

INSTALLATION INSTRUCTIONS FOR 1100 SERIES ALL STEEL FOUNDATION SYSTEMS (ASFS) CONCRETE SET FOR WIND ZONES I & II

SPECIAL CIRCUMSTANCES: If the following conditions occur - **STOP!** Contact Oliver Technologies at 1-800-284-7437 for further instructions: A) Pier (system) height exceeds 48" B) Roof eaves exceed 16" C) Location is within 1500 ft. of coastline. D) Soil conditions are less than 4B

The 1100 Series ASFS offers 3 packages for concrete sets:

1) 1102 ITCVD (1 arm - Lateral), 2) 1102 ICVD (3 arms - Lateral & Longitudinal- Replaces Pier), or 3) 1102 Solo CD (2 arms - Lateral & Longitudinal). Installation of 2 systems is required on homes \leq 76' (based on the manufacturer's data plate), 96" sidewall height, and 4.37/12 (20°) roof pitch. Additional instructions below for homes greater than these dimensions. See home manufacturer's installation instructions on all new homes to determine the requirements for lateral and longitudinal securement. When only lateral securement is required, it is not necessary to install longitudinal arms. Any anchors installed in conjunction with an 1100 ASFS must be rated for a working load of 3,150 lbs. with an ultimate load of 4,725 lbs.

1100 ASFS Concrete Requirements and Wedge Bolt Installation

1) The concrete footer, runner, or slab may be of any shape that has a minimum of 2,900 cu. in., with a minimum depth of 3.5" at each system location. The surface of the footing shall be large enough to support the pier load and allow at least 4" from the edge of the footer to the wedge bolt. The concrete shall be a minimum of 2,500 psi mix (pre-blended sack concrete is acceptable). Special inspection of footing is not required. When installing the 1102 ITCVD or the 1102 Solo CD, the system arms must be bolted to the concrete footer within 18" of a pier.

2) Determine proper location for each bracket/bolt to be installed. see Diagram 1-A

3) Use a 1/2" masonry bit to drill a hole into the concrete to a minimum of 3" depth. Be sure all dust is blown out of the holes. Place wedge bolt into drilled hole. Make sure starter nut is threaded onto wedge bolt. Then, lightly hammer wedge bolt into concrete. Leave approximately 1" of wedge bolt threads above surface. Remove starter nut from wedge bolt and follow applicable instructions based on system being installed.

INSTALLATION OF TRANSVERSE (LATERAL) ARM: See Table 3

1102 ITCVD, 1102 ICVD, & 1102 Solo CD System - see Page 2 Diagram(S) 5 or 7:

1) Hook Transverse I-Beam connector (D) over adjacent I-Beam.

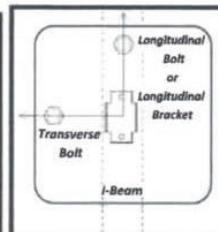
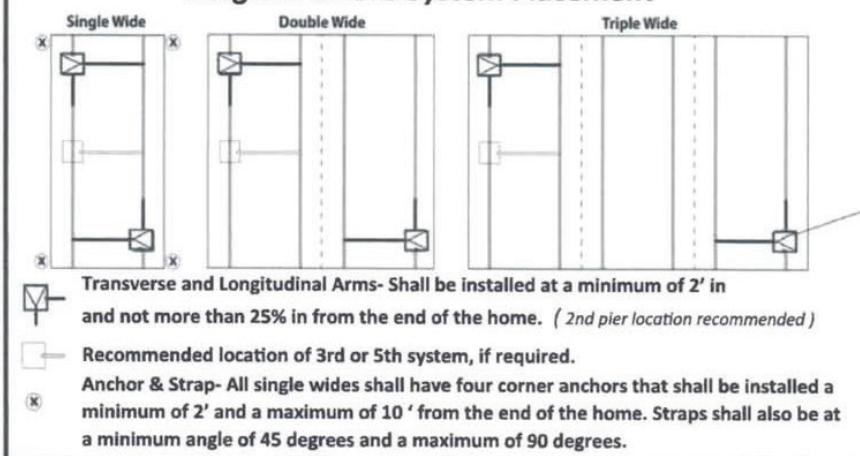
2) Slide 1.25" section of Transverse Arm (E) into 1.5" section. Attach flattened end of 1.25" section of arm to I-Beam connector with bolt, nut, and washer.

