

# *Minute Man* **Anchors, inc.**

## Installation Instructions for LLBS Longitudinal and Lateral Bracing System Wind Zones I-II & III ground and concrete applications

### **Special State requirements**

**Alabama** - Maximum Pier Height 32". HUD Code Homes Only.

**Florida** - See Florida zone II & III Instructions.

**Michigan** - Foundation depth must be 42" below grade as per Chapter 1805.2.1 2000 Michigan Building Code.

**North Carolina** - Requires that the bottom of footings be placed 4" under the soil, or at the frost line.

Minute Man Anchors LLBS System must be installed in complete accordance with Minute Man Anchors Installation instructions and the Home Manufacturer's Instructions.

Minute Man Anchors LLBS System is listed by a nationally recognized third party.

Minute Man Anchors LLBS System is evaluated, tested and approved by a Professional Engineer.

Minute Man Anchors LLBS System must be allowed by the authority having jurisdiction.

Thank you for using Minute Man Products, Inc. If you have any questions, please call us  
at: (828) 692-0256

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# *Minute Man* **Anchors, inc.**

## **ALTERNATE CONCRETE APPLICATION INSTRUCTIONS FOR MODEL LLBS LONGITUDINAL AND LATERAL BRACING SYSTEM FLEX TUBES USING CONCRETE BLOCK PIERS OR STEEL PIERS**

Refer to *Minute Man Anchors Installation Instructions* for LLBS Wind Zones I, II, III for the following information.

- The required number and locations of LLBS Systems.
- Home Manufactures anchor requirements where called for.
- LLBS System detail assembly drawing.

The Longitudinal and Lateral brace tubes are engineered to attach directly to concrete slabs, runners, square footers and round footers. Refer to **HUD Code 3285.312(a)(i,ii) and HUD Code Part 32885.312(b)(1,2,3) for additional information.**

**Poured Concrete** must be a minimum of 3,000 PSI at 28 days.

**Concrete Runner** at system LLBS locations must be a minimum of 26" wide by 6" deep with 3,000 psi concrete with a minimum 8 linear feet of runner surface per LLBS System location.

**Concrete Slab** must be a minimum of 6" deep 3,000 psi fiber mesh concrete with 16 sq. feet of slab per LLBS system location. Example 4'- 0" x 4'-0".

**Shallow Square Concrete Footers** at LLBS system locations must be a minimum of 26" x 26" x 8" deep.

**Concrete Pile Footers** at LLBS systems locations must be a minimum of:

- 18" round or square x 14" deep for Class II soils
- 18" round or square x 18" deep for Class III soils
- 18" round or square x 24" deep for Class IV soils

