

PowerBrace™ Wall Bracing System Technical Specifications

PBB, PBBW4 (Power Brace 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

PBTBEXP (Bridge Bracket):

(Joists Perpendicular to Wall)

- (2) Telescoping pieces bent from 10 gauge ASTM A572 Grade 50 plate adjusted to a total length between 13.5" and 16.5" with holes for bracket hardware
- (4) $\frac{3}{4}$ " x 3" long ASTM A307 bolts with nuts and washers
- (1) $\frac{1}{2}$ " x 5" long ASTM A307 tightening bolt with machined nut
- 2.50" long ASTM A36 bent plate beam capture

PB2TB2 and PB2TBR (Lever Bracket and Runner):

(Joists Parallel to Wall)

- $\frac{5}{16}$ " ASTM A572 Grade 50 bent plate with holes for bracket hardware and $\frac{1}{2}$ " welded nut
- 10 gauge x 3" x 60" long ASTM A572 Grade 50 strap with holes for wood screws
- (1) $\frac{3}{4}$ " x 5" long SAE Grade 5 bolt with nut
- (1) $\frac{1}{2}$ " x 9" long ASTM A307 tightening bolt
- 2.50" long ASTM A36 bent plate beam capture
- (30) #10 x 2.00" long wood screws

PB2BB1 (Bottom Bracket):

- $\frac{1}{4}$ " ASTM A572 Grade 50 L-shaped bent plate 1.56" x 1.50" x 4.88" long with holes for bracket hardware
- (2) $\frac{1}{2}$ " x 3" concrete screw anchors⁽¹¹⁾

Note: For additional system configurations, visit www.onstableground.com

Surface Finish:

All components of the bracket assemblies are electrozinc plated per ASTM B633. Steel beams are provided as hot-dip galvanized per ASTM A123 or electrozinc plated per ASTM B633.

Spacing Recommendations for Bowing CMU Block Walls ^(1,2,3,4,5,6,7,9,10) (ft)			
Backfill Elevation Below Top of Wall (ft)	Wall Height		
	11 Courses	12 Courses	13 Courses
	7'-4"	8'-0"	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 ^(1,2,3,4,5,6,8,9,10) (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) Listed wall heights include the full height from top of footing to top of wall. Spacing recommendations assume the bottom 4 inches of the wall are restrained by an interior concrete slab.
- (6) 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.
- (7) 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.
- (8) 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.
- (9) Refer to Section 3.1.6 of this Technical Manual for further discussion about the design methodology used to develop these recommendations.
- (10) Because variations in building design and construction materials are common, PowerBrace™ applications should be reviewed by a qualified professional.
- (11) Concrete slab should be intact and have a thickness of at least 3.5". For broken or thin slabs, contact Foundation Supportworks for alternative installation guidelines.