

8/4/1989



NORTH AMERICAN HOMES  
INSTALLATION MANUAL



*Good  
Living is Easy*



NORTH AMERICAN HOMES  
Builders of Quality Mobile & Modular Homes

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North American Homes

A DIVISION OF DESIGN HOMES, INC.

BUILDERS OF QUALITY MANUFACTURED HOMES

P.O. BOX 239

PRAIRIE DU CHIEN, WISCONSIN 53821

PHONE: (608) 326-6338

NORTH AMERICAN HOMES INSTALLATION MANUAL

Homes should be setup by qualified personnel. Please read carefully. Incorrect blocking and leveling can cause sagging with problems of leaking windows, roofs, and walls, buckling of floors, walls, ceilings, binding of doors, windows, and cabinets.

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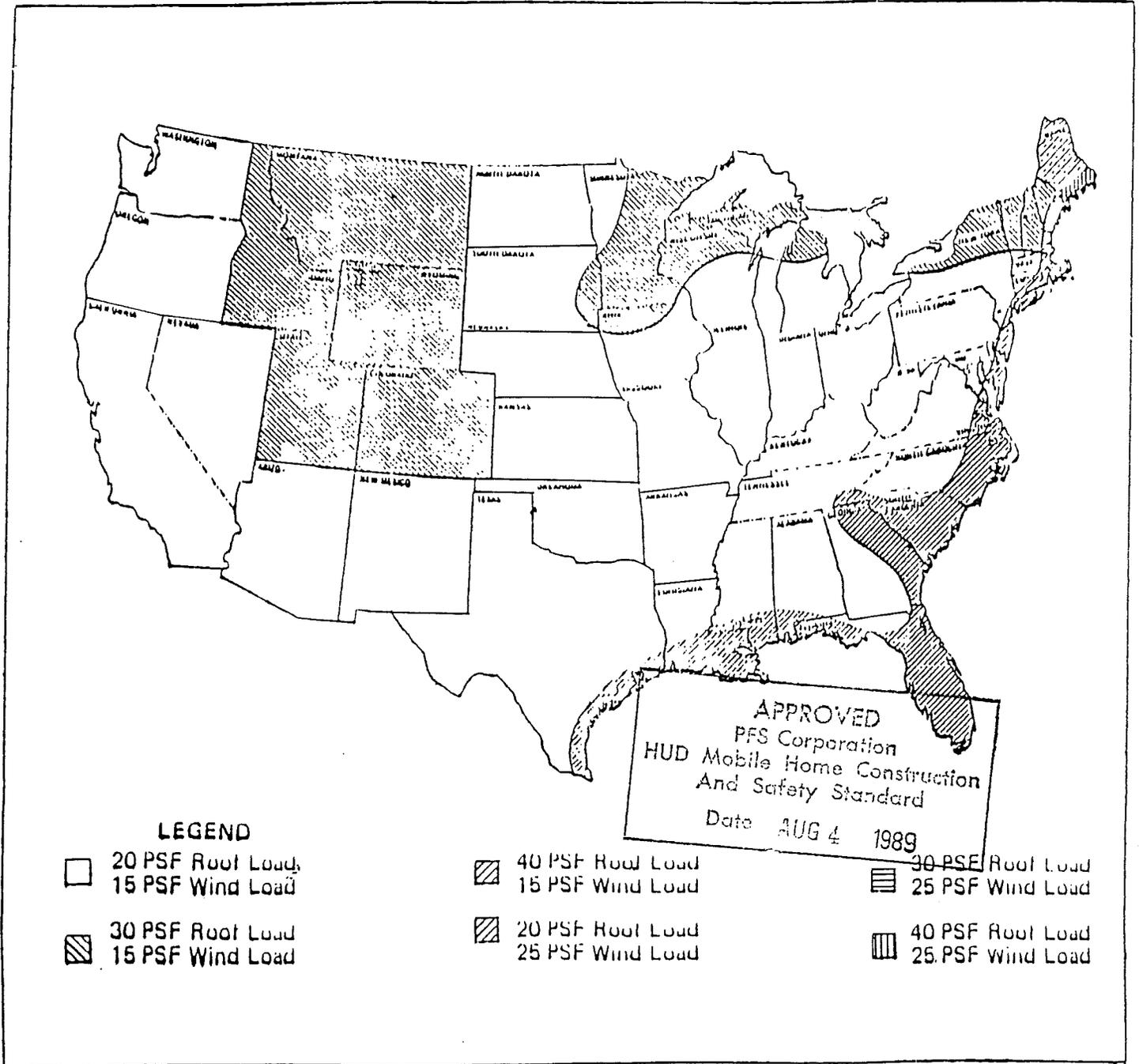
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# STRUCTURAL ZONE MAP of the UNITED STATES



map per H.U.D. title 6

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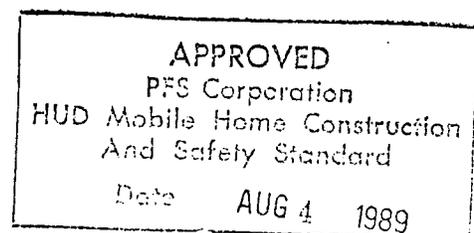
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- 1) It is preferable that support piers will be placed upon a solid concrete slab, or concrete ribbons, as found in many mobile home parks. A firm foundation is necessary when properly setting a mobile home. The lot must be graded and sloped to allow for storm drainage run-off with the area directly beneath the home graded to prevent water accumulation. The pier footing is to be placed on undisturbed soil (not loose fill).
- 2) Piers and blocking should be under each I-Beam of the homes frame. All piers are to be designed and constructed according to drawing #1. All wood used in the blocking should be hardwood or pressure treated. The shims should be at least as wide as the beam and 16 inches long for bearing purposes. The maximum recommended height of a single pier is 30 inches. All piers over 31 inches in height must be double tiered with all blocks interlocked and capped with a 2"x8"x16" solid concrete block. Piers should never exceed 36" in height.
- 3) Blocking/Piers should be located under each I-Beam in the homes frame not more than one (1) foot from each end. Intermediate blocking should be positioned per the tables pages 7 & 8 and directly in front of and behind the axles to both the front and rear of the home (see drawing #2). Anchoring of the unit should follow the information on page 6.
- 4) All water supply and drainage systems, and gas lines were tested for leaks prior to shipment from the factory. It is necessary that these systems be rechecked for leaks that may have been caused by vibration during transportation.
- 5) DRAINAGE SYSTEMS: Each home has one main drain outlet located within the rear half of the homes length. Connect securely, maintaining a slope of  $\frac{1}{4}$ " per foot.
- 6) ELECTRICAL SYSTEMS: NOTE: All on site electrical must be done by qualified personnel. The electrical connection to the home is to be made by installing feed line route to the distribution panel through a factory installed feeder raceway which terminates beneath the home. A junction box of approved size must be used at the connection point of the home to the power supply.



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SERVICE	100 AMP	200 AMP
Ground Conductor Size	#6 cu. Min.	#4 cu. Min.
Conduit Size	1½" min.	2" min.
Size of Feeder Conductors AWG or MCM	THWN # 1 cu. min.	#000 cu. min.
Junction Box Required for Hook-up (Supplied by Elec. Service Installer)	12"x12"x3" min.	16"x16"x4" min.

\*Wire size based on copper conductors.

After the service connection has been completed the following tests should be made using approved test equipment.

- 1) Continuity test of circuit conductors.
  - 2) Polarity test.
  - 3) Continuity test of groundy system.
- 7) GAS PIPING SYSTEM (HOOK-UP/TESTING) The gas piping system was designed for a range of 7 to 10½ inches of water column for natural gas and 11 to 14 inches of water column for LP gas. The mobile home gas supply pressure must be within this range for safe and efficient operation of the gas piping system.

The system was pressure tested for integrity prior to shipment from the factory. However, it will require rechecking by qualified personnel since transporting vibration may have created a leak (many utility companies require this on site test previous to hook-up. CAUTION: Do not pressurize system above pressures stated below.

