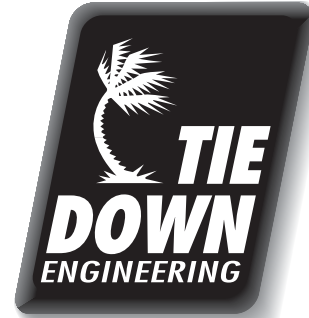


# **Xi** Foundation System

**INSTALLATION INSTRUCTIONS  
for FEMA Flood Hazard A-Zones  
Version 7/28/03**



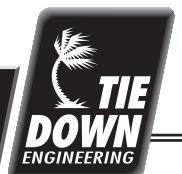
## INDEX

SECTION	PAGE NUMBER
INTRODUCTION	2
BRACED MASONRY DETAIL	3
GENERAL INSTALLATION	4
PARTS LIST	5
PIER AND FOOTER CONSTRUCTION	6
PIER HEIGHTS	7
SET-UP INSTRUCTIONS	8
Xi INSTALLATION OF CONCRETE	9
LSD/LONGITUDINAL INSTALLATION	10
SINGLEWIDE NOTES AND CHARTS	11-13
DOUBLEWIDE CHARTS	14-18

Approval



**COMPONENT PARTS AVAILABLE UPON REQUEST**



# Xi FOUNDATION INSTALLATION DESIGN INSTRUCTIONS

## Introduction

These instructions describe the proper use of the lateral and longitudinal foundation system installed in FEMA flood A Zones. The design is based on saturated and dry soil ground anchor tests conducted in Kissimmee Florida in August of 2002. The design utilizes the Xi Foundation System for resistance of lateral loads and ground anchors attached along the sidewalls for uplift and overturning load resistance.

## General

The Xi Foundation System in conjunction with ground anchors provides the support to resist lateral, longitudinal and over-turning movement of the home as required by the Federal Manufactured Home Construction and Safety Standards and the ASCE 7-02 "Minimum Design Loads for Building and other Structures" in a specified wind zone when the system is used as described in these instructions. Please verify state or local wind load requirements prior to installation of the home.

The Xi Foundation System is approved to be used on single or multi section homes. This design is acceptable for placement of units in HUD Wind Zones 1,2, & 3. However, the foundation must be constructed to the applicable wind speed from the "Basic Wind Speed" map in the ASCE 7-02 standard and this design; 90 mph, 120 mph, or 140 mph (3 sec. gusts). The unit must be in compliance with the appropriate HUD Zone from the FMHCSS. The following constitutes the basic unit parameters:

Nominally 12 feet to 18' feet wide- (single section) with main rail spacing of 95 inches or greater on center; multi section main rail spacing of 75 inches or greater on center, up to 99-1/2".

Nominal 8 foot or less top plate height at sidewalls with main rail depth of 12" or less.

Maximum roof slope of 20 degrees (4.4" in 12" slope).

Maximum eave width (roof overhang of sidewall) of 12".

These designs contain guidance for making manufactured homes, placed in Special Flood Hazard Areas, resistance to natural hazards. The designs cover the following installations:

A Zones not in floodways

Areas with Flood Velocities up to 5 feet per second

Areas with Flood Depths up to 3 feet or below lowest part of the home (whichever less).

Areas with Seismic Spectral Acceleration Constants  $S$ , equal to or less than 0.5g or  $S$ , equal to or less than 0.15g.

Areas with ground snow loads up to 40 pounds per square foot.

Installation with pier heights up to 36 inches.

Manufactured homes with frames spaced per these instructions.

Wind zones including 90 mph, 120 mph, 140 mph (3 sec. gusts)

The foundation systems have been designed to resist loads specified in ASCE 7-02 Minimum Design Loads for Building and Other Structures. Any locally adopted code or ordinance with more stringent requirements shall govern.

Any modifications in these drawings must be designed and approved by a licensed professional engineer or licensed architect.

Install skirting or perimeter wall in accordance with current edition of FEMA-85 except that anchors & strap installation is according to design here in.

Install piers & footers in accordance with manufactures instructions , except min footer depth and pier reinforcement is per design here in.

The Vector Dynamics Foundation Systems must be installed with concrete “ribbon” footers continuous full length of unit..

To inquire about the use of the XI Foundation Systems with homes of four or more sections, other widths, or on homes requiring pier heights which are not included in these instructions, contact Tie Down Engineering, Inc. at 1-800-241-1806.

The Xi Foundation System has not been designed for use on exposure “D” homes.

Additional vertical anchor ties that are unique to a home’s design may be required by the home manufacturer. These locations may include shear walls, marriage line ridge beam support posts, end frame ties and rim plates.

### **Material Specifications**

All exposed hardware shall be protected against corrosion. All material installed at or below grade shall be hot dipped galvanized.

All concrete shall provide a minimum 3,000 psi 28 day compressive strength (fc’).  
Reinforcing steel shall have minimum 60 ksi yield stress (fs).

All wood framing shall be preservative treated by CCA (chromated copper arsenate) at a retention of 0.40 pounds per cubic feet.

Anchor performance shall be based on the testing and probabilistic analysis of anchors test in both dry and saturated soils. Anchor design values shall be based on a maximum 10% fracflfe and a minimum 90% confidence interval. Anchor spacing in these designs based on a minimum stiffness of 1,200 pounds per inch for in-line anchors and 675 pounds per inch for anchors used with stabilizer plates and is based on tests conducted in saturated and unsaturated Class 4a soil.

Anchor straps shall be galvanized, test per ASTM D3953, shall have an allowable minimum working load of 3,150 pounds and a minimum tensile strength of 4,725 pounds.

# GENERAL INSTALLATION INSTRUCTIONS

## SITE PREPARATION

It is necessary that the home site be properly graded and sloped to prevent water and moisture from standing or flowing beneath the home under non flood conditions.

### **Poured Footer & Masonry Pier**

Footers are poured “ribbons” centered under each I-beam. Footers are to be continuous to within 1'-0" o each end of the home. The size of the footer that the Vector System is attached to is as specified in the tables for the appropriate wind zone and pier height. The size of the footers under other beams is minimum 24" wide x 8" deep. All footers are to be provided with scour protection as indicated in other details where flood velocities exceed 1 ft./sec. Place footings at frost depth as required by the local authority. If flood velocity is not specifically known, use 5ft/sec for non-floodway A Zones.