3) Extend flattened end of 1.5" Transverse Arm (E) over bolt in concrete and hand tighten nut and washer

A) Tighten upper and lower hardware on Transverse Arm.

B) Secure 2 sections of Transverse Arm with (4) 1/4" x 3/4" self tapping screws in pre-drilled pilot holes.

Diagram 1 ASFS System Placement



Frame Width	Transverse Arm Tube Lengths
99.5" \leq	60"
112" \leq	72"

Diagram 1 A
Bracket & Bolt
Placement on
Concrete

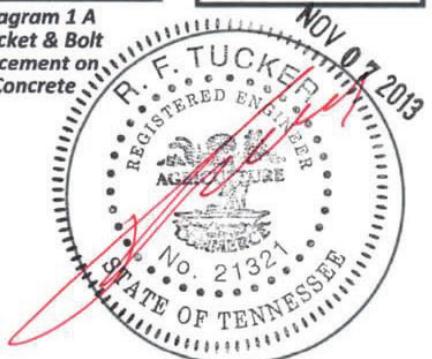


TABLE 2 ASFS REQUIREMENTS FOR ROOF SLOPES GREATER THAN 20 DEGREES

Length of Building	Roof Slope / Degree of Angle			
	5:12 23.6°	6:12 26.6°	7:12 30.3°	9:12 36.9°
34	2	2	2	2
36	2	2	2	2
38	2	2	2	3
40	2	2	2	3
42	2	2	3	3
44	2	2	3	3
46	2	3	3	3
48	2	3	3	3
50-62	3	3	3	3

Length of Building	Roof Slope / Degree of Angle			
	5:12 23.6°	6:12 26.6°	7:12 30.3°	9:12 36.9°
64	3	3	4	4
66	3	3	4	4
68	3	4	4	4
70	3	4	4	4
72	3	4	4	4
74	4	4	4	5
76	4	4	4	5
78	4	4	4	5
80	4	4	4	5

ADDITIONAL TRANSVERSE SYSTEMS

When the home exceeds 76' (based on the manufacturer's data plate) or 96" sidewall height, an additional transverse system is required.

For roof pitches greater than 4.37/12 (20°), see Table 2 for number of systems to be installed.

If more than 2 systems need to be installed, the additional systems may be transverse only.

INSTALLATION OF LONGITUDINAL ARM(S):

INSTALLATION OF 1102 ICVD LONGITUDINAL ARMS see Diagram 5

*The longitudinal "V" brace system serves as a pier under the home and should be loaded as any other pier. Longitudinal bracket (G) must be centered underneath I-beam so that channel in bracket is parallel with I-beam.

- 1) Determine the correct length of longitudinal arms to be installed based on pier height. See **TABLE 4**
- 2) Position Longitudinal bracket (G). Mark and drill holes for wedge bolt locations. Complete wedge bolt installation per instructions on page1. Place Bracket over 2 wedge bolts and secure with 2 nuts.
- 3) Attach both of the 1.5" Longitudinal arms (A) into the Longitudinal bracket (G), insert carriage bolt and leave nut loose for final adjustment.
- 4) Place all four (4) I-beam connectors (F) loosely on the bottom flange of the I-beam.
- 5) Attach the selected 1.5" tubes (A) to the I-beam connectors (F) and fasten loosely with bolts and nuts. NOTE: The concrete must be level in both directions to ensure the angle markings on the Longitudinal bracket (G) are correct from the horizontal plane of the concrete. The angle of Longitudinal arms (A) must be between 40° & 60°. The Longitudinal bracket (G) is stamped with the angles to verify correct placement.
- 6) Using standard hand tools, tighten all nuts and bolts.

TABLE 4	
PIER HEIGHT = THE DIMENSION FROM THE TOP OF THE CONCRETE TO THE BOTTOM OF THE I-BEAM	
Pier Height	Tube Lengths
14" - 18"	20"
18" - 25"	28"
24" - 35"	39"
30" - 40"	44"
36" - 48"	54"

INSTALLATION OF 1102 SOLO CD LONGITUDINAL ARM see Diagram 7

*The 1102 SOLO CD system does not replace a pier.