- 1) Shut off all appliance valves (to eliminate them from test circuit).
- 2) Pressurize the system to \* 3 PSI and isolate the source of pressure from the gas piping. \* NOTE: Pressure shall be measured with a precision gauge caubrated in increments of not greater than 1 PSI.
- 3) Check the gauge after 10 minutes; there should be no drop in pressure.

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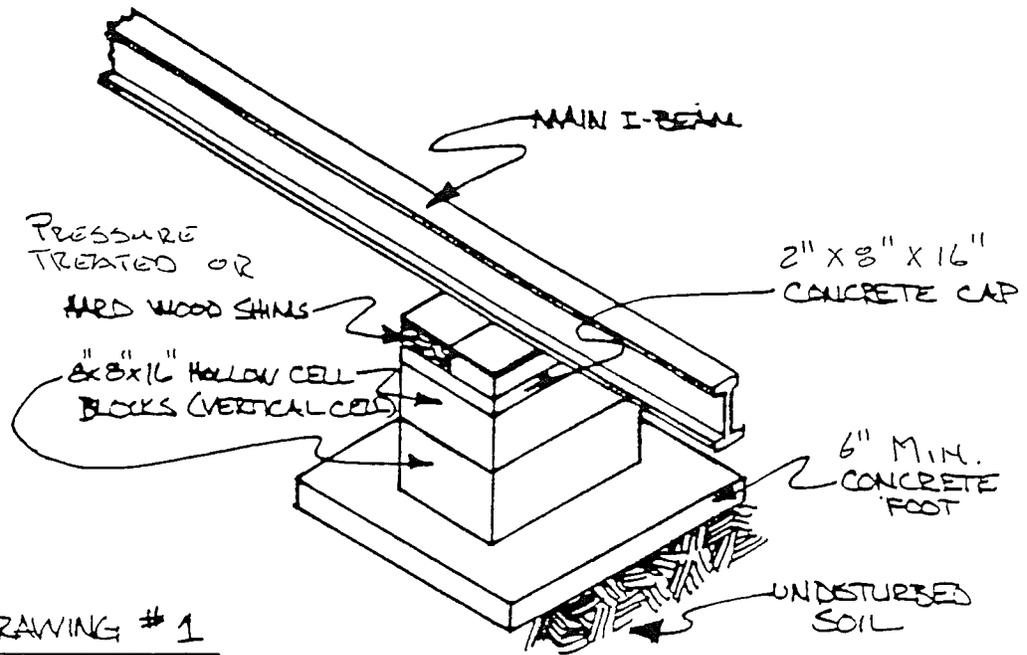
Leaks, if any, are located by wiping the system with a soapy water solution. Any defective pipe or fittings are to be replaced not repaired. Upon completion of the above test, gas appliance shut-off valves are opened and the entire system is pressurized to not less than 3 PSI (10" water) nor more than 5 PSI (14" water). All appliance connections are to be tested for leakage with a soapy water solution. NOTE: Before a test is begun, the temperature of the ambient air and of the piping should be approximately the same, conduct tests at such a time during the day when air temperatures will remain constant.

8) WATER SUPPLY SYSTEM - The water supply system may be connected to a safe, potable water source. The connection, located within the rear half of the homes length, is a single 3/4 inch threaded inlet. A master cold water shut-off valve is installed in the supply line adjacent to the home. The valve is of full flow type.

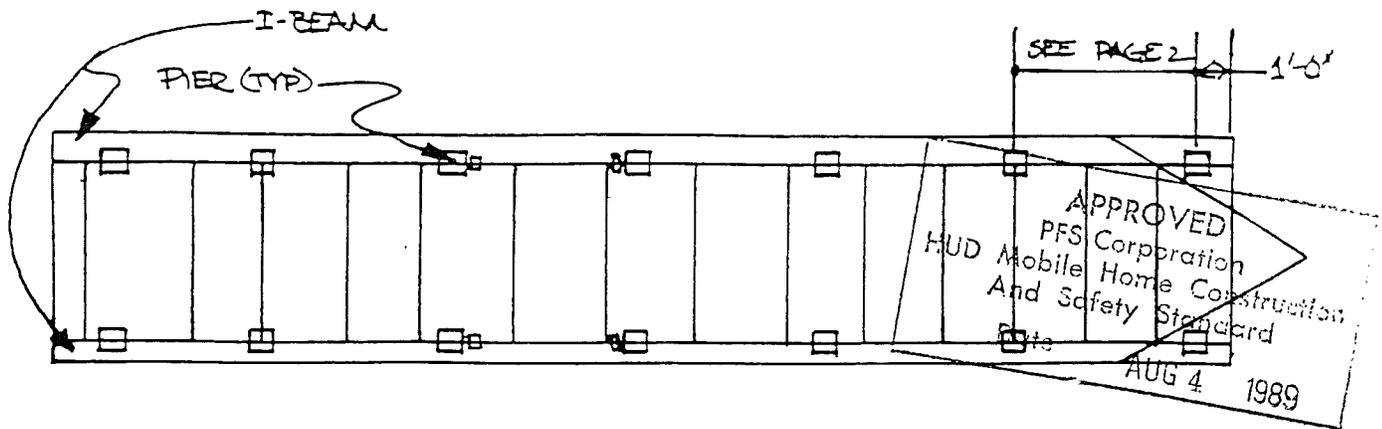
All exposed water pipe subject to freezing should be protected by insulation and electrical heat tape(s). An outdoor receptacle is located near the water supply inlet to facilitate such tape(s) installation. NOTE: It is recommended that only U.L. listed heat tapes for mobile homes use be used and installed according to manufacturer's instructions. CAUTION: This water system is designed for maximum inlet water pressure of 80 PSI. If connected to a water supply source greater than 80 PSI, a pressure reducing valve must be installed to limit water line pressure.

9) We recommend the home be professionally inspected after it is set up, to assure that it has not been damaged in transit and it is properly set up.

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NOTE: Any sidewall opening 4'-0" or greater is required to be blocked on either side of the opening. Blocking should be constructed same as drawing #1 above.



NOTE: SEE PAGE #2, PARAGRAPH #3

PIER LOCATIONS NO SCALE  
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 DRAWN BY S. HALE DWG# 062

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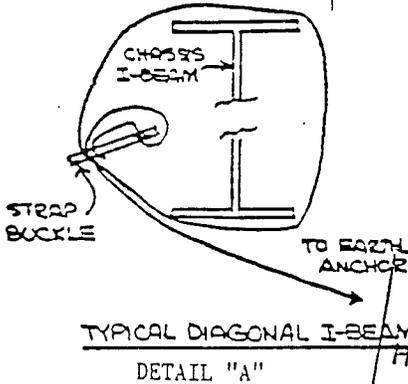
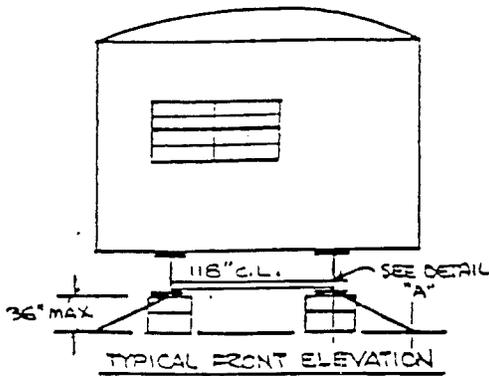
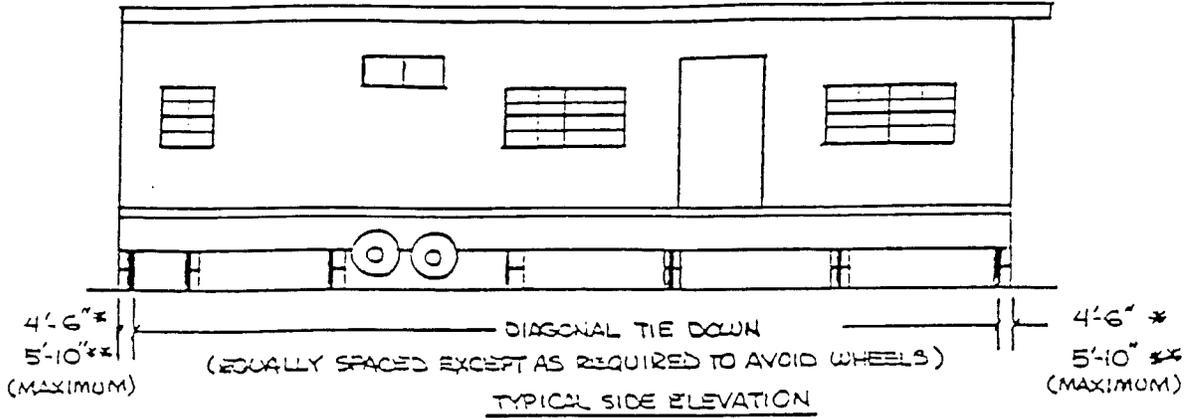
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TIE DOWN DETAILS

