

9 / 1980

**SKYLINE
CORPORATION
MOBILE
HOME
INSTALLATION
MANUAL**

9/80

SKYLINE

The World's Number One Builder of Manufactured Housing

INTRODUCTION

PLEASE READ ALL INSTRUCTIONS
PRIOR TO SETUP!

This Skyline home was engineered, constructed and inspected for conformance to the Federal Mobile Home Construction and Safety Standards in effect on the date of manufacture. This National Standard sets forth comprehensive requirements for design construction, fire safety, plumbing, heating systems and electrical systems for mobile homes designed to be used as dwellings.

Consult with building officials in your area to determine necessary permits, licenses and inspections required for installation of this home.

THE IMPORTANCE OF CORRECT SETUP CANNOT BE OVEREMPHASIZED. Correct setup is absolutely essential to homeowner satisfaction. If you are not absolutely certain of the proper procedure or you encounter unusual conditions, please contact your factory service representative.

THE INSTRUCTIONS CONTAINED HEREIN ARE MINIMUM REQUIREMENTS. APPLICABLE LOCAL OR STATE LAW MAY HAVE OTHER OR GREATER REQUIREMENTS WHICH MUST BE COMPLIED WITH TO OBTAIN OR REGAIN THE RIGHT TO OCCUPY THE HOME.

The recommended procedures contained in this manual are intended to assist in proper installation of this home. Field experience may justify alternate acceptable procedures which, when completed, will result in performance at least equal to that which will result from conformance to the details and specifications herein. For example, on double wide installation you may find it advantageous, due to local conditions, to bolt the floors together prior to bolting roof halves together, or vice versa. Either method is acceptable as long as the bolting schedule is adhered to.

NOTE: SPECIAL CONSTRUCTION SUCH AS SHINGLE ROOFS, EXPANDO UNITS, TRIPLE WIDE UNITS, QUAD UNITS, AND PERIMETER BLOCKED UNITS WILL BE COVERED IN SUPPLEMENTS TO THIS MANUAL. CONTACT YOUR FACTORY OR DEALER IF THIS HOME HAS ANY SUCH FEATURES AND YOU DO NOT HAVE THE APPLICABLE SUPPLEMENTS.

The technical content of this Installation Manual has been reviewed by Underwriters' Laboratories, Inc. and found to be in accordance with the Federal Mobile Home Construction and Safety Standard.

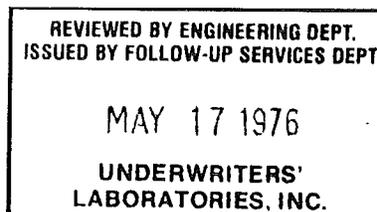


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NOTE: THIS MANUAL IS INTENDED TO INSTRUCT AND TO ASSIST ALREADY QUALIFIED AND PREFERABLY FACTORY-TRAINED PERSONNEL IN PROPER INSTALLATION OF SKYLINE MOBILE HOMES. IT IS NOT INTENDED TO ENABLE SOMEONE UNFAMILIAR WITH MOBILE HOME INSTALLATION, TO PERFORM THE INSTALLATION.

SETUP SHOULD BE DONE ONLY BY QUALIFIED AND PREFERABLY FACTORY TRAINED PEOPLE. WHOEVER DOES THE SET UP SHOULD GUARANTEE THEIR WORK IN WRITING FOR A REASONABLE TIME AND SHOULD, IF NECESSARY, AGREE TO RELEVEL THE HOME WITHIN 90 DAYS AFTER THE INITIAL SETUP.

SITE PREPARATION

The mobile home site must be properly graded and sloped to provide for storm drainage run-off. In particular, the area beneath the home must be graded to prevent water accumulation.

Proper support for the mobile home must allow for soil conditions in the immediate area. Pier footings must be placed on firm undisturbed soil (not loose fill) or soil which has been compacted to at least 90 percent of its maximum relative density. Support piers may also be placed directly on concrete slabs designed for mobile home placement, as found in many mobile home parks.

Climatic conditions must also be taken into account. If footings are placed on a frost-susceptible soil such as clay or silt, heaving or settling may occur. Therefore, in areas where temperatures go below freezing, the following should be considered when the home is anchored with a tie down system:

1. Construct the tie-down system with adjustable devices in order that the strap tension may be periodically adjusted to compensate for heaving or settling, or
2. Place the home on a properly designed raft foundation (slab), or
3. Have the foundation designed so that it is not susceptible to frost action, and
4. Consult with the building officials in your area to determine location of the frost line.

SUPPORT REQUIREMENTS

SINGLE WIDE HOMES

The design loads used in selection of the support structure are set forth in Tables 1 and 2. The loads specified in the right hand column of these tables are the minimum values to be used for pier and footing design based on the indicated roof live load and a floor live load of 40 pounds per square foot (PSF).

Load bearing supports and footings may be subject to approval by the local enforcement agency. Each pier shall have sufficient capacity to support the design loads specified in Tables 1 or 2. The required

dimensions of footings will depend on soil bearing capacity test results. In lieu of soil tests, confer with the local Building Authority for the recommended soil bearing capacity in your locale. All grass and organic material shall be removed from the area beneath the footings.

The support requirements for homes designed for 40 PSF and higher roof loads (and those specifically indicated middle zone homes) are found in the supplement accompanying this manual entitled "Mobile Home Installation for Perimeter Blocking."

TABLE 1 SOUTH ZONE

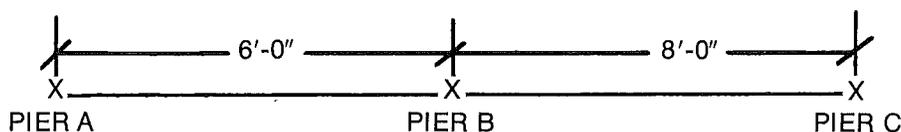
PIER SPACING UNDER MAIN "I"-BEAMS	DESIGN ROOF LIVE LOAD	DESIGN FLOOR LIVE LOAD	TOTAL PIER LOAD		
			12 WIDE	14 WIDE	16 WIDE
4'-0" O.C.	20 P.S.F.	40 P.S.F.	1800 lbs.	2100 lbs.	2400 lbs.
5'-0" O.C.	20 P.S.F.	40 P.S.F.	2250 lbs.	2625 lbs.	3000 lbs.
6'-0" O.C.	20 P.S.F.	40 P.S.F.	2700 lbs.	3150 lbs.	3600 lbs.
7'-0" O.C.	20 P.S.F.	40 P.S.F.	3150 lbs.	3675 lbs.	4200 lbs.
8'-0" O.C.	20 P.S.F.	40 P.S.F.	3600 lbs.	4200 lbs.	4800 lbs.
9'-0" O.C.	20 P.S.F.	40 P.S.F.	4050 lbs.	4725 lbs.	5400 lbs.
10'-0" O.C. (Max)	20 P.S.F.	40 P.S.F.	4500 lbs.	5250 lbs.	6000 lbs.

TABLE 2 MIDDLE ZONE

PIER SPACING UNDER MAIN "I"-BEAMS	DESIGN ROOF LIVE LOAD	DESIGN FLOOR LIVE LOAD	TOTAL PIER LOAD		
			12 WIDE	14 WIDE	16 WIDE
4'-0" O.C.	30 P.S.F.	40 P.S.F.	2040 lbs.	2380 lbs.	2720 lbs.
5'-0" O.C.	30 P.S.F.	40 P.S.F.	2550 lbs.	2975 lbs.	3400 lbs.
6'-0" O.C.	30 P.S.F.	40 P.S.F.	3060 lbs.	3570 lbs.	4080 lbs.
7'-0" O.C.	30 P.S.F.	40 P.S.F.	3570 lbs.	4165 lbs.	4760 lbs.
8'-0" O.C.	30 P.S.F.	40 P.S.F.	4080 lbs.	4760 lbs.	5440 lbs.
9'-0" O.C.	30 P.S.F.	40 P.S.F.	4590 lbs.	5355 lbs.	6120 lbs.
10'-0" O.C. (Max)	30 P.S.F.	40 P.S.F.	5100 lbs.	5950 lbs.	6800 lbs.

NOTES: FOR TABLES 1 and 2

1. Footings and piers must be designed to support the loads (right hand column) at the selected spacing.
2. The tabulated pier loads include the indicated live loads plus home dead loads.
3. The maximum spacing of supports shall not exceed 10 feet.
4. Where it is impractical to maintain spacing, such as in the axle area, the average of the distance to each adjacent support may be used to determine support requirements: for example, if the distances to the adjacent supports were 6'-0" and 8'-0" the average spacing would be 7'-0".



The average spacing for pier B would be $6+8/2=7$ ft. Therefore, pier would be designed for 7 ft. pier spacing.

5. Add additional piers at each side of a single sidewall opening and between multiple openings (window or door) larger than 4'-0". The required pier capacity equals 125 lbs. (145 lbs. @ 16' wide) x opening width (ft.).

BLOCKING PROCEDURE

Reminders before jacking...

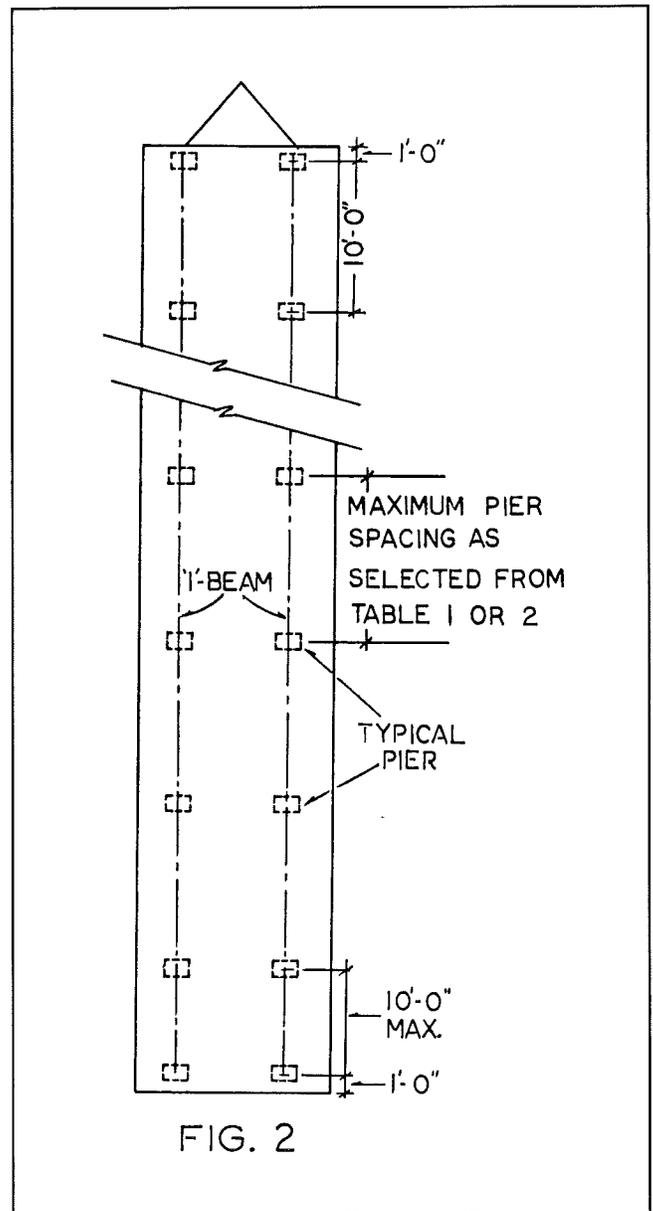
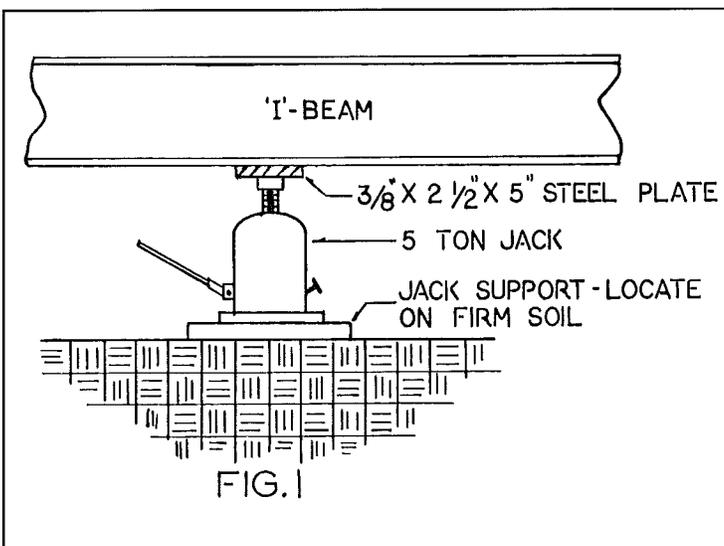
1. Use only jacks in good condition with a minimum rating of 5 tons.
2. Use a steel plate ($\frac{3}{8}$ " \times $2\frac{1}{2}$ " \times 5") or hardwood block (4" \times 4" \times 12") between jack and steel "I"-beam to distribute the concentrated loads. (See Figure 1)
3. Use a firm support under the jack base to prevent tipping or settling of the jack.
4. Always follow the sequence of jacking outlined below to avoid overstressing structural members.