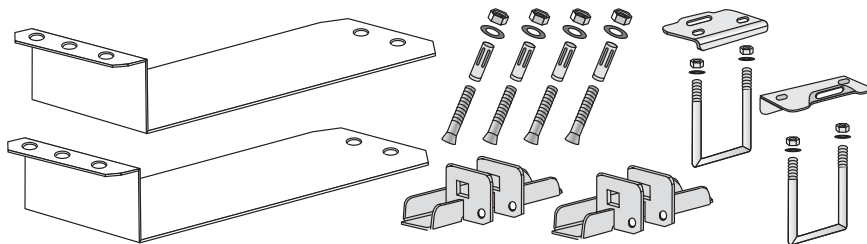
Piers are single stacked 8x16x8 concrete block (CMU's) for piers up to 12" high and are double stacked 8x16x8 concrete block (CMU's) for piers greater than 12" up to 36" high. Concrete blocks must comply with ASTM C90 Grade N or S, Type 1.

For Flood velocity under 1 ft./sec. construct pier with dry stacked blocks. For flood velocities between 1 and 5 ft./sec. construct pier with dry stacked block and apply 1/8" thick (min) surface bond approved for concrete block construction. In addition, install hold-downs as required by design with frame clips and straps secured to concrete anchors embedded in the concrete footers at each pier.

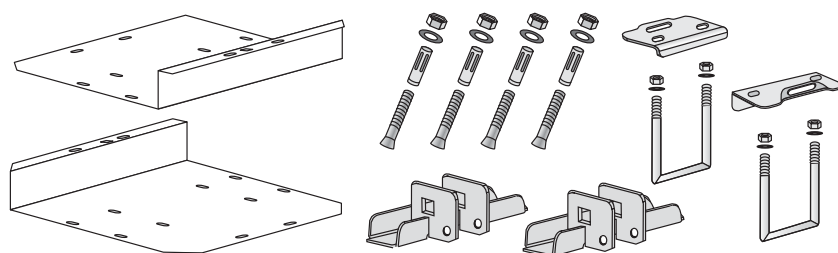
# Xi/Vector

## Foundation Systems

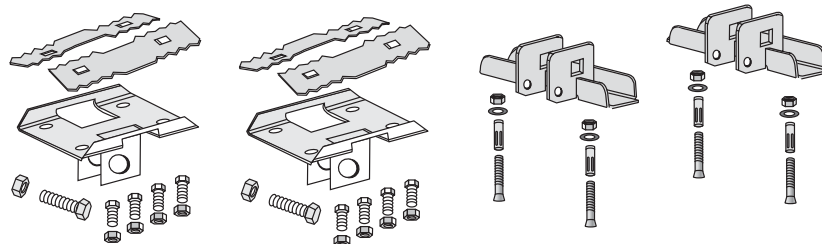
### Component Parts List



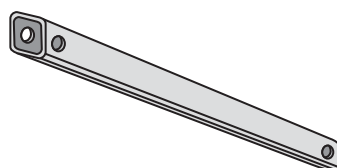
**Concrete Vector System**  
Part # 59008  
(for single stack blocks)



**Concrete Vector System**  
Part # 59006  
(for double stack blocks)



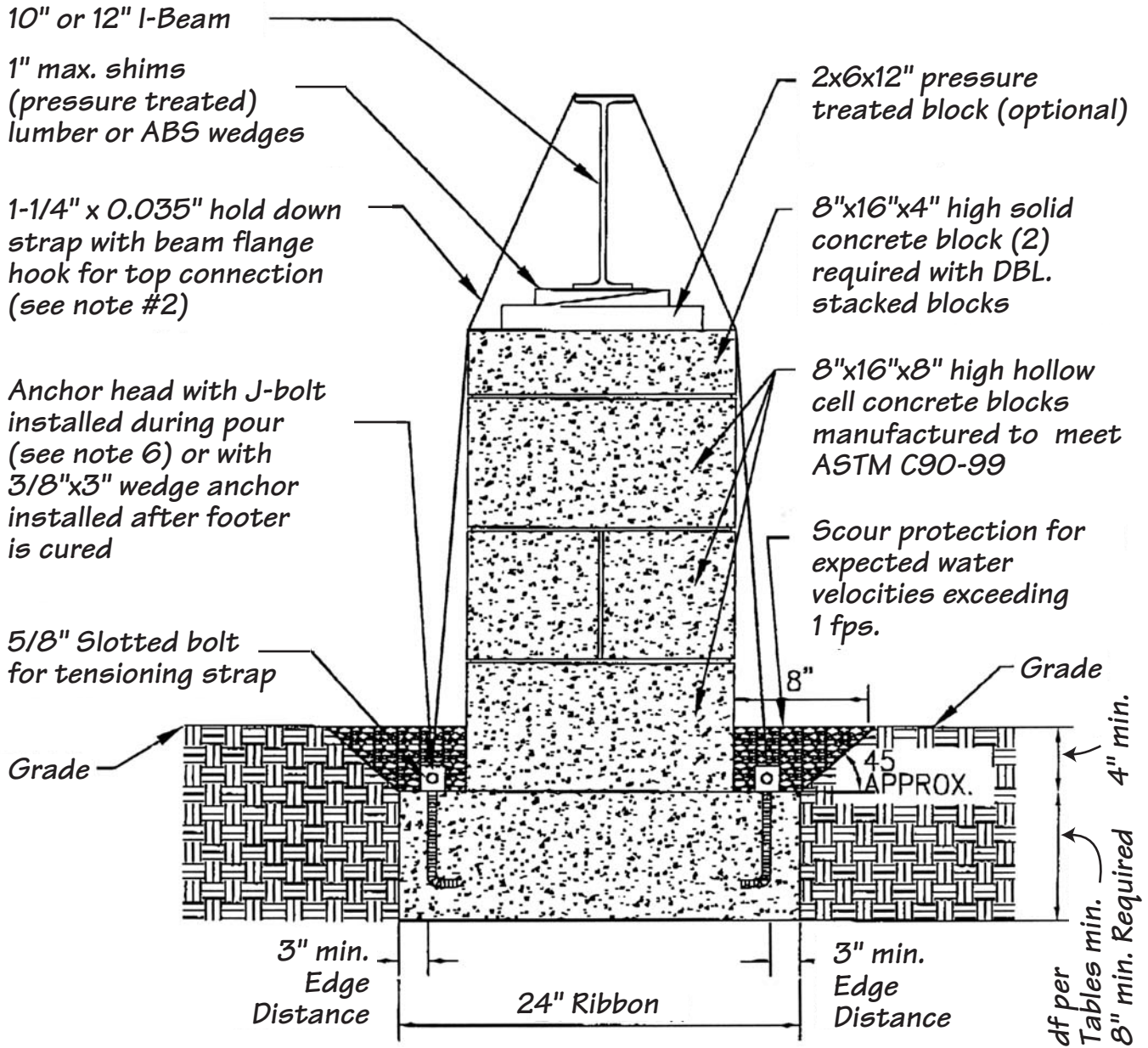
**Longitudinal Stabilization  
Hardware Kit for Concrete**  
Part # 59023  
(for use with 59006)