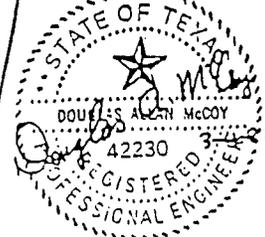


MODEL SIZE 4/7'-0" OR 7'-6"	DIAGONAL TIE DOWNS (EACH SIDE) FOR WIND ZONE I	
	14 WIDE *	16 WIDE **
56'-0"	6	5
66'-0"	7	6
76'-0"	8	7

NOTES:

1. FRAME DIAGONAL TIES, GROUND ANCHORS, TURN BUCKLES, BLOCKING DEVICES, AND MISCELLANEOUS HARDWARE ARE NOT REQUIRED TO BE FURNISHED BY DESIGN HOMES, INC.
2. OVER-THE-COACH TIE DOWN STRAPS ARE OPTIONAL.
3. INSTALLATION OF ALL HARDWARE MUST CONFORM WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE HUD REQUIREMENTS OF 280.306.
4. ALL STRAPS AND HARDWARE MUST SUSTAIN A LOAD OF 4725 LBS WITHOUT FAILURE.
5. ADEQUATE PIERS MUST BE PROVIDED TAKING INTO ACCOUNT SOIL CONDITIONS, ROOF LOAD, I-BEAM UNDER FLOOR SYSTEM, ETC.

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14' WIDE PIER SUPPORT SUMMARY \*

SOIL BEARING PRESSURE	ROOF ZONE	FOOTING SIZES (SQ. FT.)			
		16" x 16" (1.78 SQ. FT.)	18" x 18" (2.25 SQ. FT.)	21" x 21" (3.06 SQ. FT.)	24" x 24" (4.00 SQ. FT.)
1000 PSF	MIDDLE	2'-9"	3'-5"	4'-8"	6'-1"
2000 PSF	MIDDLE	5'-5"	6'-10"	9'-4"	12'-2"
3000 PSF	MIDDLE	8'-2"	10'-3"	14'-0"	18'-3"
4000 PSF	MIDDLE	10'-10"	13'-9"	18'-8"	24'-4"

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\* MAXIMUM I-BEAM CAPACITY: (PIER DISTANCE MUST NOT EXCEED I-BEAM CAPACITY)

- FOR 12" I-BEAM, 17'-5"
- FOR 10" I-BEAM, 13'-10"
- FOR 8" I-BEAM, 10'-10"



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16' WIDE PIER SUPPORT SUMMARY \*

SOIL BEARING PRESSURE	ROOF ECNE	FOOTING SIZES (SQ. FT.)			
		16" x 16" (1.78 SQ. FT.)	18" x 18" (2.25 SQ. FT.)	21" x 21" (3.06 SQ. FT.)	24" x 24" (4.00 SQ. FT.)
1000 PSF	MIDDLE	2'-5"	3'-1"	4'-2"	5'-5"
2000 PSF	MIDDLE	4'-10"	6'-1"	8'-4"	10'-10"
3000 PSF	MIDDLE	7'-3"	9'-2"	12'-6"	16'-3"
4000 PSF	MIDDLE	9'-8"	12'-3"	16'-8"	21'-9"

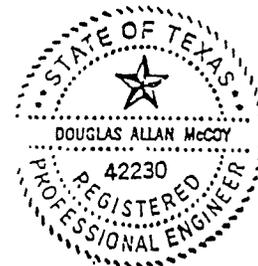
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\* MAXIMUM I-BEAM CAPACITY: (PIER DISTANCE MUST NOT EXCEED I-BEAM CAPACITY)

FOR 12" I-BEAM, 16'-4"

FOR 10" I-BEAM, 13'-1"

FOR 8" I-BEAM, 10'-3"



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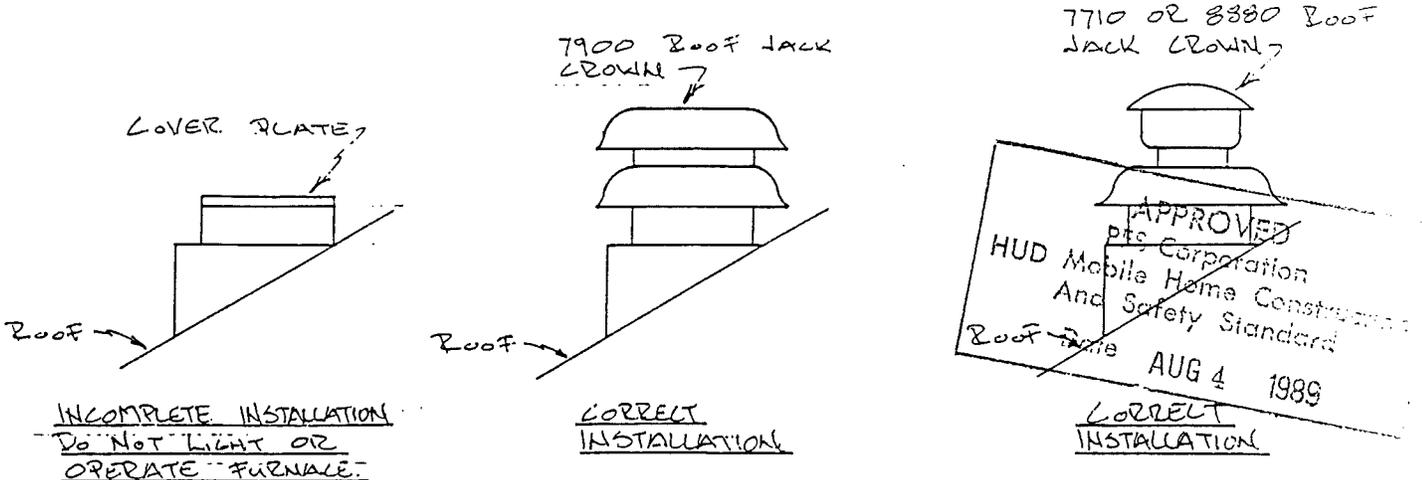
PIER SUPPORT: 16 WIDE

DOUG MCCOY 9-20-81 / PAGE # 8

ROOF JACK CROWN INSTALLATION INSTRUCTIONS

1. REMOVE SCREWS SECURING COVER PLATE.
2. REMOVE COVER PLATE AND INSTALL ROOF JACK CROWN.
3. LINE UP ALL PRE-DRILLED HOLES.
4. REPLACE SCREWS INTO PRE-DRILLED HOLES AND FASTEN SECURELY.

WARNING: DO NOT CONNECT FUEL SUPPLY TO THIS HOME OR ATTEMPT TO LIGHT OR OPERATE THE FURNACE WITHOUT ROOF JACK CROWN. THIS HOME HAS BEEN SHIPPED WITHOUT THE ROOF JACK CROWN ATTACHED TO THE FURNACE FLUE. ANY ATTEMPT TO OPERATE THE FURNACE WITHOUT THE ROOF JACK CROWN MAY RESULT IN FIRE, EXPLOSION, OR ASPHYXIATION.



