dipped galvanized and Stainless Steel.

### DA 5213

Systems includes both the veneer tie (plate and pintle) and the substrate anchor in a piece assembly. Recommended for brick cavity walls with or without insulation. The system allows of maximum allowable adjustability of 1 1/4", in the dual legs of the 3/16" wire pintle. The back plate, complete with stiffening gussets for minimum back up flex, projects off the back up wall to accommodate ridged insulation or larger air cavities. The system is available in Hot Dipped galvanized and Stainless Steel.

### DA 5213S (Seismic)

System include veneer tie (back plate, and plate pintle) and substrate anchor in a 2 piece assembly. Recommended for reconstructing veneers that have insulation, and or a larger air cavity in areas that are prone to seismic activity and or high winds. The system is the same as the DA 5213 listed above with the exception of the plate pintle replacing the wire pintle. The plate pintle gives the system added strength and rigidity that could not be achieved with a wire pintle. The plate pintle include seismic lugs to accommodate veneer reinforcement, as well as required by the UBC Code. In addition the DA 5213S plate has side cut sheer lugs to resist lateral loads.

### DA 5431

System includes both the veneer tie, and the substrate anchor in a one piece assembly. Recommended for reconstructing veneers with no insulation, and little air cavity. The 14 gauge (1.9mm) strap has 1 1/4" (30mm) slot for

### SERIES: 5213/5213(S)

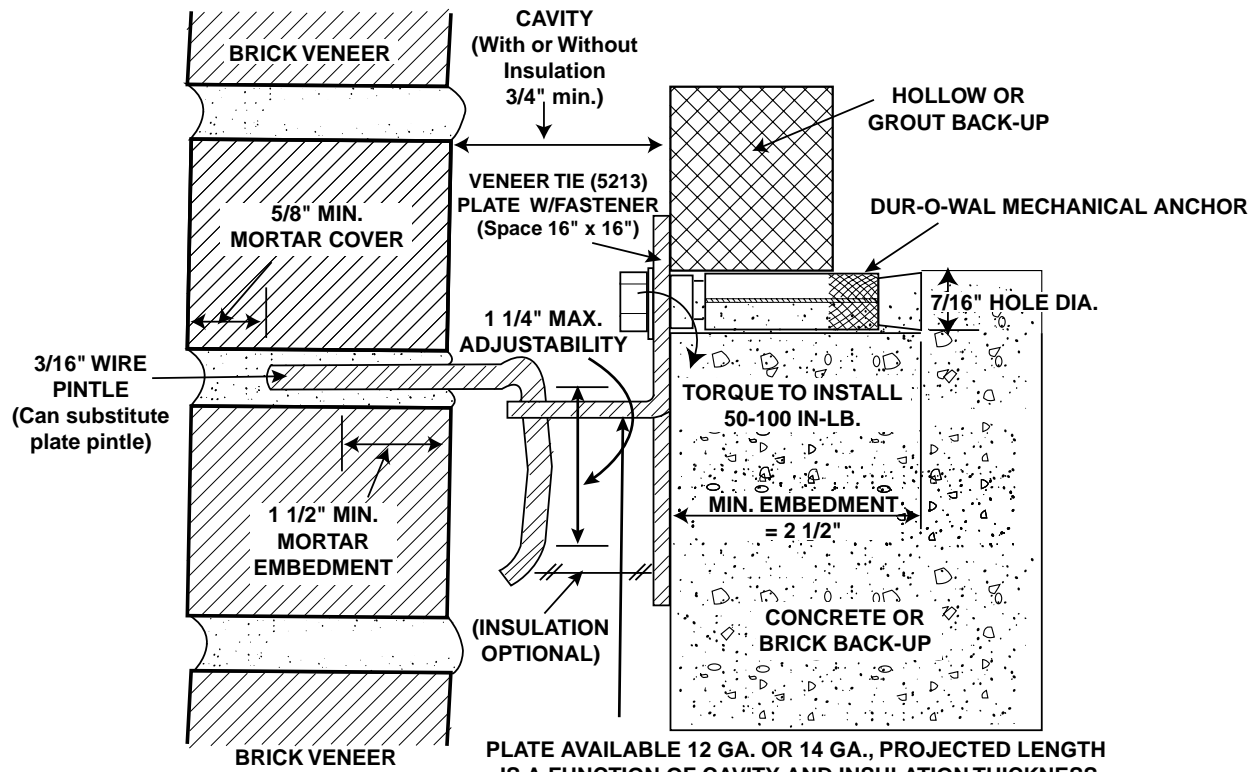


PLATE AVAILABLE 12 GA. OR 14 GA., PROJECTED LENGTH IS A FUNCTION OF CAVITY AND INSULATION THICKNESS (For Seismic, an 11 or 12 ga. plate pintle is used)