#### Struts for Longitudinal Systems

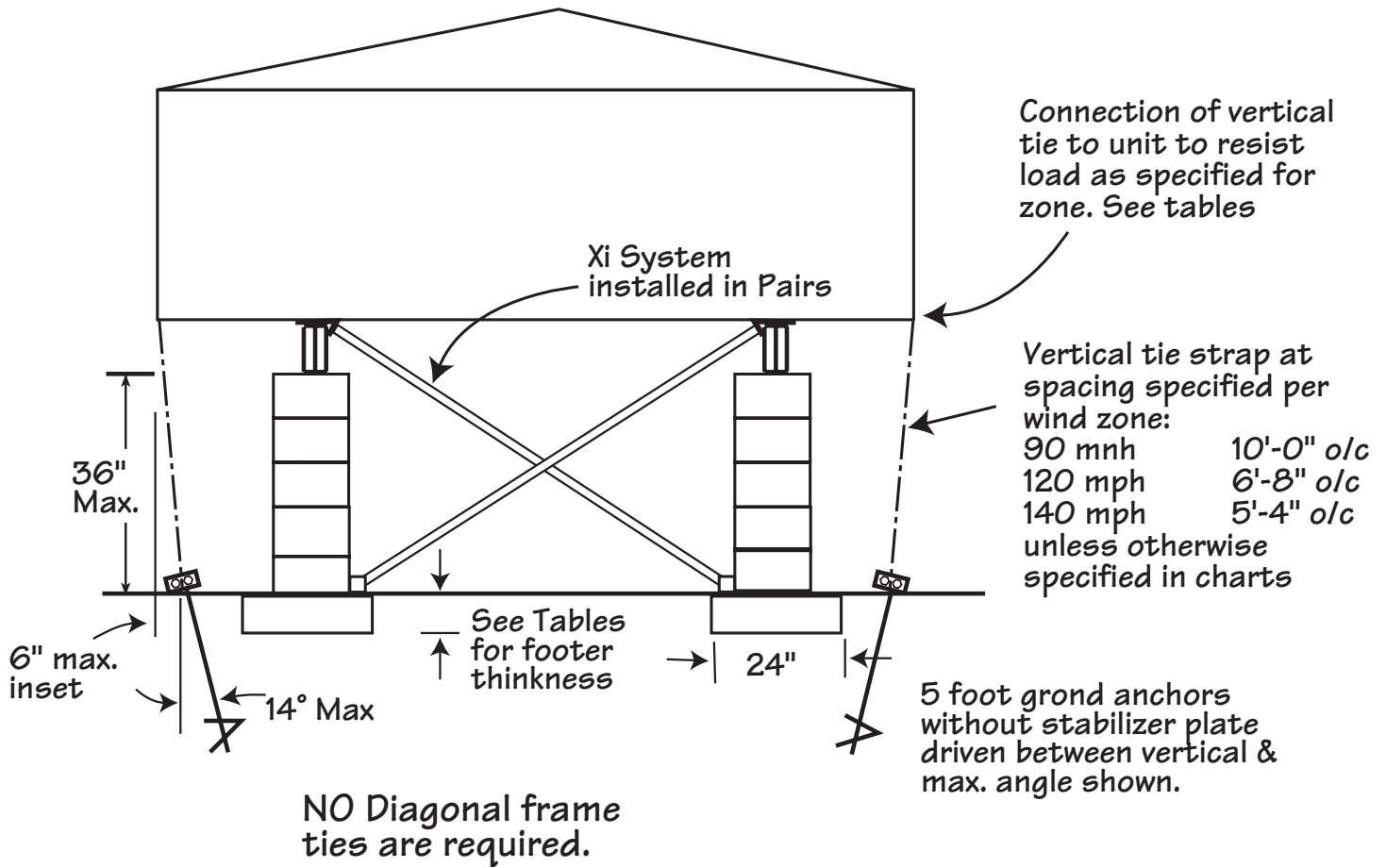
Part No.	Strut Length	Pier Height
59016	30"	up to 2 Blocks
59012	39"	up to 3 Blocks
59013	44"	up to 4 Blocks
59014	53"	up to 5 Blocks
59015	65"	up to 6 Blocks

# Pier & Footer Construction



## Notes:

- 1, Concrete for footer is  $f_c' = 3000$  psi minimum compressive strength at 28 days.
2. All hold down equipment must have a working load capacity of 3150# (4725# ultimate load capacity). Hold downs are not required for 12" maximum pier height.
3. Blocks are single stacked for 12" maximum pier height and double stacked for greater heights up to 36". Stacked block pier design is based on ANSI A225.1 "Manufactured Home Installations".
4. Pier design is applicable to floor water flow of up to 5 fps.
5. Scour protection for flows greater than 1 fps. consists of 4" deep stone (3" aggregate) spread 8" minimum around pier, as shown.
6. At Xi system locations be sure to offset J-anchors from the systems concrete steel pad.