### **Instructions**

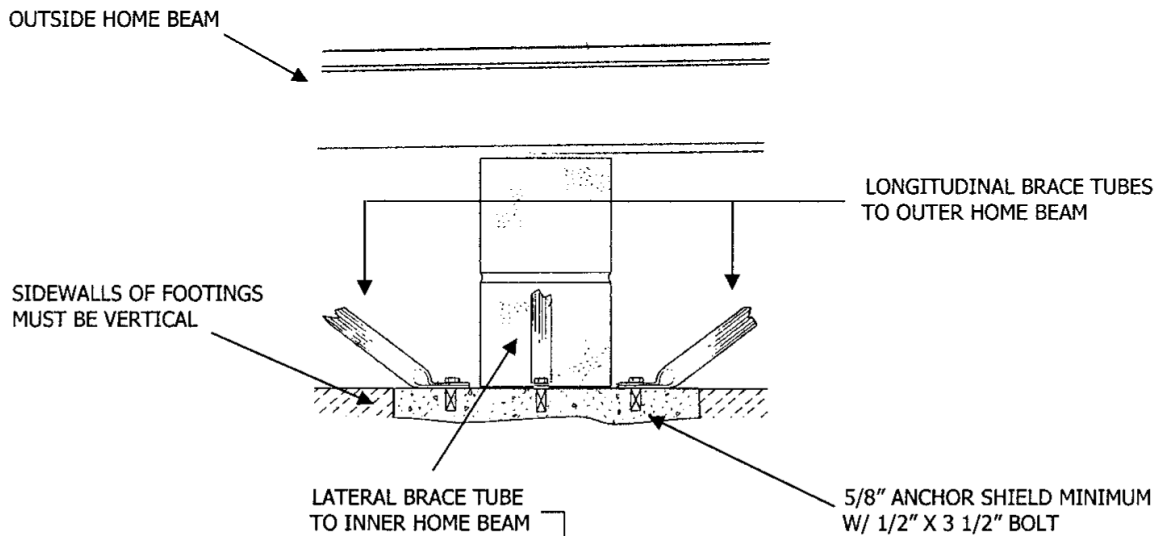
1. Place concrete block or steel pier on the centerline of footer and home's I beam.
2. For *Lateral Brace Tube*, loosely attach tube and hook to top flange of opposite I-beam. Extend flat bottom end of tube to desired location near the base of the pier and mark pilot hole for drilling.
3. For *Longitudinal Brace Tubes*, loosely attach beam clips to bottom flange of overhead I-beam. Slide flat bottom end of tubes to desired location near the base of pier and mark pilot holes for drilling.
4. **THE CENTERLINE OF THE HOLES FOR THE WEDGE BOLTS MUST BE A MINIMUM OF 4" IN FROM THE EDGE OF THE CONCRETE FOOTING AND 4" FROM OTHER WEDGE BOLTS.**
5. Move flat bottom of Lateral and Longitudinal tubes to the side and drill pilot holes. Drill 5/8 x 3-1/2 holes for 5/8 x 3" wedge anchor. Clean dust from holes and insert wedge anchors full length of "wedge sleeve."
6. Place tubes over embedded wedge anchors and tighten nuts (do not use washers). Bend tube to desired angle (when needed), attach top hook or beam clip. Tighten nuts on remaining system connections. All bolts to be tensioned 65 to 70 in. ft. lbs.

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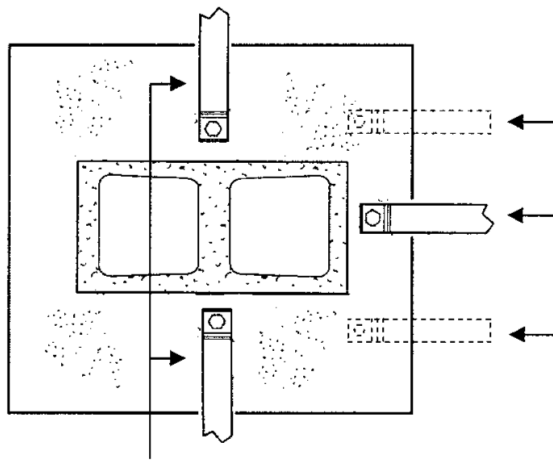
## LLBS FLEX TUBES

### SAMPLE CONCRETE APPLICATION ILLUSTRATION WITH CONCRETE BLOCK OR STEEL PIER

#### SIDE VIEW

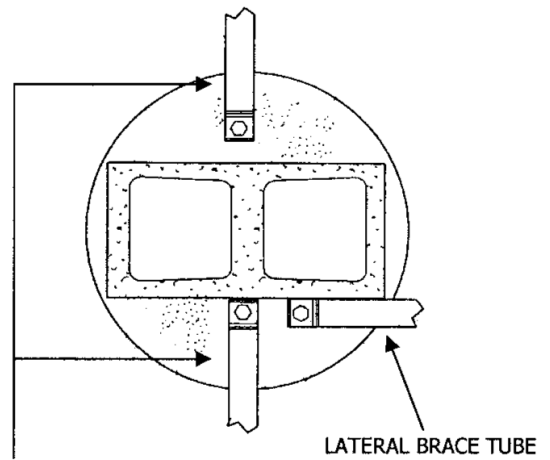


#### TOP VIEW SQUARE FOOTER



LONGITUDINAL BRACE TUBES TO OUTER HOME BEAM

#### TOP VIEW OPTIONAL ROUND FOOTER



LONGITUDINAL BRACE TUBES TO OUTER HOME BEAM

LATERAL BRACE TUBE TO INNER HOME BEAM

Conventional footings must be placed below frost line depth for the site unless an insulated foundation or monolithic slab is used.