IMPORTANT: THE ROOF JACK CROWN IS PACKED SEPERATELY IN HOME.

HOMEOWNER: FOR INSTALLATION OF ROOF JACK CROWN CONTACT YOUR MOBILE HOME DEALER.

NOTE: BEFORE CONNECTING FUEL SUPPLY OR LIGHTING FURNACE PILOT OR OPERATING FURNACE YOU MUST FIRST CHECK ROOF OF HOME TO MAKE SURE ROOF JACK CROWN HAS BEEN INSTALLED ON FURNACE VENT.

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FRONT AND REAR DOOR INSTALLATION  
INSTRUCTIONS

This home has been shipped without all of the screws installed in the exterior door hinges. These screws must be installed in each hinge after the home has been set-up and leveled. Failure to do so will result in the doors sagging after a period of time.

North American Service will charge all dealers for travel and labor time for adjusting doors that these screws have not been installed in.

Your cooperation is appreciated.....

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EXTERIOR CHECKLIST

The following areas should be specifically inspected before leaving home after set up:

ROOFS: Shingled

- (1) Transport slats have been removed and tar installed in nail holes.
- (2) All shingles are secure and laying flat.
- (3) Seals around roof vents and stacks are sealed and show no evidence of seal cracking from transportation.

METAL:

- (1) The metal on roof lays flat. (Incorrect leveling causes roof metal ridges.)
- (2) All vent stacks are resealed to insure water proofing.
- (3) All seams are sealed and no evidence of loose seal is apparent (esp. check homes that have sat on your lots).

SIDING:

VINYL

- (1) All seams are checked. (No gaps found.)
- (2) Top row of siding is secure in U channel.
- (3) Vinyl applied by dealer is applied loosely to allow for expansion and contraction.
- (4) Vinyl cleaned.

WOOD

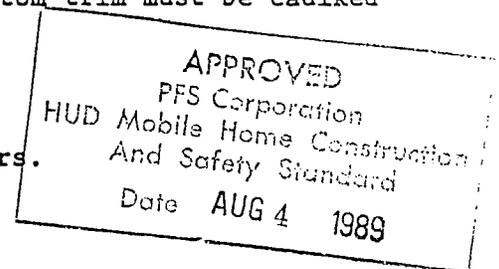
- (1) All scraps or scratches are either repaired or sealed to prevent water infiltration.
- (2) All nail or screw holes have been sealed.
- (3) All trim caulked and sealed. (Top of bottom trim must be caulked completely around house.)
- (4) Wood siding cleaned.

DOORS:

- (1) Install hinge screws in exterior door coors.
- (2) Locks and catches operate properly.

SKIRTING:

MUST BE VENTED with at least 4 vents on each side having at least a total free air area of 200 square inches and at least 1 on each end having a free air area of 50 square inches.



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DEALER \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

DAMAGE MATERIAL LIST

1). Any cracks, locations of cracks and wall board material of interior or exterior walls or ceiling. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2). Any defective parts or parts missing. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

3). Any windows and doors non-operable and damaged. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

4). Any kitchen and bath vanities, counters, fixtures damaged. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

5). Any defective mirrors, broken lights, misc. damage. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Dealer Signed: \_\_\_\_\_

We take full responsibility for damage, defects and omissions under our contract. Your customer expects that you will be equally responsible. Homes in storage or display must be blocked & setup materials secured. Damage & omissions from misuse must be borne by the irresponsible.

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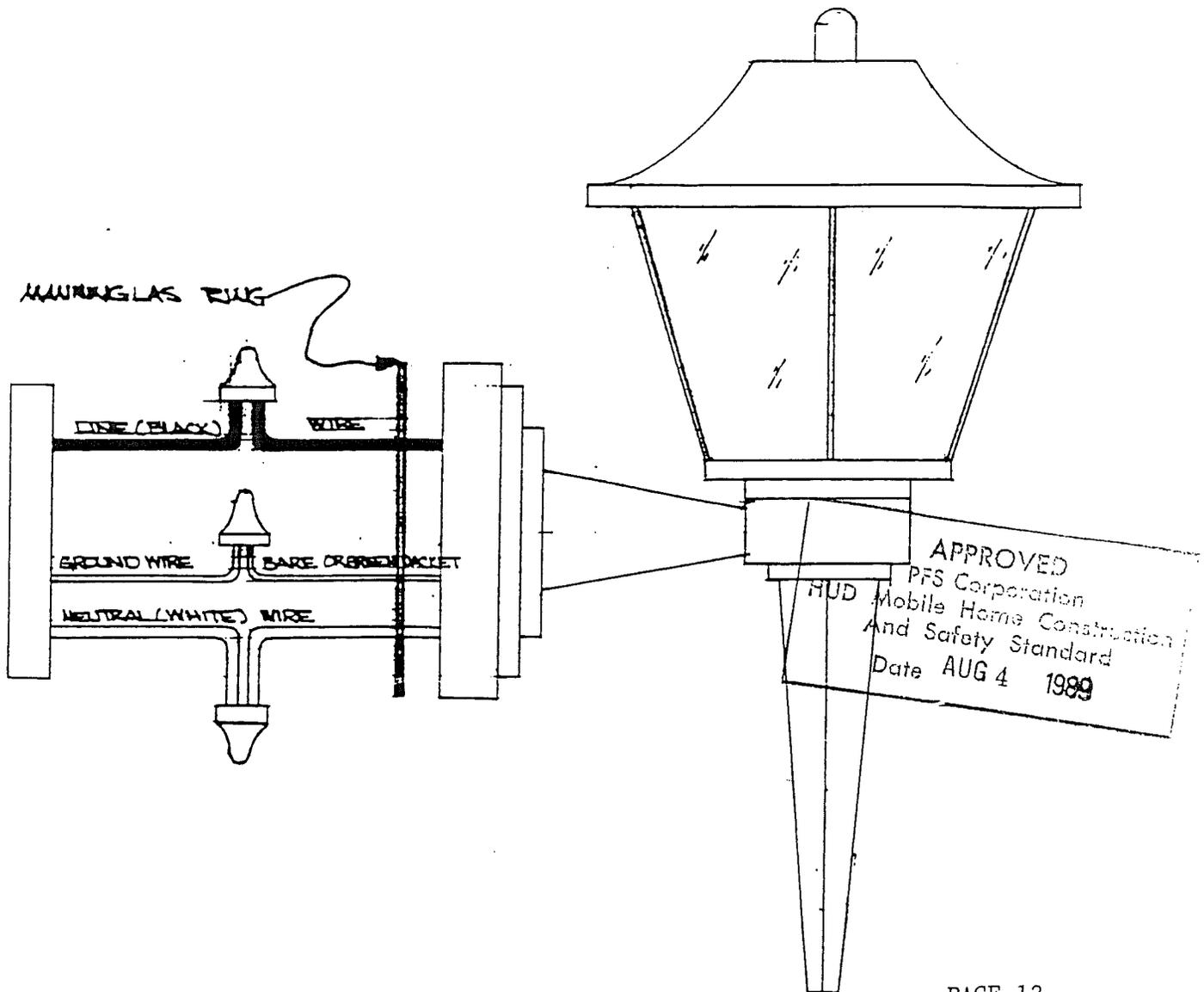
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### EXTERIOR LIGHT INSTALLATION INSTRUCTIONS

Strip the plastic covering over the wire, leaving about  $\frac{1}{2}$ " of bare wire exposed, twist the two exposed neutral (WHITE) wires together and apply a scotch-lock on the two exposed neutral (WHITE) wires, then twisting the scotch-lock hand tight, pushing the wires back into the junction box. Procedure for line (BLACK) wire and ground wire (BARE COPPER OR GREEN JACKET) is the same as above.

NOTE: Install white manninglass ring between the edge of the fixture, canopy, or pan, when there is combustable material between them and the outlet box. (Re: WOOD SIDING) This ring is shipped with the light.



# OWNER'S MAINTENANCE CALENDAR

The following procedures are provided to help you in maintaining your mobile home. You may have other things to add to those listed here.

