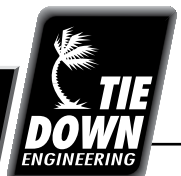


Florida Installation Instructions For Anchoring Systems

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SYNOPSIS OF CHANGES IN 15C STATE OF FLORIDA

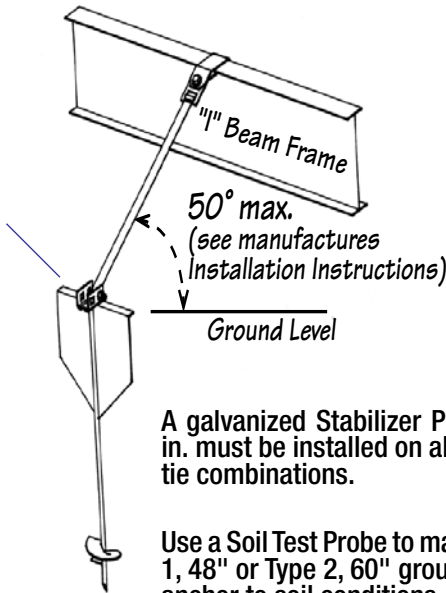
1. **I-BEAM CLAMP THAT PIVOTS - TOP OF FRAME ONLY** The State of Florida now requires that the strap be attached to the I-beam by a beam clamp that has a swivel attachment. This eliminates the sharp edge of the frame cutting into the strap and the possibility of stressing one edge of the strap by misaligning the anchor with the attachment point to the I-beam.
2. **GALVANIZED STRAPS .60 OUNCES EACH SIDE OR NOMINAL G115** Florida now requires that all strapping have extra galvanization to protect from the elements. All strapping must be marked with the "G115" coating, and Tie Down strap will indicate "QUAD COAT G-120." The ASTM 3953-91 must still be referenced on the strap to indicate conformity to the HUD Code, and the G115 will indicate the extra coating. All strap must be marked every 12" to 15".
3. **ALL ANCHORS GALVANIZED** All ground anchors, concrete anchors, patio anchors, etc. - must be hot dip galvanized.
4. **MINIMUM STABILIZER PLATES 180 SQUARE INCHES, GALVANIZED** The small 12" stabilizer plate is no longer certified in Florida. All stabilizer plates under the new regulations must have a minimum 180 square inches of surface and must be galvanized. Tie Down manufactures the 17.5 inch plate that is galvanized to meet Florida requirements.
5. **RADIUS CLIP PROTECTION** The State of Florida no longer allows the strap to wrap the I-beam. Because strap must be protected from contact with sharp edges, the strap must now be attached to the I-beam by means of a swivel connector with a radius clip (rolled edge). The strap must also be factory attached to the connecting swivel bracket. Field attached crimp seals are no longer allowed for use on straps used to attach to frame connectors or hooks.
6. **SEAWALL VERTICAL/FRAME TIES 5'4" O/C** The maximum distance between sidewall vertical/frame ties is now 5'4" on center.
7. **CENTERLINE TIES WITHIN TWO FEET EACH END** Every new and used multi-section home must include a centerline anchor installed within two feet of each end of each centerline (the home manufacturer may require additional anchors).
- 8A. **LONGITUDINAL ANCHORS, TWO PER I-BEAM PER END** As part of the new rules, every home must be installed with protection from wind loads on the end of the home. The Florida rules require two anchors per I-beam per end. This means that a single section will require four longitudinal anchors per end for a total of eight for the home. A double section home will require eight anchors per end for a total of sixteen per home. As with all ground anchors, these must be hot dip galvanized and installed with a galvanized stabilizer plate. Torque probe is required on longitudinal anchors.
- 8B. **LONGITUDINAL STABILIZER DEVICES** As an alternate to installing longitudinal anchors and stabilizer plates, the installer may use other longitudinal stabilizing devices approved by the state, including Tie Down's L²SD (Longitudinal Stabilization Device). The use of two L²SD systems on a single section home replaces all eight longitudinal anchors/stabilizer plates. Four L²SD systems on a double section home, replaces sixteen anchors/stabilizers/frame tie connectors.
9. **SOIL TEST** While the soil test probe is not specifically addressed by 15C, the installer is required to A) test and record the torque readings and install the correct ground anchor (48" or 60") or B) use a 60" galvanized anchor with stabilizer plate where no testing is recorded.
10. **INSTALLER PLAN FOR 1,000 PSF SOIL** The installer must submit a foundation plan (as to the load bearing capacity of the soil) to the building department at the time of application for the building permit. If the soil is not tested with a penetrometer, then the plan submitted must assume 1000 PSF soil. The installer is required to use a pocket penetrometer to determine the PSF. NOTE: 1000 PSF soil most commonly requires Type II, 60" anchors.
11. **MINIMUM HEIGHT 18 INCHES** The minimum pier height at the lowest part of the home shall be 18". This distance is measured from the bottom of the frame (I-beam) to the ground or slab. Note: 3/4 of the home must be at the minimum 18", the balance of the home cannot be lower than 12".
12. **GROUND ANCHORS / FLORIDA ONLY** For purposes of installation of manufactured/mobile homes in the State of Florida, there will be two soil classifications:

