

Install hollow columns after the concrete pour, eliminating the need to determine the column's exact location during layout. Uplift loads are achieved with a concealed connection using Simpson's Epoxy-Tie™ anchoring system.

INSTALLATION No. 1:

- Mark slab for center location of column.
- Drill hole to the specified diameter and depth. See Table 1.
- Clean hole and add Simpson Epoxy-Tie. See Figures 1 through 6 below.
- Insert the required A307 thread rod at the specified embedment depth and allow epoxy to cure.
- Drop an appropriate length of A307 thread rod down the hollow column.
- Tighten both anchor and rod into coupler and set the column in place.
- Install beam and connect as listed in the table.
- Consult an Engineer of Record for approval to drill through the beam.

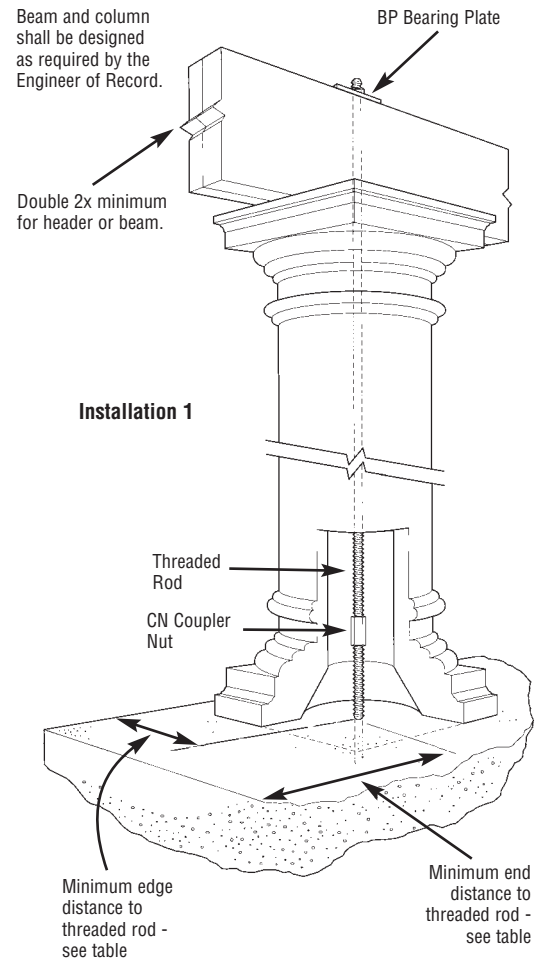
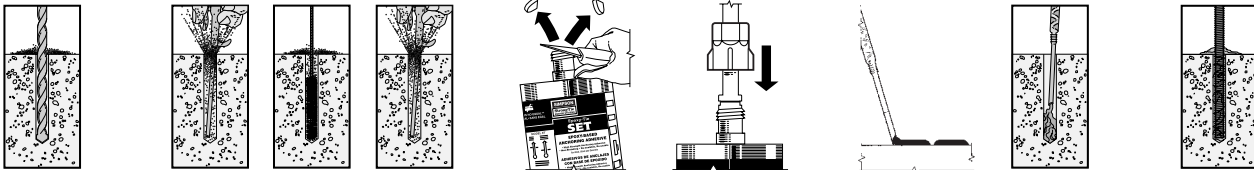


TABLE 1 — Allowable Uplift Loads

| Anchor Dia. | Anchor Drill Bit Dia. | Min. Embed. | Min. Anchor Length | Min. End. Dist. | Min. Edge Dist. | ET22 Allowable Tension Loads Fc=2000psi ^{1,2} | | Beam Connection Model No. | Allowable Tension Loads ^{1,2} | |
|-------------|-----------------------|-------------|--------------------|-----------------|-----------------|---|--------|---------------------------|--|--------|
| | | | | | | (100%) | (133%) | | (100%) | (133%) |
| 1/2 | 5/8 | 4 1/4 | 6 1/4 | 6 3/8 | 3 1/2 | 2650 | 3535 | BP 1/2 | 2345 | 2345 |
| 5/8 | 3/4 | 12 | 14 | 5 | 1 3/4 | 4040 | 5385 | BP 5/8 | 3675 | 3675 |
| 3/4 | 7/8 | 6 3/4 | 8 3/4 | 10 1/8 | 5 | 6115 | 8155 | BP 3/4 | 4400 | 4400 |
| 3/4 | 7/8 | 6 3/4 | 8 3/4 | 10 1/8 | 2 1/2 | 4785 | 6385 | BP 3/4 | 4400 | 4400 |
| 7/8 | 1 | 7 3/4 | 9 3/4 | 11 5/8 | 6 | 7850 | 10465 | BP 7/8 | 5195 | 5195 |
| 7/8 | 1 | 15 1/2 | 17 1/2 | 5 | 1 3/4 | 5835 | 7780 | BP 7/8 | 5195 | 5195 |
| 1 | 1 1/8 | 9 | 11 | 13 1/2 | 6 | 8050 | 10730 | BP 1 | 7100 | 7100 |
| 1 | 1 1/8 | 9 | 11 | 13 1/2 | 3 1/2 | 6805 | 9075 | BP 1 | 6805 | 7100 |

