

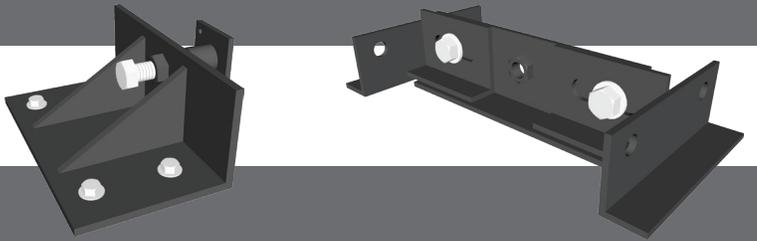
STABILIZER

Installation Guide

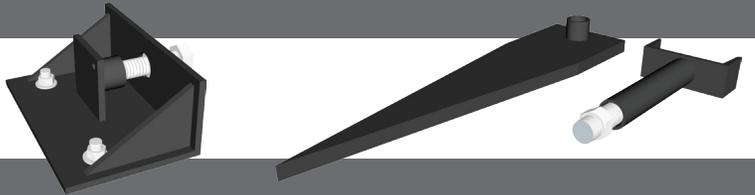
Overview

Each complete Stabilizer system consists of a top bracket, bottom bracket, and a 4" 7.7 S4 I-Beam cut to length, determined by the height of the basement wall. The system is then repeated along the affected wall every 5-6 feet, not exceeding more than 6 feet in between I-beams.

Depending on the job, different combinations of the brackets will be required.



Top Brackets: For cracks on walls that run parallel to the ceiling joists, you'll need a Fixed Top Bracket. For cracks on walls that run perpendicular to the ceiling joists, you'll need the Adjustable Top Bracket.



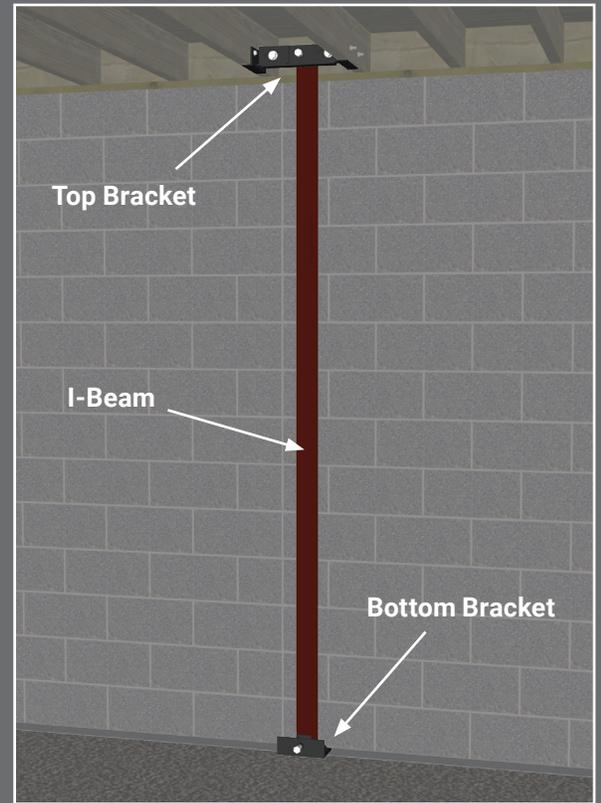
Bottom Brackets: If you're installing on the floor or directly on the footer, you'll need the Fixed Bottom Bracket. If you're installing where the footer is weak or not present, you'll need a Slab Spike.

To install Stabilizer, you'll need to following:

- Hammer
- Hammer Drill/Impact Drill (for masonry and wood)
- 1/2" masonry drill bit
- 3/4" large socket wrench or heavy-duty adjustable crescent wrench*
- 1 5/16" socket
- 1/2" wood drill bit
- 2 x 12 board**
- Sledgehammer*

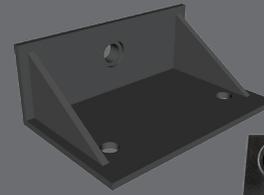
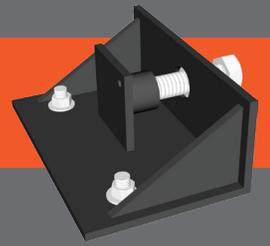
*Required for Slab Spike

**For Fixed Top Brackets *only*



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Fixed Bottom Bracket - On-Footer Installation

The following instructions will detail how to install a Stabilizer system with the Fixed Bottom and Adjustable Top Brackets.