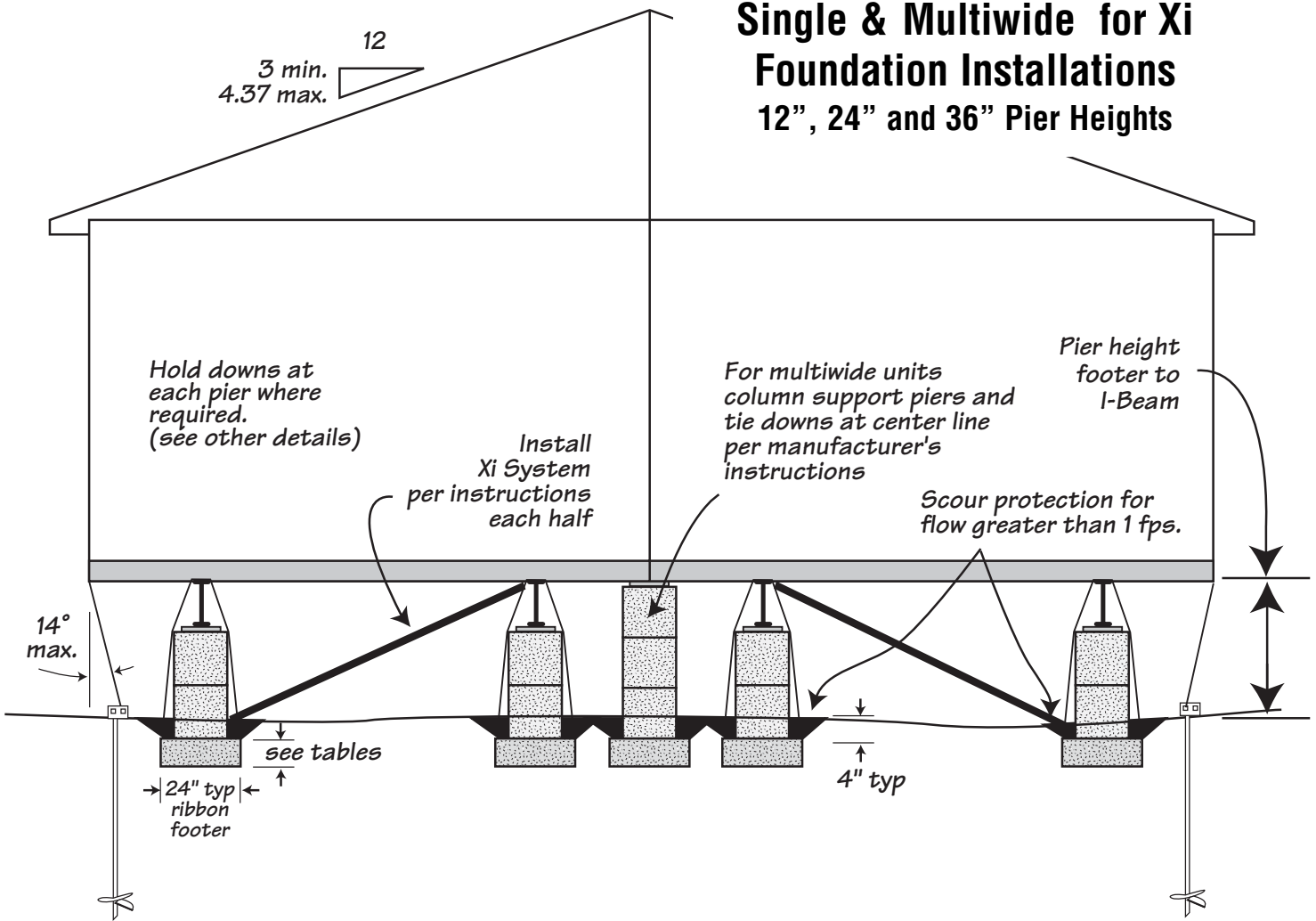


**Maximum Pier Height**

Xi Foundation Systems may be used on single and multi section homes which require pier heights (from surface of Vector pads to top of concrete pier) not to exceed 36 inches under one or both main rail(s). Refer to tables for the appropriate wind zone corresponding to the unit parameters of the home being installed. Refer to pier and footer construction details.

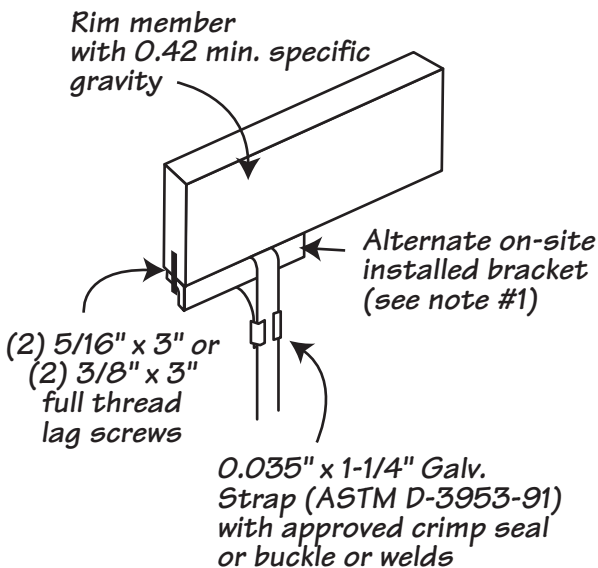
# Single & Multiwide for Xi Foundation Installations

## 12", 24" and 36" Pier Heights



### NOTES:

1. Bracket may be installed on-site when factory installed vertical tie connection is unknown or has a lower capacity than the vertical tie load determined from tables. Bracket to be 1-1/2" x 1-1/2" x 11 ga. (min.) galvanized steel angle with (2) 7/16" diameter holes 3/4" from each end and 2" to 3" in between hole centers. Bracket & connection shown good vertical loads up to 1745#.
2. Minimum soil bearing pressure per charts for appropriate roof load.
3. Anchor length per charts. Anchor spacing is based on pier height, unit width and I-beam spacing. Anchors and tiedown straps are to be installed per home manufacturer's set up manual and anchor manufacturer's instructions. Anchor may be inset 6" max. from sidewall.



4. Pier construction per other details. Piers are spaced at 96" OC along each I-beam.
5. Scour protection at each pier a minimum of 4" deep on top of footer and surrounding pier at least a distance of 8" all around. Refer to pier detail for additional requirements.
6. Design based on the condition that flood water (base flood elevation) is at or below bottom of manufactured home chassis.
7. Pier design is not impact resistant to floating debris. The chassis beams are capable of supporting unit dead loads when one pier is eliminated, due to impact (10" I-Beam min.)