Type I: This soil is described as "loose to medium dense sands, firm to stiff clays & silts, alluvial fill." It has a Blow Count (per ASTM D1586) of 18 to 23, and a reading on the Torque Probe of 276 to 350 inch pounds. The Working load for an anchor in Type I soil is 3,150 lbs. and the Ultimate load is 4,725 lbs. A 48" anchor is to be used in 4A soil classifications.

Type II: This soil is "very loose to medium dense sands, firm to stiff clays and silts, alluvial fill." The Blow Count for Type II soil is 12 to 17, and the torque reading 175 to 275 inch pounds. The Working load is described as 4,000 lbs. and the Ultimate load is 6,000 lbs. A 60" anchor must be used in 4B soil classifications.

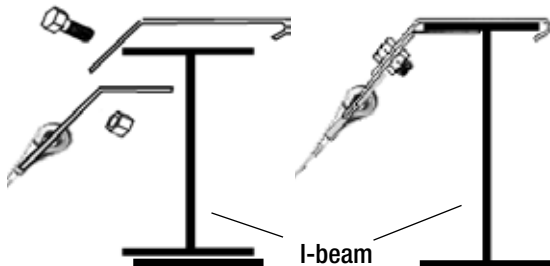
Frame Tie to Anchor

If the angle of the frame tie connection is greater than 50° (as indicated by curved line illustration), the frame tie must be attached to the opposite "I" beam frame member. 45° is the correct angle for this installation.



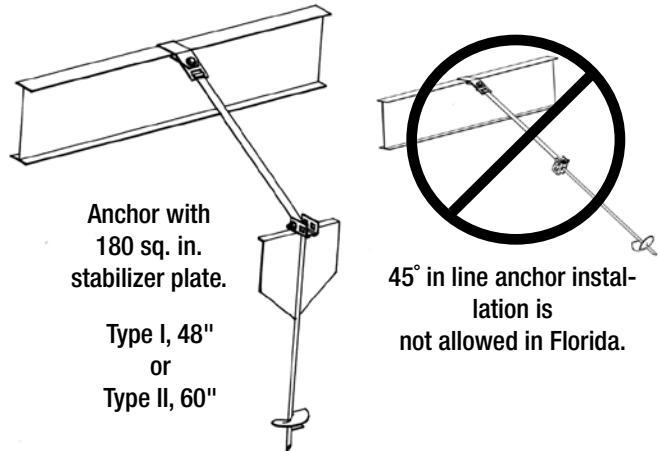
Frame Tie Attachment

1. All frame ties must be attached with a swivel frame connector. Strap must be factory attached to the connecting bracket.
2. Attach the swivel frame connector beam hook to the top of the I-beam from either the front or the back side. The curved or hook end of the beam hook should be snug against the inside top I-beam flange.
3. Attach the swivel connector to the underside of the frame hook with a 1/2" grade 5 bolt and nut. This allows the swivel connector to pivot and lock onto the I-beam.
4. Pull strap past anchor head 10 to 12 inches. Insert strap into slotted bolt. Tighten slotted tensioning bolt 5 full turns minimum until all slack in strap is removed (Correct anchor must be installed as per ground anchor manufacturer's installation instructions).



