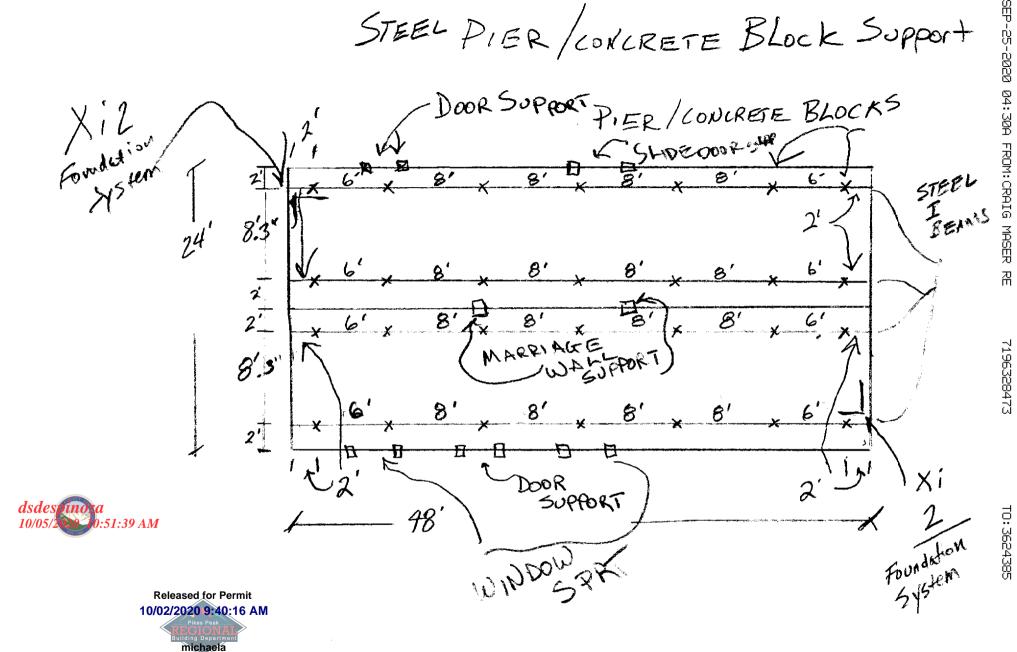
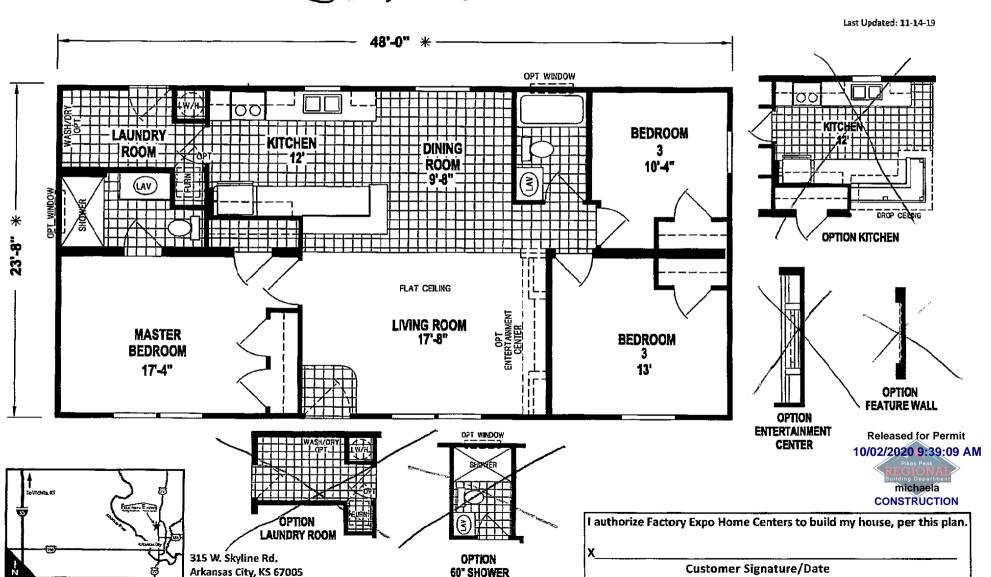
STEEL PIER/COXCRETE BLock Support



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Foundation Pads

ABS Foundation Pads

• Bigger, thicker, stronger and simply better

• Lighter than concrete, saves labor

· Larger pads to increase spacing, by up to 12% saving time and material on pier sets

