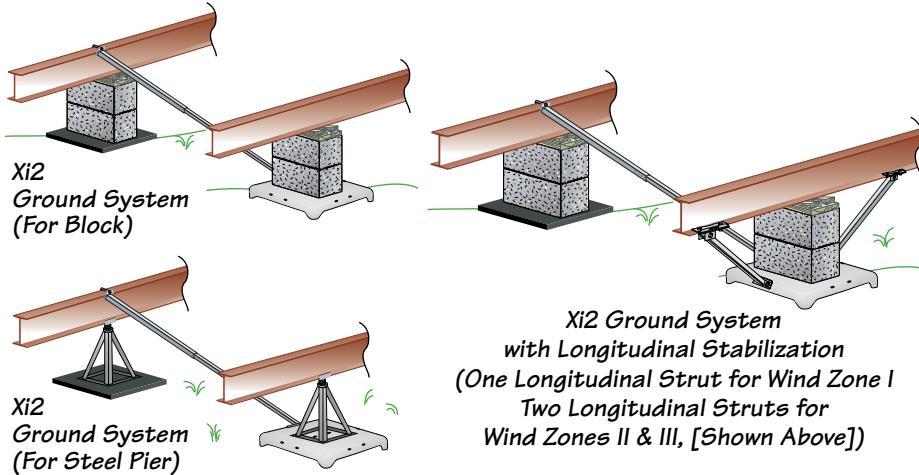




Ground Foundation System

**Installation Instructions for Wind Zone I, II & III
Except Florida and California
By Tie Down Engineering
Updated: 9/24/2014**



REQUIREMENTS

- Install in any type soil, 4B (175 – 275 lbs.) or better.
- Main Rail spacing must be 75.5" – 99.5", 112" exception with proper strut.
- Maximum pier height at system is 48".
- Wind Zones II & III require sidewall anchors for up lift, check manufacturers requirements.
- Maximum vertical projection at sidewall is 9' (wall and eave). Higher walls may be used when design loads are adjusted accordingly.
- Longitudinal strut angles need to be no more than 50 degrees and no less than 25 degrees. See page 4.
- The Xi2 ground pad is installed under, and serves as the footer for one of the piers required by the home manufacturer installations instructions. No other pad needed at this location.
- Two systems designed to work in conjunction with each other must be placed as evenly as possible. Measuring from the center of block/pier on the Ground Pad, systems are to be placed no less than 2' and no more than 10' from each end of home. Components of the Xi2 system such as the longitudinal strut and connecting hardware may extend beyond the pier location. Additional systems per instructions, see page 4.
- For roof slopes greater than 20 degrees, (4.37" in 12" Pitch) see page 4.
- This System only replaces normal lateral frame tie and or longitudinal end tie anchorage. The home manufacturer may require additional vertical anchor ties that are unique to a home's design. These locations may include shear walls, marriage line ridge beam supports, and rim plates. Check the manufacturer's installation instructions for set-up requirements.

Xi2 components exceed HUD code 3280.306 g "Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.30 ounces per square foot of surface coated.

Installation of Lateral System

1. Identify the number of systems to be used on the home using the chart above.
2. Identify the location where the lateral systems will be installed.
3. Clear all organic matter and debris from the pad site. Approx. 2" below grade or frost line.
4. Place u-bolt though holes provided. Attach lock washers on u-bolt, on the top side of pad. If installing lateral and longitudinal together, install u-bolt for longitudinal in pad during this step.
5. Place pad centered under beam with the lateral strut bracket towards the inside of the home.
6. Press or drive pad into ground until top is level and flush with prepared surface.
7. Build pier according to State, Local or Home Manufacturers guidelines.(Figure 1)
8. Attach the end of the smaller tube to the inside of pad using U-bolt & nuts provided
9. Attach the flag end of the larger tube to the opposite I-beam using the "J" bolt over the top of the I-beam with the nut & washer provided. (Figure 2)
10. Install a minimum of four (#14 x 1" tek screws) self-tapping screws into the holes provided in the lateral strut so that the two tubes are connected together with a minimum overlap of 4" to 6" (Figure 1).

