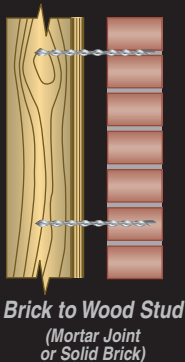


**Helical Wall Tie System
for Stabilizing Veneers
and Structural Repair**

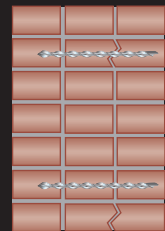
AGAIN! ANOTHER
CTP SOLUTION!

CTP STITCH-TIE

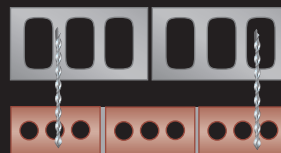
**Quick and easy way to re-anchor
existing veneers to back-up structures.**



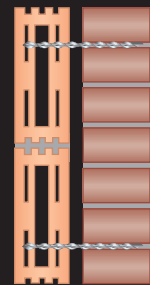
Brick to Wood Stud
(Mortar Joint
or Solid Brick)



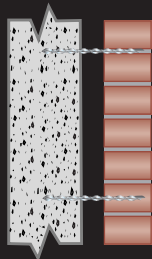
Multi-Wythe Brick



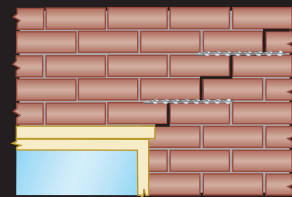
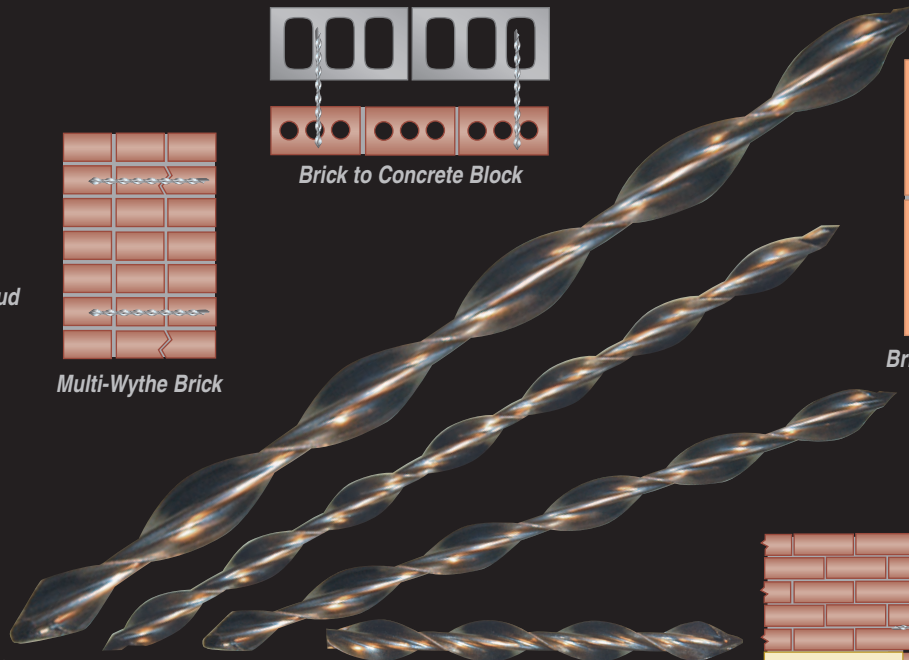
Brick to Concrete Block



Brick to Clay Tile



Brick to Concrete



Crack Repair

Re-Anchor Existing Veneers to Back-Up Structures with Strength

- Existing façades constructed of brick, stone, masonry, pre-cast concrete, etc. that have wall ties missing or corroded, can be re-attached using CTP Stitch-Ties
- Reconnect veneer to block, concrete, brick and wood structures without exposed hardware
- Useful to repair cracked brick veneers via reinforcing distressed sections by horizontally pointing the CTP Stitch-Tie in the bed joint

Made in the U.S.A.

