

11/5/92

**SKYLINE  
CORPORATION  
MANUFACTURED  
HOME  
INSTALLATION  
MANUAL**

---

**SKYLINE**

*Bringing America home.*

# INTRODUCTION

PLEASE READ ALL INSTRUCTIONS  
PRIOR TO SETUP!

This Skyline home was engineered, constructed and inspected for conformance to the Federal Manufactured 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 manufactured 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: A MANUFACTURED HOME SET UP IN THE WRONG STRUCTURAL ZONE DOES NOT MEET THE REQUIREMENTS OF THE FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS. BEFORE COMMENCING SETUP, SEE CONSTRUCTION INFORMATION, LOCATED IN FURNACE AREA, FOR DESIGNATION OF ZONE FOR WHICH THE HOME WAS CONSTRUCTED.**

**SPECIAL CONSTRUCTION SUCH AS 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 Manufactured Home Construction and Safety Standard.

REVIEWED BY ENGINEERING DEPT.  
ISSUED BY FOLLOW-UP SERVICES DEPT.

APRIL 27, 1992

UNDERWRITERS'  
LABORATORIES, INC.

# TABLE OF CONTENTS

	Page
INTRODUCTION .....	1
STRUCTURAL ZONE MAPS OF UNITED STATES .....	3
SITE PREPARATION .....	3
INSTALLATION INSPECTION CHECKLIST .....	4
SUPPORT REQUIREMENTS SINGLE WIDE HOMES .....	5,6
BLOCKING PROCEDURE .....	7
MANUFACTURED HOME TIE-DOWN INSTRUCTIONS .....	8,9,9A,10
SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP .....	11-20
Blocking Procedure .....	11,12,13,14
Tie-Down Procedure .....	14
Double Wide Exterior Closure .....	14,15,16,17,18
Utility Interconnections of Double Wides .....	19,20
UTILITY HOOKUP AND TESTING .....	21,22,23
Water .....	21
Drainage—Single Bath .....	21
Drainage—1½, 1¾ and 2 Baths .....	21
Gas .....	21,22
Electrical .....	23
Electrical System Test .....	23
AIR CONDITIONING AND EVAPORATIVE COOLER	
ELECTRICAL CONNECTION .....	24
INSTALLATION OF EXTERIOR LIGHTING FIXTURES .....	25
DRYER INSTALLATION .....	25
GRILL/RANGE VENTING .....	25
PADDLE FAN INSTALLATION .....	25,26
VENTILATION OF SKIRTING OR	
CRAWL SPACE ENCLOSURE .....	27
APPENDIX A .....	28

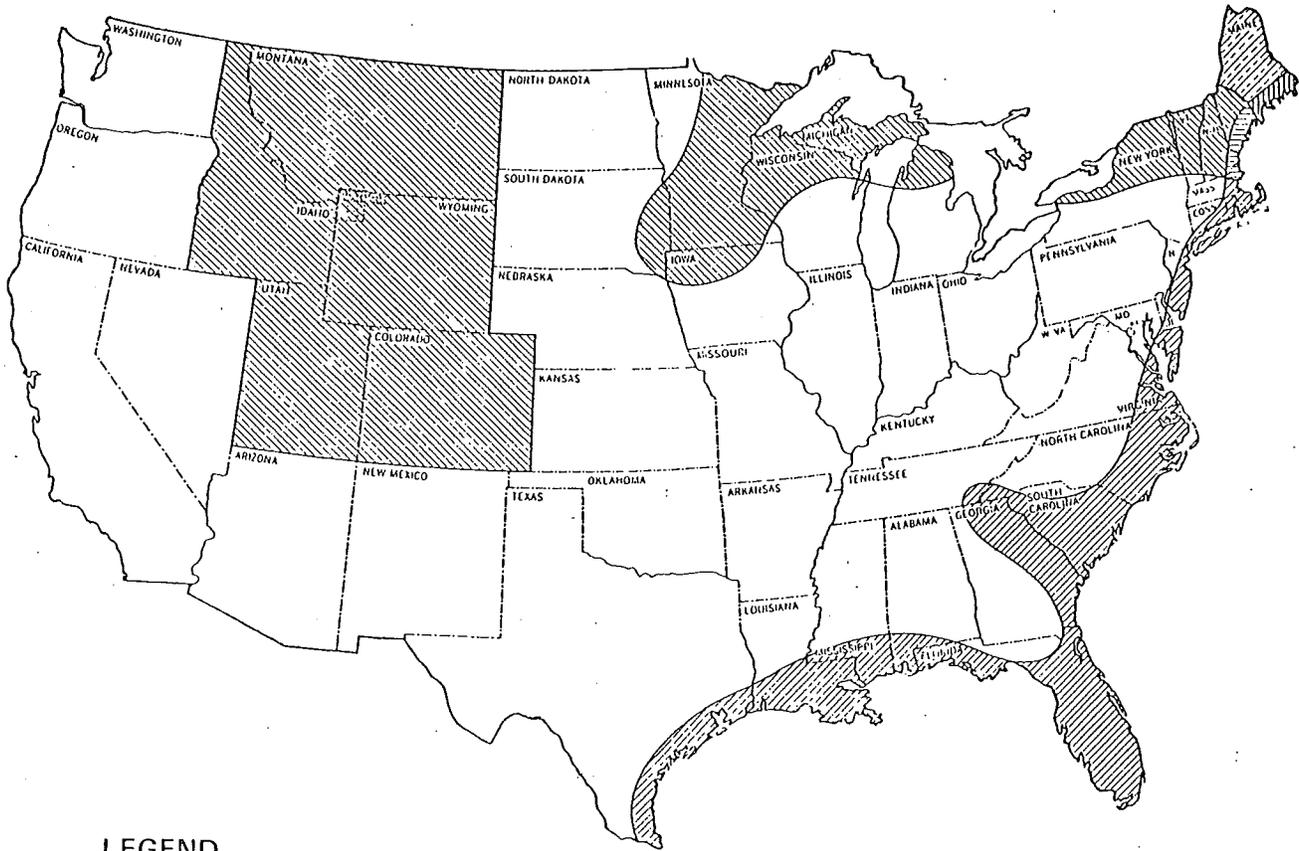
## WARNING

ONLY EXPERIENCED PERSONS KNOWLEDGEABLE OF  
MANUFACTURED HOME SETUP PROCEDURES SHOULD  
SET UP THIS HOME.

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

SETUP SHOULD BE DONE ONLY BY QUALIFIED PEOPLE. WHOEVER DOES THE SETUP 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.

# STRUCTURAL ZONE MAP OF UNITED STATES



## LEGEND

□ 20 PSF Roof Load  
15 PSF Wind Load

▨ 30 PSF Roof Load  
15 PSF Wind Load

▩ 40 PSF Roof Load  
15 PSF Wind Load

▧ 20 PSF Roof Load  
25 PSF Wind Load

▨ 30 PSF Roof Load  
25 PSF Wind Load

▩ 40 PSF Roof Load  
25 PSF Wind Load

## SITE PREPARATION

The importance of site preparation for a problem-free installation cannot be overstated. The manufactured home site must be scraped clean, properly graded and sloped to provide for storm drainage runoff. In particular, the area under the home must be graded to prevent water accumulation. If the home is sited on sloping terrain or a hillside, the soil must be graded on all sides to channel storm runoff around the home and not under it.

If the home is to be perimeter skirted or "pit-set", ventilation of the under-floor area is required to minimize the effect of moisture under the home. Ventilation openings must be provided in the under-floor enclosure or skirting on at least three sides (preferably on all sides) with a net area of at least one square foot per 150 square feet of floor area. The required ventilators are to be approximately equally spaced around the perimeter of the home with a ventilation opening within three feet of each corner.

The ground under the home should be covered with a 6 mil polyethylene vapor barrier or similar material to form a water vapor retarder at the surface of the soil. Ground cover is extremely important if the exterior siding of the home is hardboard or other wood based material.

Proper support of the manufactured home must allow for soil conditions in the immediate area. Pier footing 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 manufactured home placement as found in manufactured home parks.