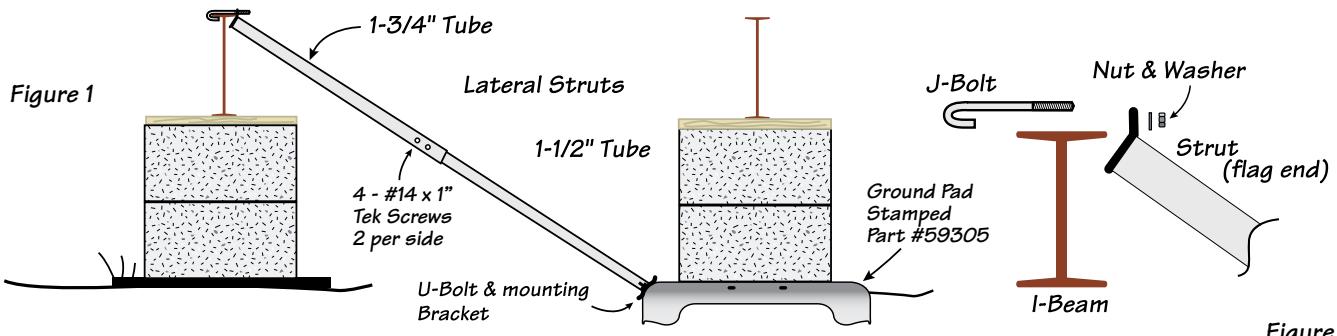


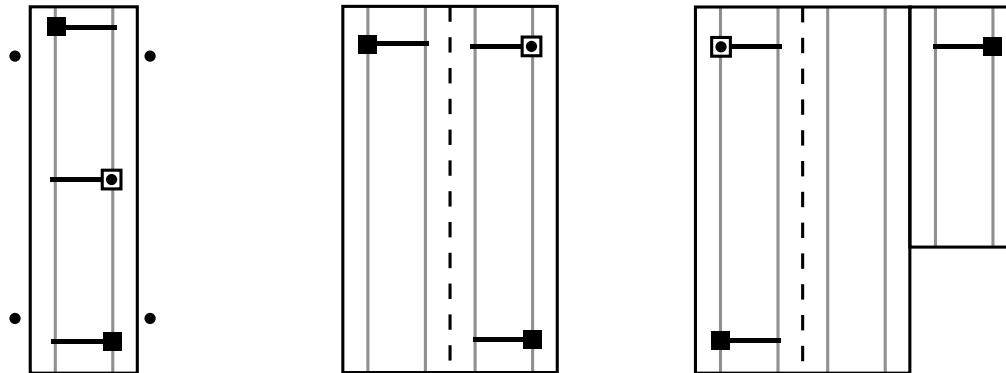
Figure 2

Xi2 Lateral Stabilization

Approved Anchor*
with strap from
45 to 90 degrees

Xi2 Pier
Placement

3rd System
for Placement



**Wind Zones
I & II**

Single Section Home
0 - 76' Box 2 Xi2 Systems
Over 76' Box 3 Xi2 Systems

Double Section Home
0 - 76' Box 2 Xi2 Systems
Over 76' Box 3 Xi2 Systems

Triple Section Home
0 - 76' Box 2 Xi2 Systems
Over 76' Box 3 Xi2 Systems

**Wind Zones
III**

Single Section Home
0 - 64' Box 2 Xi2 Systems
Over 64' Box 3 Xi2 Systems

Double Section Home
0 - 64' Box 2 Xi2 Systems
Over 64' Box 3 Xi2 Systems

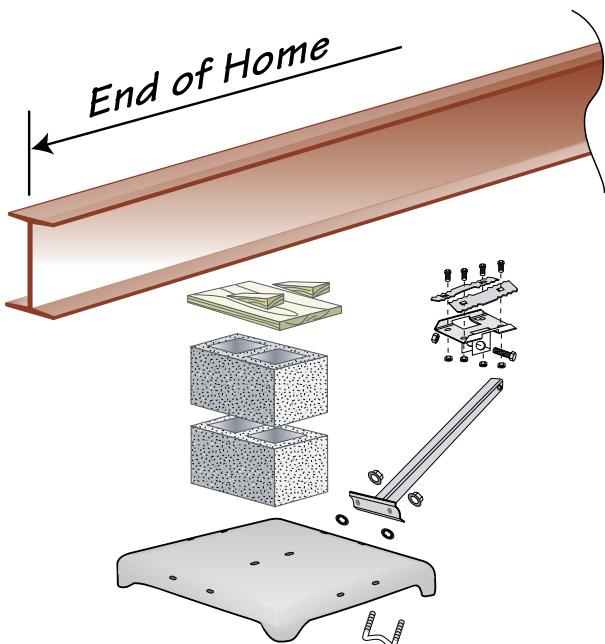
Triple Section Home
0 - 64' Box 2 Xi2 Systems
Over 64' Box 3 Xi2 Systems

For additional systems see the last page.

*** For Wind Zone I - approved uplift anchor and strap from 45 to 90 degrees, within 10' of end of home on single sections.**
NOTE: Diagram represents single section up to 16' width, double section up to 32' width, and triple section homes up to 48' width.

Installation of Longitudinal Struts

Longitudinal stabilization can be combined economically with the Xi2 Lateral System. Combining LSD struts with the pad for the lateral system saves time and material costs. When combining the lateral and longitudinal systems, use the placement directions for the lateral system.



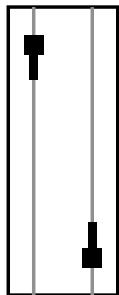
Installation of Longitudinal Struts

1. Identify the number of systems to be used on the home using the chart below.