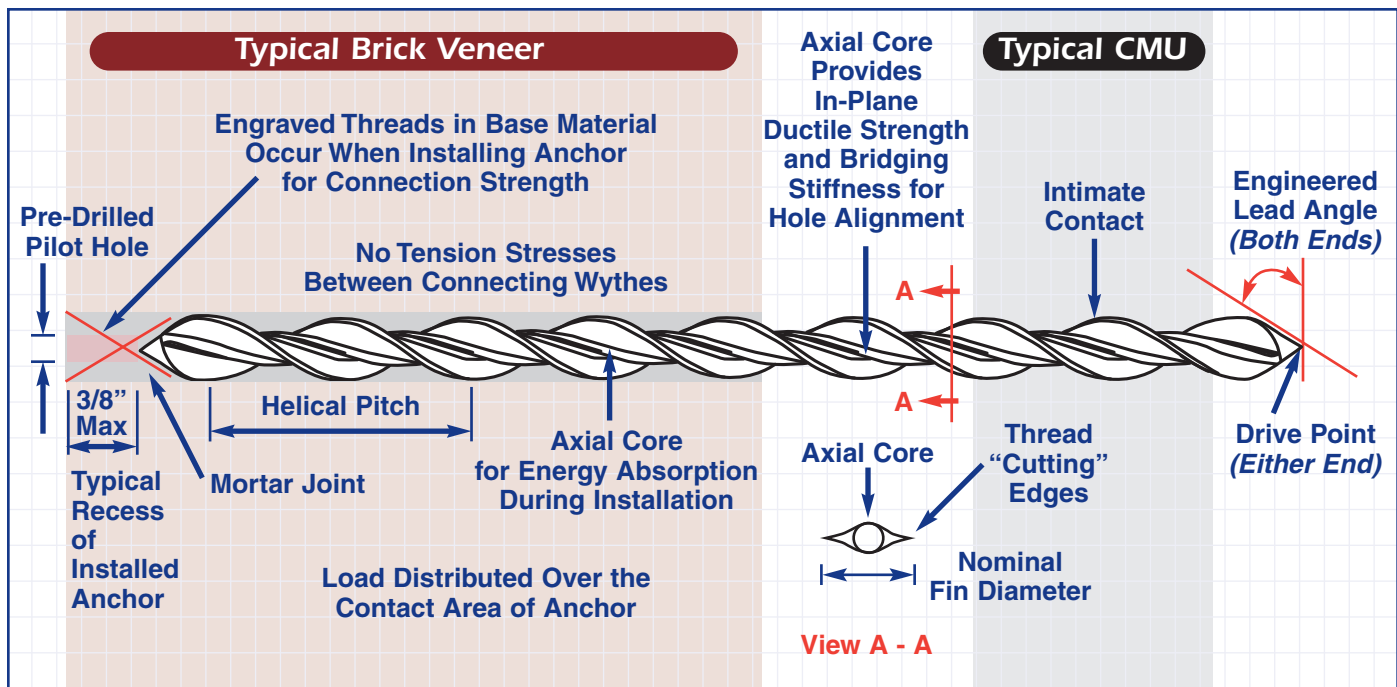
CTP, Inc. • www.ctpanchors.com
Phone: (219) 878-1427 • Fax: (219) 874-3626

**Pinning Solution
for Re-Anchoring
Existing Veneers to
Various Sub-Strates**



Construction Tie Products, Inc. is committed to supplying the highest quality masonry tie and construction systems in North America and satisfying all stringent national codes and standards for today's building structures. CTP, Inc. promises to be a reliable product source along with on-time business integrity for all demanding builders. Call anytime for technical assistance or recommendations.

The CTP Stitch-Tie Advantages



CTP Stitch-Tie Product Information

Typical CTP Stitch-Tie Performance Characteristics			
Material	Effective Minimum Embed (inches)	Ultimate Tension/Compression (lbs.)	
		8mm	10mm
Mortar Joint	3"	700	600
Brick (solid)	3 5/8"	700	700
Brick (cavity)	3 5/8"	1200	1400
CMU (hollow) 6" (normal wt CMU)	1"	800	900
CMU (grouted) (lightweight block)	2"	550	550
Concrete	1 1/4"	1200	1300
Wood Stud • 2 x 4 • 2 x 6	3" 3"	520 520	N/R N/R
Metal Stud	16 gauge	300	N/R
Granite	1 1/8"	500	650
Travertine	7/8"	500	800
Limestone	3"	600	620

* This data reflects the results of lab, field and in-house results and provided as a guideline for the designer. Site testing is encouraged for verification of load carrying capacity. (N/R = not recommended)

CTP Stitch-Tie Physical Characteristics			
nominal dimensions			
Outside tie diameter	6mm	8mm	10mm
Pitch length: in. (mm)	0.59 (15)	0.79 (20)	1.0 (25.4)
Tie cross-sectional area: in. ² (mm ²)	0.012 (8)	0.016 (10)	0.02 (13)
Yield strength: ksi (MPa)	108 (745)	108 (745)	93 (640)
Tensile strength: ksi (MPa)	130 (896)	128 (883)	119 (820)

* Material: ASTM A-167 TYPE 304 Stainless Steel

Typical CTP Stitch-Tie Shaft Properties		
ULTIMATE SHAFT BUCKLING STRENGTH		
UNSUPPORTED LENGTH (mm)	CAPACITY (lb)	
	8MM	10MM
1 inch (25mm)	1620	2335
2 inch (50mm)	1425	1613
4 inch (100mm)	1100	1185
6 inch (150mm)	725	614

Performance

Each construction site is unique and the appropriate use of this product is the responsibility of the engineers, architects, and other professionals who are familiar with the specific requirements of the project. The data reflects results of lab, field and in-house tests and are provided as a guideline for the designer. Site testing is encouraged for verification of load capacity.

CTP Stitch-Tie Application Guide

Pinning and Re-Anchoring

The **CTP Stitch-Tie** is a Stainless Steel (Type 304) pinning solution for re-anchoring existing veneers to various sub-strates. The process eliminates the need to tear down and replace existing facades, and preserve the beauty and historical integrity of the existing building. **CTP Stitch-Tie** pins are installed in pre-drilled holes by use of a dry set tool and a rotary hammer. The percussion action of the drill will create the driving forces necessary for the spiral shaped tie to thread into the building material. Once installed, the helical shape offers an in-plane flexible connector between wythes of material, while maintaining a threaded connection to resist out of plane loading for both tension and compression resistance. The **CTP Stitch-Tie** does not draw walls together – therefore tension forces between wythes are

not present. They are installed in relatively small holes that are easily patched and concealed. Various diameters and lengths are available for numerous applications. **CTP Stitch-Tie** can also be field trimmed using cutters for optimum length requirements.

