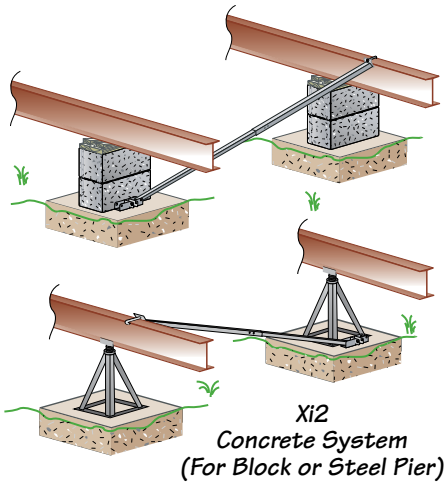
Concrete Foundation System

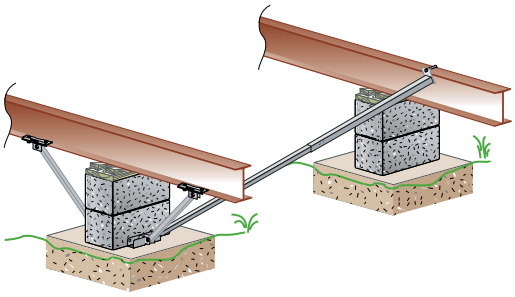
Installation Instructions for Wind Zone I, II & III (Except Florida and California)

By Tie Down Engineering

Updated: 9/24/2014



Xi2
Concrete System
(For Block or Steel Pier)



Xi2 Concrete System
with Longitudinal Stabilization
(One Strut for Wind Zone I
Two Struts for Wind Zones II & III)

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.
- Poured concrete must be must be 2.500 PSI minimum at 28 days. Bottom of footers must be below the frost line or a minimum of 4" below finished grade, check with authorities for local requirements (LAHJ).
- **Footer Requirement:** Must to be large enough for the pier load at that location and be a minimum of 22" wide by 6" deep with anchor wedge bolts a minimum of 4" from any edge or 18" wide by 12" deep with anchor wedge bolts a minimum of 1-1/2" from edge. Strip footings minimum of 18" wide by 14' long by 6" deep or 27" wide by 14' long by 4" deep.
- 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.
- Longitudinal stabilization is easily added with Tie Down's unique multi sided bracket. The longitudinal component of the Xi2 System replaces end frame ties. Check manufacturer's set-up requirements.
- The Xi2 System is installed on one of the pier footers required by the home manufacturer set up instructions, no other base pad required.
- Two systems designed to work in conjunction with each other must be placed as evenly as possible. Measuring from the center of the block/pier, systems are to be placed no less than 2' and no more than 10' from each end of home. Additional systems per instructions, see page 3. Components of the Xi2 System such as the longitudinal strut and connecting hardware, may extend beyond the pier location.
- For roof slopes greater than 20 degrees, (4.37" in 12" Pitch) see page 3.
- 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.

Instruction #08107

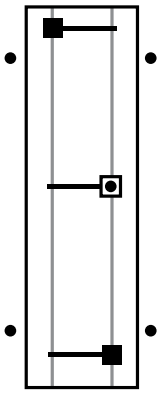
092514.D974

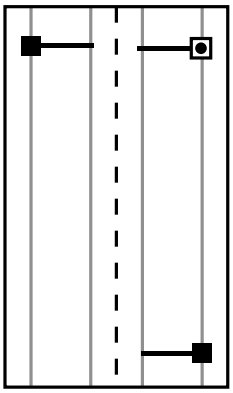
Xi2 Lateral Stabilization with Concrete Footers

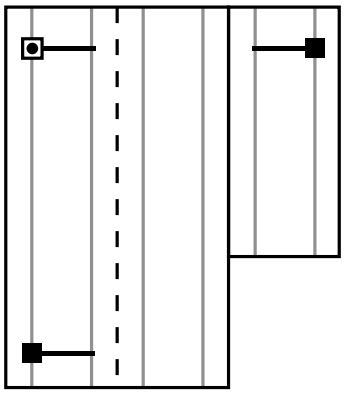
Approved Anchor* with strap from 45 to 90 degrees