· Easily stackable for larger pad area and wider pier spacing

• Triple stack for 4 Sq. Ft, 5 Sq. Ft. & 6 Sq. Ft. to maximize pier spacing

2 Square Feet (16" x 18")

Part #59300

2.5 Square Feet (16" x 22.5")

Part #59301

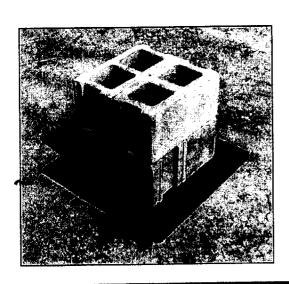
3 Square Feet (17" x 25")

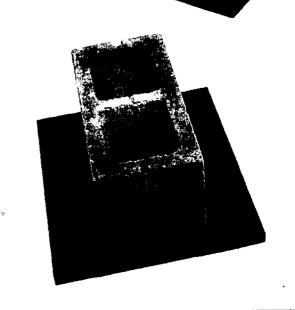
Part #59302

4 Square Feet (24" x 24")

Part #59303

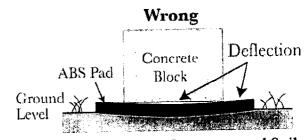
1611



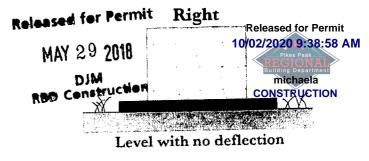


ABS Pad Information

Pad Bearing Capacity								
ABS Pad Size	1000 Has. Soil	3000 lbs. Soil						
#59300 - 2 Sq. Ft. 288 Sq. In.	2,000 lbs.	4,000 lbs.	6,000 lbs.					
# 59301 - 2.5 Sq. Ft. 260 Sq. In.	2,500 lbs.	5,000 lbs.	7,500 lbs.					
#59302-3 Sq. Ft. 432 Sq. In.	3,000 lbs.	6 ,000 th s.√ ∞ (bs	N/A					
#59303 - 4 Sq. Ft. 576 Sq. In		8,000 lbs.	N/A					

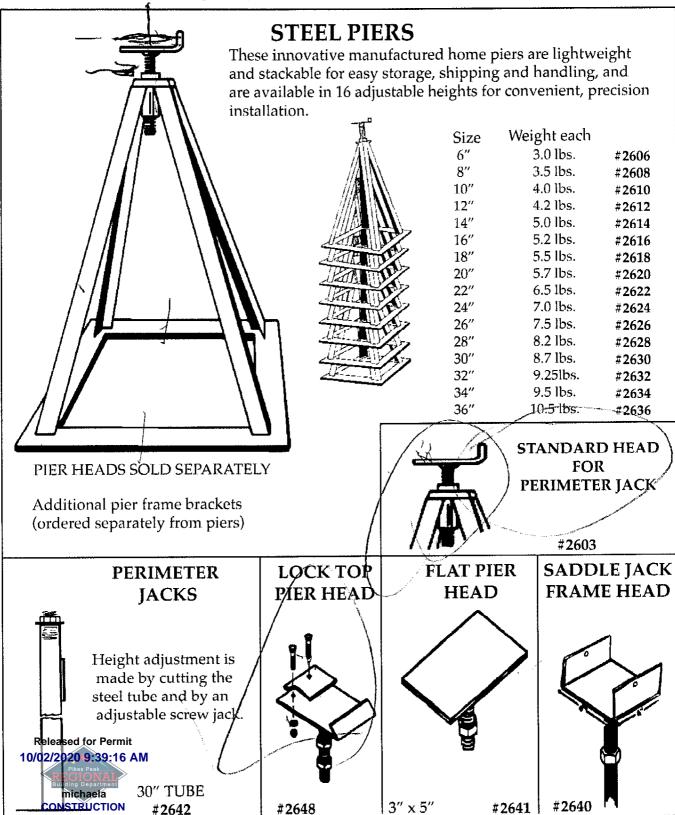


Unlevel or poorly compacted Soil



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679 Sheridan Blvd. P.O. Box 140038 303-232-2027 Denver, CO 80214 800-525-8847