Anchor Spacing

CTP Stitch-Tie anchors are typically installed at one anchor per 2 square feet of veneer area to be retrofitted. It is recommended that you refer to your local building codes and standards for spacing condition requirements of wall ties and anchors for appropriate compliance.

CTP Stitch-Tie Lintel and Shelf Angle Support

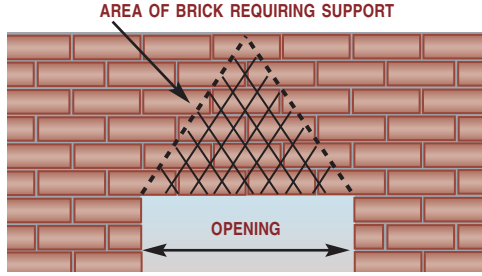
CTP Stitch-Tie stainless steel helical wall ties can be used for providing temporary stability for brick veneer walls above openings created for the repair or replacement of lintels or shelf angles.

Data supplied is based on the resulting stiffness of 8mm **CTP Stitch-Tie** at various cavities:
 1" cavity = 1,264 lb/in • 2" cavity = 316 lb/in • 3" cavity = 140 lb/in

- 1.) Stabilize veneer above opening using 8mm or 10mm **CTP Stitch-Ties**.
- 2.) Space **CTP Stitch-Tie** anchors :

	CAVITY		
	1"	2"	3"
HORIZONTAL	12	12	12
VERTICAL	12	6	3

- 3.) First row of **CTP Stitch-Ties** to be installed in the lower bed joint of the remaining course above opening, supporting brick above.
- 4.) Openings 8 feet and larger should have a greater number of **CTP Stitch-Ties** populate the center area of veneer above the middle of the opening. To accomplish this reduce the horizontal placement of two **CTP Stitch-Ties** every other course by adding them to the vertical field of brick.



Repair cracked brick veneers by pointing a 6 mm x 40" long **CTP Stitch-Tie** bar across the distressed section. Bed the bar equally across the distressed section. Bed the bar in **CTP Stitch-Tie** grout, or compatible mortar, approximately 1" deep in the 1-1/2" (minimum) cut bed joint, and then finish the process by pointing the last 1/2" with compatible mortar. Space **CTP Stitch-Tie** bars vertically at 6 course intervals along the length of crack, above and below its ending.

Applications

The **CTP Concrete Patch-Tie** is a stainless steel helical shaped stitch-tie anchor and is used to provide a non-corrosive mechanical connection between damage concrete and patching material. The anchoring system is typically applied with concrete patch repairs to balconies, curbs, coping, precast, columns, beams flat work, etc. as a means to key the patch material mechanically to the parent structure. The pin can be used to attach patches to limestone.

Features

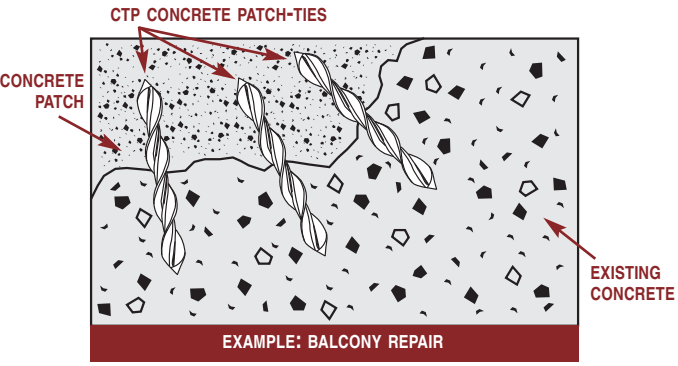
- Spiral shape creates a threaded connection to base material
- Manufactured of 300 Series Stainless Steel
- Positive connection and effective length for most patching applications
- Manufactured shape provides excellent bonding capabilities
- Installs quick and easy

Description

The **CTP Concrete Patch-Tie** is a nominal 8mm diameter helical shaped anchor that is manufactured of type 304 stainless steel. It is available in 3" lengths. The thread pitch is 0.79 threads per inch and cross sectional area is 0016 sq. in. Typical yield is 108,000 psi and tensile of 128,000 psi. The minimum embedment is 1-3/4" in the concrete sub-strata which provides a 1-1/4" embedment for the patching material. Ultimate tension capacity equals 1200 lbs. in 3,500 psi concrete.

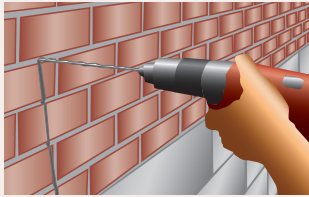
Installation

- 1.) Clean area to be patched and remove any loose material. Treat exposed rebar as required.
- 2.) Drill a 1/4" hole in the concrete 1-3/4" – 2" deep. Ties should be spaced one per 6" in all directions, and a 2" edge distance is required. A minimum of 2 **CTP Concrete Patch-Ties** per patch is required.
- 3.) Using the **CTP Concrete Patch-Tie** setting tool, install the anchor in the predrilled hole with the aid of a rotary hammer (SDS preferred). Hammer into place until the tool bottoms out.
- 4.) The exposed tie portion should not extend above the patch height. If so, trim or bend anchor to attain the proper profile.
- 5.) Apply patching material.