1. Measure the height from the floor to $\frac{3}{4}$ of the way up between joist. Add 4" to account for the thickness of the floor if you're attaching the bottom bracket to the footer. Have a 4" 7.7 S4 I-Beam cut to length.
2. See engineer data according to your wall height to determine centering of beams
3. Mark where the I-beam will be placed on the wall and transfer the marking down to the floor/footer where the bottom bracket will be installed.
4. Place fixed bottom bracket on floor/footer
5. Drill into the floor/footer with the bottom bracket in place, making two holes for the concrete anchors
6. Remove the bottom bracket and hammer in both concrete anchors
7. Place the bottom bracket on the two concrete anchors and tighten the bracket to the floor/footer
8. Place I-beam on fixed bottom bracket, making sure the beam is plumb
9. Tighten the large bolt on bottom bracket into the push plate until it makes slight contact with the beam
10. Place the top adjustable bracket (already fit and tightened for space between joists) between joists, making sure to leave sufficient room for the push plate to fit between top adjustable bracket and I-beam. Using the bracket as a template, mark 4 holes to be drilled, 2 on each joist
11. Remove the top adjustable bracket and drill out the marked holes
12. Place the top adjustable bracket between joists, lining the holes back up with bracket and fasten it to the joists
13. Tighten the large bolt on the adjustable top bracket into the push plate until it makes slight contact with the beam
14. Fully tighten the bottom and top brackets



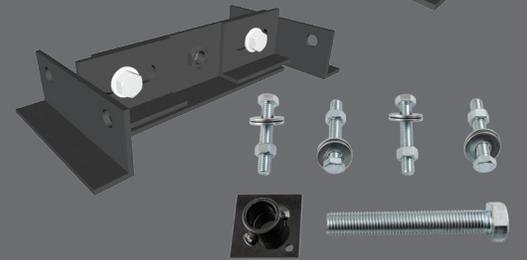
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Top Adjustable Bracket - Joists Perpendicular to Wall

The following instructions will detail how to install a Stabilizer system with the Fixed Bottom and Adjustable Top Brackets.

1. Measure the height from the floor to $\frac{3}{4}$ of the way up between joist. Add 4" to account for the thickness of the floor if you're attaching the bottom bracket to the footer. Have a 4" 7.7 S4 I-Beam cut to length.
2. See engineer data according to your wall height to determine centering of beams
3. Mark where the I-beam will be placed on the wall and transfer the marking down to the floor/footer where the bottom bracket will be installed.
4. Place fixed bottom bracket on floor/footer
5. Drill into the floor/footer with the bottom bracket in place, making two holes for the concrete anchors
6. Remove the bottom bracket and hammer in both concrete anchors
7. Place the bottom bracket on the two concrete anchors and tighten the bracket to the floor/footer
8. Place I-beam on fixed bottom bracket, making sure the beam is plumb
9. Tighten the large bolt on bottom bracket into the push plate until it makes slight contact with the beam
10. Place the top adjustable bracket (already fit and tightened for space between joists) between joists, making sure to leave sufficient room for the push plate to fit between top adjustable bracket and I-beam. Using the bracket as a template, mark 4 holes to be drilled, 2 on each joist
11. Remove the top adjustable bracket and drill out the marked holes
12. Place the top adjustable bracket between joists, lining the holes back up with bracket and fasten it to the joists
13. Tighten the large bolt on the adjustable top bracket into the push plate until it makes slight contact with the beam
14. Fully tighten the bottom and top brackets