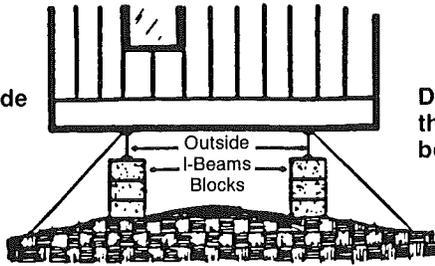
Climatic conditions must also be taken into account. If footings are placed on a frost-susceptible soil such as clay or silt, heaving or settling may occur. Therefore, in areas where temperatures go below freezing, the following should be considered when the home is anchored with a tie down system:

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.

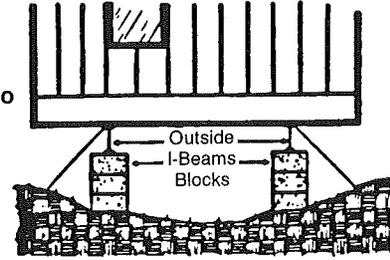
## SITE PREPARATION (Cont'd)

### ELIMINATION OF WATER BENEATH THE HOME

DO crown and grade site to slope away from home



DON'T grade site so that water collects beneath home



## INSTALLATION INSPECTION CHECKLIST

TO ENSURE PROPER HOME INSTALLATION AND HOMEOWNER SATISFACTION THE FOLLOWING ITEMS SHOULD BE CHECKED DURING OR PROMPTLY AFTER THE INSTALLATION AND BEFORE THE HOMEOWNER TAKES POSSESSION:

### INSTALLATION/PLACEMENT

- |   |                                     |
|---|-------------------------------------|
| <input type="checkbox"/> Alignment/Close-Off DW | <input type="checkbox"/> Foundation |
| <input type="checkbox"/> Level                  | <input type="checkbox"/> Tie Downs  |

### UTILITY CONNECTIONS

- |                                   |  |
|-----------------------------------|--|
| <input type="checkbox"/> Fuel     | <input type="checkbox"/> Sewage          |
| <input type="checkbox"/> Water    | <input type="checkbox"/> Cross-Over Duct |
| <input type="checkbox"/> Electric |  |

### EXTERIOR

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| <input type="checkbox"/> Doors   | <input type="checkbox"/> Roof        |
| <input type="checkbox"/> Windows | <input type="checkbox"/> Siding/Trim |

### INTERIOR

- |  |  |
|--|--|
| <input type="checkbox"/> Ceiling                     | <input type="checkbox"/> Paneling              |
| <input type="checkbox"/> Trim                        | <input type="checkbox"/> Floor Covering/Drapes |
| <input type="checkbox"/> Electrical Systems/Fixtures | <input type="checkbox"/> Doors                 |
| <input type="checkbox"/> Cabinets                    | <input type="checkbox"/> Plumbing              |
| <input type="checkbox"/> Furniture                   | <input type="checkbox"/> Appliances            |
| <input type="checkbox"/> Keys                        | <input type="checkbox"/> All Manuals           |
| <input type="checkbox"/> All Warranties              |  |

# SUPPORT REQUIREMENTS

## SINGLE WIDE HOMES

The design loads and minimum footing sizes used in the selection of the support structure are set forth in table 1. The loads and footing sizes are the minimum values to be used for the support structure and are based on the indicated roof live load and a floor live load of 40 Psf. See appendix A for minimum footing size based on pier load and allowable soil capacity.

The allowable soil bearing capacity can be determined from a soil test or a consultation with the local building authority for the recommended soil bearing capacity in your locale.

Footing size in no case shall be less than 144 sq. in. or smaller than the pier it supports.

The footings may consist of solid or poured concrete or other product approved for the purpose. All grass and organic material

must be removed from the area beneath the footings.

Piers may consist of a single stack 8x8x16 inch solid or open cell blocks as shown in figure 8, galvanized steel jacks listed for the use, or some other devices capable of evenly distributing the loads in table 1 to the footings.

All load bearing supports and footings may be subjected to approved by the local Enforcement Agency.

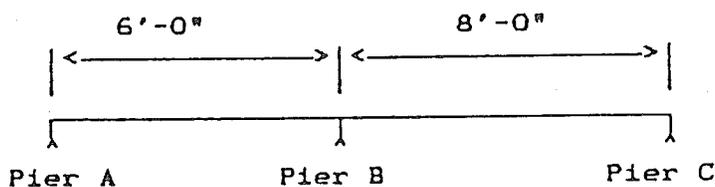
The support requirements for homes designed for 40 PSF and higher roof load (and those specifically indicated middle zone homes) are found in the Supplement accompanying this manual entitled "Manufactured Home Installation for Perimeter Blocking."

**TABLE 1  
SINGLE WIDE HOMES**

PIER SPACING UNDER "I" BEAM (Ft) O.C.	12' Wide		14' Wide		16' Wide	
	Pier Load-Lb 20 Psf	Pier Load 30 Psf	Pier Load-Lb 20 Psf	Pier Load 30 Psf	Pier Load-Lb 20 Psf	Pier Load 30 Psf
4	2130	2420	2410	2740	2700	3060
5	2660	3020	3020	3420	3370	3830
6	3190	3620	3620	4110	4050	4590
7	3720	4230	4220	4790	4720	5360
8	4250	4830	4820	5480	5400	6120
9	4780	5440	5430	6160	6070	6890
10 MAX.	5320	6040	6030	6850	6750	7650

### NOTES:

- See Appendix A for minimum footing sizes based on pier loads and allowable soil bearing capacities. The footing sizes and pier loads are minimums required for the applicable conditions. The footing shall not be smaller than the pier it supports or 144 square inches.
- The maximum spacing of supports is not to exceed 10 feet.
- 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".

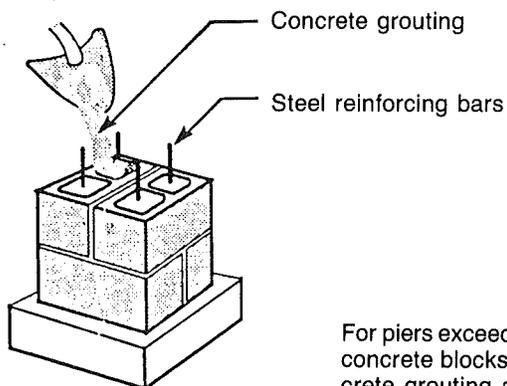
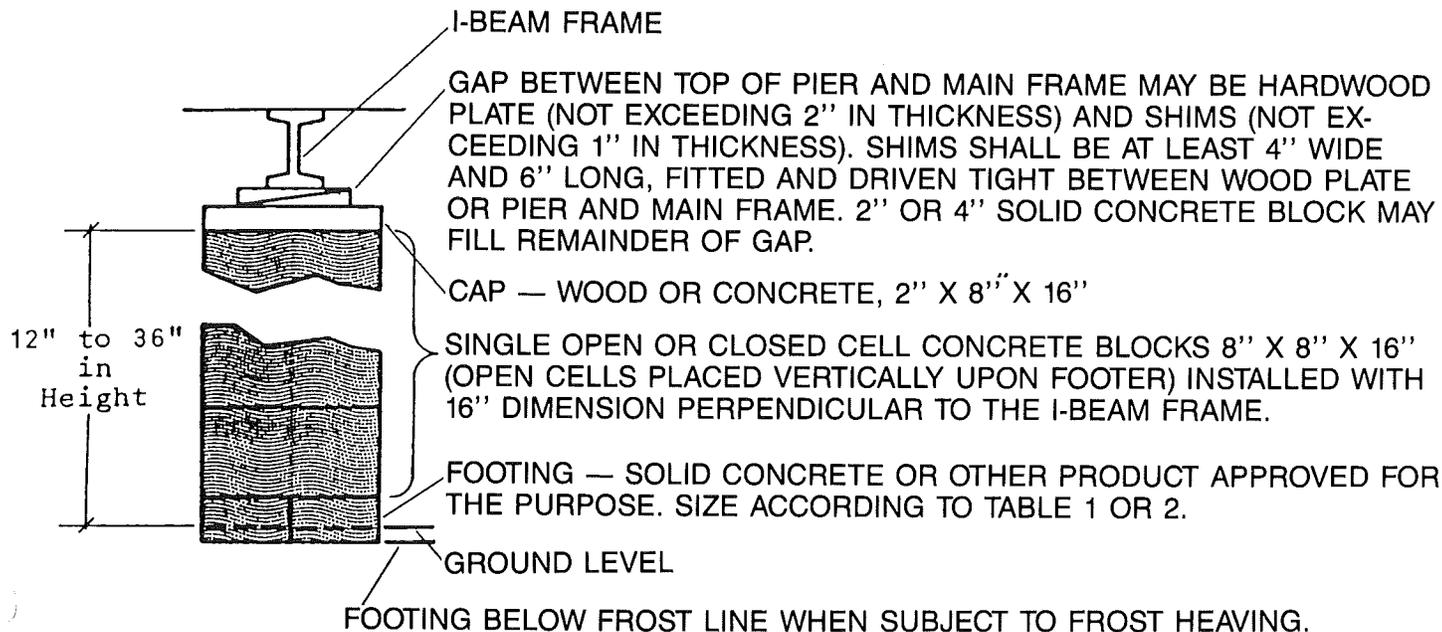


The average spacing for pier B would be  $(6 + 8) / 2 = 7$  ft., therefore, pier B would be designed for 7 ft. pier spacing.