## SPRING

- Wash, wax exterior
- Wash, wax walls
- Inspect roof; clean off debris; rinse off with water and hose
- Check exhaust fan systems
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## FALL

- Check/clean furnace
- Check oil supply
- Caulk all small openings
- Wash, wax exterior
- Inspect and rinse roof; recoat, if necessary
- Check exhaust fan systems
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## SUMMER

- Check air conditioner
- Clean air filters
- Replenish fuel oil supply
- Inspect, clean wheel bearings
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## WINTER

- Lubricate window hinges & arms
- Check furnace filters every 30 days
- Clean filters if necessary
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

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## IMPORTANT NOTICE

CONDENSATION CAN BE THE CAUSE OF MUCH DISCOMFORT AND EXPENSE. THE BEST WAY TO ELIMINATE CONDENSATION IS TO CONTROL HUMIDITY. THIS CAN BE DONE BY PROPER VENTILATION OR DEHUMIDIFICATION.

USE A HUMIDITY GAUGE TO REGULARLY CHECK YOUR HUMIDITY. THE MAXIMUM RELATIVE HUMIDITY IN YOUR HOME SHOULD NOT EXCEED THAT SHOWN BELOW:

Outside Air Temperatures	Inside Relative Humidity for 70 F. Inside Air Temperatures
-20 degrees F or below.	Not over 15 per cent
-20 degrees F to -10 degrees.	Not over 20 per cent
-10 degrees F to 0 degrees.	Not over 25 per cent
0 degrees F to 10 degrees	Not over 30 per cent
10 degrees F to 20 degrees	Not over 35 per cent
20 degrees F to 40 degrees	Not over 40 per cent

RELATIVE HUMIDITY IN EXCESS OF 40% WILL CAUSE WINDOW CONDENSATION AND/OR OTHER PROBLEMS CAUSED BY WATER VAPOR.

WHERE WINTER TEMPERATURES REGULARLY DROP TO FREEZING OR BELOW - STORM WINDOWS ARE RECOMMENDED.

WHEN SKIRTING THE BOTTOM OF YOUR HOME, BE SURE TO LEAVE AT LEAST 8 OPENINGS WITH A TOTAL OF AT LEAST 400 SQUARE INCHES OF FREE AREA FOR CROSS VENTILATION UNDER THE MOBILE HOME. THIS WILL ALLOW YOUR FURNACE TO BRING IN FRESH OUTSIDE AIR INSTEAD OF STALE AIR FROM UNDER THE MOBILE HOME.

SPECIAL APPLIANCES OR EQUIPMENT SOMETIMES REQUIRE MORE VENTILATION THAN MENTIONED ABOVE. ACT ACCORDINGLY! IT IS POSITIVELY NECESSARY TO HAVE FRESH AIR TAKEN INTO THE FURNACE FROM UNDER THE MOBILE HOME.

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### BOTTOM BOARD (BOTTOM PAPER) REPAIRING

All penetrations through the bottom board, whether accidentally made or man made shall be repaired. Failure to repair and or seal around these penetrations may allow access of rodents and the infiltration of air and moisture into the floor cavity of your home.

This paper can be repaired and or sealed around penetrations, such as pipes, with black roof tar. If a larger hole needs to be repaired a backer panel of paneling and or plywood may be fitted inside the bottom board and then the bottom board can be fastened to this backer with short screws and or staples. Another method of repairing this can be accomplished by sealing the hole with a heavy plastic, (3 or 4 mil). Take the plastic and spray it with a hi-tac spray adhesive, such as 3M Supper, then place the plastic over the area to be repaired.

In all cases periodically check the underneath to insure repairs have stayed intact.

Furhter information can be obtained from:

LaSalle Deitch Co.  
725 Industrial Parkway  
Elkhart, Ind. 46514



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### WASHER AND DRYER INSTALLATION

This home has been wired and plumbed for the installation of a washer and dryer. North American recommends that you follow the instructions below for safe and trouble free usage.

The plumbing has been supplied with a separate water shut-off for your hot and cold water supply. You will connect the hoses from your washer to these shut-offs. We suggest that you keep the shut-offs in the closed position when you are not using them for water supply. The waste water drain is complete and ready for usage. The pipe cap must be removed from the end of the drain pipe. The waste water hose coming from your washer will fit directly into the waste pipe. We suggest the hose be secured tightly to the waste pipe.

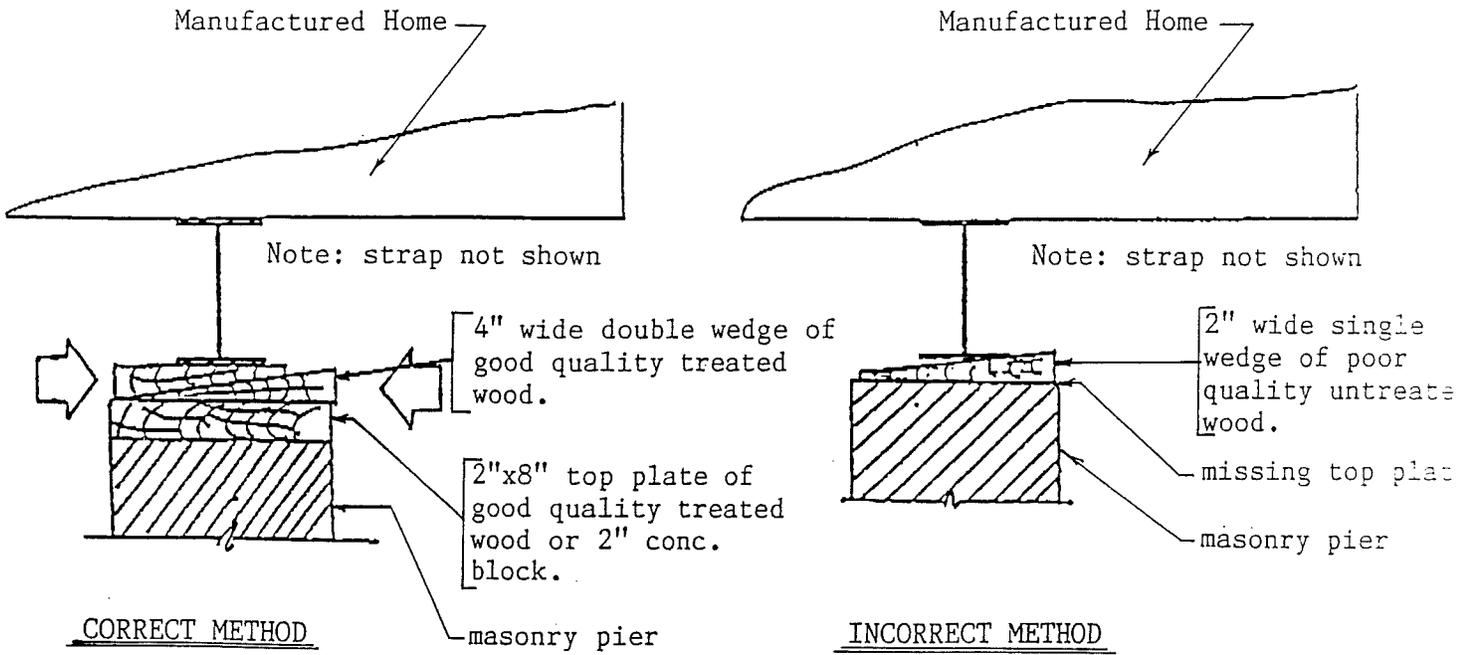
The electrical outlet for the dryer is for a 220v.-30a. four prong type supply. If you are moving your dryer from a home to a mobile home you may need to have a new power supply cord installed on your dryer. Mobile homes are required to have a four prong outlet so in no instances should you change the outlet we have installed to a three prong type. We have pre drilled a  $4\frac{1}{8}$ " opening in your home floor decking. This hole will allow you to install a 4" dryer vent hose. We suggest you use a aluminum type duct. (The remaining part of the venting should be done according to the dryers manufacturers installation instructions).