The jacking procedure is as follows:

1. After the home is located in its final position, you can preliminarily level it by using the hitch jack but only after adequately blocking the home.
2. Jack up one side of the home by placing one jack just forward of the front spring hanger and the other just behind the rear spring hanger. These two jacks must be operated simultaneously to raise the home. Install footings and piers; one just forward of the front jack and another just behind the rear jack (taking care not to exceed the correct spacing selected from Table 1 or 2).
3. Next, jack the main "I"-beam at the front and position a pier within 1'-0" of the end of the "I"-beam. At the completion of this step, this side of the home should be approximately level.
4. Repeat Steps 2 and 3 for the other side of the home. At the completion of this step, the home should be roughly level from front to rear and from side to side.
5. Place the remaining pier supports under the main "I"-beam on each side taking care to maintain a maximum distance of no more than the spacing determined from Tables 1 or 2 with piers located within 1'-0" of each end of each "I"-beam. (See Fig. 2)

6. Level the home using a 6 foot carpenter's level, water level, or similar equipment. The final height adjustment is obtained by jacking the "I"-beam and placing hardwood shims between the piers and "I"-beam, or other approved methods such as adjustable piers. THIS LEVELING PROCESS IS IMPORTANT FOR APPEARANCE AND IS ESSENTIAL FOR THE PROPER OPERATION OF DOORS, WINDOWS, AND THE DRAINAGE SYSTEM.
7. Within 90 days after initial set-up, the home should be releveled, if necessary, to compensate for any pier settlement. Follow the procedure in Item 6 above.

NOTE: DURING THE LEVELING OR RELEVELING PROCESS, LOOSEN FRAME TIES AND OVER-THE-ROOF TIES (IF PROVIDED) PRIOR TO JACKING HOME.



MOBILE HOME TIE-DOWN INSTRUCTIONS

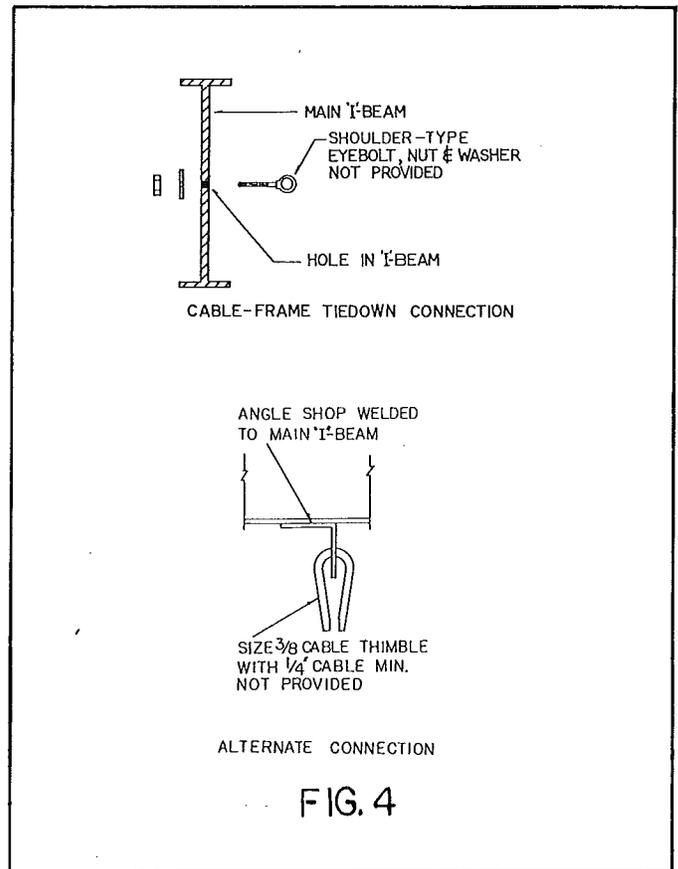
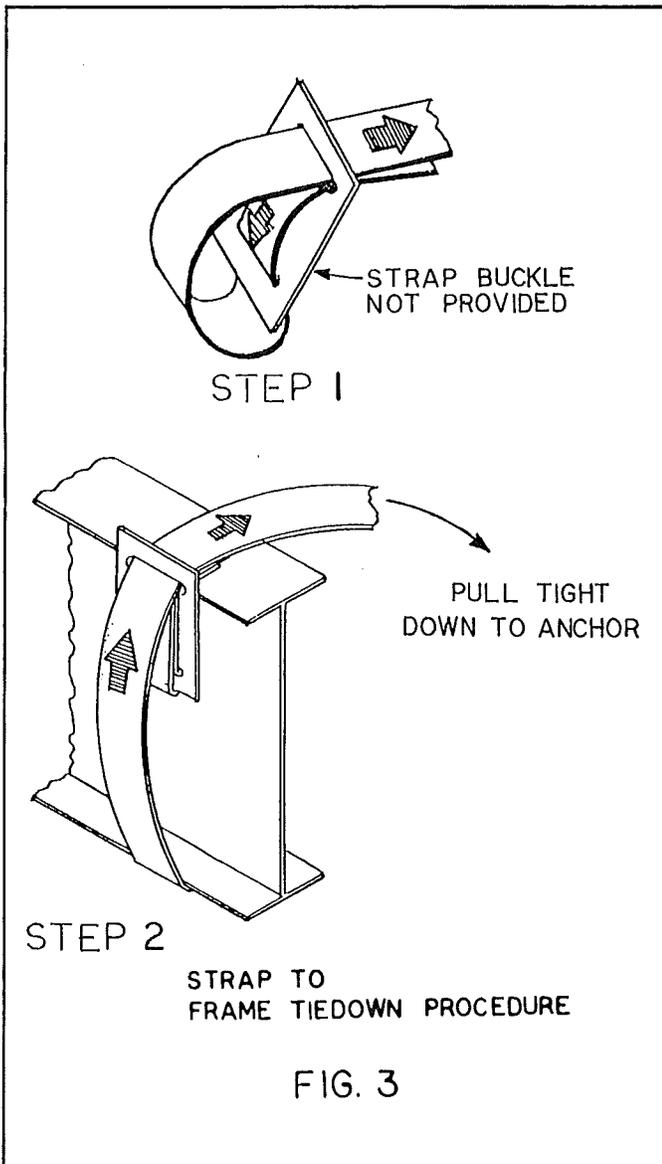
All mobile homes should be securely anchored to the ground to resist the sliding and overturning effects of high winds.

This home was designed for the wind conditions specified on the data plate (located at the electrical distribution panel). Where tie-downs are required it will be necessary to follow the instructions herein.

FRAME TIE-DOWN PROCEDURE

All homes are equipped with tie-down attachment provisions on the main "I"-beams (See Figs. 3 and 4). Over-the-roof straps are optional for both Wind Zone I and II designated homes.

NOTE: IN THE TIE-DOWN SYSTEM, IT IS IMPORTANT TO USE MATERIALS OF PROPER DESIGN AND OF ADEQUATE QUALITY. THE MATERIAL SPECIFICATIONS CONTAINED HEREIN SHOULD BE CONSIDERED AS *MINIMUM* REQUIREMENTS.



Materials not furnished with the home which will be necessary to complete the tie-down system must meet the requirements set forth below. Such materials would include:

- 1.) Cable or steel strap with a breaking strength of at least 4,725 pounds, e.g. galvanized aircraft cable at least 1/4" inch in diameter or Type 1, Finish B Grade 1 steel strapping, 1 1/4 inches wide and 0.035 inches thick, conforming with F.S. QQ-S-781-H.
- 2.) Galvanized connection devices such as turnbuckles, eyebolts, strap buckles, and cable clamps should be rated at 3,150 working load minimum.
- 3.) Ground anchors — capable of withstanding at least a 4,725 pound pull. Anchors must be installed as specified by the anchor manufacturer.

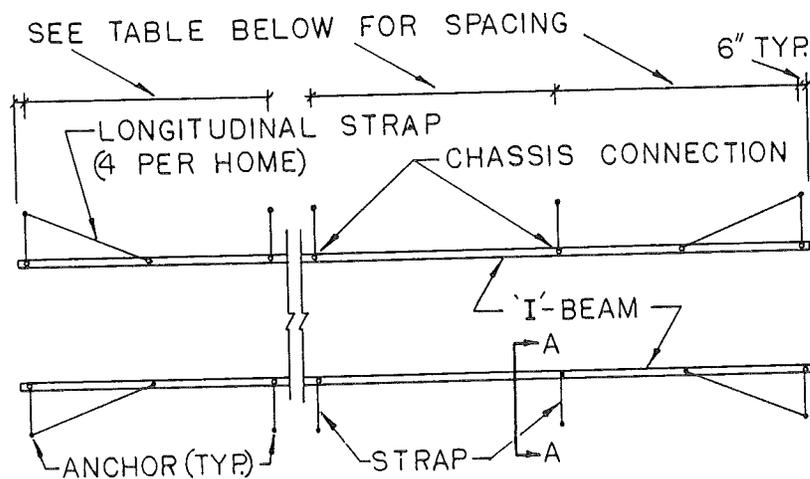
THE HOME MUST BE IN ITS FINAL LEVEL POSITION PRIOR TO TYING IT DOWN.