Anchor Stabilizer

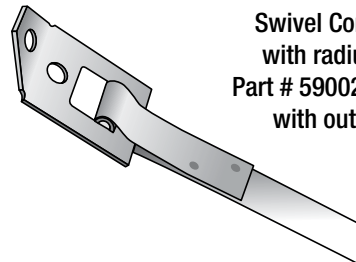
All anchors must be properly stabilized to prevent lateral movement of the home and to comply with federal and state wind load requirements.



1. Refer to any and all federal and state regulations.
2. Soil Test Probe anchor location in order to match soil class to ground anchor model.
3. Partially install anchor at a slight back angle allowing 14" to 16" to remain above ground level.
4. Utilizing oversize hammer, vertically install stabilizer plate, nesting stabilizer plate between anchor and frame.
5. Fully install anchor to ground level. Tighten strap, pulling anchor until anchor rod is pre-tensioned against stabilizer plate.

Strap Attachment

The strap must be attached to the I-beam by using a beam clamp with a swivel connecting bracket. Strap must also be factory attached to the connecting bracket. In field crimp seals are no longer allowed for use on strap to attach to frame connectors or hooks.



3" Beam Hook # 59003
4" Beam Hook # 59004
Beam Hook for Dbl. frames # 59005

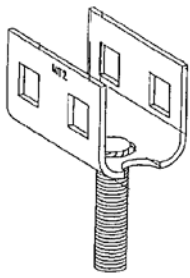
Concrete Anchors

Minimum thickness of a concrete slab is 4 inches to use these anchors. Each anchor must have 4,725 lbs of concrete to meet holding requirements. Concrete weighs approximately 4,000 lbs per cu. yd. Each anchor requires approximately 1.2 cubic yards of concrete to meet holding requirements. Example: 6 anchors on one side of a home would require over 7 cubic yards of concrete. Both sides would require over 14 cubic yards of concrete.

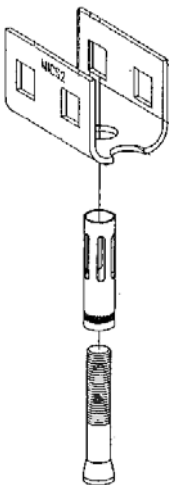
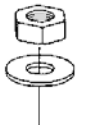
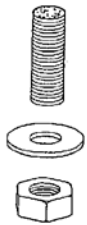
Patio Slab Anchor

MIT2

This anchor is designed to be inserted through a 3/4" hole drilled or formed into an existing concrete slab.



- Concrete must be a 2500 PSI minimum slab with 4" minimum thickness and 6/6 x 10/10 wire mesh installed.
- Concrete slab must allow 4725 lbs of vertical tension on anchor without lifting. This assumes that the concrete weighs 150 lbs per cu. ft.
- Minimum distance from the anchor shaft to one edge of the slab is 4 in. from any other edge.
- If installed in a 4" slab at minimum distances from edges, and additional layer of 6/6 x 10/10 mesh is recommended.

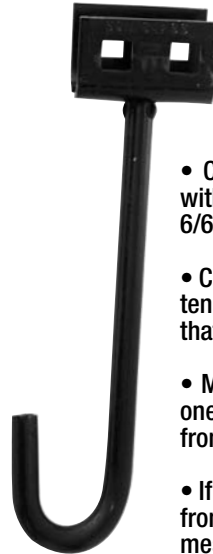


- After reviewing restrictions listed to the right, drill a 5/8 in x 3 in. hole in the slab where the anchor head is to be located.
- Place expansion anchor into the drilled hole.
- Place the washer onto the expansion bolt
- Thread nut onto expansion bolt and tighten until maximum expansion of steel expansion sleeve has been achieved,
- Remove nut and washer and place anchor head over exposed bolt.
- Place washer and nut onto bolt to attach anchor head, tighten nut.

Concrete Anchor

MIJ2

The MIJ2 is designed to be installed into a concrete slab at the time the concrete is being poured.



- Concrete slab must be 2500 PSI minimum with 4" minimum thickness and 6/6 x 10/10 wire mesh installed.
- Concrete slab must allow 4725 lbs of vertical tension on anchor without lifting. This assumes that the concrete weighs 150 lbs per cu. ft.
- Minimum distance from the anchor shaft to one edge of the slab is 4 in. from any other edge.
- If installed in a 4" slab at minimum distances from edges, an additional layer of 6/6 x 10/10 mesh is recommended.
- Slab must be 8 in. minimum thickness at location under any anchor to allow 5 in. embedment of anchor "J" rod.