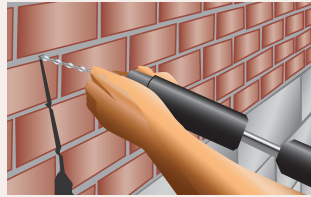


CTP Stitch-Tie Installation Guidelines

CTP Stitch-Tie Installation



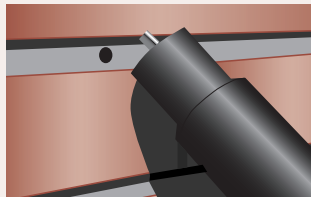
Step 1: Drill a pilot hole using percussion hammer drill (3-jaw chuck type) through the mortar joint...



Step 2: Insert the CTP Stitch-Tie Wall Tie into the dry set installation tool mounted on the rotary hammer S.D.S. drill.



Step 3: Drive the CTP Stitch-Tie Wall Tie until the nose of the dry set installation tool is hard against the veneer.



Step 4: The dry set installation tool automatically recesses the CTP Stitch-Tie Wall Tie into the face of the masonry. Patch hole.

Typical CTP Stitch-Tie Masonry Bit Size (mm)

Façade Material	CTP Stitch-Tie	BACK-UP MATERIAL						
		Mortar Joint	Brick	Hollow CMU	Solid CMU	Concrete	Wood Stud	Metal Stud
Mortar Joint	8mm	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"
	10mm	5/16"	5/16"	5/16"	5/16"	5/16"	5/16"	5/16"
Brick	8mm	1/4"	1/4"	1/4"	1/4"	1/4"	5/16"	1/4"
	10mm	5/16"	5/16"	5/16"	5/16"	5/16"	5/16"	5/16"
Hollow CMU	8mm	3/16"	1/4"	3/16"	3/16"	1/4"	3/16"	3/16"
	10mm	5/16"	5/16"	5/16"	5/16"	5/16"	5/16"	5/16"
Solid CMU	8mm	3/16"	7/32"	3/16"	3/16"	7/32"	3/16"	3/16"
	10mm	5/16"	11/32"	5/16"	5/16"	11/32"	5/16"	5/16"
Precast Concrete	8mm	1/4"	1/4"	1/4"	1/4"	7/32"	1/4"	1/4"
	10mm	5/16"	5/16"	5/16"	5/16"	11/32"	5/16"	5/16"
Stone	8mm	1/4"	7/32"	1/4"	1/4"	7/32"	1/4"	1/4"
	10mm	5/16"	11/32"	5/16"	5/16"	11/32"	5/16"	5/16"

CTP Stitch-Tie Length Selection*

Nominal Length	Minimum Drilled Hole Depth	Cavity Range to Back-Up	
		CMU (solid & hollow)	Concrete
6"	6-5/8"	1" - 0	1-1/2" - 0
7"	7-5/8"	2" - 0	2-1/2" - 1-1/2"
8"	8-5/8"	3" - 0	3-1/2" - 1-1/2"
10"	10-5/8"	5" - 0	5-1/2" - 3-1/2"
12"	12-5/8"	7" - 0	7-1/2" - 5-1/2"