1. Allowable loads for bond strength are based on a factor of safety of four on the average ultimate load.
2. Allowable loads at 133% have been increased for wind and earthquake loading with no further increase allowed.
3. For two pour condition with a maximum top pour thickness of 4", increase anchor length and embedment depth 4".
4. Coupler nut to meet same load specifications as threaded rod being connected.
5. Loads are based on grade A 307/SAE1018 thread rod.
6. BP loads are based on F_{C1} equal to 625 psi. Allowable loads for other species must be adjusted to code.
7. Minimum concrete compressive strength is 2000 psi.
8. See Optional Installation.

Installation into Concrete and Grout Filled CMU



1. **Drill**—Drill hole to specified diameter and depth.
2. **Clean**—Remove dust from hole with oil-free compressed air. Clean with nylon brush and blow out remaining dust. **Note: Dust left in hole can reduce the adhesive's holding capacity.**
3. **Cut open top of cartridge**
4. **Attach clean mixing nozzle.**
5. **Fill**—Dispense bead of adhesive off to the side to check for proper mixture (a uniform gray color) before using. Fill hole halfway, starting from bottom of hole to prevent air pockets. Withdraw nozzle as hole fills up.
6. **Insert**—Anchors must be clean and oil free. Insert anchor, turning slowly until the anchor contacts the bottom of the hole. Do not disturb during cure time.

Installation 2 requires a base anchor and Simpson's CMST strap. A concealed connection can be designed between foundation and beam. The minimum inside diameter of the hollow column must be 3 1/4" for the CMST strap and a minimum base opening diameter of approximately 7" is required for the LTT/HTT or HDA base anchors. Consult the column manufacturer for minimum column opening diameters.

INSTALLATION No. 2:

- Select the appropriate strap and base anchor for the required uplift load from the table.
- Install base anchor:
 - a. Mark slab for center location of column.
 - b. Drill hole to the specified diameter and depth. See Table 2.
 - c. Clean hole and add Simpson's Epoxy-Tie. See Figures 1 through 6 on page 1.
 - d. Insert the required A307 threaded rod at the specified embedment depth.
 - e. Allow epoxy to cure.
- Attach base anchor to threaded rod and tighten nut after Epoxy-Tie has cured.
- Cut length of strap as required. Add an additional 1 1/2" for "end distance".
- Overlap CMST strap with strap of base anchor:
 - a. Mark a 1 1/2" distance from the end of the CMST strap. This is your end distance clearance. From the end distance, mark strap to match the location of base anchor stud bolts.
 - b. Drill strap bolt holes size and quantity as shown in Table 2.
 - c. Attach strap to base anchor with the required size and quantity of machine bolts (A307 bolts minimum).
- Set column in place and pull strap taut. While strap is held taut, fasten strap to beam with fasteners shown in table.