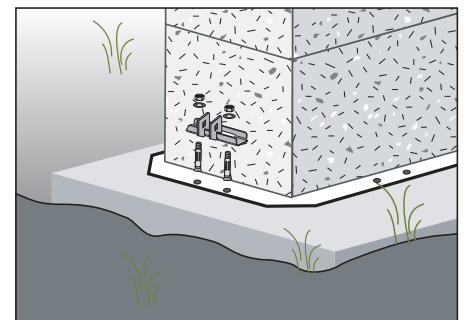
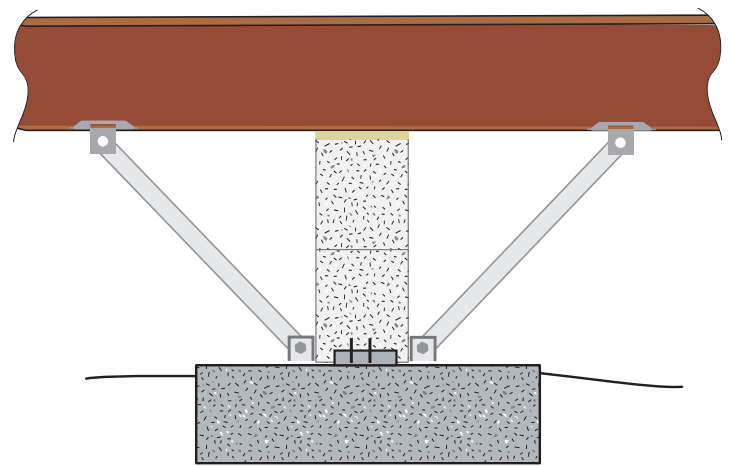


# Installation on Concrete Pads, Runners or Slabs

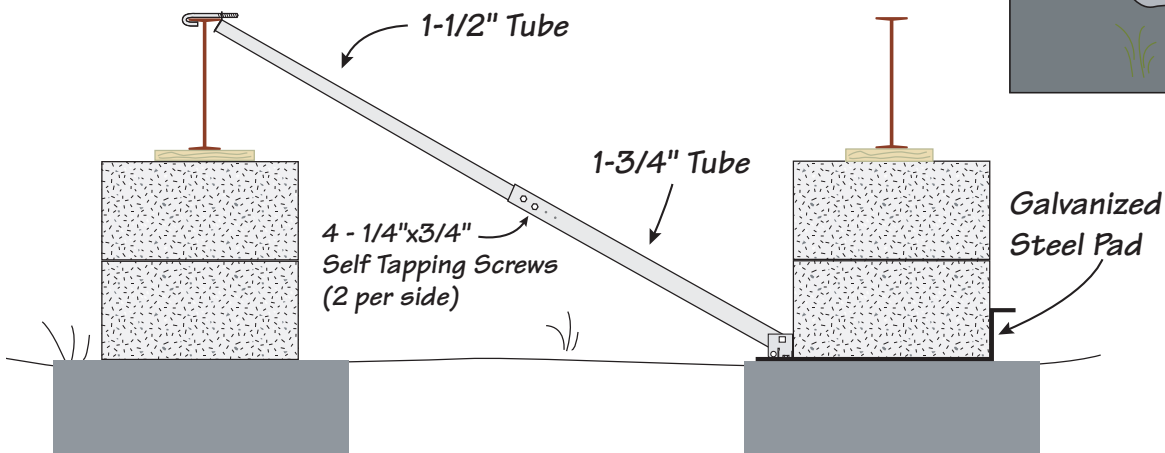
The Xi system for poured concrete applies to concrete continuous footers, (ribbons). Minimum size of concrete per Xi pier is 24" wide x depth per tables. Concrete must be sufficiently cured and set to accommodate an anchor bolt to its' full load resistance.

1. Determine location of pier sets where the Xi systems will be located, see tables for number required.
2. Place Xi/Vector concrete pan where pier will be located. Turned up edge will face to the outside of the home.
3. Build pier with concrete blocks centered on top of the pad according to state, local or manufacturers guide lines.
4. Drill two 3/8" x 3" deep holes in concrete using holes in galvanized pan as a guide.
5. Place tie bracket on inside of pier, facing toward the opposite beam, with the "flush" side of the tie bracket towards the block pier.
6. Put a washer and nut on each of the 3/8" x 3-1/2" wedge anchors. The nut should be screwed on enough to have one or two threads showing on the top of the bolt.
7. Line up the hole in the inside tie bracket with the drilled holes in the pad & concrete and insert the wedge anchors. Using a hammer, tap the wedge bolts into the holes, through the bracket & pad, leaving the washer/nut flush with the bottom of the bracket. Using a 9/16" socket wrench, tighten the wedge/anchor bolt, securing the tie bracket to the concrete.
8. Follow steps 7 - 10 in ground instructions