Concrete Slab Anchor

MICS2

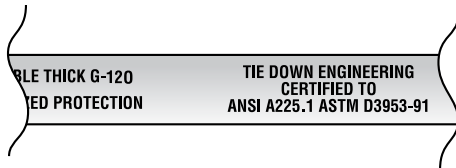
This anchor is designed to be bolted to an expansion sleeve anchor in an existing concrete slab.

- Concrete must be a 2500 PSI minimum slab with 4" minimum thickness and 6/6 x 10/10 wire mesh installed.
- Concrete slab must allow 4725 lbs of vertical tension on anchor without lifting. This assumes that the concrete weighs 150 lbs per cu. ft.
- Minimum distance from the anchor shaft to one edge of the slab is 4 in. from any other edge.
- If installed in a 4" slab at minimum distances from edges, an additional layer of 6/6 x 10/10 mesh is recommended.

Strap Requirements

GALVANIZED STRAPS .60 OUNCES EACH SIDE OR NOMINAL G115 Florida now requires that all strapping have extra galvanization to protect from the elements. All strapping must be marked with the "G115" coating, and Tie Down strap will indicate "QUAD COAT G-120." The ASTM 3953-91 must still be referenced on the strap to indicate conformity to the HUD Code, and the G115 will indicate the extra coating. All strap must be marked every 12" to 15".

Strap Marking

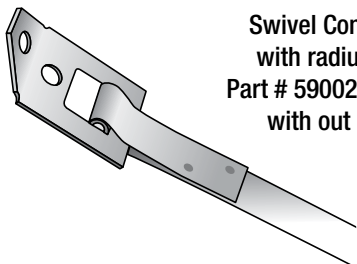


TIE DOWN ENGINEERING
CERTIFIED TO
ANSI A225.1 ASTM D3953-01

QUAD THICK G-120
GALVANIZED PROTECTION
Meets Florida 15 C Requirements

Strap Attachment

Strap must be factory attached to the connecting bracket. Connecting brackets must have a radius clip to protect the strap from sharp edges. Field attached crimp seals are no longer allowed for use on strap to attach to frame connectors or hooks.

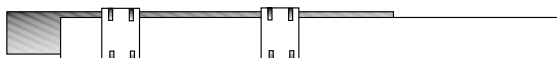
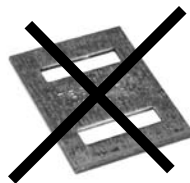


Swivel Connector with radius clip.
 Part # 59002 & 59242 with out strap



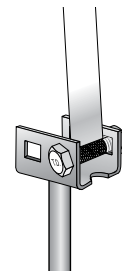
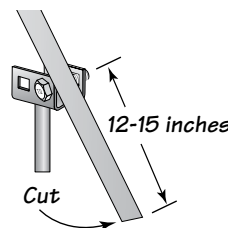
Strap Splice

Friction splice using a buckle is not acceptable. To lengthen a factory made strap in the field, a double crimp seal splice is required. Overlap strap approximately 12 inches and use two crimp seals evenly spaced.



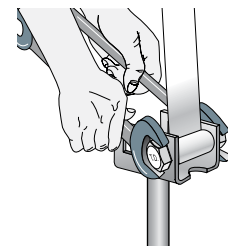
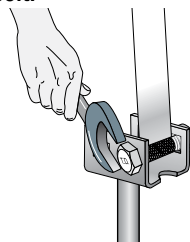
2 Seals
 2 Crimps per seal

Proper Strap Tensioning



1. Insert slotted bolt into anchor head, attach loosely. Pull strap past bolt head and cut strap so that 12-15 inches of strap are available to wrap onto the slotted bolt.

2. Insert the strap end into the slot in bolt until flush with opposite side of bolt.



3. Using 15/16" wrench or socket, turn the bolt, winding the strap so that a minimum of four to five complete turns are made, and the strap is adequately tensioned.

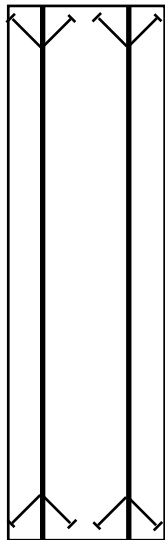
4. Hold the bolt under tension while tightening the nut, drawing the head of the bolt into the recess. After the bolt is within the recess, continue to tighten the nut until securely fastened.