The procedure for tying down the mobile home is as follows:

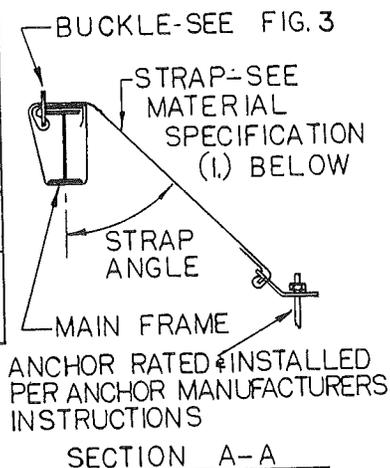
- 1.) Position and install the ground anchors so that the final strap angle will be within the limits shown in Fig. 5.
- 2.) Connect the straps to the frame and ground anchors. (See Fig. 5)

MOBILE HOME TIE-DOWN INSTRUCTIONS (Cont'd)

- 3.) Tighten the straps using the tensioning device provided with the ground anchors. Use caution to avoid overtensioning the straps which might pull the home off the piers. It is recommended that all straps be tightened only enough to remove the slack. Then, after all straps are installed and the slack removed, tension the straps.
- 4.) The strap tension should be rechecked at frequent intervals until all pier settlement has stopped. **CAUTION: DURING THE RELEVELING PROCESS, DO NOT JACK THE HOME AGAINST TIGHT STRAPS.**



WIND ZONE	SINGLE WIDE HOMES		DOUBLE WIDE HOMES	
	I	II	I	II
SPACING	12' O.C.	8' O.C.	16' O.C.	8' O.C.
STRAP ANGLE	40° TO 70°	55° TO 60°	55° MIN.	60° TO 65°



NOTES:

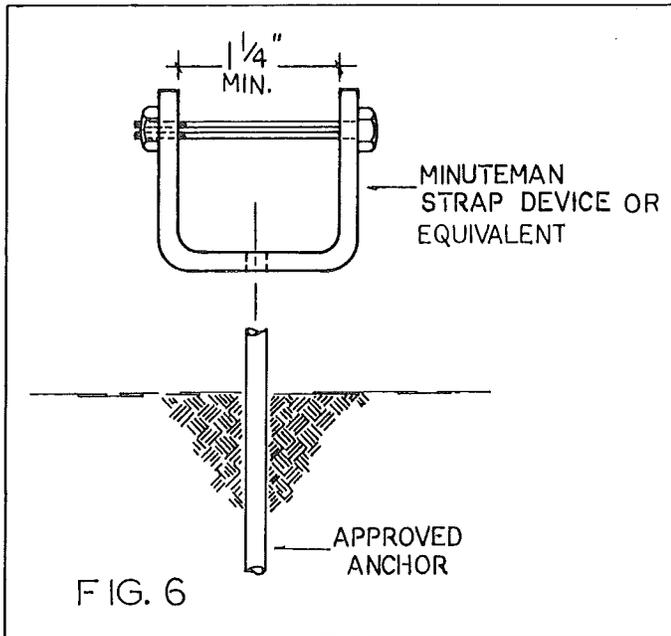
- 1.) STRAPS & ANCHORS TO BE RATED AT 3150 POUNDS (MIN.)
- 2.) SEE FIG'S 3 & 4 FOR TYPICAL CONNECTION DETAILS TO CHASSIS
- 3.) ANCHORAGE SYSTEM SUBJECT TO LOCAL INSPECTION AT TIME OF INSTALLATION
- 4.) OTHER METHODS APPROVED BY LOCAL BUILDING AUTHORITIES MAY BE USED.

TIE DOWN ANCHOR LOCATIONS
FIG. 5

MOBILE HOME TIE-DOWN INSTRUCTIONS (Cont'd)

OPTIONAL OVER-THE-ROOF STRAP PROCEDURE

If over-the-roof straps are provided (optional on all homes) they may be connected to ground anchors as specified in the following procedure in order to achieve additional stability in extreme winds. Note that the frame tie-down procedure on pages 7 and 8 is still mandatory.



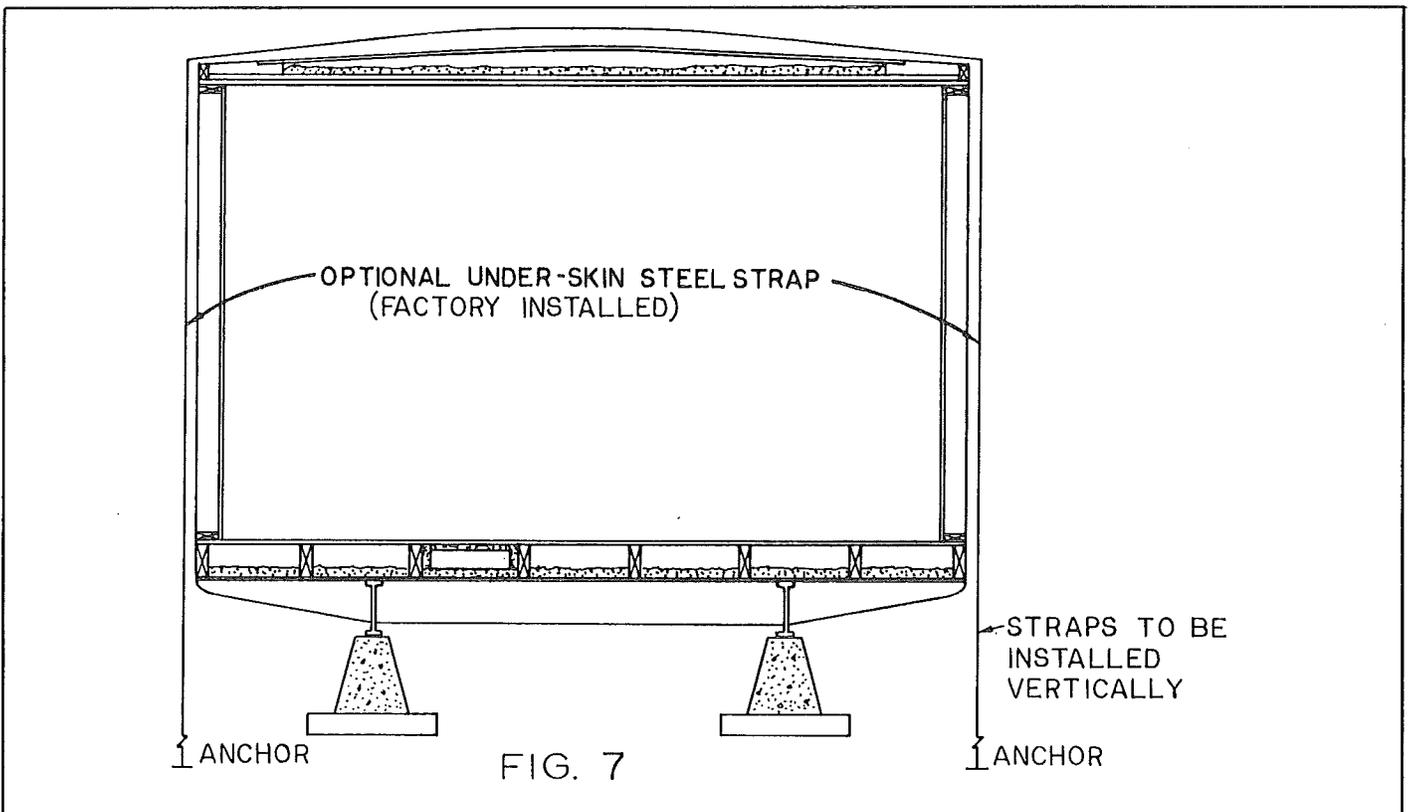
Materials not furnished with the home which will be necessary to properly connect the over-the-roof straps are:

1. Ground anchors capable of withstanding at least a 4,750 pound pull when installed in the soil at the site.
2. Strap end connection devices. (See Fig. 6)

THE HOME MUST BE IN ITS FINAL LEVEL POSITION WITH FRAME TIES INSTALLED *BEFORE* CONNECTING THE OVER-THE-ROOF STRAPS.

The procedure for over-the-roof strap installation is as follows:

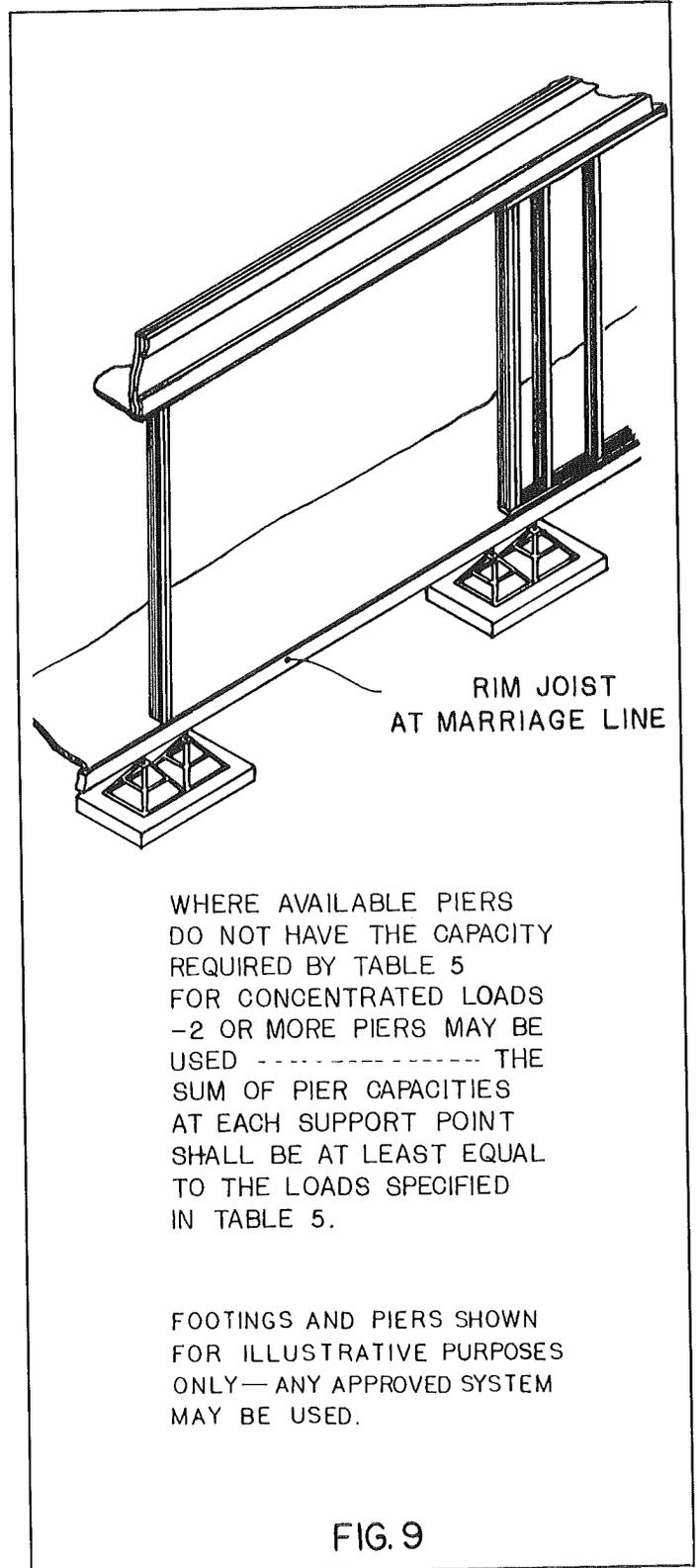
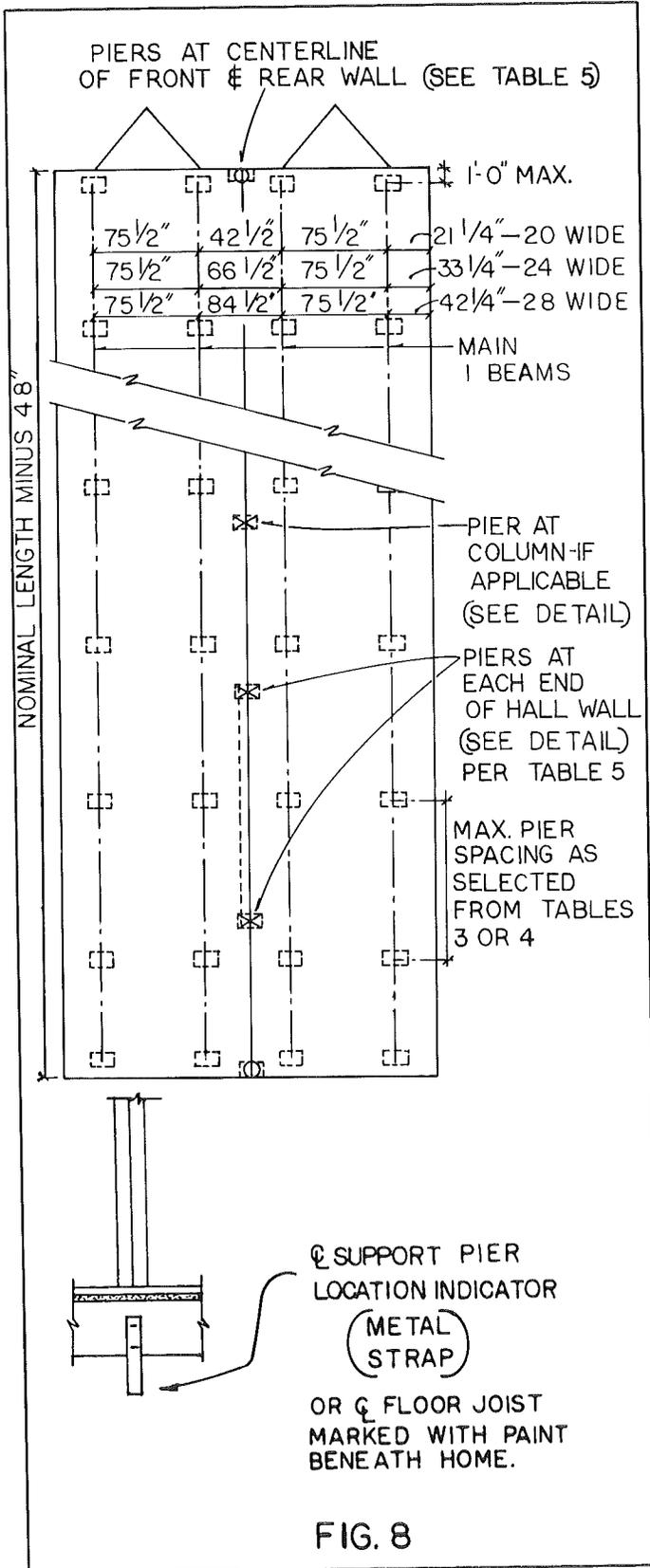
1. Position and install the ground anchors so that the strap will be vertical after attachment to the anchor. The anchor may be installed slightly beneath the home to avoid interference with skirting (See Fig. 7).
2. Insert the minuteman connector yoke through the eye in the anchor and insert slotted bolt through the yoke.
3. Place end of strap through slotted bolt and remove slack by turning bolt. **DO NOT TENSION UNTIL BOTH ENDS OF STRAP ARE CONNECTED.**
4. Tension and lock minuteman connector in position; consult instructions furnished with connectors.
5. Check strap tension (See Step 4 under frame tie-down procedure).



SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP

The site must be prepared as described on Page 4. Special consideration must be given to the footings and pier construction required by: (1) local soil conditions, (2) depth of frost line, and (3) special requirements of local jurisdictions.

It may be desirable in view of the above conditions to construct the footings and piers (to grade height) prior to moving the home to its final location. Preconstruction of the footings and piers to grade may be accomplished by referring to the pier location diagram, Fig. 8, making special note of the additional piers required at beam supports.



SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP (Cont'd)

The procedure is as follows:

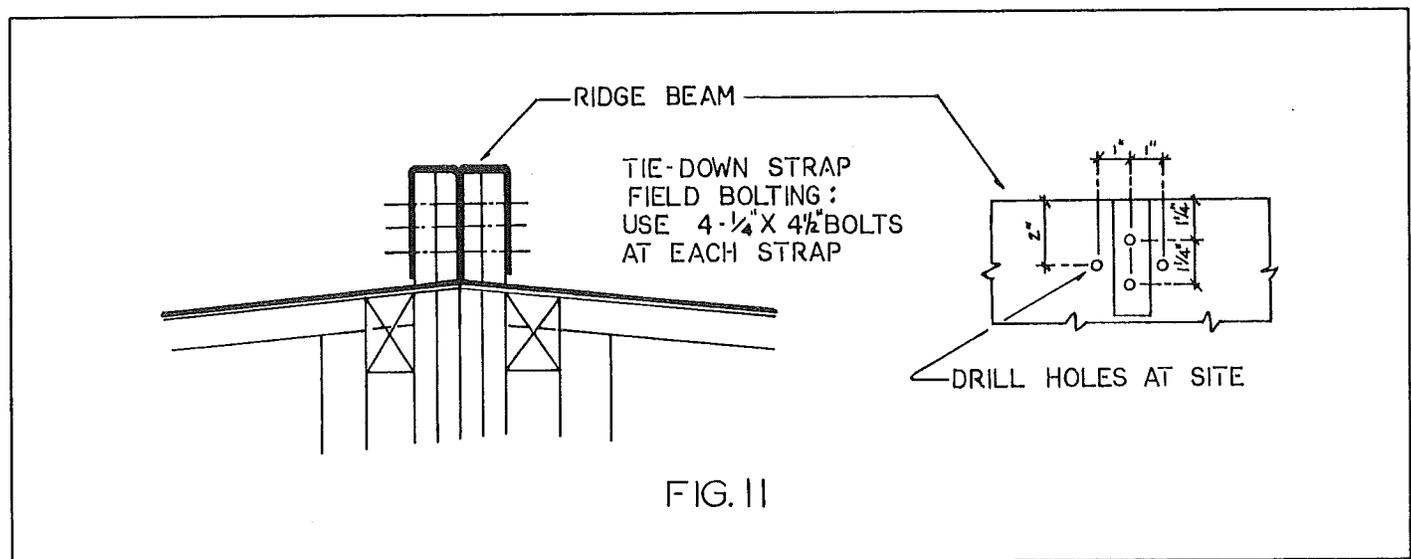
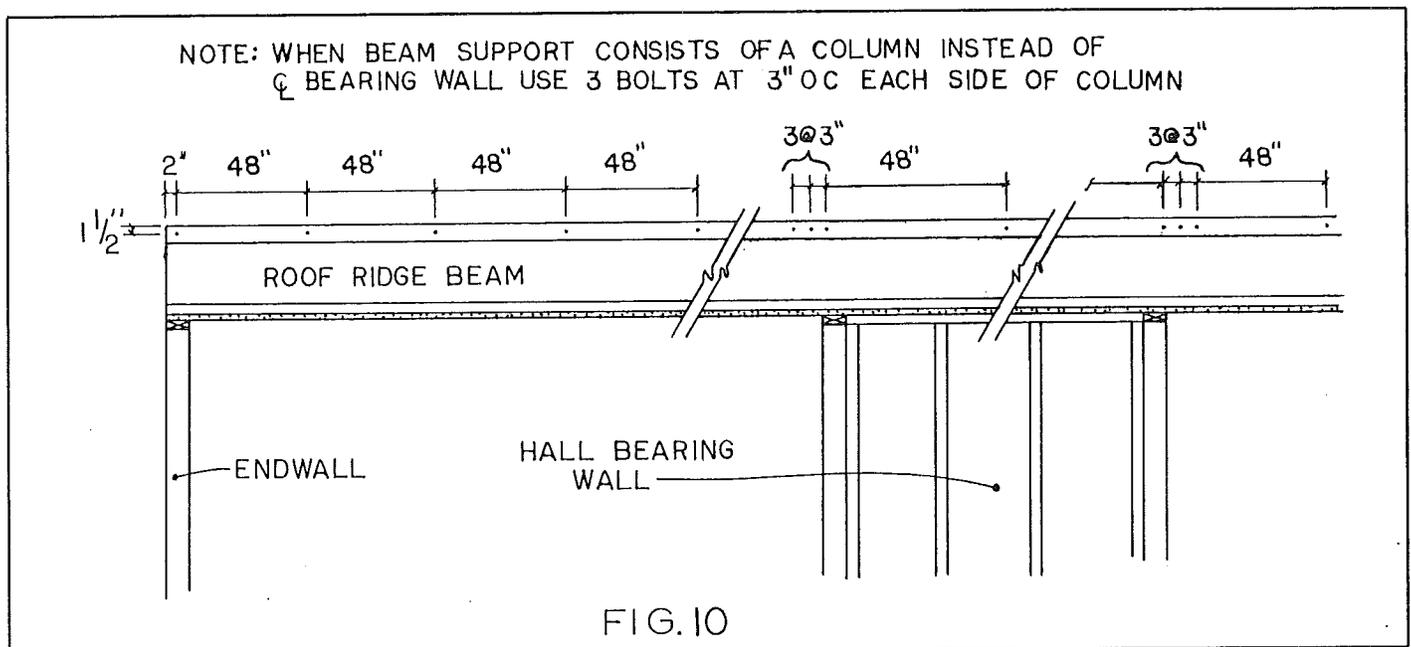
WHEN REQUIRED TO WALK ON THE ROOF DURING ASSEMBLY, PLACE PLANKS OR $\frac{1}{2}$ " (MINIMUM) PLYWOOD ACROSS RAFTERS.

1. Remove the temporary closure materials (polyethylene and batten strips) and position the halves as close together as possible in the final desired location. Do not remove temporary beam supports until Step 4 is completed. It may be necessary to winch the halves together with come-alongs or similar equipment. Care must be exercised during any winching or jacking operations to avoid overstressing structural members.

NOTE: ALUMINUM SHEETS OR GREASED BOARDS UNDER THE TIRES WILL AID IN SLIDING THE TWO HALVES TOGETHER.