* Based on nominal 4" outer wythe

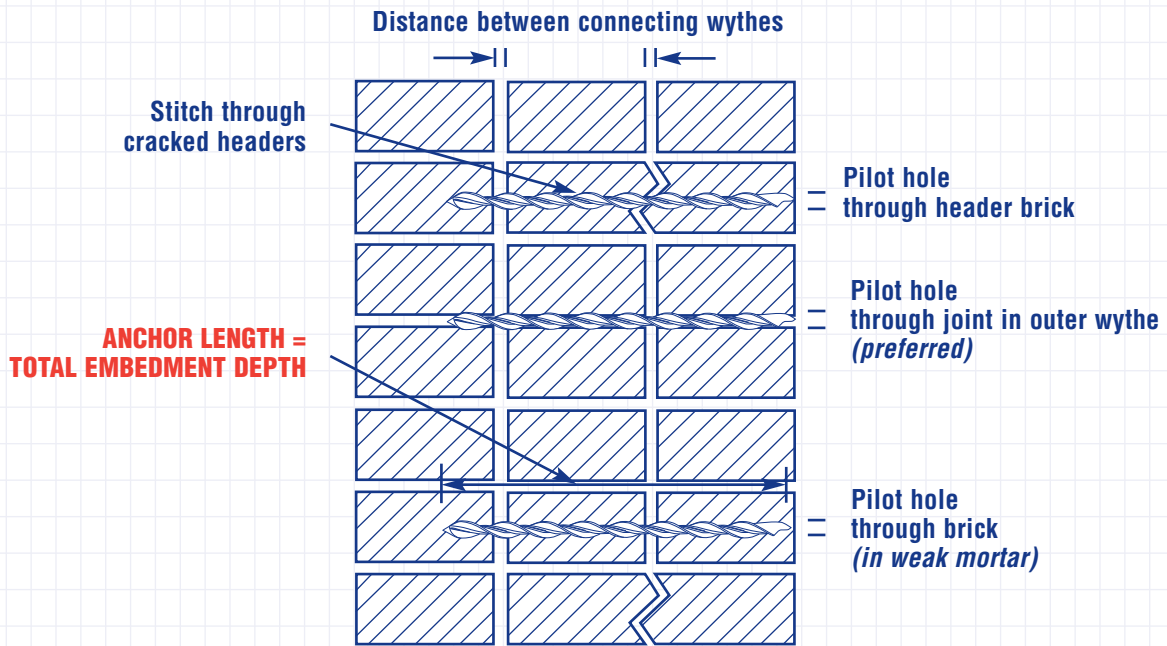
CTP Stitch-Tie Order Guide

CATALOG NUMBER	DESCRIPTION	QUANTITY / BOX	LBS. / BOX
CTP STBAR-640	CTP Stitch-Tie 6mm x 40" Crack Reinforcement	25	4.00
CTP ST-830	CTP Stitch-Tie 8mm x 3" (75mm) CTP Concrete Patch-Tie	100	1.00
CTP ST-860	CTP Stitch-Tie 8mm x 6" (150mm)	100	3.00
CTP ST-870	CTP Stitch-Tie 8mm x 7" (175mm)	100	3.40
CTP ST-880	CTP Stitch-Tie 8mm x 8" (200mm)	100	3.70
CTP ST-8100	CTP Stitch-Tie 8mm x 10" (250mm)	100	4.50
CTP ST-8120	CTP Stitch-Tie 8mm x 12" (300mm)	50	3.00
CTP ST-8140	CTP Stitch-Tie 8mm x 14" (350mm)	50	3.50
CTP ST-8160	CTP Stitch-Tie 8mm x 16" (400mm)	50	4.00
CTP ST-8180	CTP Stitch-Tie 8mm x 18" (450mm)	50	4.50
CTP ST-1060	CTP Stitch-Tie 10mm x 6" (150mm)	50	2.00
CTP ST-1070	CTP Stitch-Tie 10mm x 7" (175mm)	50	2.00
CTP ST-1080	CTP Stitch-Tie 10mm x 8" (200mm)	50	2.20
CTP ST-10100	CTP Stitch-Tie 10mm x 10" (250mm)	50	2.80
CTP ST-10120	CTP Stitch-Tie 10mm x 12" (300mm)	50	3.40
CTP ST-10140	CTP Stitch-Tie 10mm x 14" (350mm)	50	3.90
CTP ST-10160	CTP Stitch-Tie 10mm x 16" (400mm)	50	4.40
CTP ST-10180	CTP Stitch-Tie 10mm x 18" (450mm)	50	6.00
CTP ST8 Tool	CTP Stitch-Tie setting tool - 8mm Tie	1	2.00
CTP ST10 Tool	CTP Stitch-Tie setting tool - 10mm Tie	1	2.00

1) All anchors are Type 304 Stainless, Type 316 SS available upon request. 2) 4.5mm and 6mm diameter bars available upon request. 3) Other lengths available upon request.

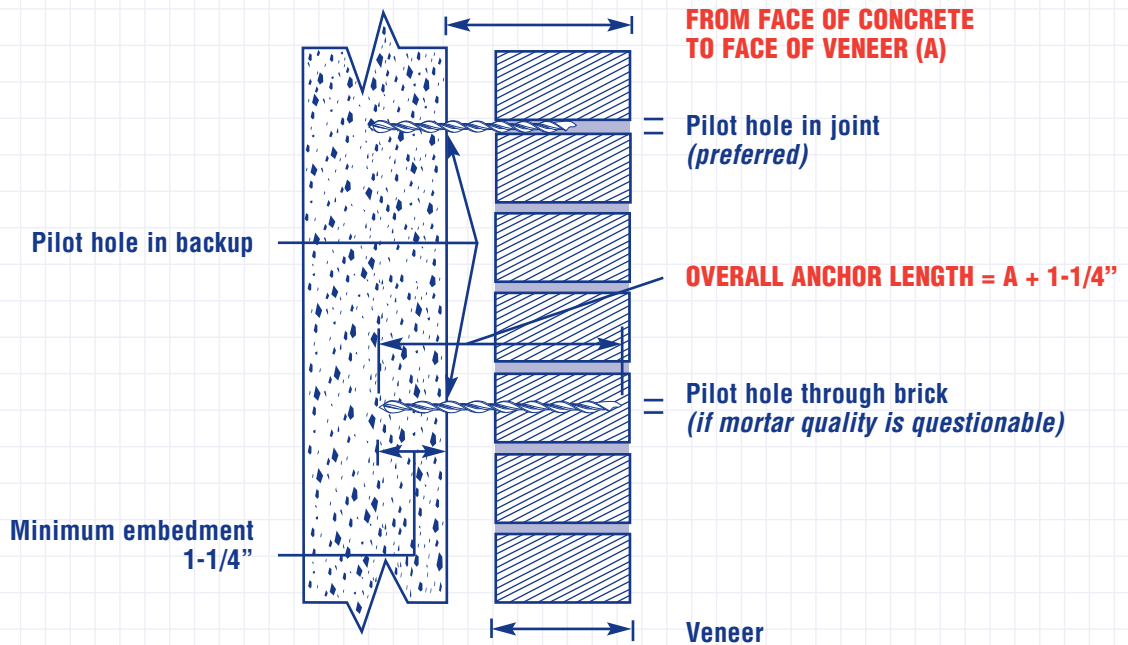
CTP Stitch-Tie Installation Guidelines

Reconnecting Multi Wythes Brick



NOTE: Pilot hole depth should be greater than anchor length by 1" minimum.