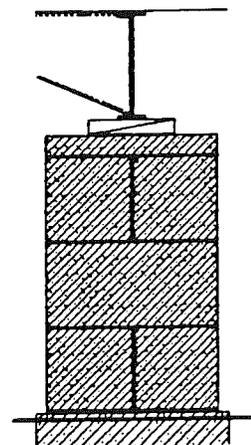


- Concentrated loads at marriage line (see table 5).
- The support requirements for homes designed for 40 PSF and higher roof loads (and specifically indicated middle zone homes) are found in the supplement accompanying this manual entitled "Field Installation for Perimeter Blocking".

# TYPICAL PIER CONSTRUCTION



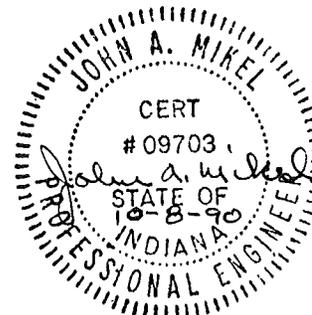
For piers exceeding 80 inches in height the concrete blocks should be filled with concrete grouting and steel reinforcing rods should be used.



Double Interlocked Blocks  
Max. Height is 80 inches.

Footing placed on firm undisturbed soil or in controlled fill free of grass and organic materials compacted to a minimum load-bearing capacity of 2000 PSF.

FIGURE 8



**WARNING: WHEN SETTING UP THIS HOME, THE FOLLOWING PRECAUTIONS REGARDING JACKING MUST BE FOLLOWED:**

## BLOCKING PROCEDURE

1. Before doing any jacking, place support piers for the home in the locations under the home as specified in the home installation instructions. The experienced person setting up this home should be familiar with the National Fire Protection Association Standard for Manufactured Home Installations, NFPA No. 501A and the Manufactured Home Installation Instructions.
2. Use a minimum of two jacks, each with a rating of at least five tons.
3. Jack only on the main chassis I-beam. Locate the jack directly under the vertical web of the I-beam. Do not jack on the seam (joint between flanges) of a twin I-beam.
4. Use a large 3/8 inch thick steel plate, C-channel or other equivalent plate between the main chassis I-beam and the jack head to distribute the load.
5. The jack base, and any blocking must be located on firm ground.
6. Do not operate the jacks while you are under the home.
7. Use jacks only for raising the home. Do not rely on the jacks to support the home.
8. Raise the home in small increments and provide additional blocking between the home and the piers as the home is raised.
9. Do not go under the home while it is supported on the jacks.

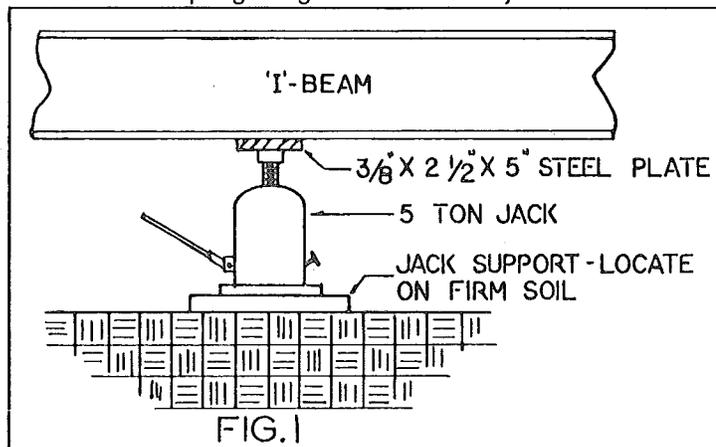
**FAILURE TO FOLLOW THESE WARNINGS MAY RESULT IN SERIOUS INJURY OR DEATH.**

Reminders before jacking...

1. Use only jacks in good condition with a minimum rating of 5 tons.
2. Use a steel plate (3/8" x 2 1/2" x 5") or hardwood block (4" x 4" x 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:

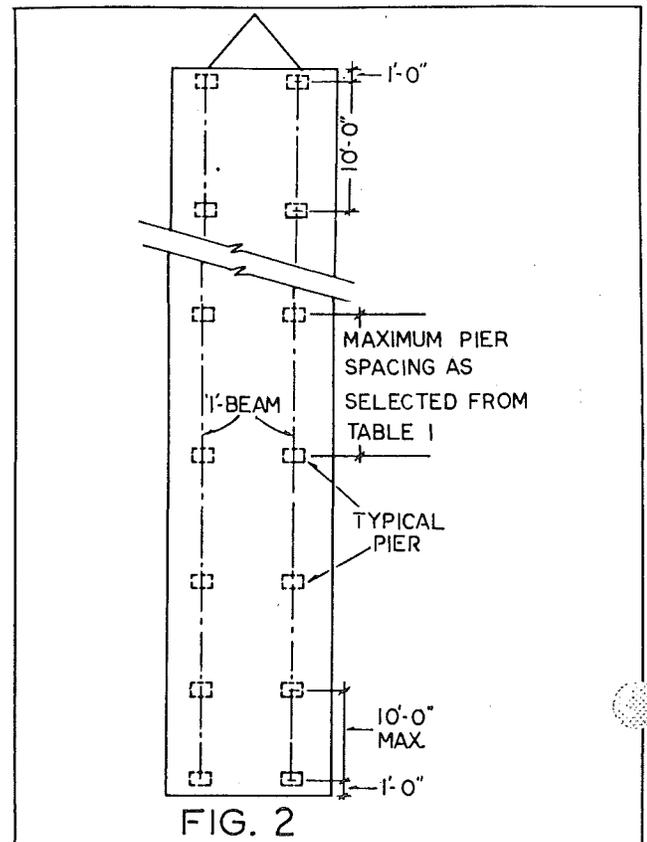
1. After the home is located in its final position, you can preliminarily level it by using the hitch jack but only after adequately blocking the home.
2. Jack up one side of the home by placing one jack just forward of the front spring hanger and the other just behind the rear



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 (take 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 within reasonable tolerances, 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. Place additional supports at each side of sidewall openings over 4'0" wide and each side of exterior doors.
8. Within 90 days after initial setup, the home should be relevelled, 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.**



# MANUFACTURED HOME TIE-DOWN INSTRUCTIONS

All manufactured 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.**

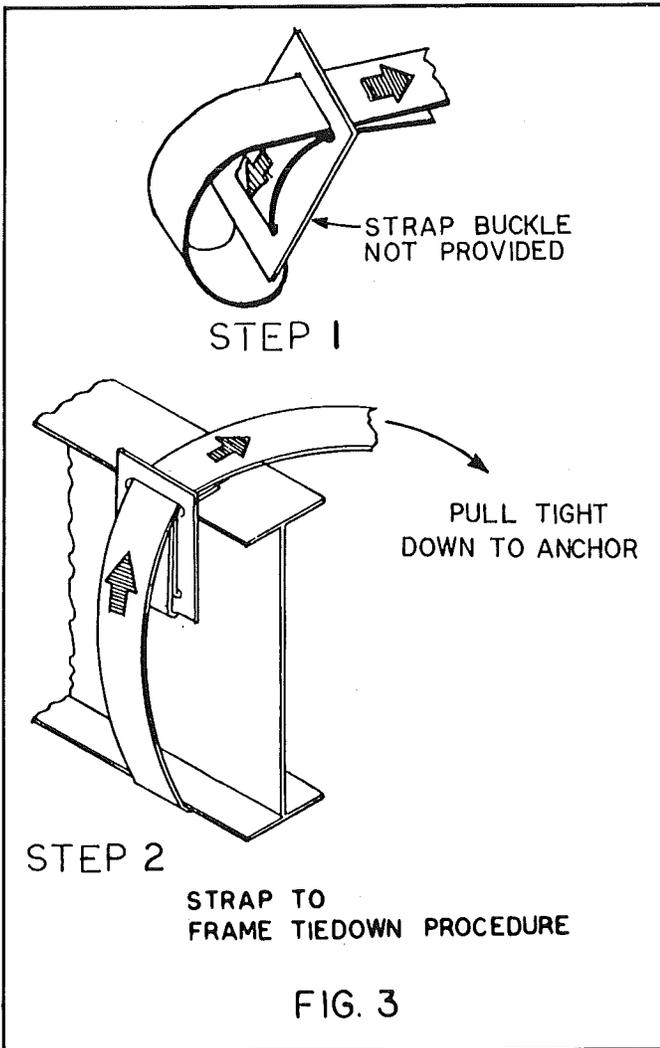


FIG. 3

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:

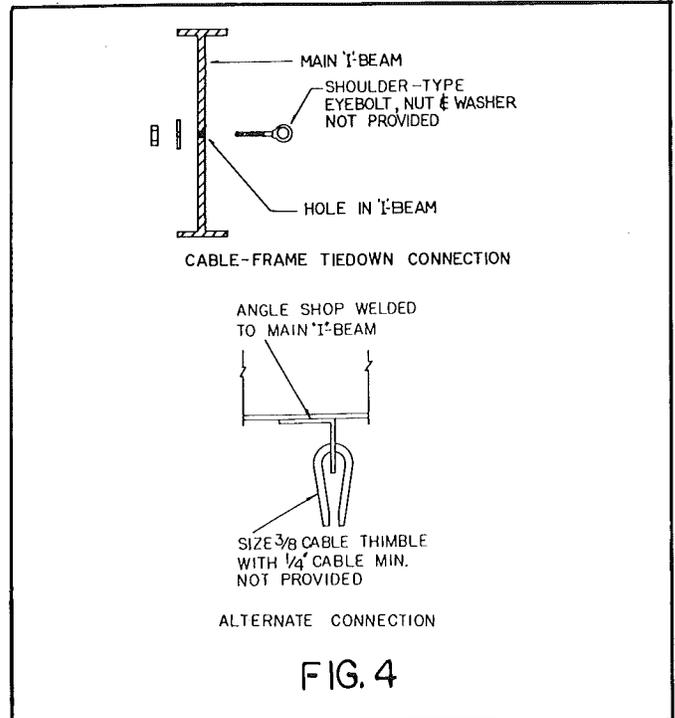


FIG. 4

- 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, 1/4 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 manufactured home is as follows:

- 1.) Position and install the ground anchors under exterior walls so that the final strap angle and height (H) will be within the limits shown in Fig. 5 or 5.1.
- 2.) Connect the straps to the frame and ground anchors. (See Fig. 5 or 5.1).
- 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.**

## ANCHOR TABLES FOR STANDARD HEIGHT PIERS

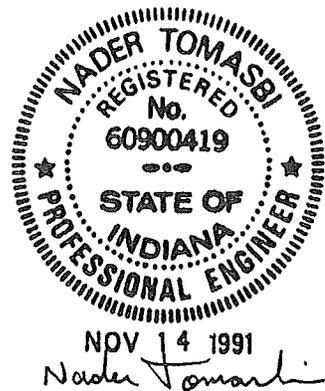
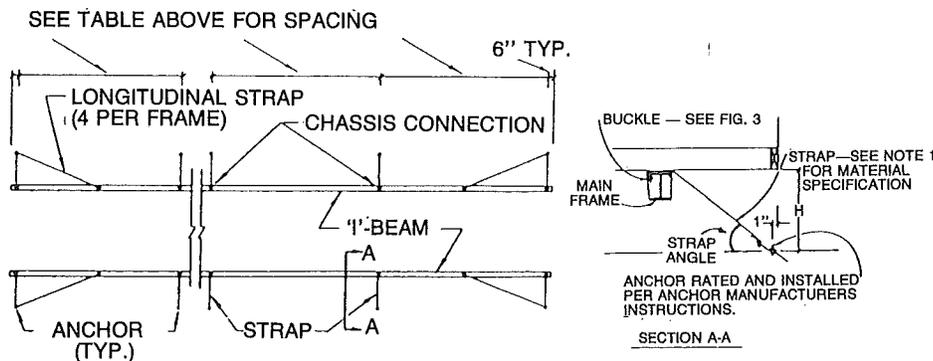
DOUBLE WIDES											
7.5 Ft. Ceiling Height		Wind Zone I						Wind Zone II			
		Anchors @ 12' O.C.			Anchors @ 14' O.C.			Anchors @ 8' O.C.			
I-Beam spacing		75.5"	82.5"	99.5"	75.5"	82.5"	99.5"	75.5"	82.5"	99.5"	
20'	Wide	H min.	12"	n/a	n/a	12"	n/a	n/a	12"	n/a	n/a
		H max.	23"	n/a	n/a	14"	n/a	n/a	18"	n/a	n/a
24'	Wide	H min.	12"	12"	12"	12"	12"	12"	12"	12"	12"
		H max.	36"	32"	23"	22"	19"	14"	28"	25"	18"
26'	Wide	H min.	12"	12"	12"	12"	12"	12"	12"	12"	12"
		H max.	48"	39"	30"	25"	23"	18"	33"	30"	23"
28'	Wide	H min.	12"	12"	12"	12"	12"	12"	16"	14"	12"
		H max.	48"	45"	35"	29"	27"	21"	38"	35"	27"
Min. strap angle		8 degrees			8 degrees			20 degrees			
Max. strap angle		43 degrees			33 degrees			40 degrees			

For double wides of 8' ceiling height and wind zone I, subtract 5" from Max. pier height and 5 degrees from Max. anchor angle.

SINGLE WIDES											
7.5 Ft. Ceiling Height		Wind Zone I						Wind Zone II			
		Anchors @ 12' O.C.			Anchors @ 14' O.C.			Anchors @ 8' O.C.			
I-Beam spacing		75.5"	82.5"	99.5"	75.5"	82.5"	99.5"	75.5"	82.5"	99.5"	
12'	Wide	H min.	12"	12"	12"	13"	12"	12"	22"	18"	12"
		H max.	36"	32"	23"	25"	34"	16"	28"	25"	18"
14'	Wide	H min.	14"	12"	12"	17"	13"	12"	29"	25"	16"
		H max.	48"	44"	35"	34"	31"	25"	38"	35"	27"
16'	Wide	H min.	16"	13"	12"	19"	15"	12"	38"	32"	22"
		H max.	60"	56"	47"	42"	40"	33"	47"	44"	37"
18'	Wide	H min.	n/a	n/a	12"	n/a	n/a	20"	n/a	n/a	27"
		H max.	n/a	n/a	58"	n/a	n/a	41"	n/a	n/a	45"
Min. strap angle		18 degrees			22 degrees			35 degrees			
Max. strap angle		47 degrees			37 degrees			40 degrees			

**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.



### ANCHOR TIE DOWN DETAIL FIG. 5

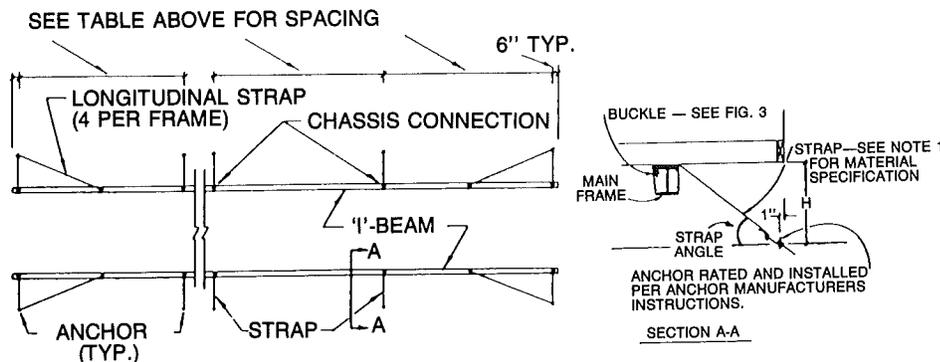
# ANCHOR TABLES FOR PIERS HIGHER THAN STANDARD