## Concrete LSD



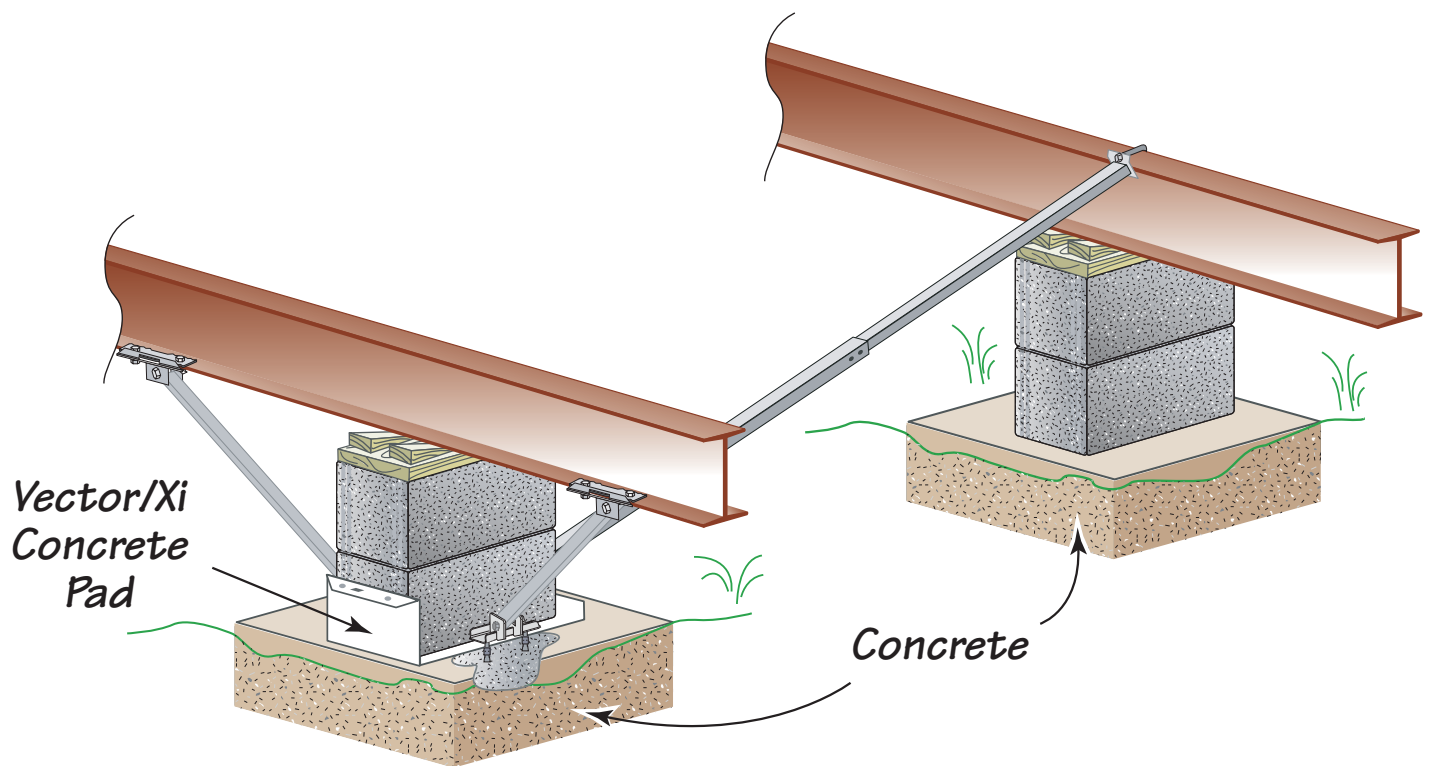
*Block Pier Concrete Systems P/N's*  
 #59046 Xi, Concrete Single Block  
 #59047 Xi, Concrete Double Block  
 #59315 Lateral 5' Strut w/hardware  
 #59318 Lateral 6' Strut w/hardware



## LSD/Longitudinal Installation

1. Place and build pier as above
2. Use LSD hardware kit #59023
3. Drill 3/8" x 3" Hole into concrete through holes in pan on each longitudinal side of block pier
4. Place tie brackets on each side of pier, with the "flush" side of the tie bracket towards the block pier.
5. Put a washer and nut on each of the 3/8" x 3-1/2" wedge anchors. The nut should be screwed on enough to have one or two threads showing on the top of the bolt.
6. Line up the hole in the inside tie bracket with the drilled holes in the pad & concrete and insert the wedge anchors. Using a hammer, tap the wedge bolts into the holes, through the bracket & pad, leaving the washer/nut flush with the bottom of the bracket. Using a 9/16" socket wrench, tighten the wedge/anchor bolt, securing the tie bracket to the concrete.
7. Attach frame brackets to I-beam on each side of pier.
8. Attach strut to the tie bracket at base and I-beam brackets with bolts provided. Struts must be at 45° or less, tighten all bolts/nuts.

## LSD/Longitudinal Lateral Strut Combo



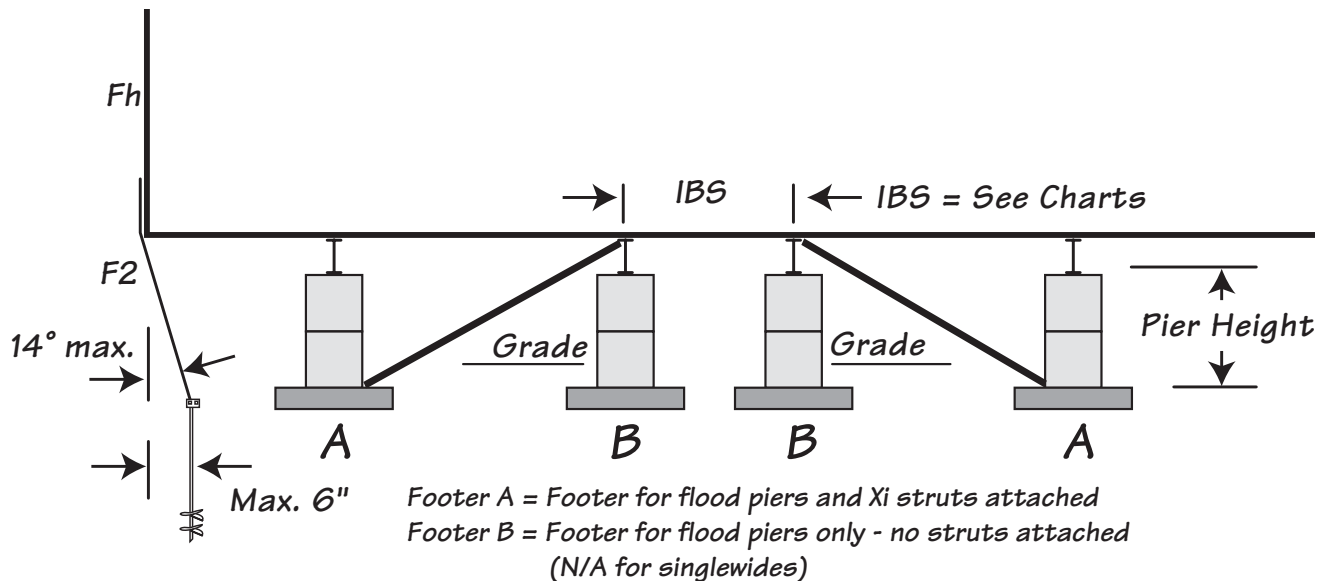
### Singlewides - 5 ft. Anchor without stabilizer 1200# /in

To set units containing vertical ties.

This method of tiedown consists of ground anchors having the specified 5' anchors spaced as indicated in the table along each sidewall starting at 2'-0" from each end. Attached to each of these anchors is a vertical tie having a connection to the unit to resist the load as tabulated or brackets installed in accordance with this design. See other details.