We caution all home owners that a dryer should be vented to the outside of your home. Never should a vent terminate underneath your home. A dryer vent cap should allways terminate on the side of your home extending past any skirting to the outside.

If you should have any questions concerning the installation of your washer or dryer you may contact our manufacturing facility.

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HUD Mobile Home Construction  
And Safety Standard  
Date AUG 4 1989

SHIM (WEDGE) INSTALLATION FOR SET-UP



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And Safety Standard  
Date AUG 4 1989



# Minute Man anchors<sup>®</sup>

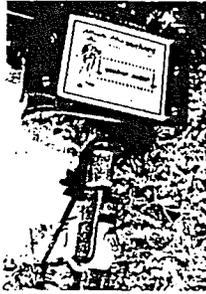


## INSTALLATION

There are two basic methods of installing anchors, each equally effective in properly securing mobile homes to the ground.

### Machine Installation

In this method, the anchor is turned the **full depth** of four feet into the ground by an anchor drive machine.



1. Attach anchor to machine.



2. Auger is placed in proper position in line with strap, and machine started.



3. Anchor should be installed at a slight angle as shown to assure head being positioned behind future skirting.

### Installation with Manual or Mechanical Post Hole Digger

In this method, anchors can be installed with equipment available to the average home owner.



1. A hole is dug to a depth of approximately two feet in the proper position as explained under machine installation.



2. After the hole is dug to 24" depth, the anchor is turned into the ground by hand, using a rod or length of pipe for leverage.



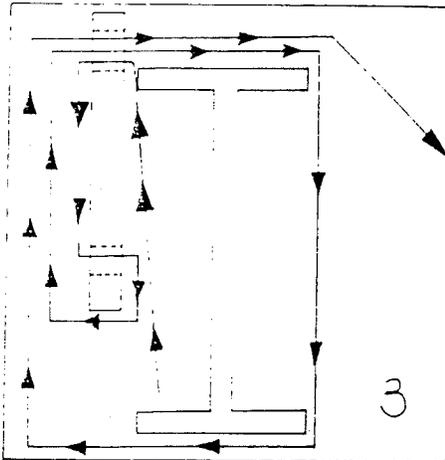
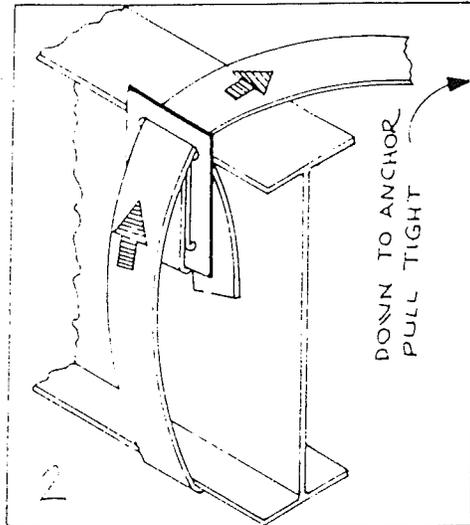
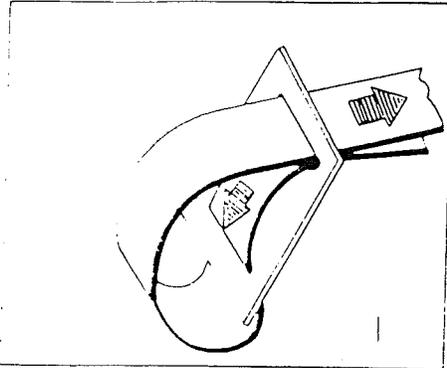
3. After anchor is installed to full depth earth is repacked, ~~six inches at a time~~

**WARNING:** Be careful to avoid underground water lines, phone lines and power lines.

**CAUTION:** These instructions cover installation for frame ties only, and apply to those mobile homes that are specifically engineered to require only frame ties as specified in the mobile home manufacturer's printed installation instructions. Particular attention should be directed to selecting the proper capacity anchoring system, consistent with the home manufacturer's recommendations.

# POSITIONING FRAME TIE

## FRAME TIE INSTALLATION INSTRUCTIONS



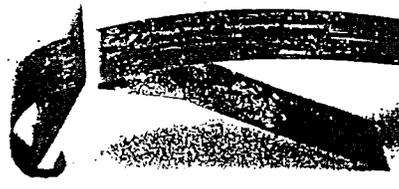
1. Thread 7' length of frame tie strap through buckle as shown.
2. Next, thread long end of strap between frame and floor of home. Bring strap through buckle as shown in diagram and fasten to anchor head.
3. Diagram showing strap in position around frame and through buckle. It is important to remove all slack from system.

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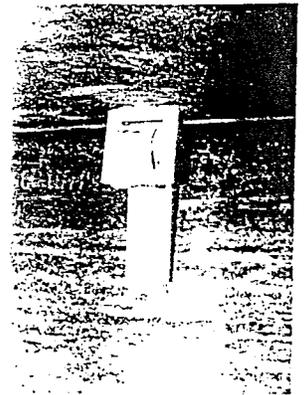
See step one in installation instructions.



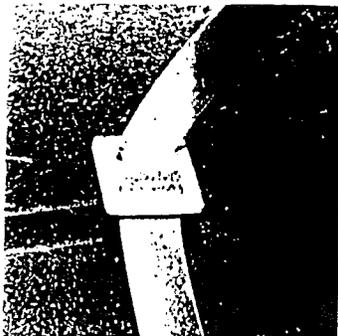
2. Insert strap in position through buckle.



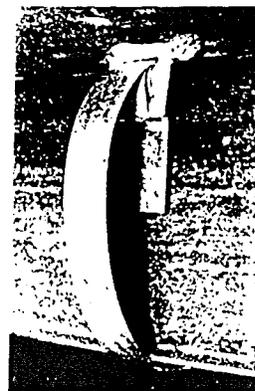
3. Strap should be through buckle in this configuration before installation on frame.



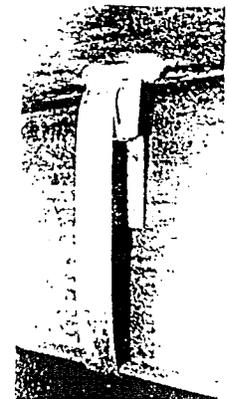
4. Strap should be passed over frame from inside, and buckle pulled into position as shown.



5. Strap should encircle frame and pass through buckle for the second time and over the frame.



6. Strap is pulled tight from outside, or anchor side, of frame.



7. Inside of frame tie, properly installed.

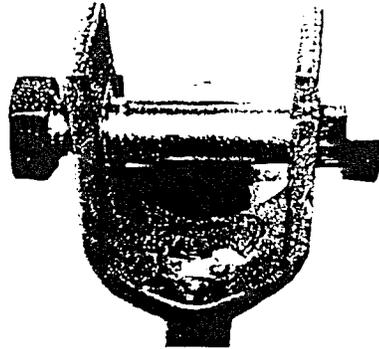
# PROPER TENSIONING OF STRAP TO ANCHOR HEAD

Note: The tensioning bolt can be inserted in the head from either side.

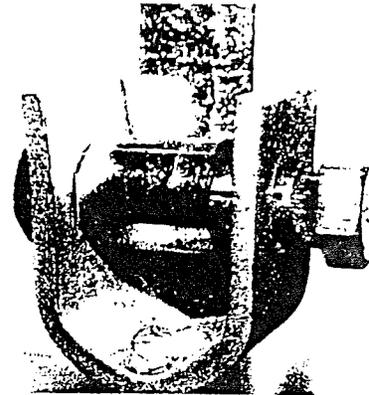
Notice: In areas of severe cold weather where possible damage could occur from frost heave, the homeowner should release some of the tension from the vertical tie each fall.