700 South 52nd St. 480-968-7993 Tempe, AZ 85281 800-233-7993

885 Stillwater Rd., #500 West Sacramento, CA 95605 916-374-8944 888-575-8200

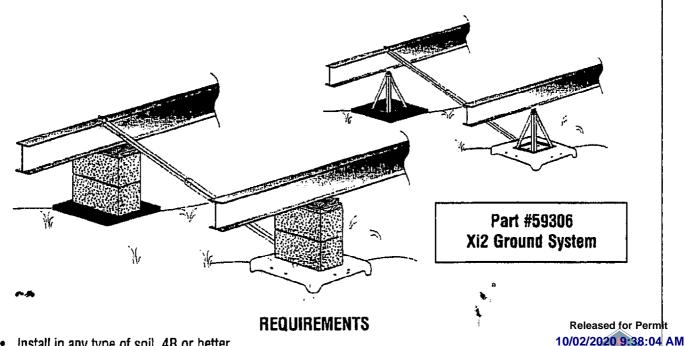
2006



Foundation System

Installation Instructions for Wind Zone I By Tie Down Engineering Updated: 8/24/2004

- Easy installation
- Stabilizer plates and diagonal frame ties are not required in most set-ups
- Longitudinal stabilization is easily added with Tie Down's LSD strut kit.
- · Heavy galvanized coating* on bracket and struts.



Install in any type of soil, 4B or better

· Maximum projection at sidewall is 96". Higher walls may be used when the design loads are adjusted accordingly.

· Main rail spacing must be 99.5" or less

- 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, and rim plates. The longitudinal component of the Xi2 system replaces end frame ties.
- Maximum pier height is 48" pier. Contact Tie Down if piers exceed these heights; further engineering analysis may be required.
- Systems must be placed as evenly as possible, no more than 10' from end of home.
- Additional systems may be needed for roof slopes greater than 20 degrees, (4.37" in 12" Pitch) See Page 4.
- Xi2 components exceed HUD code 3280.307g *Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc exercit of not less than 0.30 ounces per square foot of surface coating....*

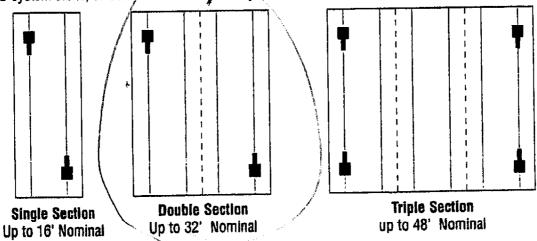
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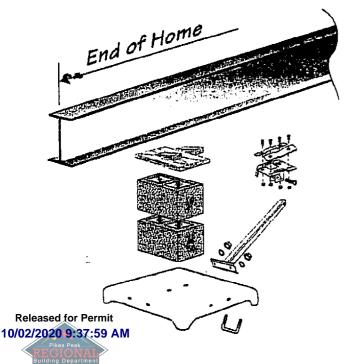
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Longitudinal Installation for Xi2 System in Wind Zone I

When the home manufacturer and/or local requirements include longitudinal stabilization, the installer can use the LSD system alone, or compline the LSD system with the Tie Down's Xi2 lateral system.



When pier with LSD struts is used only as longitudinal stabilization, systems must be as evenly spaced as possible, no more than 16' from the end of the home. For instructions regarding single or double section homes with roof pitch higher than 5/12, or for triple section homes with pitch greater than 4/12, call Tie Down Engineering (800) 241-1806.



Installation of Longitudinal Struts

- Identify the number of systems to be used on the home using the chart above.
- 2. Clear all organic matter and debris from the pad site.
- 3. Place u-boit though holes provided. Attach lock washers on u-bolt, on the top side of pan
- 4. Press or drive pan into ground until level and flush with prepared surface.
- 5. Build pier according to State, local or Home Manufacturers guidelines.
- 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.

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Note: Longitudinal stabilization can be combined economically with the Xi2 Lateral System. Combining Learning 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.