2. Bring the roof ridge beam halves together. Deflate the inside tires of light half if necessary.
3. Align ceiling material joints and the top corners of ceilings at the end walls. Secure beam halves with $\frac{3}{8}$ " x $4\frac{1}{2}$ " bolts at front and rear ends only. Bolts located above a cathedral ceiling must be $\frac{3}{8}$ " x 8" long.
4. Level ceiling edges by jacking at the inside main "I"-beam on light half of the home; when the ceiling joint is flush, complete the bolting operation using the $\frac{3}{8}$ " x $4\frac{1}{2}$ " (8" @ a cathedral ceiling) bolts at 48 inches on center with 3 additional bolts at 3 inches on center over beam supports (See Fig. 10).

NOTE: WHERE OPTIONAL OVER-THE-ROOF STRAPS ARE PROVIDED, SECURE THE STRAPS AT THE RIDGE BEAM WITH THE PROVIDED $\frac{1}{4}$ " x $4\frac{1}{2}$ " (8" @ a CATHEDRAL CEILING) HEX HEAD BOLTS (SEE FIG. 11). THESE STRAP BOLTS ARE IN ADDITION TO THE BOLTING DETAILED IN FIG. 10.



SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP (Cont'd)

5. Line up end walls by moving either floor forward or back as necessary. Toenail the end walls together using 16d nails at 16 inches on center.
6. Level the floors by jacking on the main "I"-beams (inside beam on either half). With longitudinal floor systems, bolt the two units together by placing the provided 3/8" x 4" full thread bolts through each outrigger attachment angle (for models without

attachment angles place the provided threaded tie rods through the "I"-beam center holes and bolt together). Use star washers under bolt heads and nuts. For transverse floor systems the center line header joists should be lag screwed together with 3/8" x 2 1/2" lag screws @ 8'-0" O.C. (See transverse floor supplement for additional requirements).

TABLE 3 (DOUBLE WIDE HOMES) SOUTH ZONE

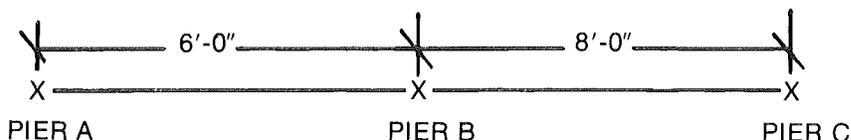
PIER SPACING UNDER MAIN "I"-BEAM	DESIGN ROOF LIVE LOAD	DESIGN FLOOR LIVE LOAD	TOTAL PIER LOAD		
			20' WIDE	24' WIDE	28' WIDE
4'-0" O.C.	20 P.S.F.	40 P.S.F.	1500 lbs.	1800 lbs.	2100 lbs.
5'-0" O.C.	20 P.S.F.	40 P.S.F.	1875 lbs.	2250 lbs.	2625 lbs.
6'-0" O.C.	20 P.S.F.	40 P.S.F.	2250 lbs.	2700 lbs.	3150 lbs.
7'-0" O.C.	20 P.S.F.	40 P.S.F.	2625 lbs.	3150 lbs.	3675 lbs.
8'-0" O.C.	20 P.S.F.	40 P.S.F.	3000 lbs.	3600 lbs.	4200 lbs.
9'-0" O.C.	20 P.S.F.	40 P.S.F.	3375 lbs.	4050 lbs.	4725 lbs.
10'-0" O.C. (Max)	20 P.S.F.	40 P.S.F.	3750 lbs.	4500 lbs.	5250 lbs.

TABLE 4 (DOUBLE WIDE HOMES) MIDDLE ZONE

PIER SPACING UNDER MAIN "I"-BEAM	DESIGN ROOF LIVE LOAD	DESIGN FLOOR LIVE LOAD	TOTAL PIER LOAD		
			20' WIDE	24' WIDE	28' WIDE
4'-0" O.C.	30 P.S.F.	40 P.S.F.	1700 lbs.	2040 lbs.	2380 lbs.
5'-0" O.C.	30 P.S.F.	40 P.S.F.	2125 lbs.	2550 lbs.	2975 lbs.
6'-0" O.C.	30 P.S.F.	40 P.S.F.	2550 lbs.	3060 lbs.	3570 lbs.
7'-0" O.C.	30 P.S.F.	40 P.S.F.	2975 lbs.	3570 lbs.	4165 lbs.
8'-0" O.C.	30 P.S.F.	40 P.S.F.	3400 lbs.	4080 lbs.	4760 lbs.
9'-0" O.C.	30 P.S.F.	40 P.S.F.	3825 lbs.	4590 lbs.	5355 lbs.
10'-0" O.C. (Max)	30 P.S.F.	40 P.S.F.	4250 lbs.	5100 lbs.	5950 lbs.

NOTES: TO TABLES 3 and 4

1. Footings and piers to be designed to support the loads (right hand column) at the selected spacing. Refer to single wide support requirements for general requirements.
2. The tabulated pier loads include the indicated live loads plus home dead loads.
3. The maximum spacing of supports is not to exceed 10 feet.
4. Where it is impractical to maintain spacing, such as in axle area, the average of the distance to each adjacent support may be used to determine support requirements: for example, if the distances to the adjacent supports were 6'-0" and 8'-0" the average spacing would be 7'-0".



The average spacing for pier B would be $6+8/2=7$ ft. therefore, pier B would be designed for 7 ft. pier spacing.

5. Concentrated loads at marriage line (See Table 5).
6. The support requirements for homes designed for 40 psf and higher roof loads (and specifically indicated Middle Zone homes) are found in the supplement accompanying this manual entitled "Field Installation for Perimeter Blocking."

SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP (Cont'd)

7. Level home and install piers following the procedure outlined for single wide homes. Tables 3, 4 and 5 are to be used to determine pier and footing capacities for the selected spacing and loads.
8. Place additional supports at the centerline of each end wall, each end of the hall wall, sidewall openings greater than 4'-0" and beam support columns at locations marked with indicator strap or paint (See Figs. 8 and 9 and Table 5).

TABLE 5

LOCATION OF CONCENTRATED LOADS	HOME WIDTH	DESIGN ROOF LIVE LOAD	TOTAL PIER LOAD (POUNDS)
Piers at Endwall Centerline: Designated  on Fig. 8	20' Wide	20 P.S.F.	3000
		30 P.S.F.	4200
	24' Wide	20 P.S.F.	3600
		30 P.S.F.	5040
	28' Wide	20 P.S.F.	4050
		30 P.S.F.	5670
Interior Piers at Home Centerline: Designated  on Fig. 8	20' Wide	20 P.S.F.	6000
		30 P.S.F.	8400
	24' Wide	20 P.S.F.	7200
		30 P.S.F.	10080
	28' Wide	20 P.S.F.	8100
		30 P.S.F.	11340

NOTES: FOR TABLE 5

1. Footings and piers must be designed to support the concentrated loads (right hand column) under the applicable conditions, and 24' of tributary load. For piers with less than 24' of tributary load the footing and pier capacities may be reduced proportionately.
2. Concentrated loads consist only of roof loads.
3. Maximum distance to first interior pier is 24'-0".
4. Maximum distance between interior piers is 24'-0".
5. Pier locations at the marriage line are marked with paint or metal indicator straps.
6. May use more than 1 pier, i.e. side by side, to obtain required load capacity (See Fig. 9).
7. Add additional piers at each side of a single sidewall opening and between multiple openings (window and door) larger than 4'-0". The required pier capacity equals 100 lbs. (125 lbs. @ 28' wide) x opening size (ft.).

TIE DOWN PROCEDURE

THE HOME MUST BE IN ITS FINAL LEVEL POSITION PRIOR TO INSTALLING AND TENSIONING TIE-DOWN STRAPS. DO NOT JACK THE HOME AGAINST TENSIONED TIE-DOWNS.

The frame tie-down straps should be installed on each outside main "I"-beam. The materials, equipment and procedures are the same as for single wide homes (See pages 7 & 8).