**See HUD CODE part 3285.312(a)(i,ii) and part 3285.312(b)(1,2,3)**

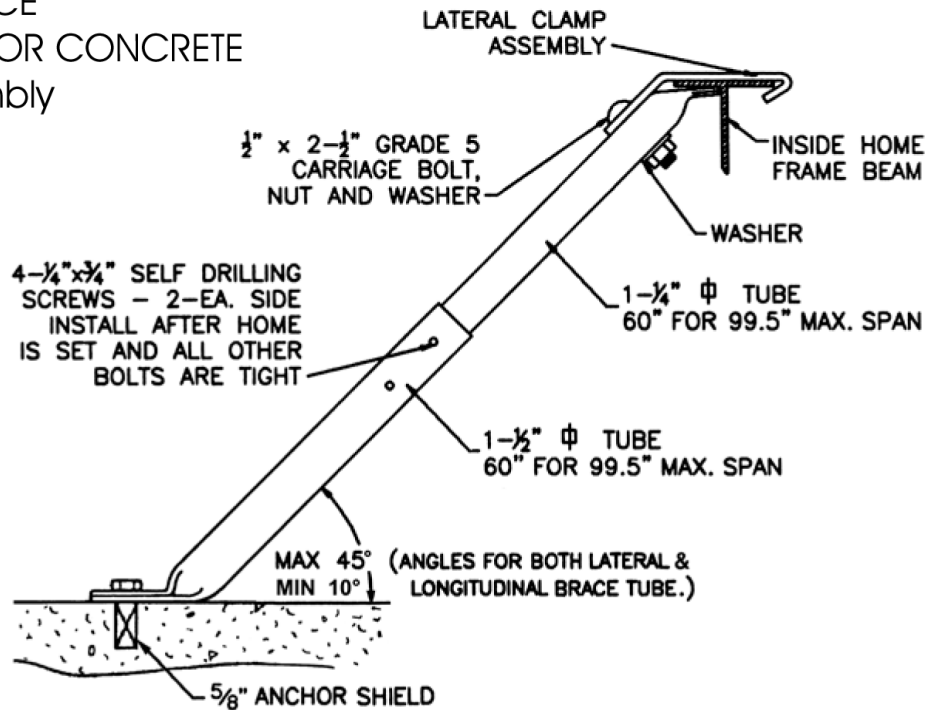
CENTERLINE OF HOLES FOR WEDGE ANCHORS MUST BE MINIMUM OF 4" IN FROM THE EDGE OF THE CONCRETE AND 4" FROM OTHER WEDGE ANCHORS.

DO NOT USE ANCHOR WASHER ON BRACE TUBES.

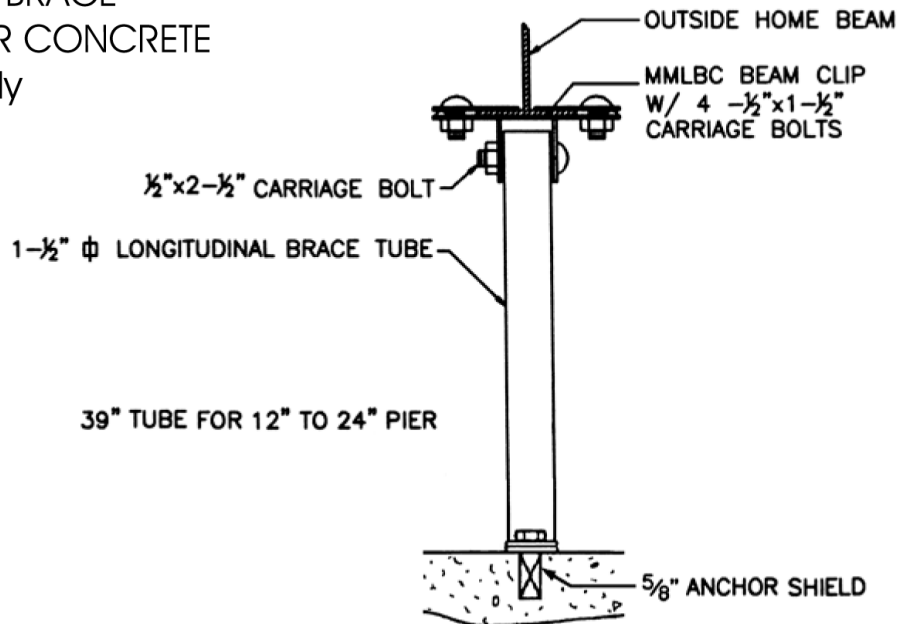
POURED CONCRETE MUST BE A MINIMUM OF 3,000 PSI AT 28 DAYS.