DOUBLE WIDES													
7.5 Ft. Ceiling Height		Wind Zone I						Wind Zone II					
		Anchors @ 8' O.C.			Anchors @ 6' O.C.			Anchors @ 6' O.C.			Anchors @ 5' O.C.		
I-Beam spacing		75.5"	82.5"	99.5"	75.5"	82.5"	99.5"	75.5"	82.5"	99.5"	75.5"	82.5"	99.5"
20'	H min.	12"	n/a	n/a									
	Wide H max.	42"	n/a	n/a	60"	n/a	n/a	31"	n/a	n/a	39"	n/a	n/a
24'	H min.	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
	Wide H max.	67"	60"	43"	72"	72"	60"	48"	43"	31"	61"	55"	39"
26'	H min.	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
	Wide H max.	72"	72"	55"	72"	72"	72"	58"	53"	41"	72"	68"	53"
28'	H min.	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
	Wide H max.	72"	72"	65"	72"	72"	72"	64"	59"	46"	72"	72"	60"
Min. strap angle		6 degrees			4 degrees			15 degrees			15 degrees		
Max. strap angle		63 degrees			70 degrees			55 degrees			61 degrees		

SINGLE WIDES							
7.5 Ft. Ceiling Height		Wind Zone I			Wind Zone II		
		Anchors @ 8' O.C.			Anchors @ 6' O.C.		
I-Beam spacing		75.5"	82.5"	99.5"	75.5"	82.5"	99.5"
12'	H min.	12"	12"	12"	21"	19"	12"
	Wide H max.	66"	59"	42"	48"	43"	31"
14'	H min.	14"	13"	12"	30"	28"	22"
	Wide H max.	72"	72"	64"	64"	59"	46"
16'	H min.	18"	17"	14"	40"	38"	31"
	Wide H max.	72"	72"	72"	72"	72"	62"
18'	H min.	22"	20"	18"	48"	45"	39"
	Wide H max.	72"	72"	72"	72"	72"	72"
Min. strap angle		18 degrees			36 degrees		
Max. strap angle		63 degrees			55 degrees		

**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.

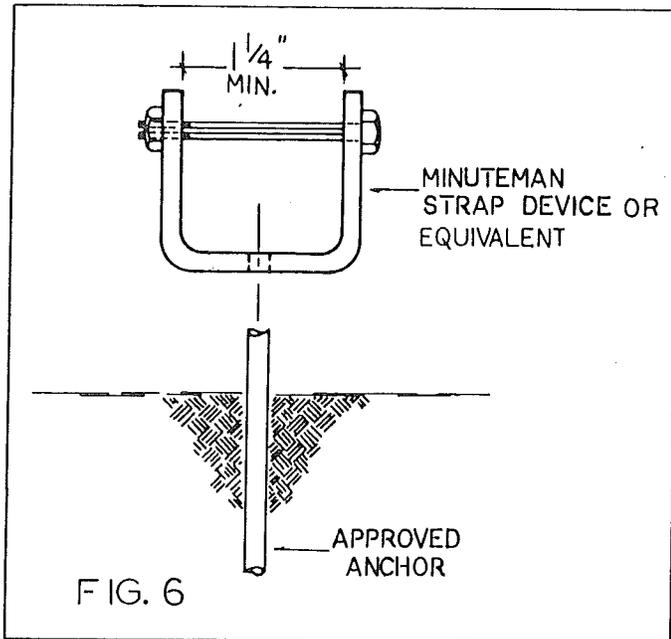


**ANCHOR TIE DOWN DETAIL FIG. 5.1**

## MANUFACTURED 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 8 and 9 is still mandatory.



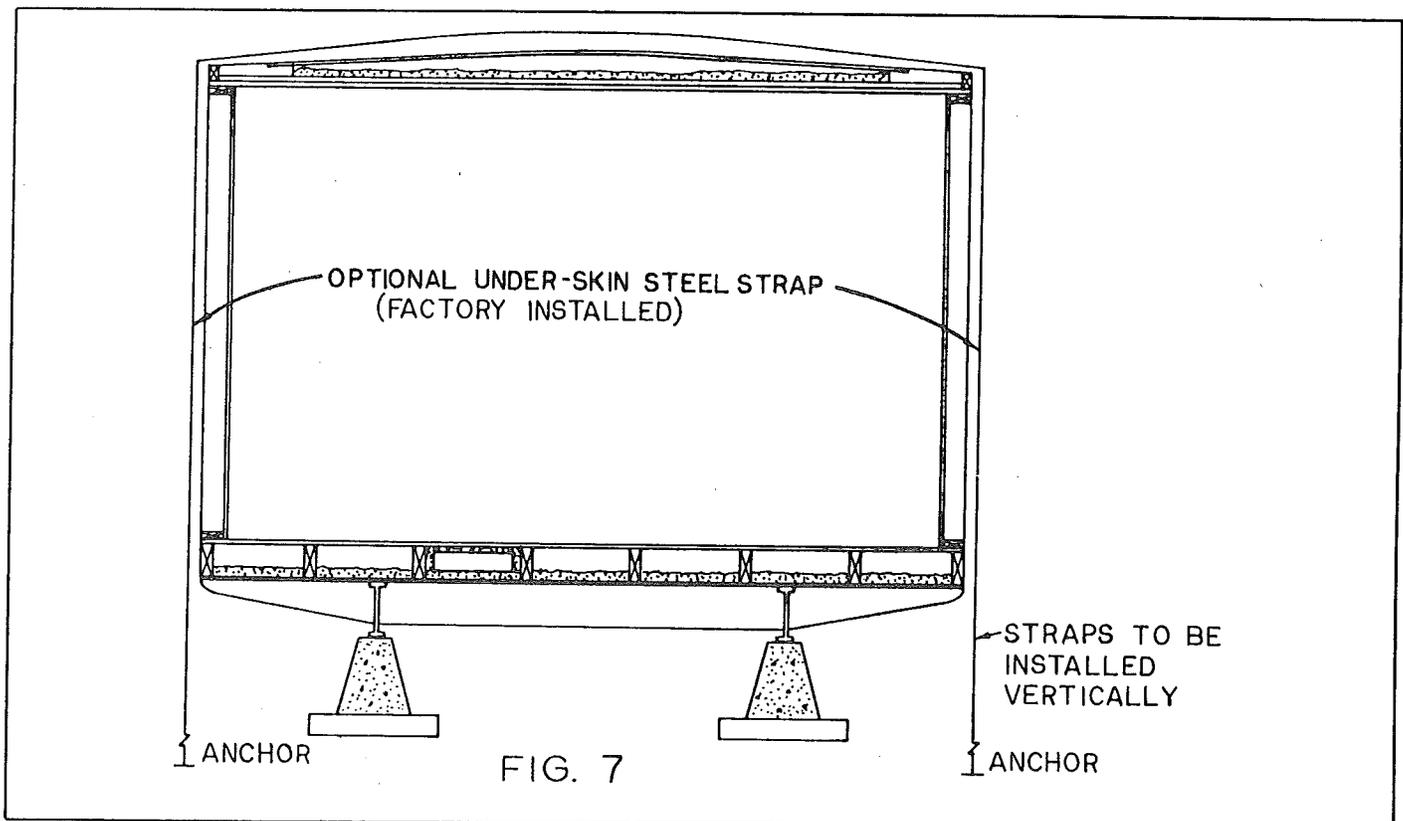
Materials not furnished with the home which will be necessary to properly connect the over-the-roof straps are:

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).
6. For double wide homes See Fig. 11 for the splice connection at the centerline.



# SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP

## BLOCKING PROCEDURE

The site must be prepared as described on Page 3. 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.