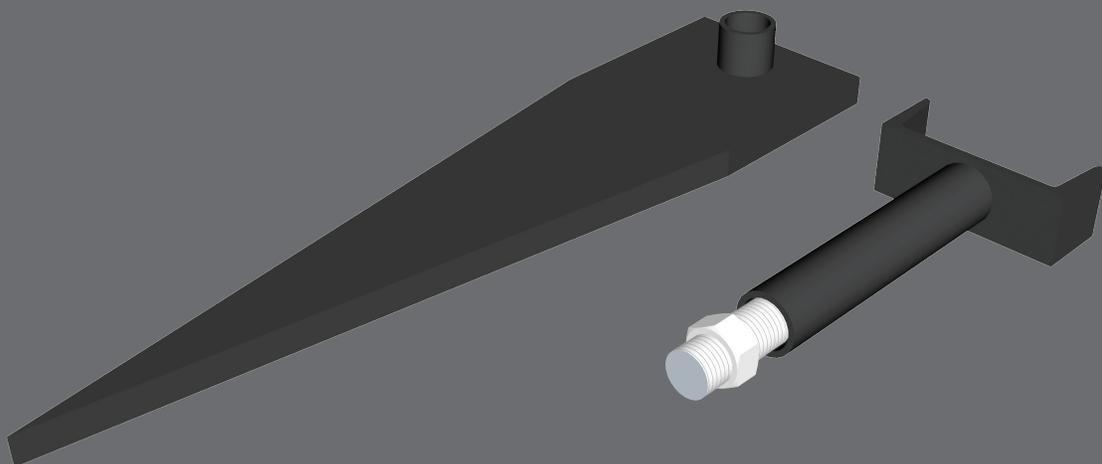
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Slab Spike - Weak or No Footer Present

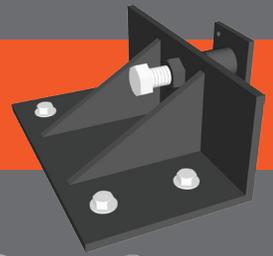
The following instructions will detail how to install the Slab Spike for the Stabilizer System.

1. Measure the height from the floor to $\frac{3}{4}$ of the way up between joist. Add 4" to account for the thickness of the floor. Have a 4" 7.7 S4 I-Beam cut to length.
2. See engineer data according to your wall height to determine centering of beams
3. Mark where the I-beam will be placed on the wall and transfer the marking down to the floor/footer where the Slab Spike will be installed.
4. The Slab Spike is designed to push against the slab to hold the I-beam in place. Break up the floor as shown, leaving enough space for the threaded rod and claw to push against the I-beam. Leave a solid edge of the slab available for the spike to push against.
5. Drive the spike into the ground and attach the threaded rod and arm
6. Push the threaded rod claw on to the I-beam, making sure the beam is plumb.
7. Tighten the nut using the adjustable crescent wrench, driving the spike towards the slab and the beam towards the wall
8. Install the appropriate top bracket according to the instructions



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Fixed Top Bracket - Joists Parallel with Wall

The following instructions will detail how to install the Fixed Top Bracket for the Stabilizer System.



1. Measure the height from the floor to $\frac{3}{4}$ of the way up between joist. Add 4" to account for the thickness of the floor. Have a 4" 7.7 S4 I-Beam cut to length.
2. See engineer data according to your wall height to determine centering of beams
3. Install the appropriate bottom bracket according to the instructions
4. Place I-beam in bottom bracket and against wall
5. While the I-beam is level, place your wood 2 x 12 (board must span at least 3 joists), Fixed Top Bracket and push plate up on the joists, making sure the pre-cut wood is up against the I-beam and I-beam is centered between wood. Position the bracket so the push plate will make contact with the I-beam. Then, using the bracket as a template, mark 4 holes to be drilled on the 2 x 12
6. Bring the 2 x 12 to the ground and drill the marked holes
7. Fasten the Fixed Top Bracket to the 2 x 12 using the included hardware
8. Place the 2 x 12 with attached bracket back on the joists and fasten using two $\frac{1}{2}$ " diameter by $4\frac{1}{2}$ " long lag screws per joist
9. If the 2 x 12 spans fewer than 4 joists, cut wood blocking for reinforcement between joists in each row, going 3 rows back (2 blocks per row)
10. Fully tighten the Fixed Top Bracket against the I-beam



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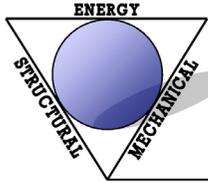


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Engineering Report



SARK & ASSOCIATES

ENGINEERS ♦ CONSULTANTS

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May 12, 2014

RE: Structural Engineering Review of 'Stabilizer' Foundation System

At your request I have reviewed the foundation repair system that uses an S4x7.7 steel beam in conjunction with custom welded steel connection brackets. The purpose of the review is to determine loading capacities of the various components and issue a statement on the structural advantages of the system.