Xi2 Pier Placement

3rd System for Placement







	Single Section Home	Double Section Home	Triple Section Home
Wind Zones I & II	0 - 76' Box 2 Xi2 Systems Over 76' Box 3 Xi2 Systems	0 - 76' Box 2 Xi2 Systems Over 76' Box 3 Xi2 Systems	0 - 76' Box 2 Xi2 Systems Over 76' Box 3 Xi2 Systems
Wind Zones III	0 - 64' Box 2 Xi2 Systems Over 64' Box 3 Xi2 Systems	0 - 64' Box 2 Xi2 Systems Over 64' Box 3 Xi2 Systems	0 - 64' Box 2 Xi2 Systems Over 64' Box 3 Xi2 Systems

**** For Wind Zone I - Approved anchor w/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.

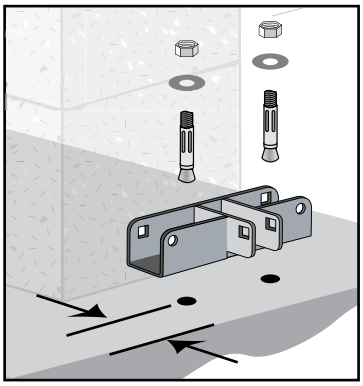
Installation of Concrete Bracket: Dry Set/Wet Set

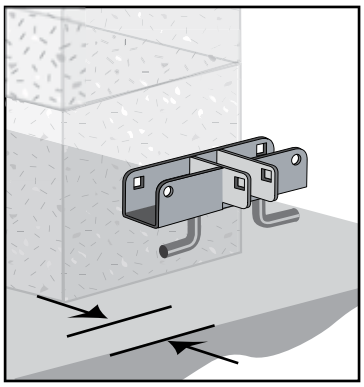
1. Identify the number of systems to be used on the home using the chart provided.
2. Identify the location where the lateral systems will be installed. If installing lateral and longitudinal together, check page 4 for alignment of bracket.
3. Build pier according to State, Local or Home Manufacturers guidelines.

4a. For dry set: drill two 3/8"x 3" deep holes in the concrete using holes in galvanized bracket as a guide. Attach bracket to concrete pad using 3/8"x 3-1/2" wedge anchors provided. Place nut & washer on anchor, leave enough room for 1 to 2 threads showing on top of bolt. Using a hammer, tap the wedge bolts into hole through bracket, leaving nut & washer flush with bracket. Using a 9/16" socket wrench, tighten wedge/anchor bolt, securing bracket to the concrete.

4b. For wet set: align bracket and submerge legs completely in concrete. Bottom of bracket should rest on surface.

5. Attach the end of the smaller tube to the bracket mounted on the pad, using the grade 5, 1/2" x 2-1/2" bolt/nut provided.
6. 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 1 on last page)*
7. 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 2 on last page).*