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Table 6.3.3

Footing Size and Capacity

		Single Stack Pier	(8" X 16")	Double Stack Pier	(16" X 16")
Soil Capacity (psf) Minimum Footing Size (in.)		Maximum Footing Capacity (lb)	Unreinforced Cast-in-Place Minimum Thickness (in.)	Maximum Footing Capacity (lb)	Unreinforced Cast-in-Place Minimum Thickness (in.)
1000	16 x 16	1,600	6	1,600	6
	20 x 20	2,600	6	2,600	6
	24 x 24	3,700	6	3,700	6
	30 x 30	5,600	8	5,800	6
	36 x 36	7,900	10	8,100	8
	42 x 42	10,100	12	10,700	10
	48 x 48	13,000	15	13,600	12
1,500	16 x 16	2,500	6	2,500	6
	20 x 20	4,000	6	4,000	6
	24 x 24	5,600	8	5,700	6
	30 x 30	8,600	10	8,900	6
	36 x 36	12,200	12	12,600	8
	42 x 42	16,100	15	16,500	12
	48 x 48	20,400	18	21,000	15
2000	16 x 16	3,400	6	3,400	6
	20 x 20	5,300	6	5,300	6
	24 x 24	7,600	8 -	7,700	6
	30 x 30	11,600	10	11,900	8
	36 x 36	16,300	15	16,900	10
	42 x 42	21,700	18	22,700	12
2500	16 x 16	4,300	6	4,300	6
	20 x 20	6,700	6	6,700	6
	24 x 24	9,600	8	9,700	6
	30 x 30	14,700	12	15,000	8
	36 x 36	20,800	15	21,400	10
3000	16 x 16	5,200	6	5,200	6
»,	20 x 20	8,100	8	8,100	6
	24 x 24	11,500	10	11,700	6
	30 x 30	17,800	12	18,100	8
-,1/-	36 x 36	25,000	18	25,700	12
4000	16 x 16	7,000	6	7,000	6
	20 x 20	10,800	8	10,900	6
	24 x 24	15,500	10	15,600	8
	30 x 30	23,800	15	24,200	10

The 6" cast-in-place values can be used for 4" precast concrete footings.

Other footing configurations (rectangular, circular, etc.) can be used provided the area and depth of the footing is equal to or greater than that listed and the distance from the pier to the footing edge does not exceed the footing depth.

(3) Capacities listed have been reduced by the dead load of the footing.

(4) Interpolation between values is allowed provided the next higher footing thickness is used when the actual pier capacity is more than hallway between values. Actual values may be rounded to the nearest hundredth.

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Table 6.2.3.1.3(a)

Single and Multi Section Pier Loads Without Perimeter blocking (at both I beams, in Lbs)

See section 6.2.5.5 for required perimeter blocking at side wall openings. See Table 6.2.3.1.3(c) for piers required under marriage line openings.

Roof snow load	Section Width	Maximum pier spacing								
(PSF)	(feet)	4"	6'	8'	10'					
7	10	2360	3390	4420	5450					
20	12	2704	3906	5108	63/10					
30 \	14	3048	4422	5796	7170					
	16	3392	4938	6484	8030					
	10	2600	3750	4900	6050					
40	12	2984	4326	5668	7010					
40	14	3368	4902	8436	7970					
	16	3752	5478	7204	8930					
	10	3080	4470	5860	7250					
60	12	3544	5168	6788	8410					
60	14	4008	5 862	7716	9570					
	16	4472	6558	8644	10730					
:	10	3560	5190	6820	8450					
o'o	12	4104	6006	7908	9610					
80	14	#648	6822	8996	11170					
	16	5192	7638	10084	12530					
		⊿ `	\ <u>.</u>							
	10	4040	5910	7780	9650					
100	12	4664	8846	9028	11210					
100	14	5288	7782	10276	12770					
	16/	5912	8718	11524	14330					

Notes:

- 1. See Table 6.3.3 for footing design using the noted loads
- This Table is based on the following design assumptions:
 Nominal width is used, 1/2" eave, 20plf chassis dead load, 300 lbs. Pier dead load, 35 plf wall dead load, 10psf roof dead load and 6 pst floor dead load
- 3. Interpolation for other pier spacing is permitted
- 4. These loadings are not for flood or seismic conditions.

Table 6.2.3.1.3(b)

Single and Multi Section Pier Loads With Perimeter blocking (Lbs)

See section 6.2.5.5 for required perimeter blocking at side wall openings. See Table 6.2.3.1.3(c) for piers required under marriage line openings.