<b>DUR-O-WAL VENEER REANCHORING SYSTEM</b>		
SCALE: NTS	DUR-O-WAL, INC. 625 CRANE ST., AURORA, IL 60505 PH: 630-898-1101, FAX: 630-898-8331	DRAWN BY:
DATE:		REVISED:
Project:		
Series Anchor: <b>5213 / 5213(S)</b>		

# SERIES ANCHOR: 5213/5213S

## APPLICATION

VENEER	BACK-UP
Brick	Brick
	Concrete
	Block
	Tile

## ANCHOR SELECTION

ITEM NUMBER	ANCHOR LENGTH	CAVITY RANGE
5213330 ①	3" Tie w/0" Plate	¾"-1¼"
5213331 ①	3" Tie w/1" Plate	1¾"-2¼"
5213332 ①	3" Tie w/1¼" Plate	2¼"-2¾"
5213333 ①	3" Tie w/2" Plate	2¾"-3¼"
5213334 ①	3" Tie w/3" Plate	3¾"-4¼"

① Hot dip galvanized finish

The 5213 Veneer Tie Assembly is the most versatile veneer anchoring system for attachment to concrete or masonry. The single fastener provides exceptional clamping force and can be field inspected with a torque wrench. The hex head finish minimizes mortar bridging and provides easy installation. The tie assembly is available in hot dip or stainless steel. Other lengths of pintle or plate, and alternate gauge plates, are available. By substituting a plate pintle for the 3/16" wire pintle, the assembly becomes a high strength tie for seismic or severe wind load applications.

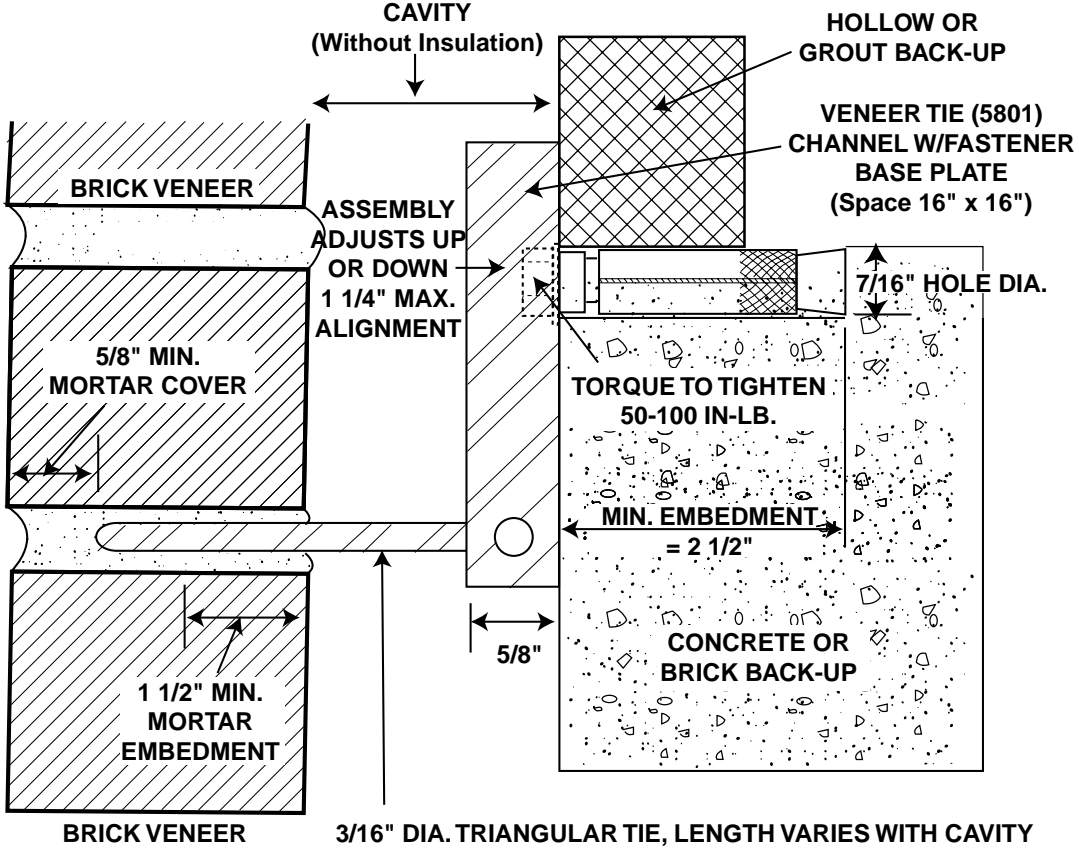
	SERIES 5213	ULTIMATE CAPACITY					
		COMPRESSION (lb)			TENSION (lb)		
		avg.	std. dev.	c.v.%	avg.	std. dev.	c.v.%
BACK-UP	Brick ①	N/A	N/A	N/A	2060	170	8.2
	Brick ②	N/A	N/A	N/A	1350	297	22
	Concrete ③	N/A	N/A	N/A	2170	382	17.6
	Mortar Jt. ④	N/A	N/A	N/A	1321	227	20.6
	Mortar Jt. ⑤	N/A	N/A	N/A	850	N/A	N/A
	Block ⑥	N/A	N/A	N/A	1385	175	12.7
	Tile	N/A	N/A	N/A	1200	N/A	N/A
VENEER CONNECTION	Standard ⑦						
	0"	540	N/A	N/A	540	N/A	N/A
	¾"	200	N/A	N/A	200	N/A	N/A
	1¼"	120	N/A	N/A	120	N/A	N/A
	Standard ⑧						
	0"	730	N/A	N/A	730	N/A	N/A
	¾"	240	N/A	N/A	240	N/A	N/A
	1¼"	180	N/A	N/A	180	N/A	N/A
	Heavy Duty ⑨						
	0"	1256	N/A	N/A	1256	N/A	N/A
	¾"	380	N/A	N/A	380	N/A	N/A
	1¼"	360	N/A	N/A	360	N/A	N/A