Brick Veneer to Concrete Backup

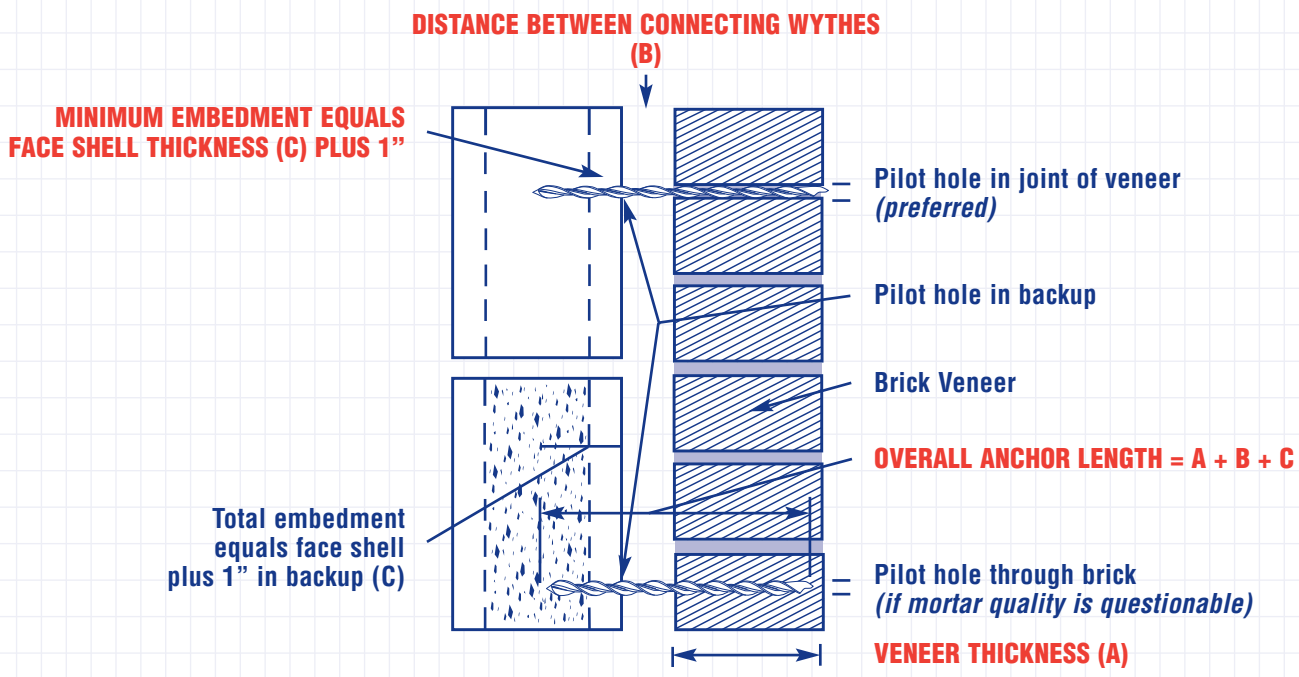


MINIMUM ANCHOR LENGTH REQUIRED = A + 1-1/4"

NOTE: Pilot hole should be greater than anchor length by 1" minimum.