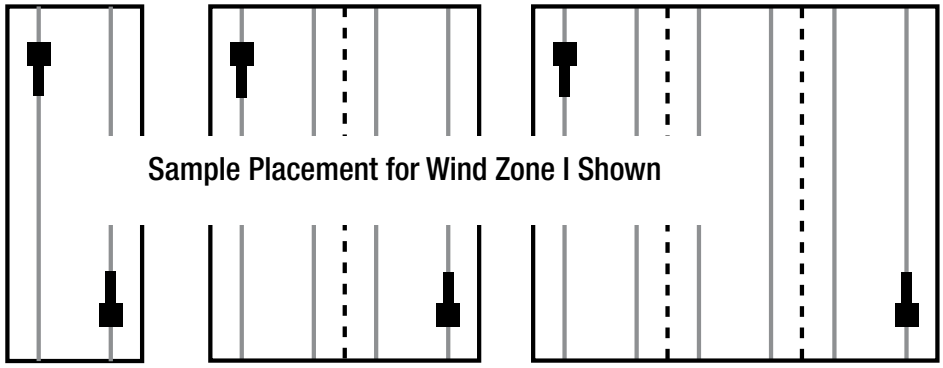




See "Footer Requirement" on page 1 for edge placement

Xi2 Longitudinal Stabilization for Wind Zone I, II & III

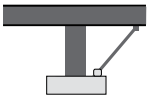
When using longitudinal stabilization only, systems must be as evenly spaced as possible, no more than 10' from the end of the home. Longitudinal struts do not replace anchors on single section homes.



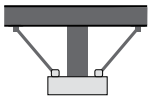
Single Section
Up to 16' Nominal

Double Section
Up to 32' Nominal

Triple Section
up to 48' Nominal



Use One Strut (per end)
For WZ I



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

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

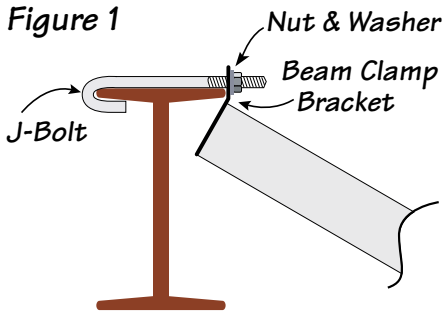
3285.402(c)(3) All new manufactured homes must have longitudinal stabilization in all wind zones. Check with individual states for their installation requirements for used homes.

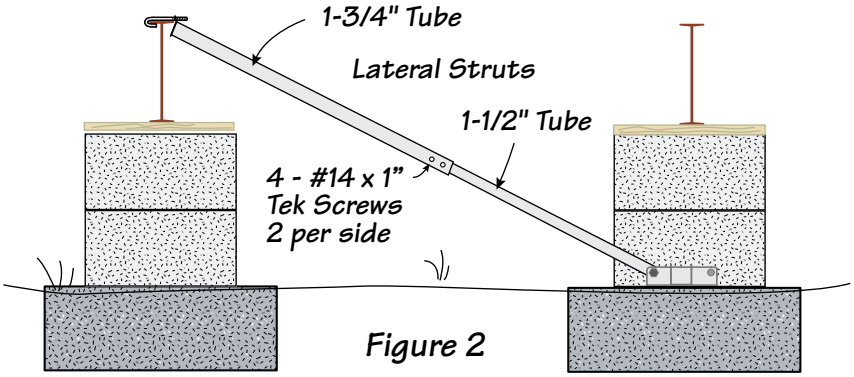
Xi2 System Requirements for Roof Pitches Higher than 20 degrees

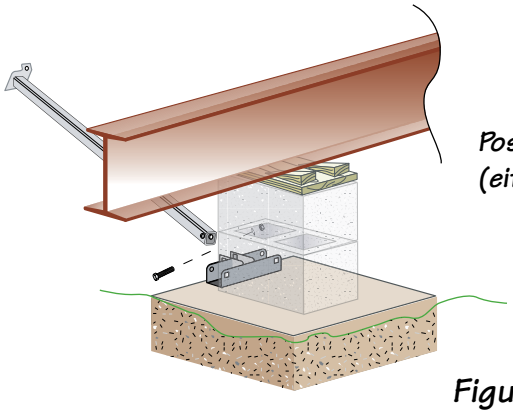
Module Length (Feet)	Wind Zone I				Wind Zone II				Wind Zone III			
	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12	5:12	6:12	7:12	9:12
34	2	2	2	2	2	2	2	2	2	2	3	3
36	2	2	2	2	2	2	2	3	2	2	3	3
38	2	2	2	3	2	2	2	3	2	3	3	3
40	2	2	2	3	2	2	2	3	3	3	3	3
42	2	2	3	3	2	2	3	3	3	3	3	3
44	2	2	3	3	2	2	3	3	3	3	3	3
46	2	3	3	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