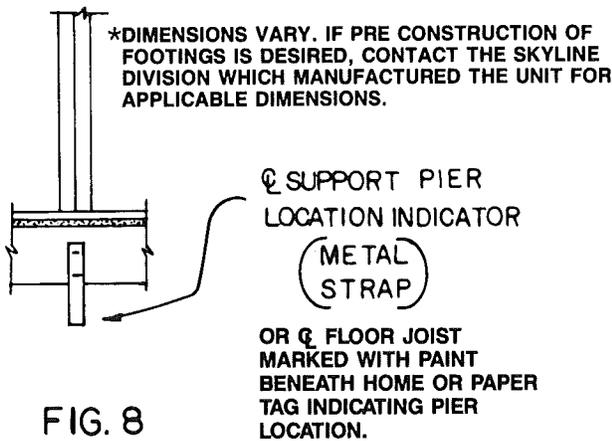
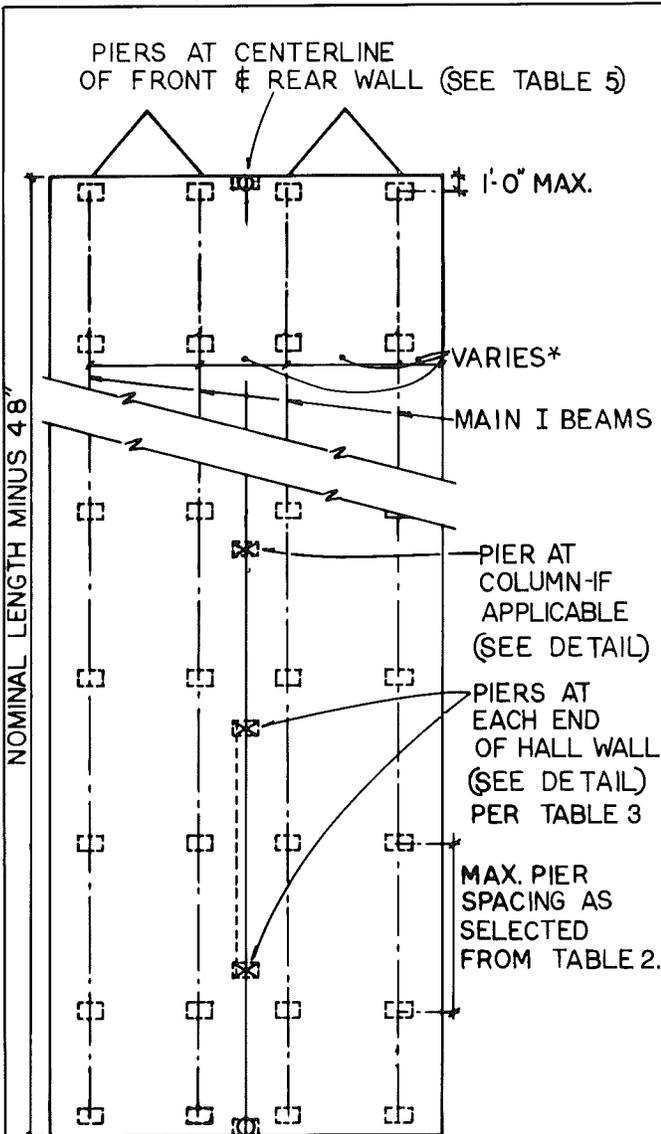


FIG. 8

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.

Preinstalled centerline uplift connectors are designed to resist concentrated loads at the marriage wall due to the uplift effects of high winds. (See Fig. 9a)

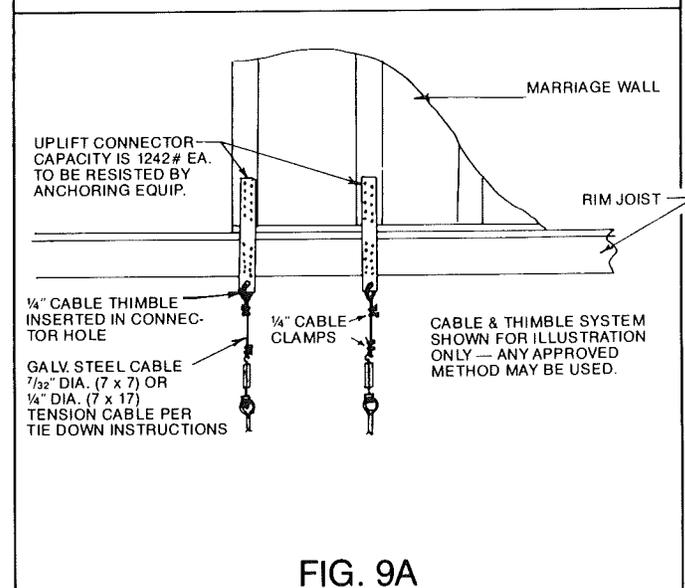
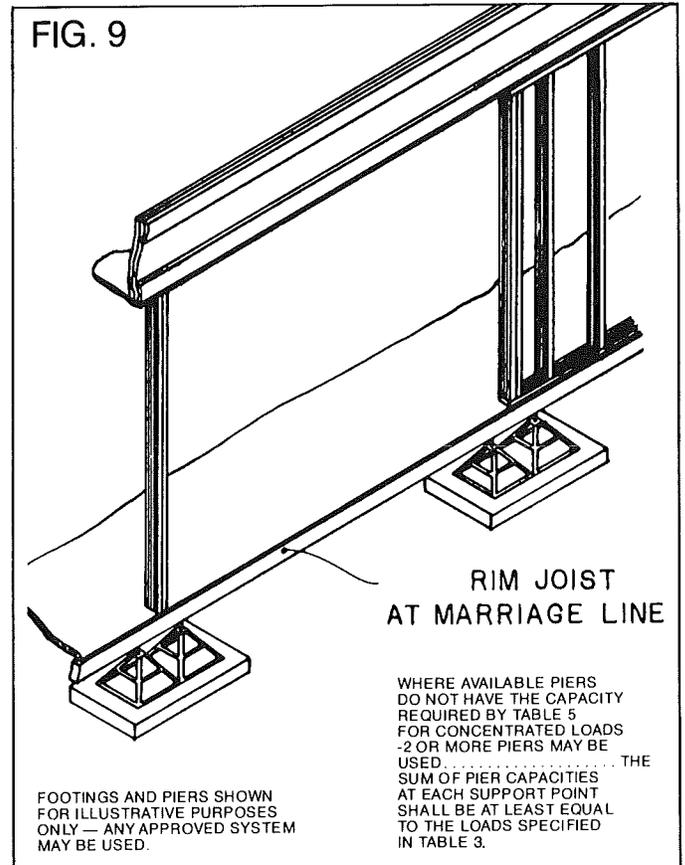


FIG. 9a

## SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP (Cont'd.)

The procedure is as follows:

WHEN REQUIRED TO WALK ON METAL ROOFS DURING ASSEMBLY, PLACE PLANKS OR  $\frac{3}{8}$ " (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.

### ROOF ACCESS FOR BOLTING:

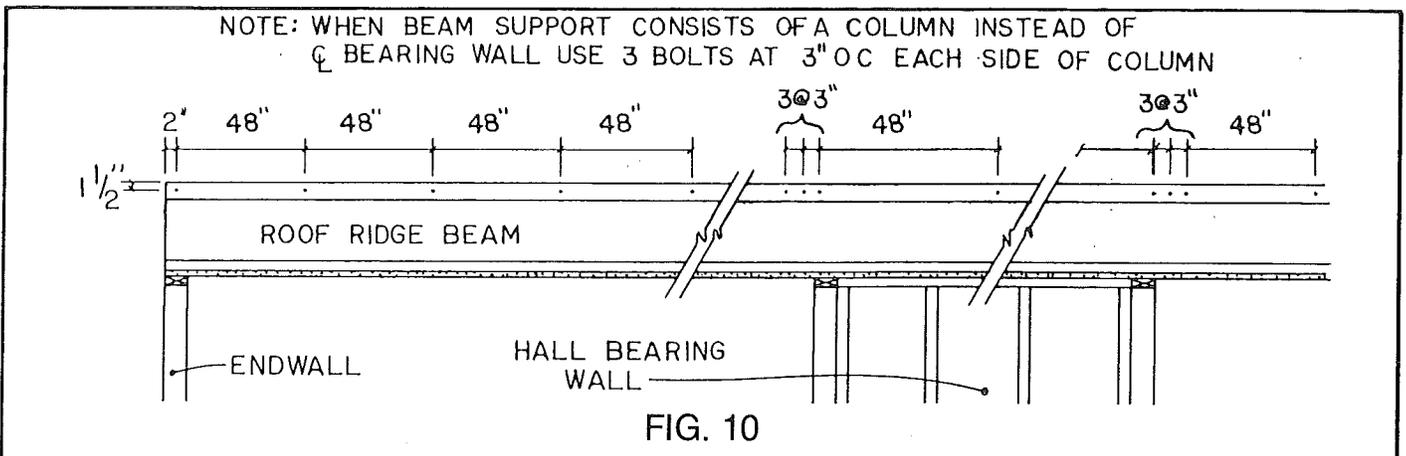
For metal roof units access for bolting the ridge beams together is obtained by a 6" space provided on both sides of the ridge beam (optional roof sheathing may be folded back or temporarily re-

moved). For shingle roof units refer to section "Installation of Shingled Roof." 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).