- ① MW brick, 11000 psi
- ② MW brick, 7700 psi
- ③ 3500 psi
- ④ 1450 psi mortar strength, Type N
- ⑤ 950 psi mortar strength, Type N
- ⑥ Light weight hollow block
- ⑦ 3/16" wire pintle, w/14 gauge plate
- ⑧ 12 gauge plate pintle, w/14 gauge plate
- ⑨ 11 gauge plate pintle, w/12 gauge plate

## SPECIFICATION REFERENCE FOR DUR-O-WAL FACADE ANCHOR SERIES: 5213 VENEER TIE ASSEMBLY

GENERAL				PRODUCTS			EXECUTION					
Quality Assurance Submittals *Ultimate Anchor performance				Anchors & Fasteners for solid Veneers >=3" to a solid back-up			Components		Hole Size		Anchor Length	Drilling Technique
Backup		Facade		Item	Product	Manufacturer	Tie-HDG	Backup	Facade	FIELD VERIFY		
TEN	COM	TEN	COM	Facade Stabilization Anchor	5213	DUR-O-WAL or approved Equal	or S.S.	7/16"	N/A			
							Brass Exp.					
							Anchor					
							S.S. Bolt					
*Submittals for alternate should meet or exceed ultimate anchor performance. Refer to anchor performance characteristics for performance specifications.												

# SERIES: 5801



<b>DUR-O-WAL VENEER REANCHORING SYSTEM</b>		
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DATE:		REVISED:
Project:		
Series Anchor: <b>5801</b>		

# SERIES ANCHOR: 5801

## APPLICATION

VENEER	BACK-UP
Brick	Brick
	Concrete
	Block
	Tile

## ANCHOR SELECTION

ITEM NUMBER	ANCHOR LENGTH	CAVITY RANGE
5801232 ①	3" Tie	¾"-1¼"
5801242	4" Tie	¾"-2¼"
5801252	5" Tie	1¾"-3¼"

① Hot dip galvanized finish, available in 304 stainless steel.

The 5801 Veneer Tie Anchoring System is an excellent, high strength adjustable wall tie anchoring system. It is assembled complete with the Dur-O-Wal masonry fastener to mechanically attach to any concrete or masonry back-up wall. The design allows for 1¼" maximum alignment of the mortar joint. The hex head finish on the anchor minimizes mortar clutter in the cavity and provides significant clamping force. The style fastener allows for site quality control via torque measurement.