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LATERAL BRACE  
 FLEX TUBES FOR CONCRETE  
 Detail Assembly

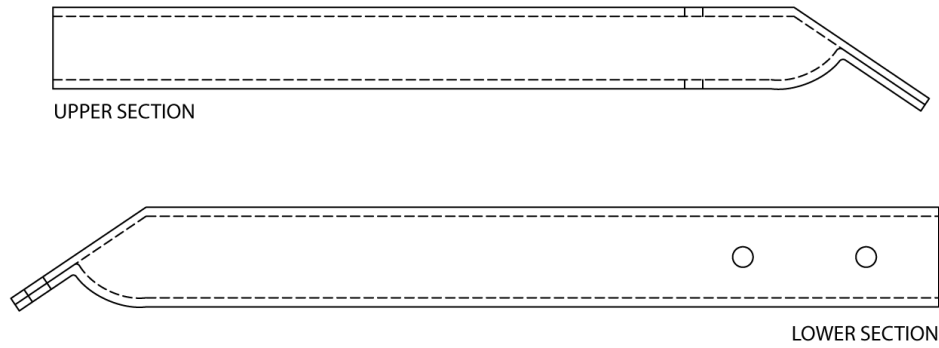


LONGITUDINAL BRACE  
 FLEX TUBES FOR CONCRETE  
 Detail Assembly

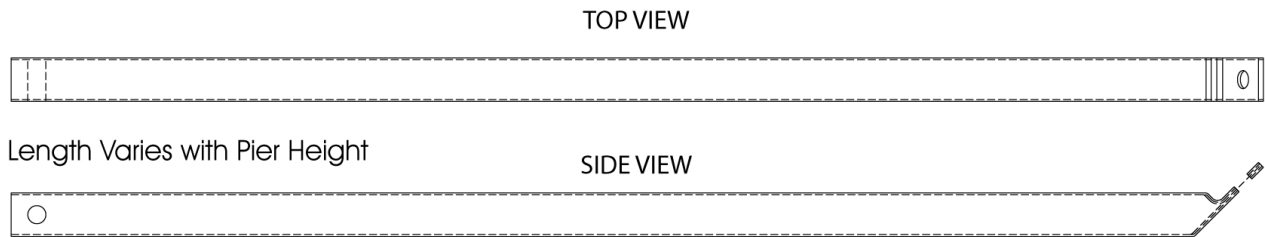