Piers are spaced as indicated starting at 2'-0" from each end.

Piers are provided with hold downs per other details if indicated as being required.



*One Xi System is one pair of struts opposite each other for FEMA sets.*

#### Table Notes:

1. Footer is 24" wide continuous ribbon under each I-Beam
2. Based on G&O data for ground anchor tests for 900% satisfactory performance and 90% confidence level. Stiffness (spring) constant = 1200# /IN
3. Anchor inset = 6" max. from sidewall vertical line to ground.
4. The factory installed vertical tie connection at sidewall must be capable of resisting the highest load specified in the table, unless specific pier heights and wind and flood water speeds are known, see also Note 6.
5. Piers are fabricated using dry stacked hollow cell concrete blocks (CMU's). Single stacked piers are acceptable for 1 fps flood water flow, while double stacked blocks are required for 5 fps flow. Piers are centered on the level footer ribbon. Pier spacing is according to manufacturer's set-up manual, but not more than 8'-0" o/c. Footing thickness is the greater of the roof LL requirement and the flood design.
6. To obtain the vertical load specified an angle bracket may be installed at anchor location to the rim joist with 2 lag screws, either 5/16"x3" or 3/8"x3", Brackets are 1-1/2" x 1-1/2" 11 ga min. steel angle with 2-7/16" min diameter hole 3/4" from each end and 2 to 3" in between hole centers. A load of 1985 lbs. can be achieved with 2-3/8x3" lags and 1745 lbs. with 2-5/16"x3" lags.
7. Design is based on unit interconnection between sections to transfer loads so that the multiple sections act as a single unit for anchorage.

## Singlewides - 5 ft. Anchor without stabilizer

Roof Live Load = 40 PSF Max.  
 Unit Width = 210 Inches  
 I-Beam Spacing = 95.5"

IBS' = 95.5" min.  
 Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
90 mph	Anchor Spacing	12.00	12.00	12.00	12.00	12.00	12.00
	Vert, Tie load, F2	392	386	383	392	386	383
	Footer Depth, A	12.28	13.07	14.15	12.28	13.07	16.96
Max. Unit length for various no. of Vector Systems							
	2 Systems	29.23	29.17	29.52	29.42	29.91	31.28
	3 Systems	54.45	54.35	55.03	54.84	55.82	58.57
	4 Systems	79.68	79.52	80.55	80.26	81.74	85.85
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	Hold downs req'd?	No	Yes	Yes	No	Yes	Yes

Roof Live Load = 20 PSF Max.  
 Unit Width = 210 Inches  
 I-Beam Spacing = 95.5"

IBS = 95.5" min.  
 Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
120 mph	Anchor Spacing	6.67	6.67	6.67	6.67	6.67	6.67
	Vert, Tie load, F2	1648	1621	1612	1648	1621	1612
	Footer Depth, A	11.15	12.03	14.22	11.15	12.03	17.02
Max. Unit length for various no. of Vector Systems							
	2 Systems	29.34	29.28	30.43	29.55	30.09	32.21
	3 Systems	54.67	54.55	56.86	55.10	56.18	60.41
	4 Systems	80.01	79.83	83.29	80.85	82.27	88.62
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	Hold downs req'd?	No	Yes	Yes	No	Yes	Yes

## Singlewides - 5 ft. Anchor without stabilizer

Roof Live Load = 20 PSF Max.  
 Unit Width = 210 Inches  
 I-Beam Spacing = 95.5"

IBS = 95.5" min.  
 Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>140 mph</b>	<b>Anchor Spacing</b>	4.00	4.00	4.00	4.00	4.00	4.00
	<b>Vert, Tie load, F2</b>	1697	1669	1659	1697	1669	1659
	<b>Footer Depth, A</b>	14.34	14.96	15.80	14.34	14.96	17.06
Max. Unit length for various no. of Vector Systems	2 Systems	32.73	32.19	31.85	32.97	33.10	32.23
	3 Systems	61.46	60.37	59.71	61.95	62.19	60.46
	4 Systems	90.19	88.56	87.56	90.92	91.29	88.69
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

## Doublewides - 5 ft. Anchor without stabilizer

Roof Live Load = **40 PSF Max.**  
 Unit Width = **284 Inches**  
 I-Beam Spacing = 95.5" min.

Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>90 mph</b>	<b>Anchor Spacing</b>	16.00	16.00	16.00	16.00	16.00	16.00
	<b>Vert, Tie load, F2</b>	347	341	339	347	341	339
	<b>Footer Depth, A</b>	10.67	11.59	12.17	10.67	11.59	13.52
	<b>Footer Depth, B</b>	10.67	11.59	12.17	10.67	11.59	13.52
Max. Unit length for various no. of Vector Systems	2 Systems	29.38	29.32	29.23	29.61	30.17	30.31
	3 Systems	54.77	54.64	54.46	55.22	56.34	56.63
	4 Systems	80.15	79.96	79.69	80.83	82.52	82.94
Long, Ties	LSD Systems (Per section)	1.00	1.00	1.00	1.00	1.00	1.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

Roof Live Load = **20 PSF Max.**  
 Unit Width = **284 Inches**  
 I-Beam Spacing = 95.5" min.

Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>120 mph</b>	<b>Anchor Spacing</b>	8.00	8.00	8.00	8.00	8.00	8.00
	<b>Vert, Tie load, F2</b>	1406	1383	1375	1406	1383	1375
	<b>Footer Depth, A</b>	10.58	11.04	11.66	10.58	11.04	13.56
	<b>Footer Depth, B</b>	9.73	10.75	11.37	9.73	10.75	13.56
Max. Unit length for various no. of Vector Systems	2 Systems	30.56	29.75	29.96	30.2	30.69	31.14
	3 Systems	57.12	55.49	5.26	57.64	57.38	58.28
	4 Systems	83.66	81.24	80.89	84.46	84.07	85.42
Long, Ties	LSD Systems (Per section)	1.00	1.00	1.00	1.00	1.00	1.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

## Doublewides - 5 ft. Anchor without stabilizer

Roof Live Load = 20 PSF Max.  
 Unit Width = 284 Inches  
 I-Beam Spacing = 95.5" min.

Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>140 mph</b>	<b>Anchor Spacing</b>	5.33	5.33	5.33	5.33	5.33	5.33
	<b>Vert, Tie load, F2</b>	1615	1588	1579	1615	1588	1579
	<b>Footer Depth, A</b>	14.34	14.96	15.80	14.34	14.96	15.80
	<b>Footer Depth, B</b>	9.73	10.75	11.37	9.73	10.75	13.58
Max. Unit length for various no. of Vector Systems	2 Systems	34.92	33.97	33.83	35.23	35.07	33.29
	3 Systems	65.85	63.94	63.66	66.46	66.15	62.59
	4 Systems	96.77	93.92	93.49	97.68	97.22	91.88
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

Roof Live Load = 40 PSF Max.  
 Unit Width = 332 Inches  
 I-Beam Spacing = 95.5" min.

Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>90 mph</b>	<b>Anchor Spacing</b>	16.00	16.00	16.00	16.00	16.00	16.00
	<b>Vert, Tie load, F2</b>	262	258	257	262	258	257
	<b>Footer Depth, A</b>	11.26	12.14	12.68	11.26	12.14	14.73
	<b>Footer Depth, B</b>	11.26	12.14	12.68	11.26	12.14	14.73
Max. Unit length for various no. of Vector Systems	2 Systems	29.33	29.26	29.18	29.54	30.07	30.70
	3 Systems	54.65	54.53	54.36	55.07	56.14	57.39
	4 Systems	79.98	79.79	79.54	80.61	82.22	84.09
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

## Doublewides - 5 ft. Anchor without stabilizer

Roof Live Load = 20 PSF Max.  
 Unit Width = 332 Inches  
 I-Beam Spacing = 95.5" min.

Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>120 mph</b>	<b>Anchor Spacing</b>	8.00	8.00	8.00	8.00	8.00	8.00
	<b>Vert, Tie load, F2</b>	1478	1453	1445	1478	1453	1445
	<b>Footer Depth, A</b>	10.58	11.22	11.97	10.58	11.22	14.78
	<b>Footer Depth, B</b>	10.58	11.22	11.97	10.58	11.22	14.78
Max. Unit length for various no. of Vector Systems	2 Systems	29.81	29.36	29.40	30.05	30.24	31.57
	3 Systems	55.63	54.71	54.81	56.11	56.49	59.13
	4 Systems	81.44	80.07	80.21	82.16	82.73	86.70
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

Roof Live Load = 20 PSF Max.  
 Unit Width = 332 Inches  
 I-Beam Spacing = 95.5" min.

Wall Height = 96 inches  
 Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>140 mph</b>	<b>Anchor Spacing</b>	5.33	5.33	5.33	5.33	5.33	5.33
	<b>Vert, Tie load, F2</b>	1725	1696	1686	1725	1696	1686
	<b>Footer Depth, A</b>	14.34	14.96	15.80	14.34	14.96	15.80
	<b>Footer Depth, B</b>	10.26	11.22	12.01	10.26	11.22	14.81
Max. Unit length for various no. of Vector Systems	2 Systems	30.06	33.28	33.17	34.34	34.30	32.49
	3 Systems	61.12	62.58	62.34	64.67	64.61	60.99
	4 Systems	94.17	91.84	91.52	95.01	94.91	89.48
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes



## Doublewides - 5 ft. Anchor without stabilizer

Roof Live Load = **40 PSF Max.**  
 Unit Width = **372 Inches**  
 I-Beam Spacing = **95.5" min.**

IBS = **90.5" min.**  
 Wall Height = **96 inches**  
 Side Eave = **12 Inches**

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>90 mph</b>	<b>Anchor Spacing</b>	16.00	16.00	16.00	16.00	16.00	16.00
	<b>Vert, Tie load, F2</b>	208	205	203	208	205	203
	<b>Footer Depth, A</b>	11.74	12.57	13.10	11.74	12.57	15.74
	<b>Footer Depth, B</b>	11.74	12.57	13.10	11.74	12.57	15.74
Max. Unit length for various no. of Vector Systems	2 Systems	29.28	29.22	29.14	29.48	30.00	30.98
	3 Systems	54.56	54.44	54.28	54.96	55.99	57.96
	4 Systems	79.84	79.67	79.42	80.44	81.99	84.94
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

Roof Live Load = **20 PSF Max.**  
 Unit Width = **372 Inches**  
 I-Beam Spacing = **95.5" min.**

Wall Height = **96 inches**  
 Side Eave = **12 Inches**

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>120 mph</b>	<b>Anchor Spacing</b>	8.00	8.00	8.00	8.00	8.00	8.00
	<b>Vert, Tie load, F2</b>	1551	1525	1516	1551	1525	1516
	<b>Footer Depth, A</b>	10.67	11.60	12.99	10.67	11.60	15.80
	<b>Footer Depth, B</b>	10.67	11.60	12.99	10.67	11.60	15.80
Max. Unit length for various no. of Vector Systems	2 Systems	29.38	29.32	29.90	29.61	30.17	31.88
	3 Systems	54.77	56.64	55.80	55.22	56.34	59.75
	4 Systems	80.15	79.95	81.70	80.82	82.51	87.63
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes

## Doublewides - 5 ft. Anchor without stabilizer

Roof Live Load = 20 PSF Max.

Unit Width = 372 Inches

I-Beam Spacing = 95.5" min.

Wall Height = 96 inches

Side Eave = 12 Inches

Wind Speed	Description	Flood Vel = 1 fps Pier Height			Flood Vel = 5 fps Pier Height		
		12"	24"	36"	12"	24"	36"
<b>140 mph</b>	<b>Anchor Spacing</b>	5.33	5.33	5.33	5.33	5.33	5.33
	<b>Vert, Tie load, F2</b>	1829	1799	1788	1829	1799	1788
	<b>Footer Depth, A</b>	14.34	14.96	15.80	14.34	14.96	15.83
	<b>Footer Depth, B</b>	10.67	11.60	13.003	10.67	11.60	15.83
Max. Unit length for various no. of Vector Systems	2 Systems	33.42	32.76	32.55	33.68	33.73	31.90
	3 Systems	62.84	61.52	61.11	63.36	63.45	59.80
	4 Systems	92.25	90.27	89.66	93.04	93.18	87.70
Long, Ties	LSD Systems (Per section)	2.00	2.00	2.00	2.00	2.00	2.00
	<b>Hold downs req'd?</b>	No	Yes	Yes	No	Yes	Yes