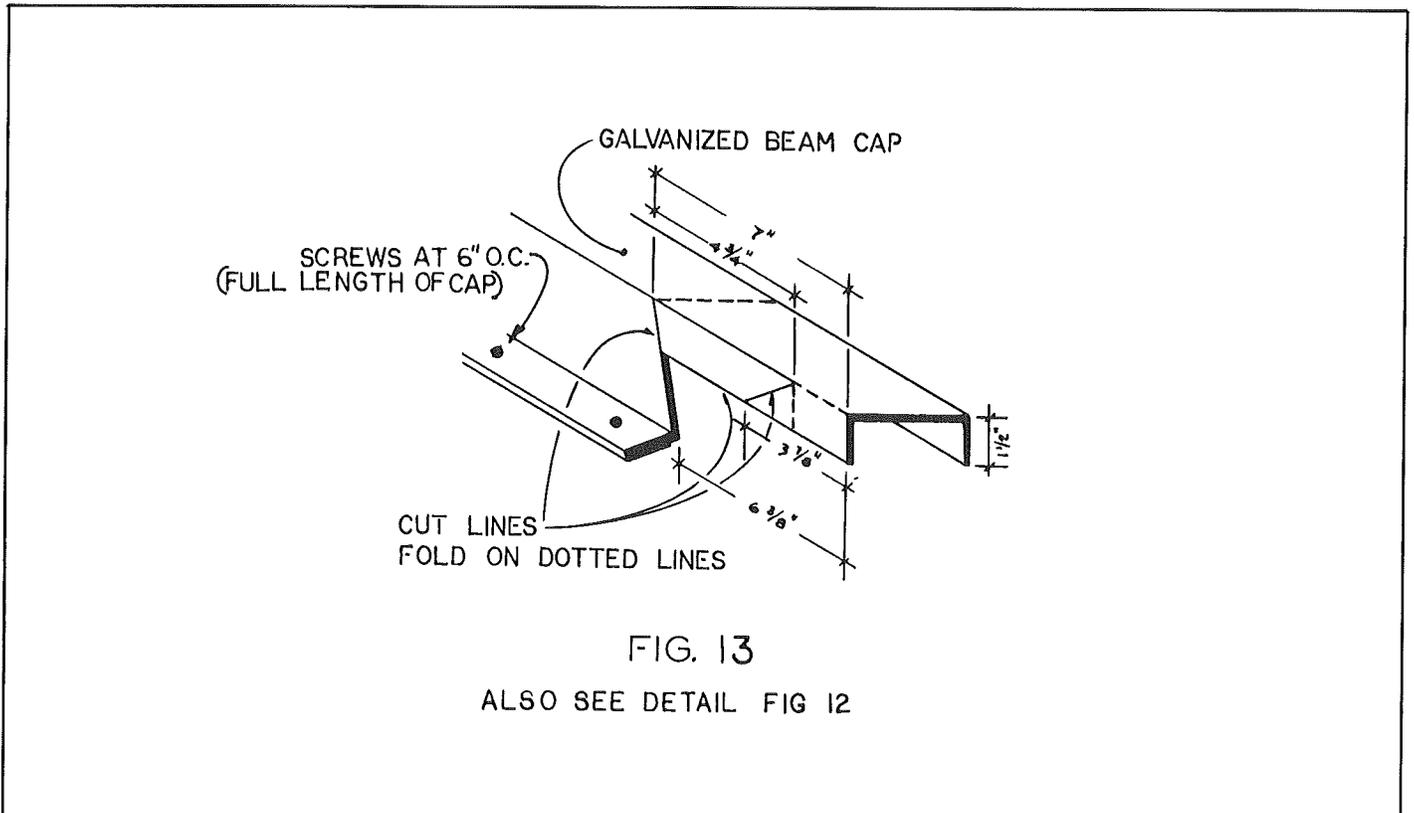
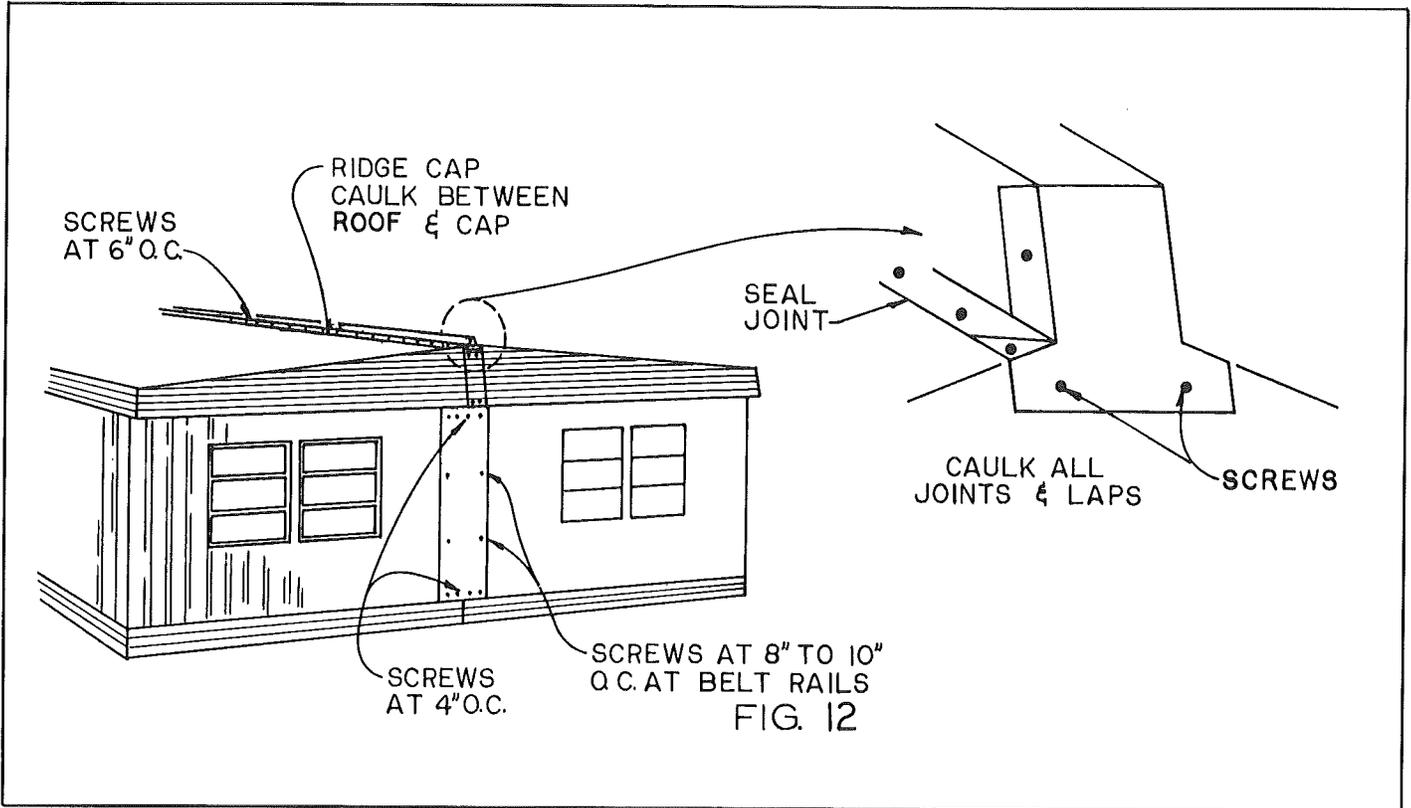
Over-the-roof straps, if provided, are to be connected to ground anchors in the same manner as single wide homes (See page 9).

DOUBLE WIDE EXTERIOR CLOSURE

PRIOR TO INSTALLING CLOSURE METAL ON END WALLS, THE ELECTRICAL CROSSOVER MUST BE MADE.

1. Install bottom starter.
2. Install end wall metal by snapping both sides into "S"-lock; attach with provided metal screws (See Fig. 12).
3. Attach closure metal to front and rear hoods.
4. Cut and bend the metal beam cap; secure the cap flange to the roof with caulking and the provided metal screws (See Fig. 13).
5. Install interior trim, moldings, carpet, etc., as required.

SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP (Cont'd)



SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP (Cont'd)

UTILITY INTERCONNECTIONS OF DOUBLE WIDES

Electrical Crossover

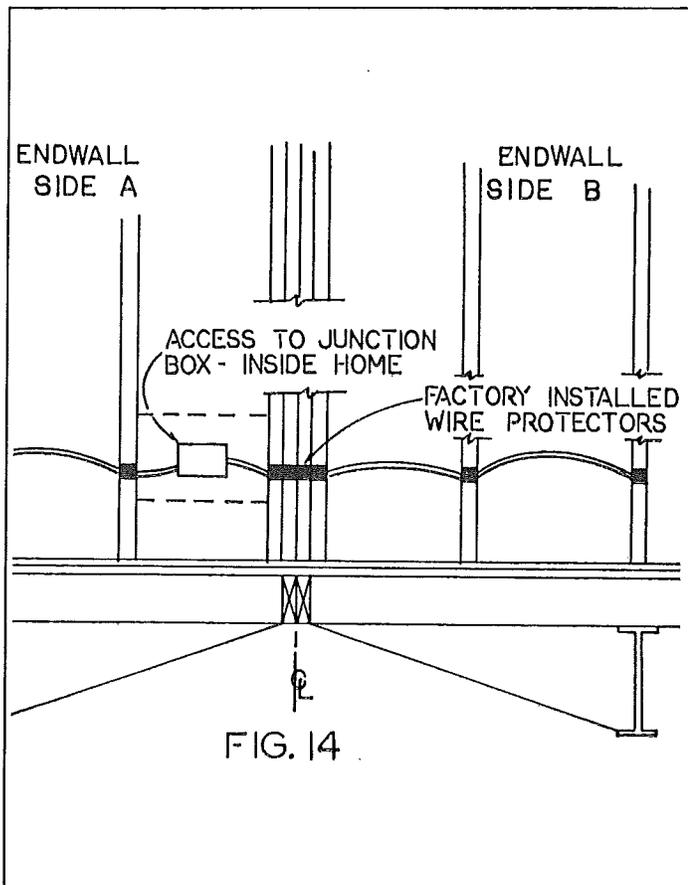
NOTE: ALL ON-SITE ELECTRICAL WORK MUST BE PERFORMED BY QUALIFIED PERSONNEL.

15 and 20 AMP Circuits: (Endwall Crossover)

The procedure for this interconnection is as follows:

1. Feed wires from Side B through metallic wire protectors into junction box in Side A (See Fig. 14).
2. Staple wires within 8 inches of junction box to side of stud at centerline of stud.
3. Remove cover from junction box inside home; cut wires to length allowing a minimum of 4 inches of free wire extending from box.
4. Strip approximately 1 inch of wire and connect like circuit numbers (white to white, black to black, ground to ground, red to red on multi-circuits and 230V circuits) with the provided wire nuts.
5. Push wires into box and replace cover.

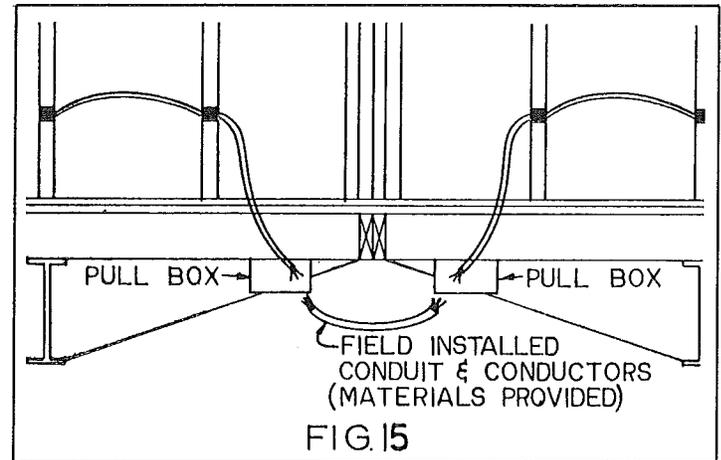
NOTE: SOME MODELS MAY HAVE ELECTRICAL CROSSOVERS AT FRONT AND REAR.



30 AMP and Larger Circuits (Below Floor Crossover)

The correct procedure is as follows:

1. Remove the pull box covers and install the provided conduit and conductors between the boxes (See Fig. 15).
2. Using the provided wire connectors, connect like circuit numbers (white to white, black to black, ground to ground, red to red on multi-circuits and 230V circuits).
3. Push wires into pull boxes and replace covers.



30 AMP and Larger Circuits (Endwall Crossover)

For homes with sub-panel located adjacent to the endwall centerline the interconnection may be made by feeding the conductor cable through the endwall stud metallic wire protectors and into the sub-panel. Staple the cable to the centerline stud within 12 inches of the sub-panel and complete the connections of the conductors to the sub-panel terminals.

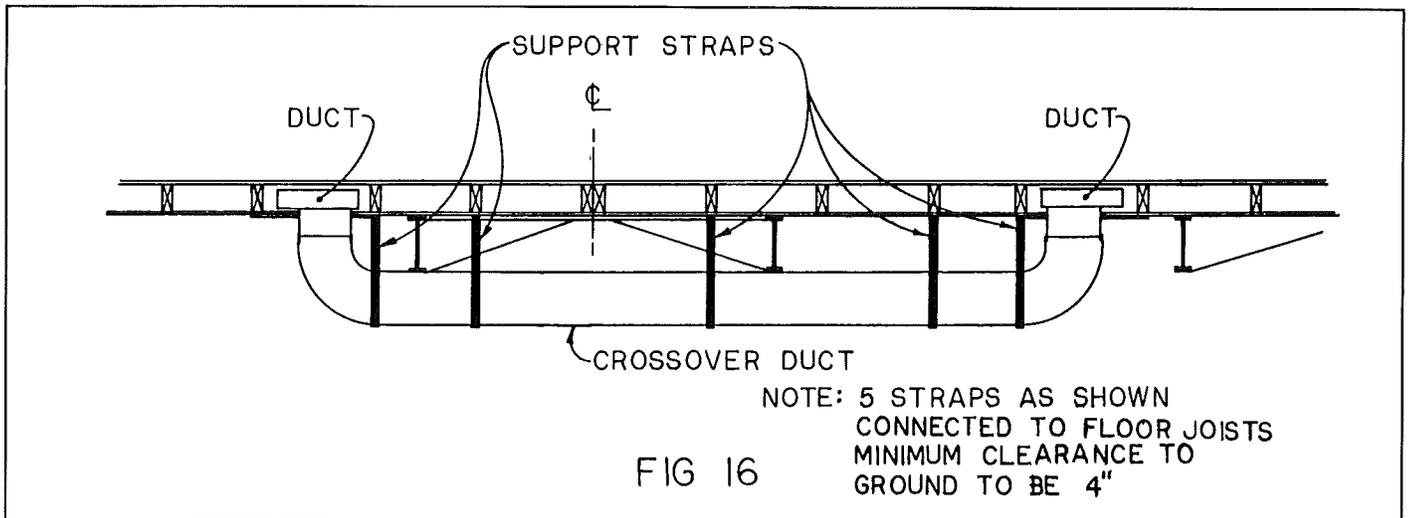
Heating Crossover

The basic hookup procedure is the same for all designs with only minor variations; those being (1) length of the crossover duct, and (2) diameter of duct.