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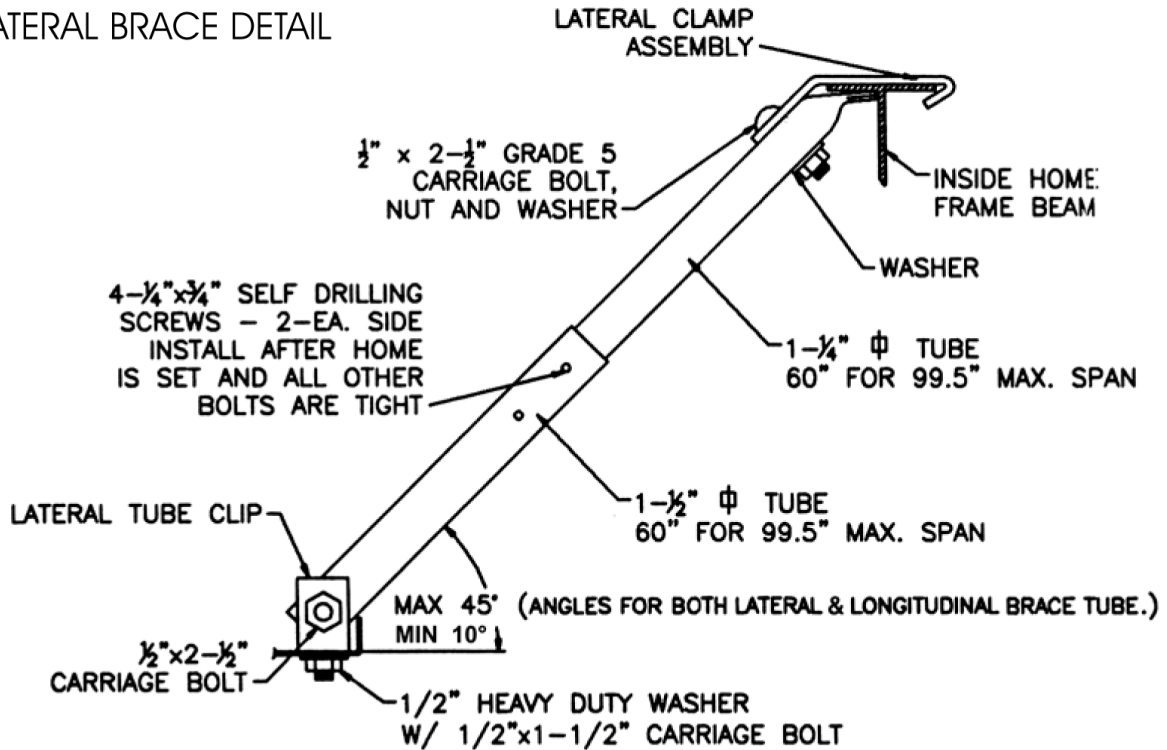
# LATERAL BRACE FLEX TUBES FOR CONCRETE



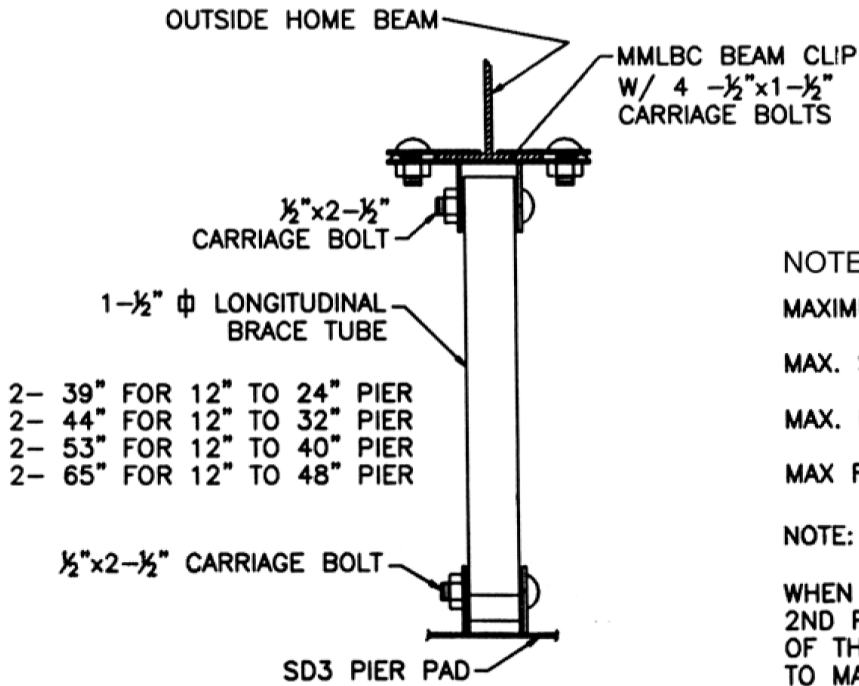
# LONGITUDINAL BRACE FLEX TUBES FOR CONCRETE



# LATERAL BRACE DETAIL



# LONGITUDINAL BRACE DETAIL



## NOTES

MAXIMUM PIER HEIGHT 48"

MAX. SIDEWALL HEIGHT 96"