	SERIES 5801	ULTIMATE CAPACITY					
		COMPRESSION (lb)			TENSION (lb)		
		avg.	std. dev.	c.v.%	avg.	std. dev.	c.v.%
BACK-UP	Brick ①	N/A	N/A	N/A	2060	170	8.2
	Brick ②	N/A	N/A	N/A	1350	297	22
	Concrete ③	N/A	N/A	N/A	2170	382	17.6
	Mortar Jt. ④	N/A	N/A	N/A	1321	227	20.6
	Mortar Jt. ⑤	N/A	N/A	N/A	850	N/A	N/A
	Block ⑥	N/A	N/A	N/A	1385	175	12.7
	Tile	N/A	N/A	N/A	1200	N/A	N/A
VENEER	1/4" ⑦	N/A	N/A	N/A	600	N/A	N/A
	1" ⑦	N/A	N/A	N/A	375	N/A	N/A
	1¼" ⑦	N/A	N/A	N/A	200	N/A	N/A

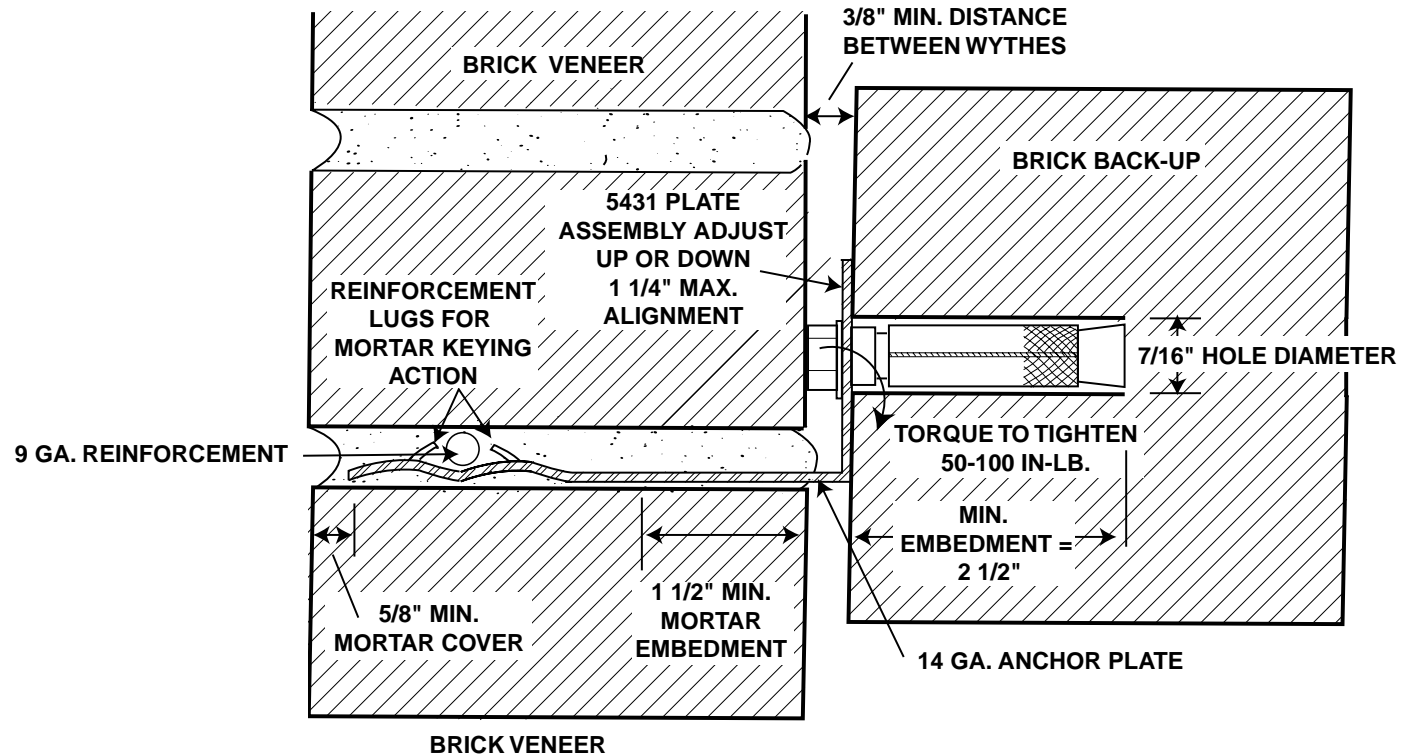
- ① MW brick, 11000 psi
- ② MW brick, 7700 psi
- ③ 3500 psi
- ④ 1450 psi mortar strength, Type N
- ⑤ 950 psi mortar strength, Type N
- ⑥ Light weight hollow block
- ⑦ Eccentricity of applied load to plate connection