The method of installation is as follows:

1. Connect each end of the provided insulated flexible duct to the metal duct connector on each half of the home by sliding duct over metal tabs on duct connector.
2. After mechanical connections are made, tape each connection with 2-inch wide duct tape to insure an air tight seal.
3. Secure the crossover duct with metal straps as shown in Fig. 16. Do not allow duct to rest on the ground. Maintain at least a 4-inch clearance between duct and the ground.

SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP (Cont'd)



Gasline Crossover

Applicable only to models with gas appliances on both halves.

The listed flexible connector supplied with the home must be used to make the connection. This connection will be located beneath the home.

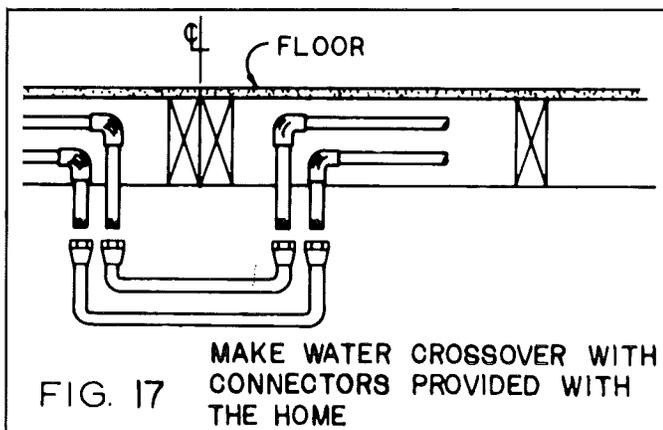
NOTE: DO NOT USE TOOLS TO CONNECT OR REMOVE FLEXIBLE CONNECTOR QUICK DISCONNECT.

1. Remove protective caps from the connector.
2. Connect the quick disconnect fitting.
3. Test for leaks with soapy water.

Waterline Cross Connect

Applicable only to models with plumbing on both halves (See Fig. 17).

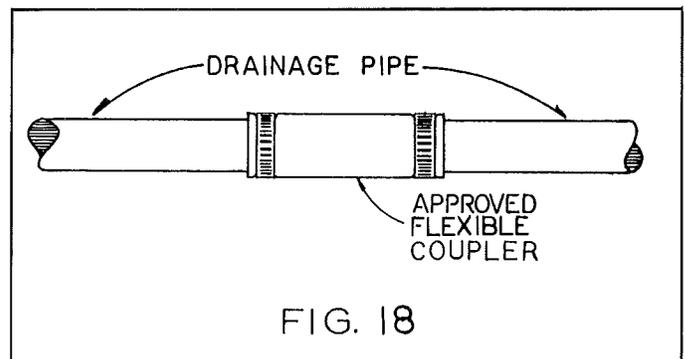
1. Remove the shipping caps from water lines and install the provided connector.
2. Check for leaks.
3. In areas where exposed, piping is subject to freezing. Protect exposed piping with heat tapes listed for use on mobile homes, and insulation. It is recommended that only U.L. listed heat tapes be used and installed in accordance with their listing.



Drainage Line Cross Connect

Applicable only to models with plumbing on both halves. The connection may be made with field assembly of factory supplied parts (Refer to drainage of 2 bath models, page 17), or when the below floor plumbing is factory installed, a flexible coupler is used as follows: Use only the approved flexible coupler provided (1½ inch, 2 inch or 3 inch, as required). See Fig. 18.

1. Slip the flexible coupler over one end of the drainage line.
2. Align the pipes and center the coupler over the joint.
3. Tighten the clamps and check for leakage.



UTILITY HOOKUP AND TESTING

Many local jurisdictions have special requirements for utility connections and on-site inspection of these connections. Consult with the proper authorities prior to utility connection.

The drainage and water systems were tested for leaks prior to shipment from the factory. It is essential that they be rechecked by qualified personnel, for leaks that may have been caused by vibration during transportation.

WATER

The water system has been designed for an inlet water pressure of 80 psi. When the mobile home is installed in areas where the water pressure exceeds 80 psi, a pressure reducing valve should be installed. The water system may be connected to any safe, potable water source. The connection is via a single ¾ inch inlet beneath the home. A master shut-off full flow valve must be installed in the water supply line adjacent to the home; this valve should be a full port gate or ball valve with threaded or solder joints. After removing the aerators from all the faucets, open all the faucet valves and allow the water to run for 15 minutes. This should remove any foreign particles left in the line that might cause an unpleasant taste or become lodged at faucet washers and cause dripping faucets. All exposed water piping subject to freezing should be protected by insulation and electric heat tapes listed for use with mobile homes. It is recommended that only UL listed heat tapes be used and installed in accordance with their installation instructions.

DRAINAGE — SINGLE BATH

The drainage connection is made at the 3-inch main drain outlet. Care should be exercised to slope and support the drain line from the home to the site sewage system (¼" per foot slope).

DRAINAGE — 1½, 1¾ & 2 BATH

The parts required to bring all drain lines to a single point are provided as follows:

1. Pipe and fittings.
2. ¼ pint of ABS solvent cement.
3. 10 feet of ¾" x 28 gauge plumbing strap.
4. Ten ¼" x 1" stove bolts.

The procedure for bringing all drain lines to a single point is as follows:

1. Remove caps on drain outlets and connect supplied parts together as shown by the drain line schematic shipped with the house. (Do not apply cement).
2. Check to be sure that the assembly has the proper ¼ inch drop per foot.
3. Mark each joint to aid in reassembly. Start at outlet end of system and remove, cement and reassemble each slip joint one at a time. Be sure to apply the cement on both male and female ends with a good even coating.
4. Using the ¾" x 28 gauge strapping, strap the drain line to the center crossmembers of the frame placing a strap at each member (4 feet apart). Use a ¼" x 1" stove bolt to secure strap in place.
5. Connect home drain to site sewage system as for single bath previously discussed.
6. Check completed system for leaks.

DANGER: IMPROPER OR INADEQUATE TESTING, CONNECTION OR MODIFICATION OF ANY PART OF GAS OR ELECTRICAL SYSTEMS, ESPECIALLY BY UNQUALIFIED PERSONNEL, MAY BE EXTREMELY DANGEROUS AND MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH!!

GAS — The gas piping system was designed for a range of 7 to 10½" of water column for natural gas and 11 to 14" 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.

UTILITY HOOKUP AND TESTING (Cont'd)

The gas piping system was pressure tested for leaks prior to shipment; however, it is essential that the system be retested by qualified personnel for leaks prior to use. (Many utility companies require this on-site test). The instructions printed on the tag near the gas supply connection must be followed (See Fig. 19).

In some localities, utility companies and/or building inspectors may require additional tests as follows:

1. Isolate all appliances with appliance shut-off valves. **PRESSURE SHALL BE MEASURED WITH A MERCURY MANOMETER OR SLOPE GAGE CALIBRATED IN INCREMENTS OF NOT GREATER THAN 1/10 POUND.**
2. Pressurize the system to 3 psi and isolate the source of pressure from the gas piping.

3. Check the gage after 10 minutes; there should be no drop in pressure.
4. Check the piping to appliances by pressurizing to at least 10 inches but not more than 14 inches water column and applying a bubble solution to all joints and flexible connectors.

CAUTION: DO NOT PRESSURIZE THE SYSTEM ABOVE THE PRESSURES STATED ABOVE.

The connection to the gas supply should be made only by authorized representatives of the utility.

NOTE: BEFORE A TEST IS BEGUN, THE TEMPERATURE OF THE AMBIENT AIR AND OF THE PIPING SHOULD BE APPROXIMATELY THE SAME — CONDUCT THE TEST AT SUCH A TIME DURING THE DAY WHEN AIR TEMPERATURES WILL REMAIN CONSTANT.

LP—Gas System

This gas piping system is designed for use of liquefied petroleum gas only.

DO NOT CONNECT NATURAL GAS TO THIS SYSTEM.

CONTAINER SHUTOFF VALVES SHALL BE CLOSED DURING TRANSIT.

When connecting to lot outlet, use a listed gas supply connector for mobile homes rated at 100,000 Btuh or more.
 250,000 Btuh

Before turning on gas, make certain all gas connections have been made tight, all appliance valves are turned off, and any unconnected outlets are capped.

After turning on gas, test gas piping and connections to appliances for leakage with soapy water or bubble solution, and light all pilots.

Combination LP—Gas and Natural Gas System

This gas piping system is designed for use of either liquefied petroleum gas or natural gas.

NOTICE: BEFORE TURNING ON GAS BE CERTAIN APPLIANCES ARE DESIGNED FOR THE GAS CONNECTED AND ARE EQUIPPED WITH CORRECT ORIFICES. SECURELY CAP THIS INLET WHEN NOT CONNECTED FOR USE.

When connecting to lot outlet, use a listed gas supply connector for mobile homes rated at 100,000 Btuh or more.
 250,000 Btuh

Before turning on gas, make certain all gas connections have been made tight, all appliance valves are turned off, and any unconnected outlets are capped.

After turning on gas, test gas piping and connections to appliances for leakage with soapy water or bubble solution, and light all pilots.

FIG. 19

UTILITY HOOKUP AND TESTING (Cont'd)

ELECTRICAL

ALL ELECTRICAL WORK SHOULD BE PERFORMED ONLY BY QUALIFIED PERSONNEL. The electrical supply connection to the mobile home may be made by any of the following methods depending on the mobile home construction and electrical service:

- a. Listed 50 ampere mobile home power supply cord. (50 amp service only)
- b. Permanent feeder connected to a factory installed mast weatherhead assembly. The routing, connection and support of the service drop is to be in accordance with local codes.
- c. Permanent feeder routed to the distribution panel through the factory installed feeder raceway which terminates beneath the mobile home. A junction

box or approved fitting must be used to connect the mobile home feeder raceway to the supply raceway beneath the mobile home. The proper feeder conductor sizes and the required junction box sizes are given in Table 6.

After the connection has been made, the following tests should be conducted using approved test equipment:

1. Continuity test of circuit conductors
2. Polarity test
3. Continuity test of electrical grounding system

OUTSIDE DISTRIBUTION PANEL BOARD

Accessibility to distribution panel board, and the use of unit switches as disconnect means, is subject to the requirements of the local inspection authority.