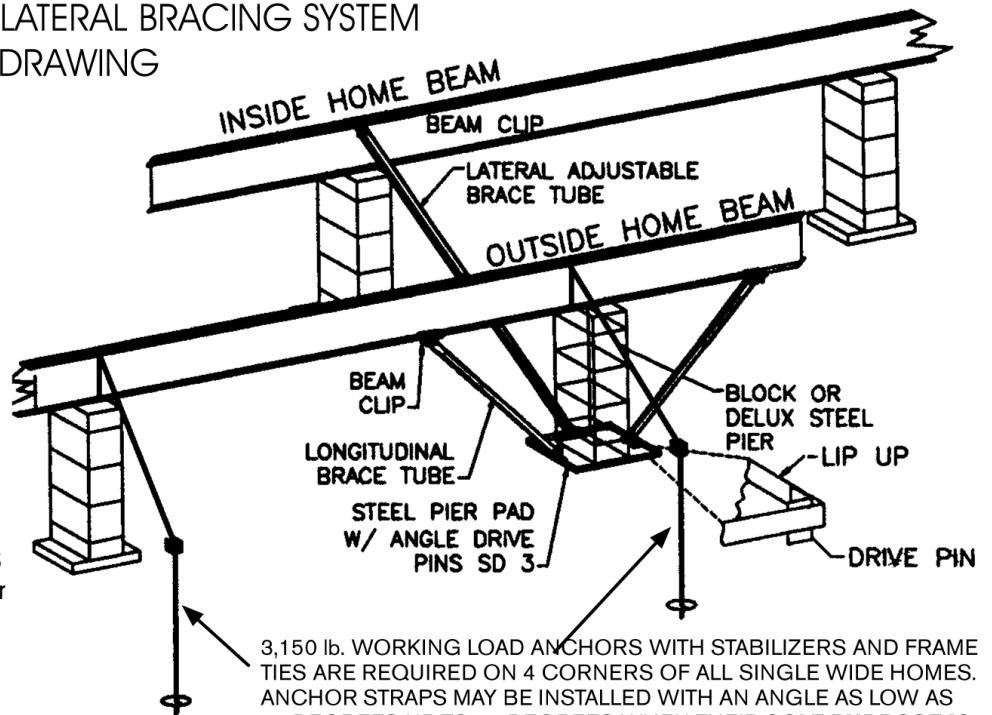
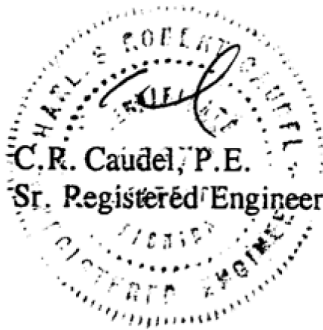
MAX. BEAM SPACING 99.5"

MAX ROOF EAVES 16"

NOTE: 1/2" BOLTS ARE GRADE 5

WHEN USING LONGITUDINAL BRACES, 2ND PIER IN FROM THE END OF THE HOME MAY BE USED TO MAKE ROOM FOR BRACE TUBES.

# LONGITUDINAL & LATERAL BRACING SYSTEM DETAIL ASSEMBLY DRAWING



The Minute Man Anchors LLBS  
Bracing System was tested for  
Wind Zones I, II, & III  
Tested 10/10/01  
Rev. 3/6/02  
Rev. 7/14/04  
Rev. 2/1/10

3,150 lb. WORKING LOAD ANCHORS WITH STABILIZERS AND FRAME TIES ARE REQUIRED ON 4 CORNERS OF ALL SINGLE WIDE HOMES. ANCHOR STRAPS MAY BE INSTALLED WITH AN ANGLE AS LOW AS 36 DEGREES UP TO 90 DEGREES WHEN THEIR **SOLE PURPOSE IS VERTICAL ANCHORAGE.**

# LLBS Longitudinal and Lateral Bracing System engineering certification for Wind Zones I, II & III, ground and concrete applications.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Paul W. Hayman*  
PAUL W. HAYMAN

DATE \_\_\_\_\_ REG. NO. 46290



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EXPIRES 7/18/2013