2. Clear all organic matter and debris from the pad site.
3. Place u-bolt though holes provided. Attach lock washers on u-bolt, on the top side of pad.
4. Press or drive pad into ground until level and flush with prepared surface.
5. Build pier according to State, local or Home Manufacturers guidelines.
6. Install frame bracket clamps to I-beam on in side of block/pier. Do not tighten nuts at this time.
7. Insert u-bolt through mount bracket, attach with nut and bolt. Do not tighten at this time.
8. Insert strut in the frame bracket clamp, attach with nut and bolt. Do not tighten at this time.
9. Pull the frame bracket clamp with the fastened strut outward to remove any slack.
10. Tighten all nuts and bolts on the struts and beam clamps.

**3285.402(c)(3) All new manufactured homes must have longitudinal stabilization in all wind zones.
Check with individual states for their installation requirements on used homes.**

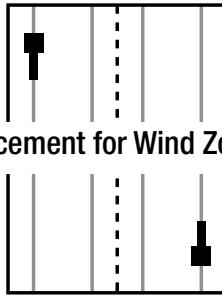
Xi2 Longitudinal Stabilization for Wind Zone I, II & III

When using longitudinal stabilization only, systems must be as evenly spaced as possible, no more than 10' from the end of the home. Longitudinal struts do not replace anchors on single section homes.

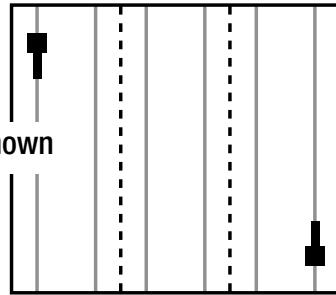


Single Section
Up to 16' Nominal

Sample Placement for Wind Zone I Shown



Double Section
Up to 32' Nominal



Triple Section
up to 48' Nominal

NOTE: On triple section homes in WZII & III an additional longitudinal system is required. It should be installed on the center section.