- 1) Determine the correct length of longitudinal arm to be installed based on pier height. See **Table 6**
- 2) Position Longitudinal bolt for installation and drill $\frac{1}{2}$ " hole 3" deep into concrete. Make sure that the Longitudinal bolt (G) is centered underneath the I-beam. Note: It is required that each longitudinal arm is installed in opposite directions underneath the home. see Page1,Diagram 1
- 3) Place the flattened end of the Longitudinal arm (A) over Longitudinal bolt (G) and loosely secure with provided nut and washer.
- 4) Place both I-beam connectors (F) loosely on the bottom flange of the I-beam.
- 5) Attach the opposite end of the Longitudinal arm(A) to the bottom flange of the I-beam using the Longitudinal I-beam connectors (F) with bolt and nut.
- 6) Using standard hand tools, tighten all nuts and bolts.

Note: Angle of Longitudinal Arm Must Be Between 15° & 45°.

TABLE 6	
PIER HEIGHT = THE DIMENSION FROM THE TOP OF THE CONCRETE TO THE BOTTOM OF THE I-BEAM	
Pier Height	Longitudinal Arm Length
12" - 24"	39"
12" - 32"	44"
12" - 40"	54"
12" - 48"	65"

Notes:

- 1) Installation of Longitudinal systems eliminate the need for the longitudinal anchors. (exception see note 3 & 4 below)
- 2) Installation of Transverse systems eliminates the need for diagonal frame ties and the related anchors and stabilization plates..
- 3) All single wide homes require four corner anchors, See **PG. 1, DIAGRAM 1**
- 4) All other home manufacturer's instructions for installation of stabilizing devices must be followed,including vertical tie-down anchors and any special anchors such as mating line and shear wall tie down anchors. Any required anchors must be installed per the anchor manufacturer's instructions.
- 5) If the home manufacturer's installation instructions are not available,vertical tie-down anchors and any special anchors such as mating line and shear wall tie-down anchors must be installed in accordance with any state regulations, or as required by the authority having jurisdiction.
- 6) All Wind Zone II homes require vertical wall tiedowns see anchor manufacturer's instructions for spacing.

STATE OF MICHIGAN: As required by Section 1805.2.1, 2000 Michigan Building Code footer depth shall be 42" below grade or per local jurisdiction.
STATE OF N. CAROLINA: All tubing must be galvanized.

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Patent # 6634150 and other patents pending

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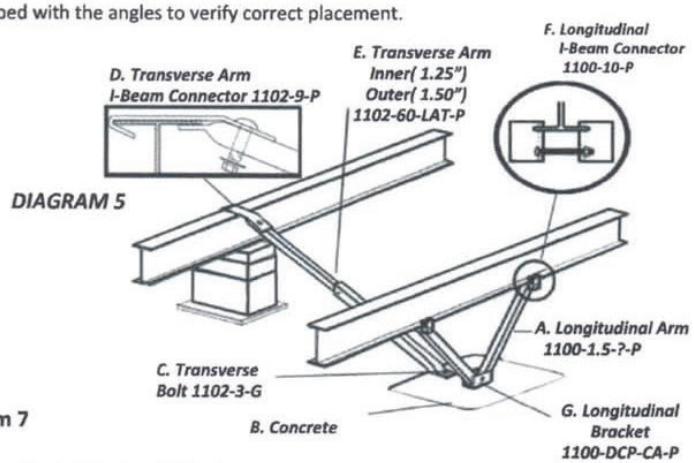


DIAGRAM 5

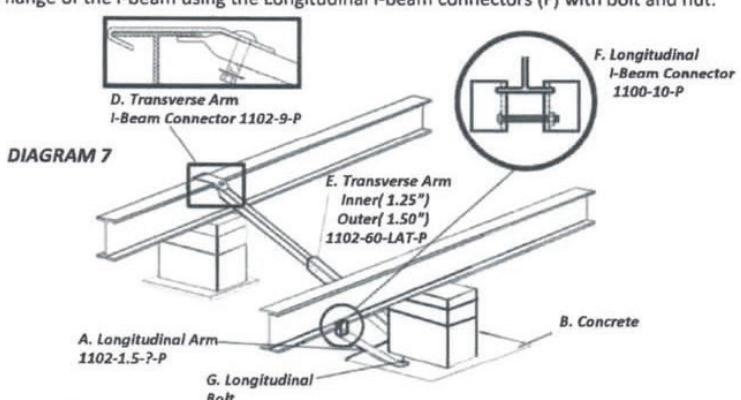


DIAGRAM 7