Longitudinal Anchors

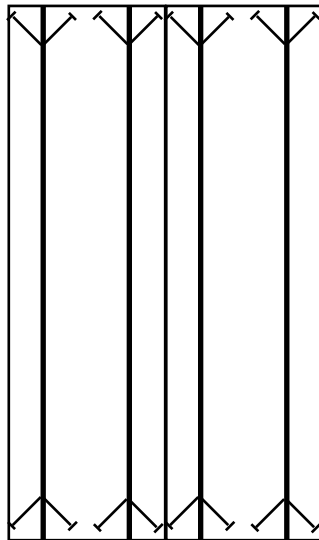
LONGITUDINAL ANCHORS, TWO PER I-BEAM, FOUR PER END Every home must be installed with protection from wind loads on each end of the home. Florida rules require two anchors per I-beam. This means that a single section will require four longitudinal anchors per end for a total of eight for the home. A double section home will require eight anchors per end for a total of sixteen per home. As with all other anchors, these must be galvanized and installed with a 180 sq. in. galvanized stabilizer plate. Soil must be probed and recorded in order to match anchor model to site soil class.

Single Section Home



4 anchors with stabilizer plates per end for a total of 8 longitudinal anchors per single section home

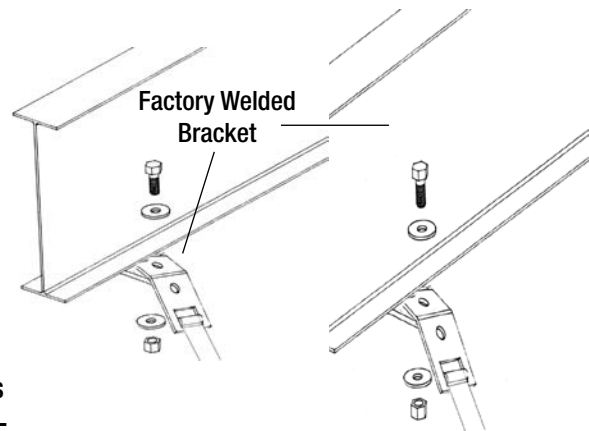
Double Section Home



8 anchors with stabilizer plates per end for a total of 16 longitudinal anchors per double section home

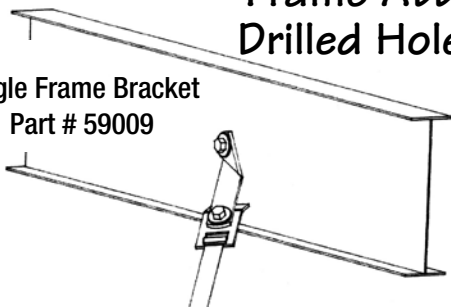
Frame Attachment Factory Brackets

Some homes may have factory brackets welded to the I-beams for longitudinal anchors. Attach the strap/swivel connector to the factory bracket using a 1/2" Grade 5 bolt and nut. Anchors/ties must be installed to provide a 45° or lower strap angle.



Frame Attachment Drilled Hole/Bracket

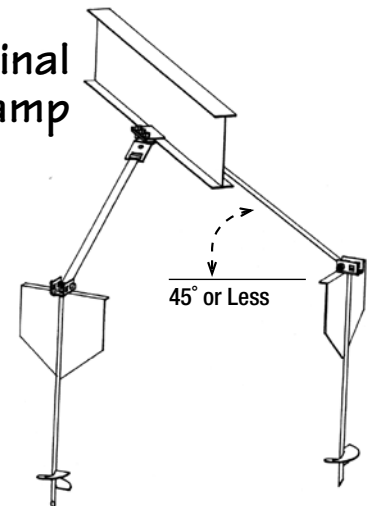
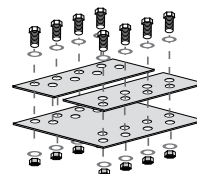
Angle Frame Bracket
Part # 59009



1. Determine anchor/stabilizer plate location and bracket location on I-beam to insure a 45° or lower strap angle .
2. Drill a 1/2" hole in the centered in the I-beam as shown, Hole must be a minimum of 4" from any edge of the I-beam.
3. Connect the two Frame brackets (R & L) with a 1/2" Grade 5 bolt and nut.
4. Attach swivel connector and strap to angle frame brackets with 1/2" Grade 5 bolts and nuts. Tighten all bolts.