Use One Strut (per end)
For WZ I



Use Two Struts (per end)
For WZ II & III

Xi2 System Requirements for Roof Pitches Higher than 20 degrees

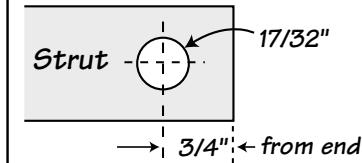
Module Length (Feet)	Wind Zone I				Wind Zone II				Wind Zone III			
	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12
34	2	2	2	2	2	2	2	2	2	2	3	3
36	2	2	2	2	2	2	2	3	2	2	3	3
38	2	2	2	3	2	2	2	3	2	3	3	3
40	2	2	2	3	2	2	2	3	3	3	3	3
42	2	2	3	3	2	2	3	3	3	3	3	3
44	2	2	3	3	2	2	3	3	3	3	3	3
46	2	3	3	3	2	3	3	3	3	3	3	4
48	2	3	3	3	3	3	3	3	3	3	3	4
50	3	3	3	3	3	3	3	3	3	3	3	4
52	3	3	3	3	3	3	3	3	3	3	4	4
54	3	3	3	3	3	3	3	3	3	3	4	4
56	3	3	3	3	3	3	3	3	3	3	4	4
58	3	3	3	3	3	3	3	3	3	3	4	4
60	3	3	3	3	3	3	3	3	3	3	4	5
62	3	3	3	3	3	3	3	3	4	4	4	5
64	3	3	4	4	3	3	4	4	4	4	4	5
66	3	3	4	4	3	3	4	4	4	4	4	5
68	3	4	4	4	3	4	4	4	4	4	5	5
70	3	4	4	4	3	4	4	4	4	4	5	5
72	3	4	4	4	4	4	4	5	4	4	5	5
74	4	4	4	5	4	4	4	5	4	5	5	5
76	4	4	4	5	4	4	4	5	4	5	5	6
78	4	4	4	5	4	4	4	5	4	5	5	6
80	4	4	4	5	4	4	4	5	4	5	5	6

Additional Systems:

On a single section home the 3rd system is placed in the middle of the home. When using 3 or 4 systems (double and triple sections) install on opposite corners, if needed, a 5th system would be in the center of the unit on either side.

Strut Angles:

Need to be no more than 50 degrees and not less than 25 degrees. If needed, tube can be cut to proper length and a new hole drilled according to chart on below.



Xi2 Ground System

Part #59306

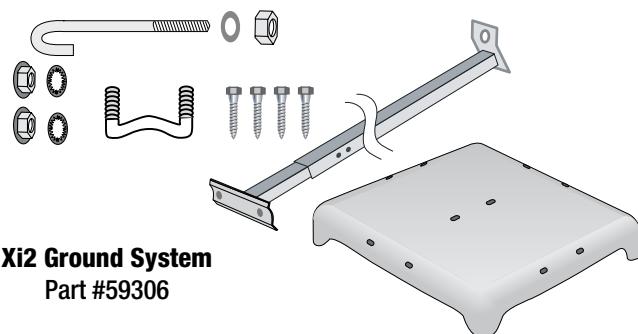
Includes: 5' Strut, pad & hardware.

Longer struts available.

Longitudinal Stabilization Hardware Kit

Part #59031

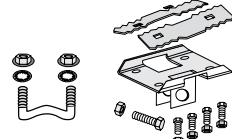
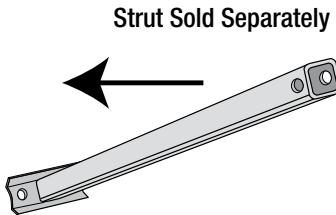
Includes: 1 I-beam bracket & 1 U-bolt with all nuts and bolts.



Struts for Longitudinal Stabilization

Part No. Strut Length Pier Height Up To:

59330-30	30"	2 Blocks or 18"
59330-39	39"	3 Blocks or 24"
59330-44	44"	4 Blocks or 32"
59330-53	53"	5 Blocks or 40"
59330-65	65"	6 Blocks or 48"



Longitudinal Stabilization
Hardware Kit
Part #59031

Longer lateral struts and double beam hardware also available.

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