As an alternate to the bolts the beam halves may be secured together by screwing with  $\frac{3}{8}$ " x  $4\frac{1}{2}$ " ( $\frac{3}{8}$ " x 6" @ cathedral ceilings) lag screws at 24" o.c. (max.) alternating each side of beam and 6 additional lag screws at 3" o.c. alternating each side over interior beam supports. Pre-drill  $\frac{1}{4}$ " pilot holes for the lag screws at  $1\frac{1}{2}$ " down from the top of the beam and with a maximum offset from the horizontal of 45°.

**NOTE: WHERE OPTIONAL OVER-THE-ROOF STRAPS ARE PROVIDED SPLICE THE STRAPS TOGETHER AT THE RIDGE BEAM WITH AN A.B. CHANCE SPLICE DEVICE AND STRAP SEALS (NOT PROVIDED). SEE FIG. 11.**



1. Insert end of the strap through the slot on the splice device, allowing 15" of strap to extend through the device.
2. Make a 180 degree bend in the strap and slide a strap seal over the double thickness of strap, positioning the strap seal as close to the splice device as possible. Compress the strap seal on the strap with a pair of vise grip pliers or hammer. (Make all bends in the strap as sharp as possible by crimping with vise grip or large pliers).
3. Bend strap back over the seal and insert back through the slot on the splice device. Flatten bend with vise grip pliers or hammer.
4. Repeat steps 1 through 3 with the mating strap. Draw the completed assembly down to the ridge beam by tensioning the strap in the ground anchor.

### DOUBLEWIDE OPTIONAL OVER-THE-ROOF STRAPS

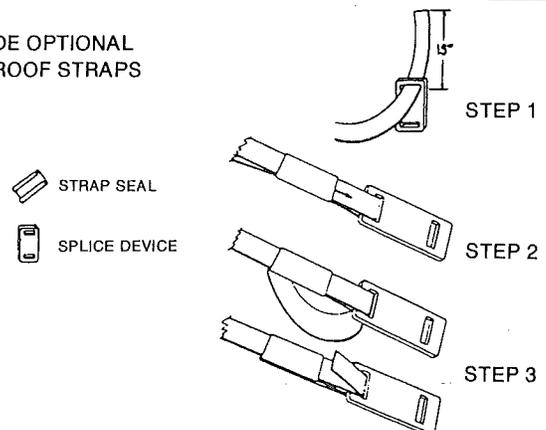


FIG. 11

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

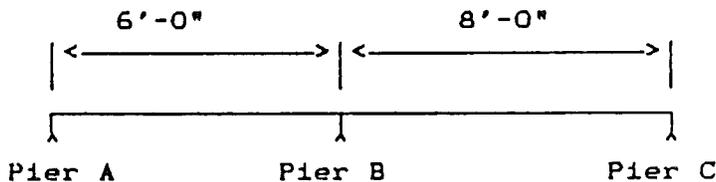
5. Line up end walls by moving either floor forward or back as necessary. Toenail the end walls together using 16d nails at 10 inches on center.
6. Level the floors by jacking on the main "I" beams (inside beam on either half). With longitudinal floor systems, bolt the two units together by placing the 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.
7. Level home and install piers following the procedure outlined for single wide homes. Tables 2 and 3 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", each side of exterior doors and beam support columns at locations marked with indicator strap or paint (See Figs. 8 and 9 and Table 3).
9. Install a 2" wide bottom board patching tape at the floor joint of two halves for the entire length of home.

**TABLE 2  
DOUBLE WIDE HOMES**

PIER SPACING UNDER "I" BEAM (Ft) O.C.	20' Wide		24' Wide		26' & 28' Wide	
	Pier Load-Lb 20 Psf	Pier Load 30 Psf	Pier Load-Lb 20 Psf	Pier Load 30 Psf	Pier Load-Lb 20 Psf	Pier Load 30 Psf
4	1810	2060	2100	2390	2360	2680
5	2270	2580	2630	2980	2950	3350
6	2720	3100	3150	3580	3540	4020
7	3170	3610	3680	4180	4130	4690
8	3630	4130	4200	4770	4720	5360
9	4080	4640	4730	5370	5310	6030
10	4540	5160	5250	5970	5900	6700

**NOTES:**

1. See Appendix A for minimum footing sizes based on pier loads and allowable soil bearing capacities. The footing sizes and pier loads are minimums required for the applicable conditions. The footing shall not be smaller than the pier it supports or 144 square inches.
2. The maximum spacing of supports is not to exceed 10 feet.
3. 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 B would be designed for 7 ft. pier spacing.

4. Concentrated loads at marriage line (see Table 3).
5. 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".



*John A. Mikel*  
11-1-91

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

**TABLE 3**

LOCATION OF CONCENTRATED LOAD	HOME WIDTH (ft)	DESIGN ROOF LIVE LOAD (psf)	TOTAL PIER LOAD (lbs)
<b>PIERS AT END WALL CENTERLINE DESIGNATED</b>  <b>ON FIG. 8</b>	20	20	3300
		30	4480
	24	20	3975
		30	5400
	26 & 28	20	4480
		30	6080
<b>PIERS ALONG THE HOMES CENTERLINE DESIGNATED</b>  <b>ON FIG. 8</b>	20	20	6610
		30	8970
	24	20	7950
		30	10800
	26 & 28	20	8960
		30	12160

**NOTES:**

1. See Appendix A for minimum footing sizes based on pier loads and allowable soil bearing capacities. The pier load and footing sizes are minimums required for the applicable conditions. They are based on the indicated roof load, a 24 ft. tributary (12 ft. at endwalls), and the allowable soil bearing capacity. If the soil bearing capacity is determined to be different, or if the tributary is less than 24 ft. then the pier loads and footing sizes may be adjusted accordingly. The footing shall not be smaller than the pier it supports.
2. The concentrated loads consist of roof loads only.
3. Pier locations at the marriage wall are marked with paint or metal indicator straps.
4. Piers used side by side to obtain the required load is permissible (See Figure 9).
5. Add additional piers at each side of a single sidewall opening and between openings (window and door) larger than 4 ft. The required pier capacity equals 100 lbs. (125 lbs. @ 26' & 28' wide) x opening size (ft.). The footing size equals the pier size or 144 square inches, whichever is larger.

**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 8 & 9).

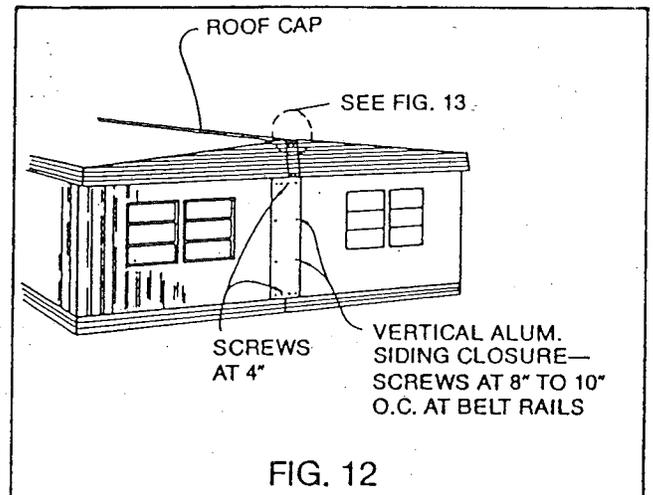
Over-the-roof straps, if provided, are to be connected to ground anchors in the same manner as single wide homes (See page 12, and Fig. 11).

**DOUBLE WIDE EXTERIOR CLOSURE**

PRIOR TO THE INSTALLATION OF THE CLOSURE METAL OR MASONITE ON THE ENDWALLS, THE ELECTRICAL CROSSOVER MUST BE COMPLETE.