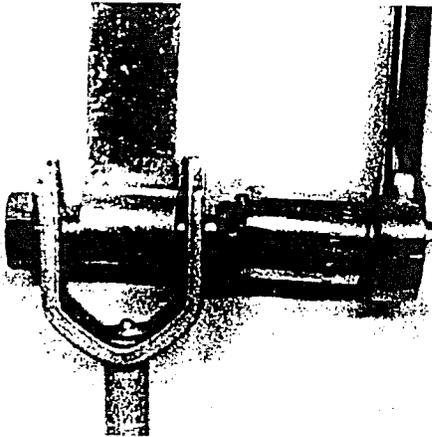
1. Insert bolt into head; attach nut loosely.



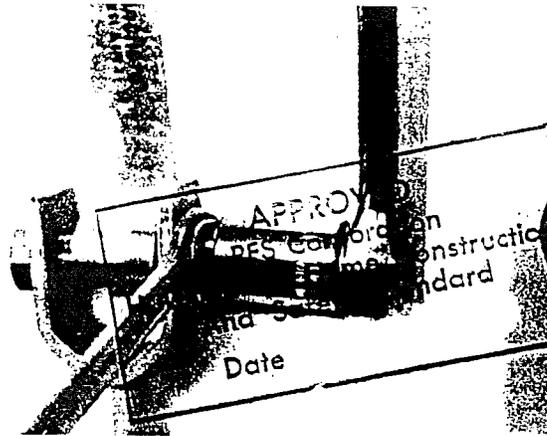
2. Insert strap in slot of bolt 5/8", or until strap is flush with far side of bolt.



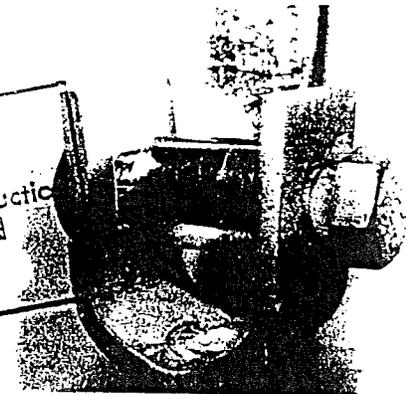
3. Bend strap 90° and take at least four complete turns on bolt until strap is taut.



4. Bolt is turned with 15/16" socket wrench, or adjustable wrench, on hex head.

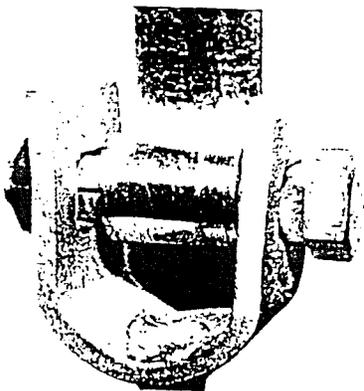


5. To hold bolt under tension while repositioning wrench, an open-end wrench is placed on 3/8" square shoulders of bolt.

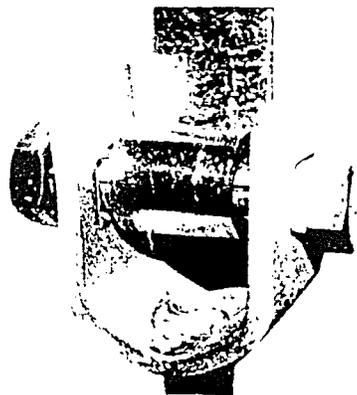


6. Align square shoulders of bolt with square hole in anchor head.

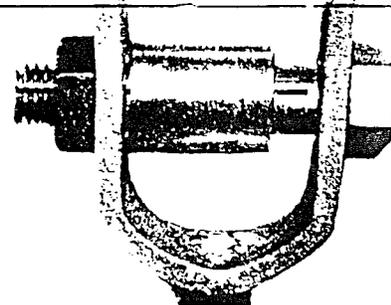
<p><b>APPROVED</b>                  PFS Corporation                  HUD Mobile Home Construction                  And Safety Standard</p>	
Date	1989



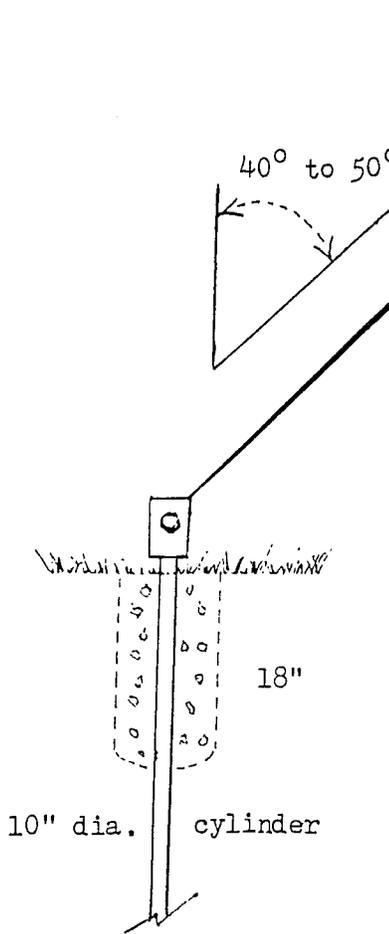
7. Holding hex head of bolt in position, tighten nut to draw square shoulders into square hole.



8. Shoulders are now in locking position, continue to tighten nut.



9. Tensioning device is now locked, secure position.



PROPERLY INSTALLED AND CONNECTED  
GROUND ANCHOR AND FRAME CONNECTION.

Note: For those homes which are designed to require only diagonal frame ties, the anchor should be installed in line with the ties. When the load on the anchor is not applied in line with the long axis of the anchor, the magnitude and effect of the horizontal movement of the anchor head should be investigated. The method of restricting lateral deflection shown, is from the Department of Defense, Defense Civil Preparedness Agency publication TR-75, "Protecting Mobile Homes From High Winds": To minimize the deflection or slicing through the soil by the anchor rod at ground level when frame ties are connected to provide a diagonal tension, it is recommended that a concrete cylindrical "collar" (approximately 10" in diameter and 18" deep) be poured around the anchor shaft, if necessary.

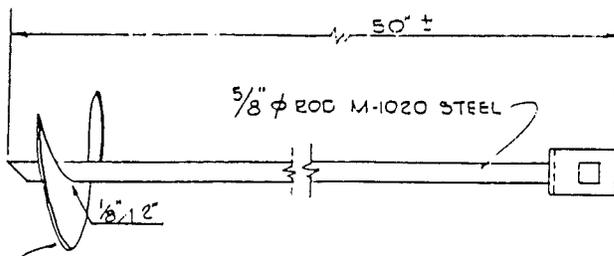
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TYPES OF SOIL

Many anchors are designed for particular soil conditions and are unacceptable for use in other type soils. We have therefore, listed the soils for which each anchor is designed and approved. Soil classifications are taken from the "STANDARD FOR THE INSTALLATION OF MOBILE HOMES" NFPA 501A 1975/ANSI A119.3 1976.

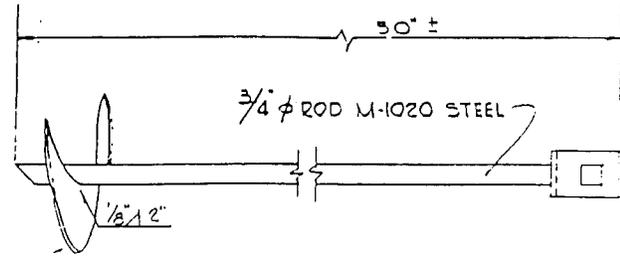
1. Sound hard rock.
2. Very-dense and/or cemented sands, coarse gravel and cobbles, preloaded silts, clays, and corals.
3. Medium-dense coarse sands, sandy gravels, very-stiff silts and clays.
4. Loose to medium dense sands, firm to stiff clays and silts, aluvian fill.

NOTE: All Minute Man Anchors tensioning devices are certified and tested to 7,100 pounds (3,220kg).