			Exterior wall				Marriage wall						
Roof snow	Section	Maximum pier spacing				Maximum pier spacing				Maximum pier spacing			
load (PSF)	Width (ft)	4'	6'	81	10"	4'	6'	8,	10"	4	€'	8,	10"
	10	1400	1950	2500	3050	1400	1950	2500	3050	2480	3420	4360	5300
30	12	1584	2226	2868	3510	1560	2190	2820	3450	2800	3900	5000	6100
30	14	1768	2502	3238	3970	1720	2430	3140	3850	3120	4380	5640	6900
	16	1952	2778	3604	4430	1880	2670	3460	4250	3440	4860	6280	7700
					i					1			
	10	1400	1950	2500	3050	1640	2310	2980	3650	2880	4020	5160	6300
40	12	1584	2226	2868	3510	1840	2610	3380	4150	3280	4620	5960	7300
40	14	1768	2502	3236	3970	2040	2910	3780	4650	3680	5220	6760	8300
	16	1952	2778	3604	4430	2240	3210	418D	5150	4080	5820	7560	9300
	10	1400	1950	2500	3050	2120	3030	3940	4850	3680	5220	6760	8300
60	12	1584	2226	2868	3510	2400	3450	4500	5550	4240	6060	7880	9700
00	14	1768	2502	3236	3970	2680	3870	5060	6250	4800	6900	9000	11100
	16	1952	2778	3604	4430	2960	4290	5620	6950	5360	7740	10120	12500
						[
	10	1400	1950	2500	3050	I '	3750	4900	6050		6420	8360	10300
l 80 l	12	1584	2226	2868	3510	2960	4290	5620	6950	5200	7500	9800	12100
00	14	1768	2502	3236	3970		4830	6340	7850	5920	8580	- /	13900
	16:	1952	2778	3604	4430	3680	5370	7060	8750	6640	9660	12680	15700
							4.000				***	6000	
	10	1400	1950	2500	3050	3080	4470	5860	7250	5280	7620		12300
l 100 l	12	1584	2226	2868	3510	3520	5130	6740	8350	6160	8940		14500
, , , ,	14	1768	2502	3236	3970	3960	5790	7620	9450	7040		13480	
	16	1952	2778	3604	4430	4400	8450	8500	10550	/920	11580	15240	J RAND

Notes.

- 1. See Table 6.3.3 for footing design using the noted loads
- This Table is based on the following design assumptions:
 Nominal width is used, 12" eave, 20pif chassis dead load, 300 lbs. Pier dead load, 35 pif wall dead load, 10psf roof dead load and 0 psf floor dead load.
- 3, Interpolation for other pier spacing is permitted
- 4. These loadings are not for flood or seismic conditions.

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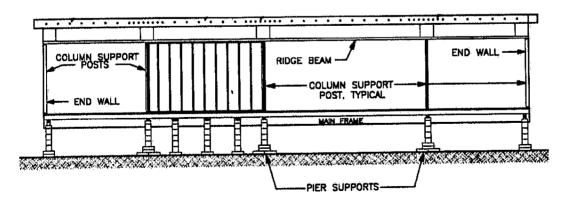
Table 6.2.3.1.3(c)

Multi Section Pier Loads Under Marriage Line Openings (Under each end of opening in Lbs) See section 6.2.5,5 for required perimeter blocking at side wall openings

Roof snow	Section	Marriage wall opening width									
load (PSF)	Width (ft)	5'	8'	10'	12"	14'	16'	18'	201	25'	30'
	10	1300	1900	2300	2700	3100	3500	3900	4300	5300	6300
	12	1500	2220	2700	3180	3660	4140	4620	5100	6300	7500
30	14	1700	2540	3100	3660	4220	4780	5340	5900	7300	8700
	18	1900	2860	3500	4140	4780	5420	6060	6700	8300	9900
	10	1550	2300	2800	3300	3800	4300	4800	5300	6550	7800
40	12	1800	2700	3300	3900	4500	5100	5700	6300	7800	9300
40	14	2050	3100	3800	4500	5200	5900	6600	(300)	9050	10800
	16	2300	3500	4300	5100	5900	6700	7500	8300	10300	12300
	10	2050	3100	3800	4500	5200	5900	6600	7300	9050	10800
60	12	2400	3660	4500	5340	6180	7020	7860	8700	10800	12900
60	14	2750	4220	5200	6180	7160	8140	9120	10100	12650	15000
	16	3100	4780	5900	7020	8140	9260	10380	11500	14300	17100
	10	2550	3900	4800	5700	6600	7500	8400	9300	11550	13800
	12	3000	4620	5700	6780	7860	8940	10020	11100	13800	16500
80	14	3450	5340	6600	7860	9120	10380	11640	12900	16050	19200
	16	3900	6060	7500	8940	10380	11820	13260	14700	18300	21900
	10	3050	4700	5800	6900	8000	9100	10200	11300	14050	16800
100	12	3600	5580	6900	9220	9540	10860	12180	13500	16800	20100
100	14	4150	6460	8000	9540	11080	12620	14160	15700	19550	23400
	18	4700	7340	9100	10860	12820	14380	16140	17900	22300	26700

Notes:

- 1. See Table 6.3.3 for footing design using the noted loads
- This Table is based on the following design assumptions: Nominal width is used, 300 lbs. Pier dead load, 10psf roof dead load
- 3. Interpolation for other pier spacing is permitted
- 4. For piers supporting two adjacent openings, the required capacity is the sum of the loading from each opening.
- 5. These loadings are not for flood or seismic conditions.



Example marriage line opening piers.

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