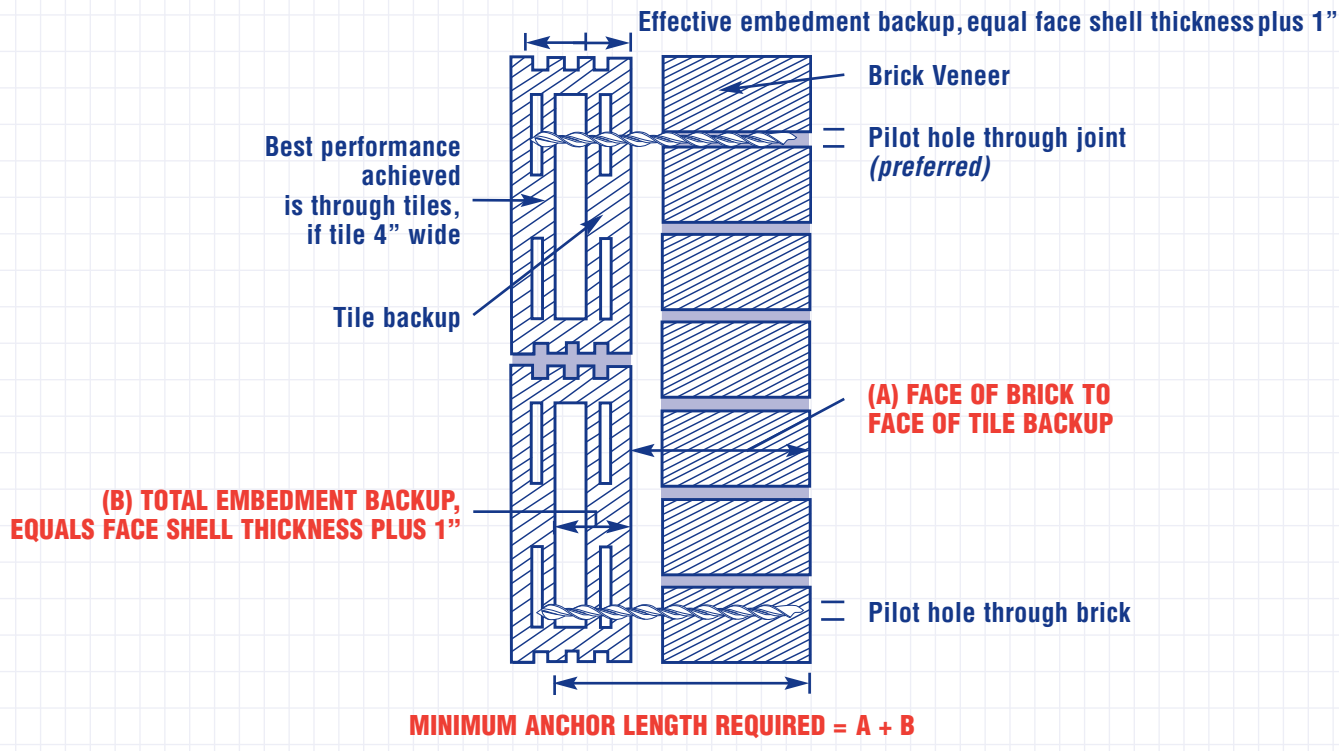
CTP Stitch-Tie Installation Guidelines

Brick Veneer to Hollow or Solid CMU Backup



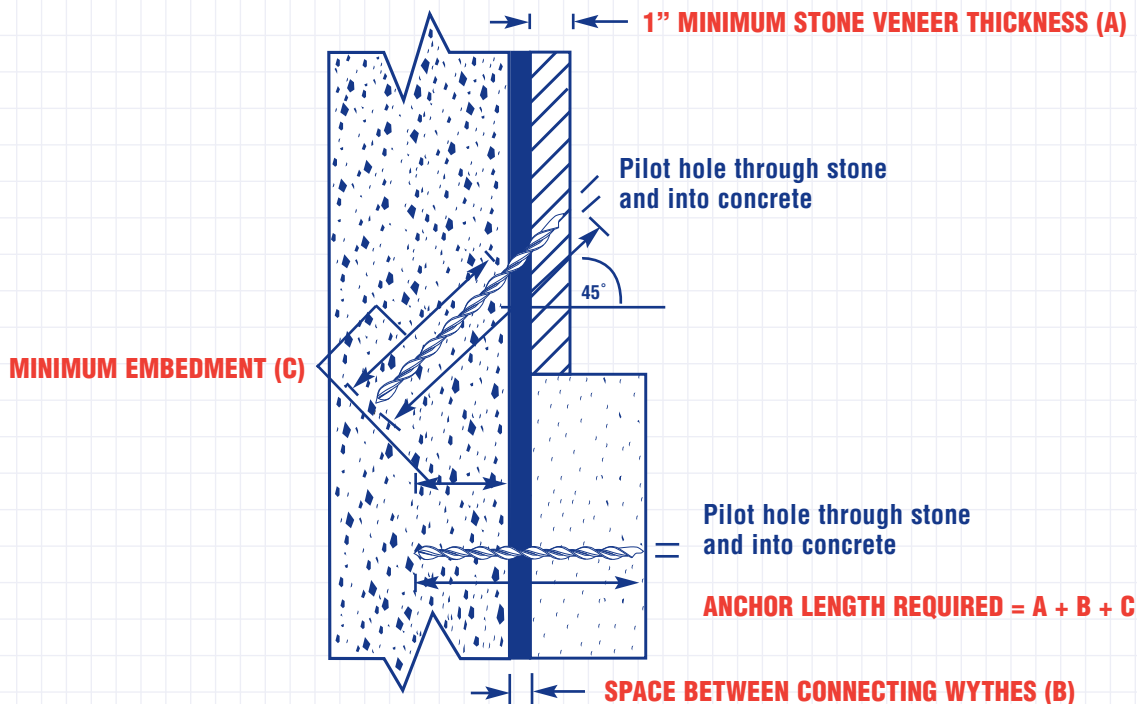
NOTE: Pilot hole should be greater than anchor length by 1" minimum.