Longitudinal Beam Clamp

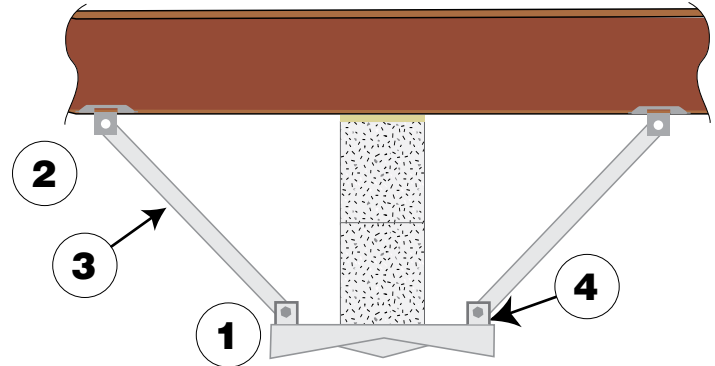
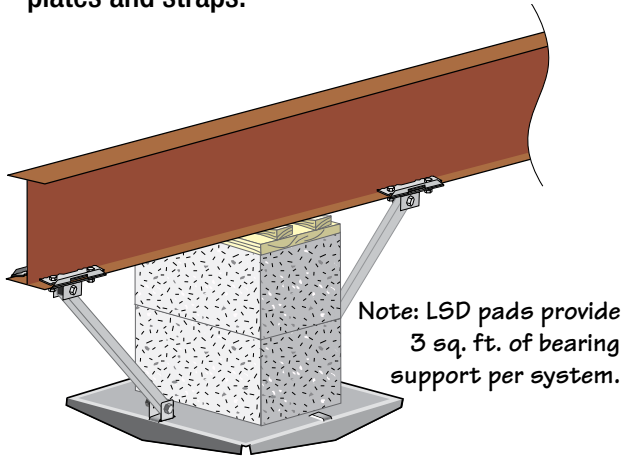
Gator Beam Clamp
Part # 59011



1. Determine anchor/stabilizer plate location and bracket location on I-beam to insure a 45° or lower strap angle.
2. Attach beam clamp with 1/2" Grade 5 bolts and nuts as shown.
3. Connect swivel connector and strap to bolt nearest to anchor with a 1/2" Grade 5 bolt and nut.

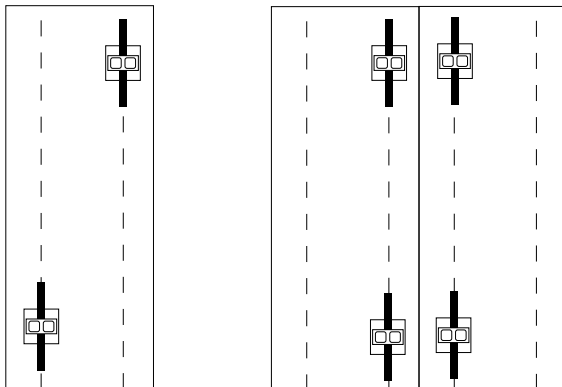
Longitudinal Stabilization Devices for Florida

As an alternate to installing longitudinal anchors and stabilizer plates, the installer may use longitudinal stabilizing devices approved by the state, including Tie Down's LSD (Longitudinal Stabilization Device). The use of two LSD systems on a single section home replaces all eight longitudinal anchors, stabilizer plates and straps. Four LSD systems on a double section home replaces sixteen longitudinal anchors, stabilizer plates and straps.



1. Longitudinal Foundation Pad
2. Beam Clamp (2 per system)
3. Longitudinal Strut (2 per system)
4. Tie Bracket (2 per system)

Example of Possible Placement:



Single Section Home
up to 18 feet in width.

Double Section Home
up to 36 feet in width.

1. Determine where the longitudinal Stabilizing Device will be installed on the home.
2. Place one LSD pad centered under the beam.
NOTE: Press pad into the ground so that the cleats are below ground level.
3. Slide tie brackets into pad.
4. Build pier on LSD pads between tie brackets.
5. Install beam clamps on either side of pier. Attach LSD braces to beam clamps and tighten all bolts.