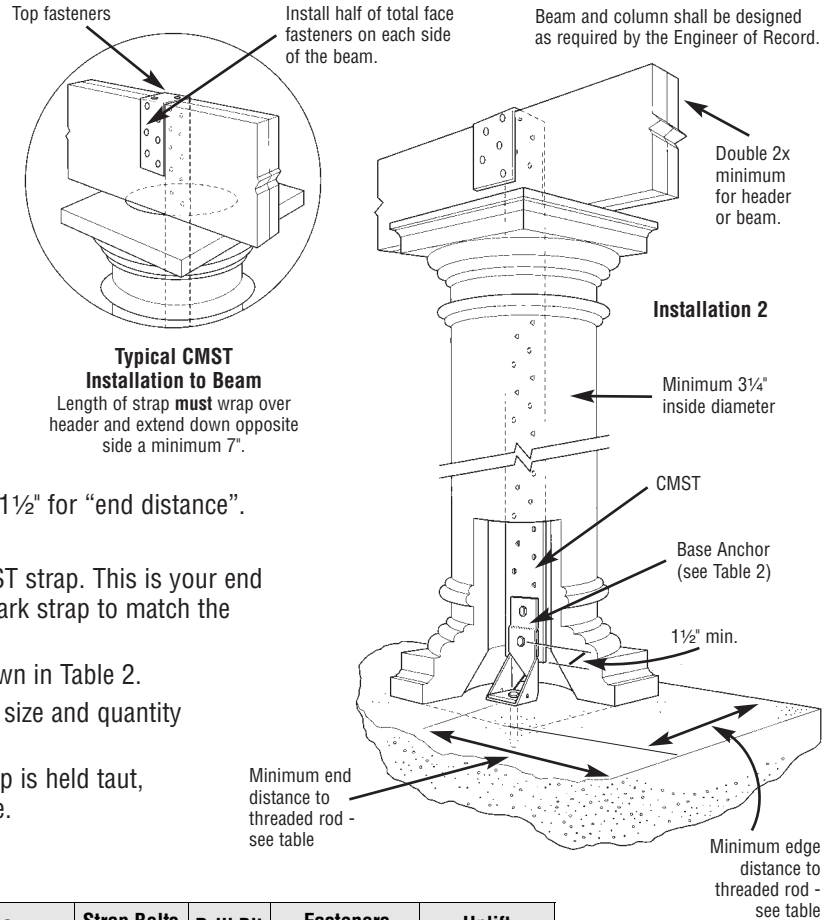


TABLE 2 — Allowable Uplift Loads

| Base Anchor Model No. | Base Anchor Dia. | Anchor Drill Bit Dia | Min. Embed. | Min. Anchor Length | Min. End Dist. | Min. Edge Dist. | Strap Model No. | Strap Bolts | | Drill Bit Dia. (Strap) | Fasteners | | Uplift | |
|-----------------------|------------------|----------------------|-------------|--------------------|----------------|-----------------|-----------------|-------------|------|------------------------|--------------|-------|--------|-------------|
| | | | | | | | | Qty | Dia. | | Face (Total) | Top | 100 | (133 & 160) |
| LTT20B | 3/4 | 7/8 | 6 3/4 | 8 3/4 | 10 1/8 | 5 | CMST14 | 2 | 1/2 | 9/16 | 4-10d | 2-10d | 1750 | 1750 |
| MTT28B | 3/4 | 7/8 | 6 3/4 | 8 3/4 | 10 1/8 | 5 | CMST14 | 4 | 1/2 | 9/16 | 8-10d | 2-10d | 3630 | 4455 |
| HD2A | 5/8 | 3/4 | 5 | 7 | 7 1/2 | 4 | CMST14 | 2 | 5/8 | 1 1/16 | 4-10d | 2-10d | 2775 | 2775 |
| HD5A | 5/8 or 3/4 | 7/8 | 6 3/4 | 8 3/4 | 10 1/8 | 4 | CMST14 | 2 | 3/4 | 1 3/16 | 8-10d | 2-10d | 3375 | 4010 |
| HD8A | 7/8 | 1 | 7 3/4 | 9 3/4 | 11 5/8 | 6 | CMST14 | 3 | 7/8 | 1 5/16 | 8-10d | 2-10d | 3430 | 4435 |
| HD8A | 7/8 | 1 | 7 3/4 | 9 3/4 | 11 5/8 | 6 | CMST12 | 3 | 7/8 | 1 5/16 | 10-10d | 2-10d | 4865 | 6305 |
| HD10A | 7/8 | 1 | 7 3/4 | 9 3/4 | 11 5/8 | 6 | CMST12 | 4 | 7/8 | 1 5/16 | 10-10d | 2-10d | 4865 | 6305 |

1. See Simpson Anchor Systems catalog for complete Epoxy-Tie installation details.
2. 10d nails are common nails.
3. Allowable loads have been increased for wind or earth quake loading with no further increase allowed.
4. Minimum concrete compressive strength is 2000 psi.

This bulletin is effective until January 31, 2007, and reflects information available as of August 1, 2004. This information is updated periodically and should not be relied upon after January 31, 2007; contact Simpson for current product information and limited warranty or see www.strongtie.com.

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