**MOBILE HOME ELECTRICAL
SUPPLY REQUIREMENTS**

TABLE 6				
MAXIMUM LOAD & MAIN BREAKER SIZE (AMP)	CONDUCTOR SIZE¹ (AWG) (TWO LINE AND ONE NEUTRAL)	GROUNDING CONDUCTOR SIZE (AWG)	FACTORY INSTALLED FEEDER RACEWAY¹ TRADE SIZE (IN.)	MINIMUM JUNCTION BOX SIZE
50	6	#10	1"	6"×6"×4"
100	3	#8	1¼"	8"×8"×4"
125	1	#6	1½"	10"×10"×4"
150	1/0	#6	1½"	10"×10"×4"
200	3/0	#6	2"	12"×12"×4"

¹ Conductor size and feeder raceway sized for copper, 75°C rated conductors, types RH, RHH, RHW without outer covering, THW or XHHW.

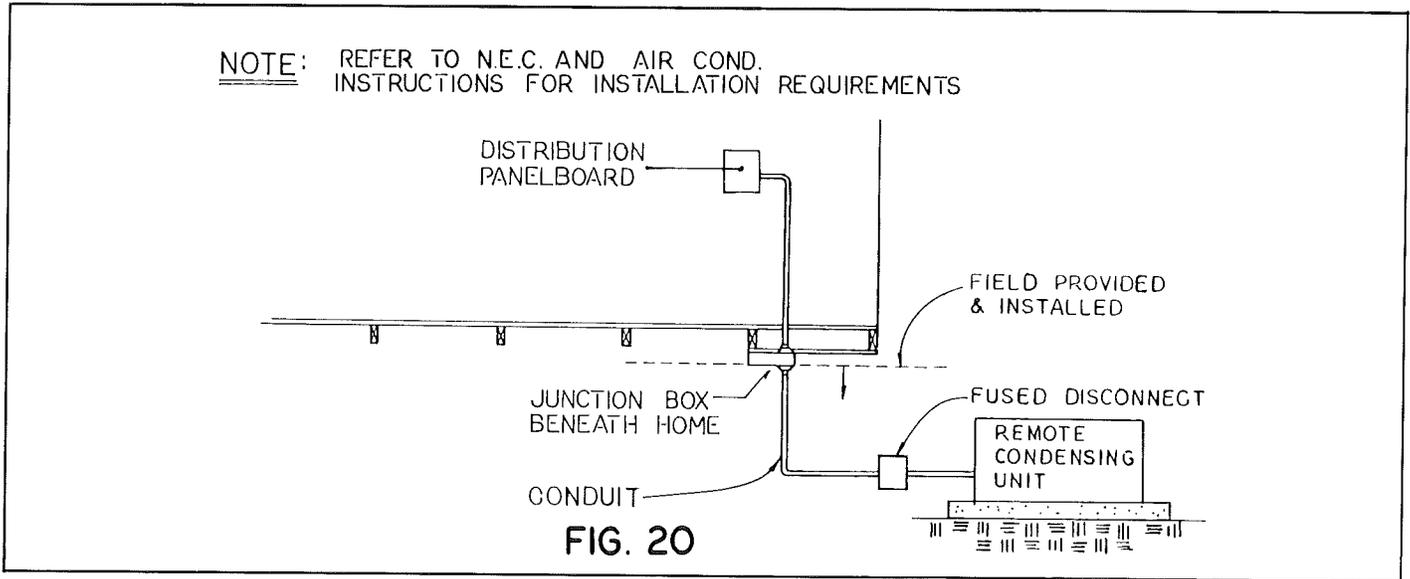
AIR CONDITIONING ELECTRICAL CONNECTION

THE ELECTRICAL CONNECTION SHOULD BE MADE ONLY BY QUALIFIED PERSONNEL. THE COMPLETED INSTALLATION MUST CONFORM TO ARTICLE 440 OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.

Factory installed branch circuits for air conditioning are indicated on the data plate under the heading "Rating of Factory Installed Circuit." The maximum full load ampere draw for the desired air conditioning unit must not exceed the indicated branch circuit rating. "A" coil air conditioning units installed must be listed for use with the furnace in this home; for air conditioning installation, see the instructions shipped with the air conditioner. If a self contained air conditioner is to be installed and connected to the heating supply duct the installation must include a damper beneath the furnace to prevent cool air from

"backing-up" into the furnace during the cooling mode and a damper at the air conditioner supply to prevent heated air from "backing-up" into the air conditioner during the heating mode.

The electrical connection is via a branch circuit terminating in a junction box beneath the home (See Fig. 20). The field installation wiring beyond the junction box, must incorporate a fused disconnect (sized in accordance with NEC Article 440) located within sight of the condensing unit. The maximum fuse size to be used with the fused disconnect is marked on the condenser data plate. The acceptability of the air conditioning equipment, rating the location of disconnect means, fuse type branch circuit protection, and connections to the equipment are to be determined by the local inspection authority.



NOTE: THE ELECTRICAL CONNECTION SHOULD BE MADE ONLY BY QUALIFIED PERSONNEL.

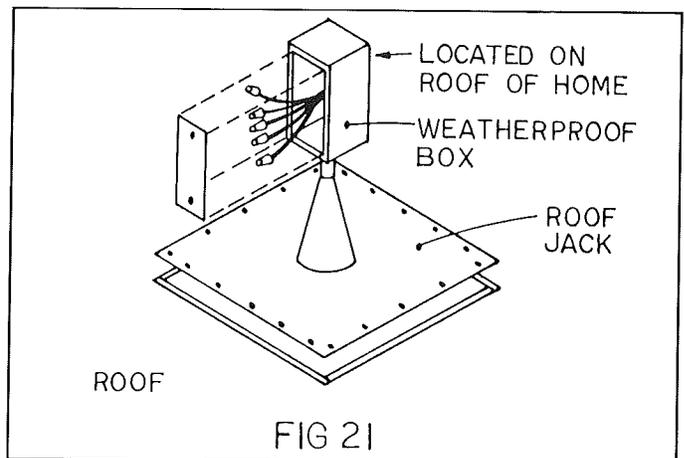
1. On models equipped for installation of optional evaporative cooler, install the roof-mounted cooler according to the instructions with the cooler. For coolers without an integral air duct the cooler box shall be lined with .016 in. metal. The factory installed branch circuit for the cooler is sized for a maximum cooler electrical load of 12 amperes, 120 V. AC, 60 Hz.
2. Remove the cover from the roof-mounted junction box and make the connection of the color-coded wires using the provided wire nuts. The electrical portion of the installation is now complete (See Fig. 21).

RED Low Fan
GREEN Ground

COLOR CODE

WHITE Neutral
YELLOW Pump
BLACK High Fan

EVAPORATIVE COOLER

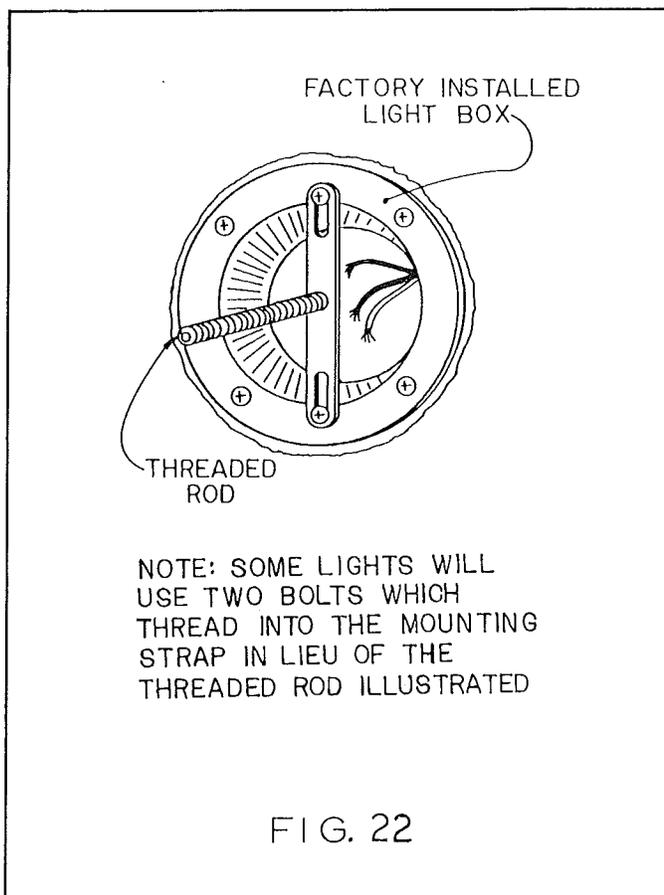


INSTALLATION OF EXTERIOR LIGHT FIXTURES

ELECTRICAL CONNECTIONS SHOULD BE MADE ONLY BY QUALIFIED PERSONNEL. MAKE SURE POWER IS OFF BEFORE INSTALLING LIGHT.

The correct procedure is as follows:

1. Install threaded tube in the strap secured to the fixture outlet box as shown in Fig. 22.
2. Apply caulking around base of light fixture to insure a water tight seal to side wall.
3. Connect wires, black to black, white to white, and ground to ground, using wire nuts.
4. Push wires into box and secure fixture in position using the nut provided on the threaded tube. Install the bulb.



ELECTRIC DRYER VENTING

Homes factory equipped with an electric dryer receptacle will also have the moisture-lint exhaust system roughed-in. To complete the moisture-lint exhaust system the following must be performed:

1. Remove the covers over the vent hole in the floor.

2. Push the provided flexible duct through the hole provided in the floor and connect to the dryer in accordance with the dryer manufacturer's instructions.
3. Secure the provided termination fitting at an outside edge of the floor.

NOTE: The termination fitting must be installed such that the dryer does not exhaust beneath the home. This may be accomplished by attaching the fitting to a piece of exterior grade plywood or, if you have skirting installed, directly to the skirting.

4. Secure the flexible duct to the termination fitting with the provided clamp (Do not use sheet metal screws or other devices which extend into the interior of the duct).
5. Seal the duct penetration through the floor with a good grade of caulking.

CAUTION: THE MATERIALS PROVIDED FOR THE MOISTURE-LINT EXHAUST SYSTEM ARE NOT ACCEPTABLE FOR INSTALLATION OF GAS DRYERS.

GAS DRYER INSTALLATION

Homes factory equipped with a gas dryer will also have the moisture-lint exhaust duct and termination fitting provided. To complete a roughed-in system follow steps 1-5 under Electric Dryer Venting.

Homes with "stubbed-in" gas service will also have the moisture-lint exhaust system roughed-in. However the exhaust duct and termination fitting are not provided. Such termination fittings should be supplied with the dryer at time of installation. The gas connection and completion of the moisture-lint exhaust system must be made by qualified personnel in accordance with the dryer manufacturer's installation instructions. The gas connection must be tested (See Utility Hook-up and Testing) prior to use of the appliance. To complete the moisture-lint exhaust system follow steps 1-5 under Electric Dryer Venting.

METAL ROOFS

Metal roofs may be tightened by the use of bonded washers secured to the roof rafter with #8 x 1/4" screws, placed in rows of four across with width of the roof and spaced at approximately 48" O.C. along the length of the roof. Care must be taken to assure that the screws are placed to penetrate the rafter. After application the screw heads and washers are to be sealed with a roof sealant material.

SKYLINE

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