Part # Description

59271	LSD Pad.
59026	LSD Hardware Kit Includes: 2 tie brackets & 2 beam clamps.
59016	Longitudinal Strut 30" for use up to 18" high piers (two block piers)
59012	Longitudinal Strut 39" for use up to 24" high piers (three block piers)
59013	Longitudinal Strut 44" for use up to 32" high piers (four block piers)
59014	Longitudinal Strut 53" for use up to 40" high piers (five block piers)
59015	Longitudinal Strut 65" for use up to 48" high piers (six block piers)

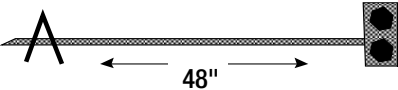
Soil Classification


Ground anchors are designed for different soil classifications, longer models for loose soils, shorter models for harder soils. Prior to installing any ground anchor model, the soil must be tested with a Soil Test Probe in order to match approved ground anchor model with site soil class.

Ground anchors for Florida Only: For purposes of installation of manufactured/mobile homes in the State of Florida, there will be two soil classifications. All Anchors and stabilizer plates must be galvanized.


Color Code	Soil Class	Soil Description	Test Value	Recommended Anchors/Stabilizer Plates
 Green	4A Type 1	Loose to medium dense sands, firm to stiff clays and silts, alluvial fill.	276 to 350 in. lbs.	48" with 6" helix and a 17-1/2" wide stabilizer plate, 180 sq. in.
 Red	4B Type 2	Very loose sands, firm clays and silts, alluvial fill.	175 to 275 in. lbs. *	3/4" x 60" with 7" helix and a 17-1/2" wide stabilizer plate, 180 sq. in.

Model	Part #	Description
MI2H5/8	59081	48" x 5/8" rod, 1-6" helix
MI2H3/4	59094	48" x 3/4" rod, 1-6" helix
59285	59286	17 1/2" Stabilizer Plate



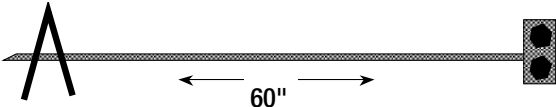



Stabilizer Plate




ABS Stabilizer Plate

Model	Part #	Description
M607	59099	60" X 3/4" rod 1-7" helix
59285	59286	17 1/2" Stabilizer Plate





Stabilizer Plate

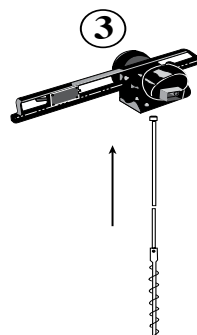
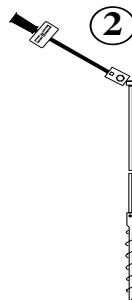
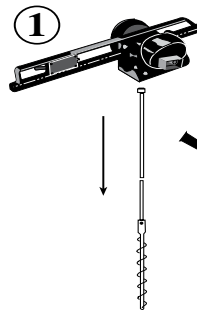


ABS Stabilizer Plate

* Below 175 in. lbs., a professional engineer should be consulted

Instructions

- Place probe tip into ground where you intend to place your anchor. Using a 15/16" hex socket with a ratchet or breaker bar, rotate the probe in a clockwise direction. (An electric drive machine with an adaptor head may also be used)
- Drive (rotate) the torque probe into the soil until reaching a depth equal to the length of the anchor being installed.
- To determine the soil classification:
 - Place wrench adaptor onto torque wrench.
 - Insert hex portion of wrench adaptor onto the earth probe.
 - Support probe shaft with one hand, while rotating probe steadily with the wrench. (Do not exceed 600 in. lbs.)
 - Read the torque wrench while rotating probe clockwise.
 - Use the soil classification chart to cross reference probe readings. Color codes match those printed on Tie Down's torque probe.
- To remove probe, use wrench or electric drive machine in reverse (counter clockwise).



600 in. lbs Torque Wrench



5' Earth Probe

Wrench Adaptor

Soil Test Probe

The Soil Test Probe is used to determine the soil conditions below the surface near the anchor's helical plate. Using the Soil Test Probe will ensure maximum anchor holding strength by indicating the proper anchor model for each soil condition.

Using the chart provided, a probe reading can be converted to the recommended anchor for every soil condition.