Brick Veneer to Clay Tile Backup

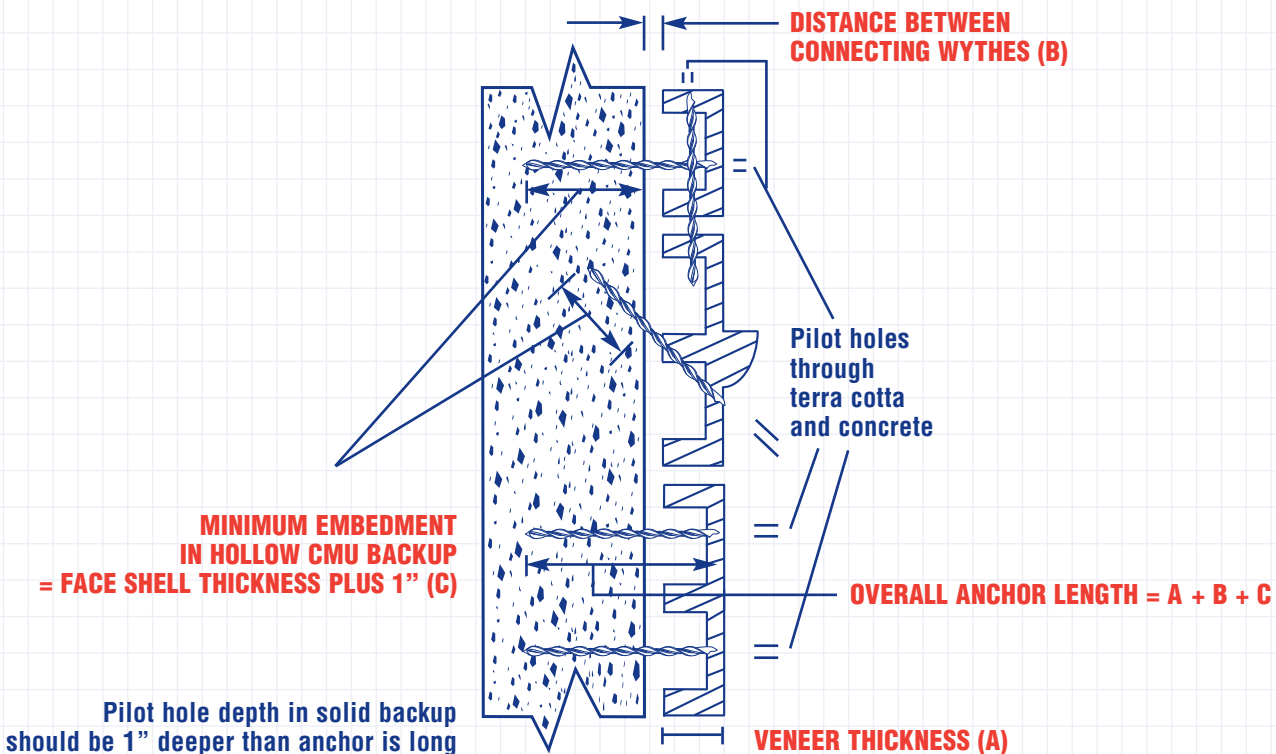


CTP Stitch-Tie Installation Guidelines

Travertine or Limestone Panels to Concrete Backup



Terra Cotta to Concrete or Masonry Backup



Helical Wall Tie System for Stabilizing Veneers and Structural Repair

CTP Stitch-Tie Specification

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Masonry repair systems

1.2 RELATED SECTIONS

- A. Section 040120.91 – Unit Masonry Restoration
- A. Section 040140.91 – Stone Restoration

1.3 REFERENCES

- A. ASTM A 276 – Standard Specification for Stainless Steel Bars and Shapes.
- A. ASTM A 167 – Type 304 Stainless Steel.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013300
- B. CTP Stitch-Tie: Manufacturers data sheets on each product to be used.

1.5 QUALITY ASSURANCE

1. Manufacturer Qualifications: Provide design, engineering and technical assistance for the selection, application, and installation of appropriate anchoring system for the project.
2. Installer Qualifications: Knowledgeable contractor experienced in the proper use and installation of anchoring systems, including coordination with wall assembly components.
3. Mock-Up: Provide a mock-up for evaluation of application workmanship.
 1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship is approved by Architect.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Acceptable Manufacturer:
 Construction Tie Products, Inc. (CTP, Inc.),
 7974 West Orchard Drive
 Michigan City, IN, 46360-9390 USA.
 Phone: 219-878-1427 Fax: 219-874-3626.
 Email: salesctp@comcast.net Website: www.ctpanchors.com

- B. Substitutions: Not permitted.

- C. Requests for substitutions will be considered in accordance with provisions of Section 012500.

2.2 PRODUCTS

- A. Masonry Repair and Restoration Re-Anchoring Existing Veneers (Selection based on application):
 1. Application: Masonry Veneer to Solid Back-up.
 - a. CTP Stitch-Tie Helical Wall Tie Anchor
 2. Application: Masonry Veneer to Hollow Back-up.
 - a. CTP Stitch-Tie Helical Wall Tie Anchor
 3. Application: Masonry Veneer to Timber Back-up.
 - a. CTP Stitch-Tie Helical Wall Tie Anchor
 4. Application: Limestone Veneer to Masonry or Concrete, Back-up.
 - a. CTP Stitch-Tie Helical Wall Tie Anchor

PART 3 EXECUTION

3.1 PREPARATION

- A. Locate anchors in the area to be anchored per project drawings and details.

3.2 INSTALLATION

- A. Select proper anchor length by field verification.
- B. Drill proper pilot hole size per anchor type.
- C. Insert the CTP Stitch-Tie pin into the dry set setting tool mounted in an SDS drill.
- D. Drive the CTP Stitch-Tie anchor in the pilot hole and into the back-up material.
- E. The setting tool will recess the CTP Stitch-Tie pin approximately 3/8" from the surface.
- F. Conceal anchor with specified grout or caulk.

Warranty

Seller makes no warranty of any kind, expressed or implied, except that the goods sold under this agreement shall be of the standard quality of the seller, and buyer assumes all risk and liability resulting from the use of the goods, whether used singly or in combination with other goods. Seller neither assumes nor authorizes any person to assume for seller any other liability in conjunction with the sale or use of the goods sold, and there is no oral agreement or warranty collateral to or affecting this transaction.

Warning

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



CONSTRUCTION TIE PRODUCTS

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 Michigan City, Indiana 46360-9390 • USA
 Phone: (219) 878-1427 • Fax: (219) 874-3626
 www.ctpanchors.com

Engineered Anchoring Solutions Provider

Approval