The S4x7.7 vertical steel beams placed against the interior face of the foundation wall were reviewed for a lateral soil pressure of 50 PCF and 60 PCF equivalent fluid pressure. Based on these values the S4x7.7 beams can be spaced at the distances shown in the tables below.

Depth Below Grade	9' High Wall		8' High Wall		7' High Wall	
	50 pcf	60 pcf	50 pcf	60 pcf	50 pcf	60 pcf
9'-0"	3'-4"	2'-9"	-	-	-	-
8'-6"	3'-6"	2'-11"	-	-	-	-
8'-0"	3'-9"	3'-2"	4'-9"	4'-0"	-	-
7'-6"	4'-0"	3'-4"	5'-1"	4'-3"	-	-
7'-0"	4'-3"	3'-7"	5'-5"	4'-6"	6'-6"	5'-5"
6'-6"	4'-7"	3'-10"	5'-10"	4'-10"	7'-0"	5'-10"
6'-0"	5'-0"	4'-2"	6'-4"	5'-3"	7'-7"	6'-4"
5'-6"	5'-5"	4'-7"	6'-10"	5'-9"	8'-3"	6'-10"
5'-0"	6'-0"	5'-0"	7'-7"	6'-4"	9'-0"	7'-6"

The choice of soil pressure is at the discretion of the contractor, depending on the severity of damage to the foundation walls, and the soil composition, if known.

The welded steel bracket used at the top of the steel beam, where the floor joists are perpendicular to the foundation wall is capable of resisting a maximum horizontal load of 2,640 pounds. The fasteners should be (4) 1/2" dia through bolts into the floor joists on each side of the bracket. The welded steel bracket is suitable for all three wall heights stated above.

The welded steel bracket used at the top of the steel beam, where the floor joists are parallel to the foundation wall is capable of resisting a maximum horizontal load of 1,500 pounds, provided the top of the steel beam extends above the top of the bracket. The fasteners should be (2) 1/2" dia x 4-1/2" long lag screws into the floor joists or wood blocking. The welded steel bracket is suitable for all three wall heights stated above.

The welded steel bracket used at the base of the steel beam to provide a connection to the existing footing is capable of resisting a maximum horizontal load of 6,040 pounds. The fasteners should be (2) 1/2" dia x 4" embedment expansion anchor bolts into the footing. This bracket is suitable for all three wall heights stated above.

This foundation repair system has adjustability in the field to meet the needs of the various conditions encountered, including fitting to multiple joist spacings and adjustment over the life of the repair. The nut welded to the brackets provides stability to the bolt used to tighten the beam against the foundation wall, and allows for adjustment at the time of installation.

Thank you for the opportunity to be of service and if you have any questions with regards to this letter report please call me.

Sincerely,

Gregory Sarkisian, P.E.



Depth Below Grade	9' High Wall		8' High Wall		7' High Wall	
	50 pcf	60 pcf	50 pcf	60 pcf	50 pcf	60 pcf
9'-0"	3'-4"	2'-9"	-	-	-	-
8'-6"	3'-6"	2'-11"	-	-	-	-
8'-0"	3'-9"	3'-2"	4'-9"	4'-0"	-	-
7'-6"	4'-0"	3'-4"	5'-1"	4'-3"	-	-
7'-0"	4'-3"	3'-7"	5'-5"	4'-6"	6'-6"	5'-5"
6'-6"	4'-7"	3'-10"	5'-10"	4'-10"	7'-0"	5'-10"
6'-0"	5'-0"	4'-2"	6'-4"	5'-3"	7'-7"	6'-4"
5'-6"	5'-5"	4'-7"	6'-10"	5'-9"	8'-3"	6'-10"
5'-0"	6'-0"	5'-0"	7'-7"	6'-4"	9'-0"	7'-6"