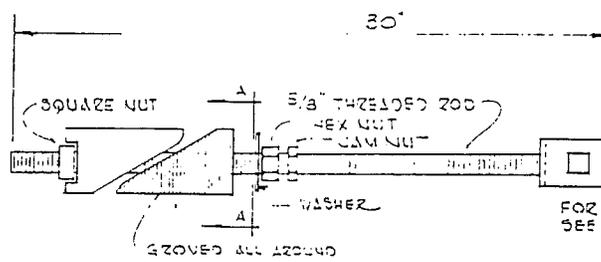
DISC - 8 GA BEVELED HELIX 5.98/6.02  
M-1020 STEEL WELDED

650-S



- DISC - 8 GA BEVELED HELIX 5.98/6.02

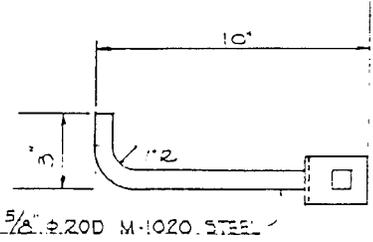
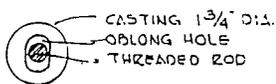
650H-S



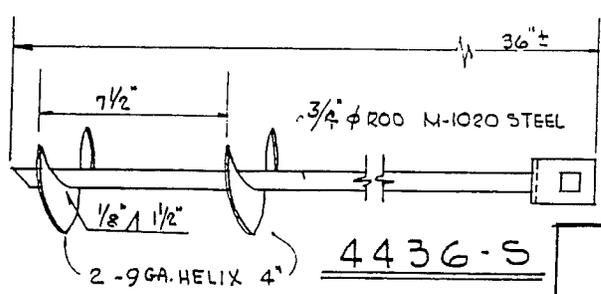
FOR HEAD DETAIL  
SEE DWG. MMA-5H

CASTINGS 25,000 PSI  
SEMI-STEEL 1 3/4" x 5"  
ALL STEEL USED IN ANCHOR ASSEMBLY  
CONFORMS TO ASTM A-36

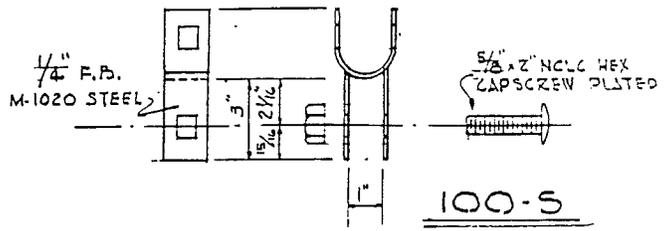
30-ER-S



210-P-S

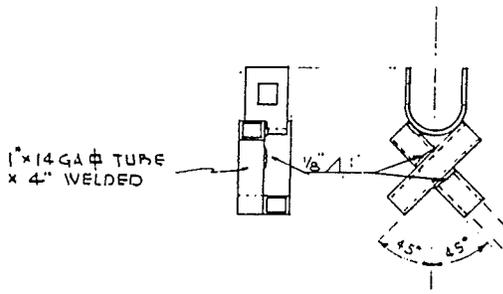


4436-S

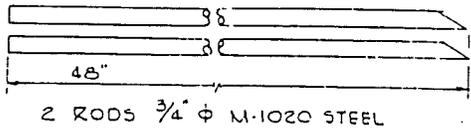


100-S

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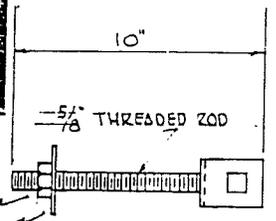
ALL STEEL USED IN ANCHOR ASSEMBLY  
CONFORMS TO A.S.T.M. A-36



48X-S

EACH ROD DRIVEN THRU  
TUBES INTO ROCK

5/8" NUT  
1 1/4" x 1 3/4" WASHER



210-S

ALL ANCHORS & ADAPTERS ALSO  
AVAILABLE WITH DOUBLE HEADS

# MATHESON, HINTZ & ASSOCIATES, INC.

CONSULTING ENGINEERS AND LAND SURVEYORS

ASHEVILLE AIRPORT ROAD

FLETCHER, N. C. 28732

JOE K. MATHESON, JR., P. E.  
WILLARD A. HINTZ, R. L. S.  
HARRY E. BYAS, JR., P. E., R. L. S.  
H. C. ABERNETHY, P. E.

PHONES: CODE 704  
ASHEVILLE 253-8692  
ARDEN 684-7417

April 23, 1976

Mr. C. Denson Hutchinson  
Minute Man Anchors, Inc.  
305 W. Walker Street  
East Flat Rock, North Carolina 28726

Dear Mr. Hutchinson:

I have analysed design drawings and physical testing reports for those Minute Man Anchors listed in the tabulation attached. My analysis and the physical test reports define the breaking strength of each of these anchors and their components to be in excess of 5,000 pounds. The strapping meets Federal Specification QQ-S-781H for Type I, Class B, Grade 1 strapping. The strapping is 1 1/4 x .035 hot dip galvanized steel.

On file are testing reports of the direct withdrawal strength of these anchors. These tests evaluate the anchorage strength of Minute Man Anchors installed resisting an axially applied withdrawal load. For the anchors listed on the attached sheet the ultimate holding power is not less than 4,725 pounds when installed in accordance with manufacturer instructions in the soil types indicated in the 'table'. If these anchors are to be installed vertically to resist other than direct withdrawal loads the magnitude and effect of horizontal movement of the anchor head should be investigated.

Very truly yours,

MATHESON, HINTZ & ASSOCIATES, INC.

*H. C. Abernethy*  
H. C. Abernethy, P. E.

Attachment

HCA:ps



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And Safety Standard  
Date AUG 4 1989

LIST OF CERTIFIED MINUTE MAN ANCHORS WITH A MINIMUM HOLDING POWER OF 4,725 POUNDS (2143 kg).

1. Sound hard rock.
2. Very-dense and/or cemented sands, coarse gravel and cobbles, pre-loaded silts, clays, and corals. (Probe torque value range - greater than 550 inch pounds)
3. Medium-dense coarse sands, sandy gravels, very-stiff silts and clays. (Probe torque value range - 350 - 550 inch pounds)
4. Loose to medium dense sands, firm to stiff clays and silts, aluvian fill. (Probe torque value range - 200 - 349 inch pounds)

<u>MARK</u>	<u>MODEL</u>	<u>DESCRIPTION</u>	<u>USE IN SOIL TYPE *</u>
MMA-1	650-S	Single Head, Earth Auger Anchor 5/8" shaft.	2,3,4
MMA-2	650-DH-S	Double Head, Earth Auger Anchor 5/8" shaft.	2,3,4
MMA-3	650-H-S	Single Head, Earth Auger Anchor 3/4" shaft.	2,3,4
MMA-4	650-H-DH-S	Double Head, Earth Auger Anchor 3/4" shaft.	2,3,4
MMA-5	4436-S	Single Head, Double Disk, Earth Auger Anchor 5/8" shaft.	2
MMA-6	4436-DH-S	Double Head, Double Disk, Earth Auger Anchor 5/8" shaft	2
MMA-7	48-X-S	Single Head Drive Anchor	2
MMA-8	48-X-DH-S	Double Head Drive Anchor	2
MMA-9	36-S	Single Head Coral Anchor	CORAL
MMA-10	36-DH-S	Double Head Coral Anchor	CORAL
MMA-11	210-S	Single Head Tension Device for Slab	SLAB
MMA-12	210-DH-S	Double Head Tension Device for Slab	SLAB
MMA-13	210-P-S	Single Head Tension Device for Concrete	SLAB
MMA-14	210-P-DH-S	Double Head Tension Device for Concrete	SLAB
MMA-15	30-ER-S	Single Head Expand Rock Anchor	1
MMA-16	30-ER-DH-S	Double Head Expand Rock Anchor	1
MMA-17	TH-S	Single Tension Head	SLAB
MMA-18	TH-DH-S	Double Tension Head	SLAB
MMA-21	100-S	Single Head Tension Device Adapter	CONNECT
MMA-22	100-DH-S	Double Head Tension Device Adapter	CONNECT

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 HUD Mobile Home Construction  
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