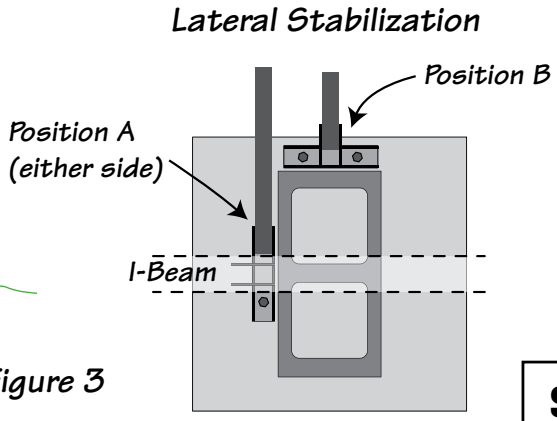
Additional Systems:
On a single section home the 3rd system is placed in the middle of the home. When using 3 or 4 systems (double and triple sections) install on opposite corners, if needed, a 5th system would be in the center of the unit on either side.

Xi2 Lateral Foundation System





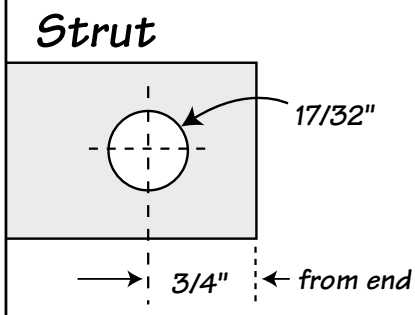




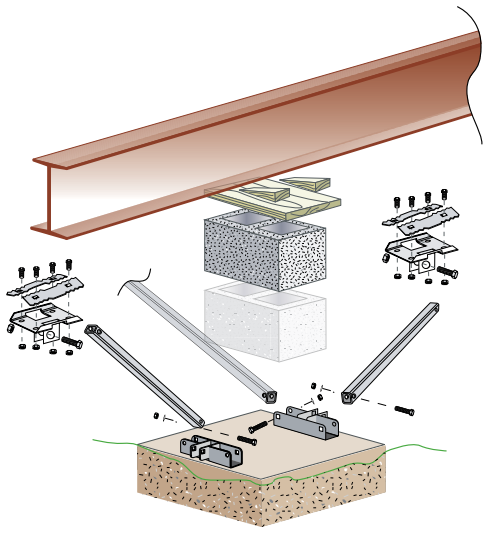
Xi2 Concrete System
Part #59307
Includes: Strut #48609 &
Hardware kit #59327.
Longer struts are available

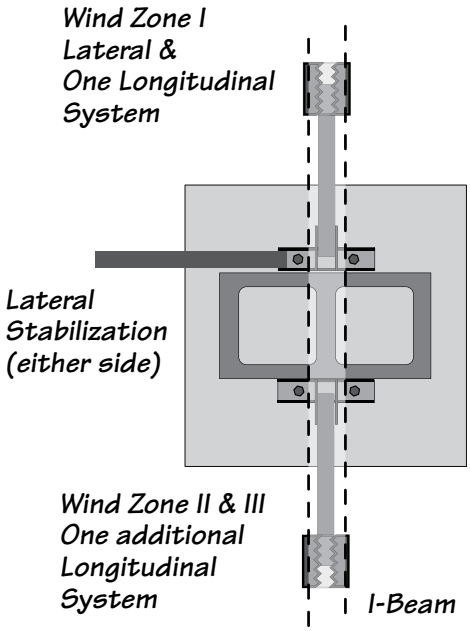
Strut Angles:

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 Longitudinal Installations





Longer lateral struts and double beam hardware also available.