

PowerBrace™ Wall Bracing System for use with Concrete Deck Applications

Steel Beam:

Standard: S4x7.7 ASTM Grade 50 with length of 8 or 9 feet
 Optional: W4x13 ASTM Grade 50 with length of 8 or 9 feet

Surface Finish:

All components of the bracket assemblies and the steel beam are electrozinc plated per ASTM B633.

Top Concrete Deck Alternate Assembly

5/16" ASTM A36 L-shaped bent plate 8.50" x 2.75" x 8.00" long with Ø1" welded nut and holes for bracket hardware

Deck flutes perpendicular to wall:

(6) Ø1/2" x 3" concrete screw anchors

Deck flutes parallel to wall:

(5) Ø1/2" x 3" concrete screw anchors

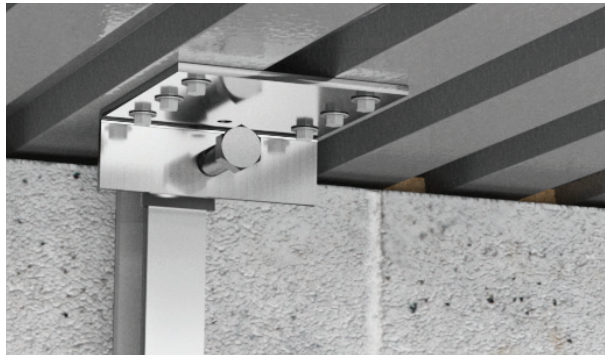
(1) Ø1" x 9" long ASTM A307 tightening bolt

2.50" long ASTM A36 bent plate beam capture

Bottom Bracket Assembly:

1/4" ASTM A36 L-shaped bent plate 2.50" x 2.00" x 5.50" long with holes for bracket hardware

(2) Ø1/2" x 3" concrete screw anchors



Spacing Recommendations for Bowing CMU Block Walls ^(1,2,3,5,6,8,9) (ft)			
Backfill Elevation Below Top of Wall (ft)	Wall Height		
	11 Courses 7'-4"	12 Courses 8'-0"	13 Courses 8'-8"
Full Backfill	4.5	4.0	3.0
1	5.5	4.5	4.0
2	6.0	5.5	4.0
3	6.0	6.0	5.5
4	6.0	6.0	5.5
5	6.0	6.0	6.0

Spacing Recommendations for Leaning Poured Concrete Walls ^(1,2,4,5,7,8,9) (ft)		
Backfill Elevation Below Top of Wall (ft)	Wall Height (ft)	
	8	9
Full Backfill	4.0	3.0
1	5.5	4.0
2	6.0	5.5
3	6.0	6.0
4	6.0	6.0
5	6.0	6.0

- (1) Maximum recommended spacing from corners is 3 feet for both CMU and poured concrete walls.
- (2) Spacing could be less than listed in the above charts based on the condition of the wall and severity of the wall displacement.
- (3) Torque applied to the adjustment bolt at the top bracket should not exceed 45 ft-lb for bowing CMU block wall applications.
- (4) Torque applied to the adjustment bolt at the top bracket should not exceed 50 ft-lb for leaning poured concrete wall applications.
- (5) Recommended spacing conservatively assumes the backfill soils exert an equivalent fluid pressure (EFP) equal to 75 psf/ft which is 25% greater than the maximum EFP recommended in the prescriptive guidelines of the IRC. The design professional may choose to consider alternate values of EFP based on project specific conditions.
- (6) Bowing CMU block walls typically show maximum inward movement at a horizontal crack along a mortar bed joint. This point of maximum displacement most often occurs in the upper courses of the block wall which is why a standard beam size of S4x7.7 is recommended. If the maximum inward movement occurs lower than 4 bed joints from the top of the wall (32") then a larger beam size should be considered. If the maximum inward movement occurs lower than 5 bed joints from the top of the wall (40") then the bottom of the beam should be embedded in the concrete slab in place of the standard bottom bracket assembly.
- (7) Leaning poured concrete walls are often generally intact and typically show maximum inward movement at the top of the wall. Poured concrete walls that are bowing or have unusual crack patterns should consider alternate spacing and design recommendations.
- (8) Refer to Section 3.1.6 of the Supportworks Technical Manual for further discussion about the design methodology used to develop these recommendations.
- (9) Because variations in building design and construction materials are common, PowerBrace™ applications should be reviewed by a qualified professional.