### SPECIFICATION REFERENCE FOR DUR-O-WAL FACADE ANCHOR SERIES: 5801 VENEER TIE ASSEMBLY

GENERAL				PRODUCTS			EXECUTION					
Quality Assurance Submittals *Ultimate Anchor performance				Anchors & Fasteners for solid Veneers >=3" to a solid back-up			Components		Hole Size		Anchor Length	Drilling Technique
Backup		Facade		Item	Product	Manufacturer	Tie-HDG	Backup	Facade			
TEN	COM	TEN	COM	Facade Stabilization Anchor	5801	DUR-O-WAL or approved Equal	or S.S.	7/16"	N/A	FIELD VERIFY		
							Brass Exp.					
							Anchor					
							S.S. Bolt					

\*Submittals for alternate should meet or exceed ultimate anchor performance. Refer to anchor performance characteristics for performance specifications.

# SERIES: 5431



<b>DUR-O-WAL VENEER REANCHORING SYSTEM</b>		
SCALE: NTS	DUR-O-WAL, INC. 625 CRANE ST., AURORA, IL 60505 PH: 630-898-1101, FAX: 630-898-8331	DRAWN BY:
DATE:		REVISED:
Project:		
Series Anchor: <b>5431</b>		

# SERIES ANCHOR: 5431

## APPLICATION

VENEER	BACK-UP
Brick	Brick
	Concrete
	Block
	Tile

## ANCHOR SELECTION

ITEM NUMBER	ANCHOR LENGTH	CAVITY RANGE
5431332 ①	3½"	0"-¾"
5431432 ②	3½"	0"-¾"

① Hot dip galvanized ② Stainless steel

The 5431 Series Veneer Tie Assembly is a strap anchor wall tie system. The 14 gauge plate is available in finishes of hot dip or stainless steel, and is provided with a fastener to attach to any masonry structure. The fastener provides a hex bolt appearance to minimize clutter in the attachment and provide a means to inspect the anchor. Other gauges, widths, lengths can be made to order.

	SERIES 5431	ULTIMATE CAPACITY					
		COMPRESSION (lb)			TENSION (lb)		
		avg.	std. dev.	c.v.%	avg.	std. dev.	c.v.%
BACK-UP	Brick ①	N/A	N/A	N/A	2060	170	8.2
	Brick ②	N/A	N/A	N/A	1350	297	22
	Concrete ③	N/A	N/A	N/A	2170	382	17.6
	Mortar Jt. ④	N/A	N/A	N/A	1321	227	20.6
	Mortar Jt. ⑤	N/A	N/A	N/A	850	N/A	N/A
	Block ⑥	N/A	N/A	N/A	1385	175	12.7
	Tile	N/A	N/A	N/A	1200	N/A	N/A
VENEER							

- ① MW brick, 11000 psi
- ② MW brick, 7700 psi
- ③ 3500 psi
- ④ 1450 psi mortar strength, Type N
- ⑤ 950 psi mortar strength, Type N
- ⑥ Light weight hollow block

### SPECIFICATION REFERENCE FOR DUR-O-WAL FACADE ANCHOR SERIES: 5431 VENEER TIE ASSEMBLY

GENERAL				PRODUCTS			EXECUTION					
Quality Assurance Submittals *Ultimate Anchor performance				Anchors & Fasteners for solid Veneers >=3" to a solid back-up			Components		Hole Size		Anchor Length	Drilling Technique
Backup		Facade		Item	Product	Manufacturer	Clip-HDG	Backup	Facade			
TEN	COM	TEN	COM	Facade Stabilization Anchor	5431	DUR-O-WAL or approved Equal	or S.S.	7/16"	N/A	FIELD VERIFY		
							Brass Exp.					
							S.S. Bolt					

\*Submittals for alternate should meet or exceed ultimate anchor performance. Refer to anchor performance characteristics for performance specifications.