**VERTICAL ALUMINUM SIDING:**

1. Install bottom starter.
2. Install endwall 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. Install interior trim, moldings, carpet, etc., as required.



**FIG. 12**



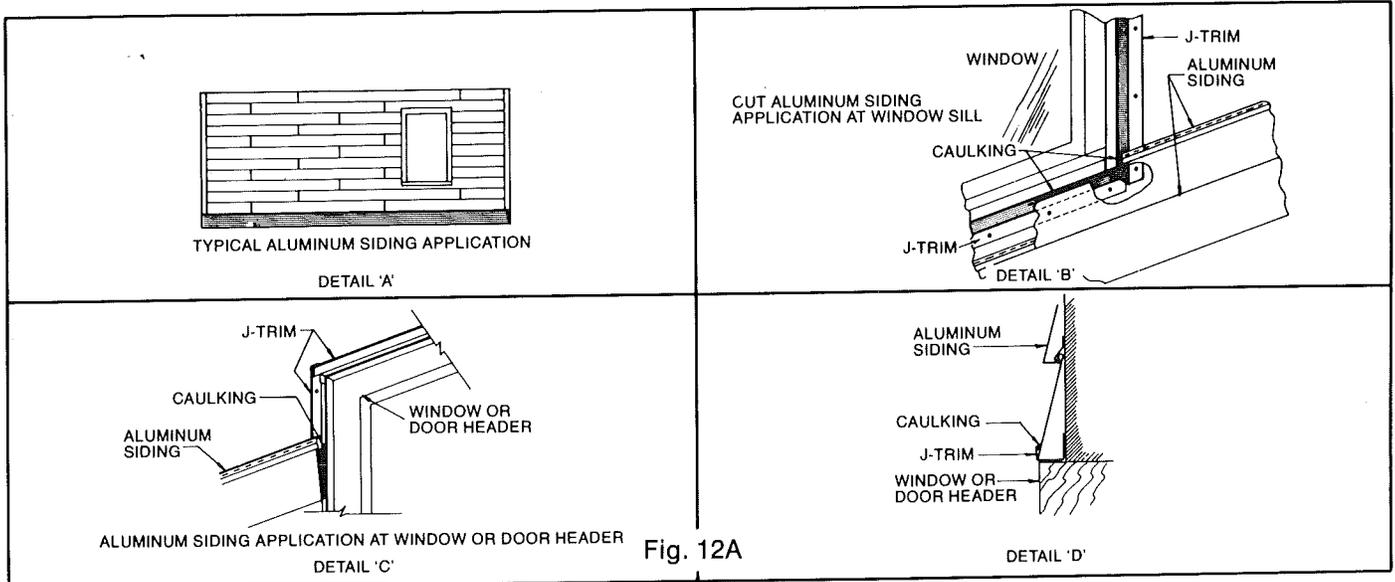
## SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP (Cont'd.)

### ALUMINUM LAP SIDING:

Starting at the lowest course, fasten the siding to each framing member with a 16 ga. by 7/16" by 1-1/2" aluminum siding staple (6<sup>d</sup> galvanized nails may be used) making sure that each successive course is interlocked with the preceding course or starter strip. Adjacent panels should overlap one another by approximately 1/2" at vertical joints. (For backed siding, trim the backing so only the aluminum skin overlaps). Vertical joints on a successive courses should be separated by at least two feet. Butt joints on alternate courses should be aligned vertically. See Figure 12A Detail A. Panels

should be butted leaving approximately 1/16" for expansion at corner posts and J-rail trim or brick molding at windows and doors. Courses that are obstructed by headers or sills should be cut to fit allowing 1/16" for expansion. See Figure 12A Details B, C, & D.

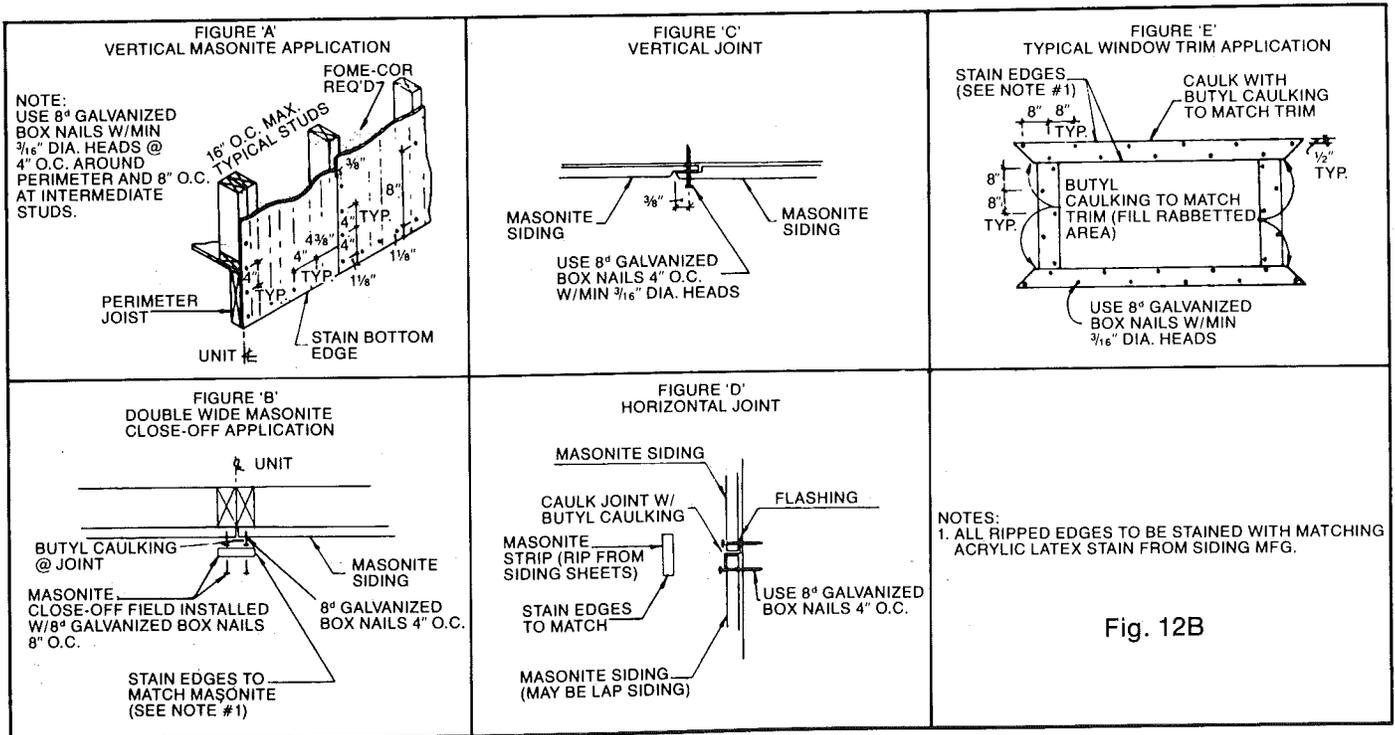
After installation of the aluminum siding, seams around doors and windows should be caulked with a 1/4" bead of butyl type caulk. Caulking is also required where metal meets wood and where metal meets metal, except when accessories are used to make caulking unnecessary.



### MASONITE SIDING:

Fasten the precut strip of masonite with 8<sup>d</sup> galvanized nails (heads should be painted to match the siding) 4" o.c. around the perimeter and 8" o.c. on the intermediate studs. Apply trim and caulking at the center-

line, horizontal joints, and around windows (if required) as illustrated by the details in Figure 12-B. (In cases where the masonite has to be cut to fit in the field, the ripped edges should be stained to match the siding with acrylic latex stain.)



## SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP (Cont'd.)

### VINYL LAP SIDING

Apply a 2" wide strip of duct tape at the marriage joint of the endwalls for the entire height of the walls. Apply the duct tape directly over the sheathing.

The siding panels should be attached using galvanized steel or aluminum 16 ga. 1/2 by 1" staples. (6d galvanized nails may also be used.) Staples should be driven so that there is a 1/32" clearance between the siding and staple crown to allow some lateral movement. Fasten every 16" at the stud location. See Figure 12C Detail A for proper fastening.

Snap the bottom course of siding into the starter strip and fasten to the wall. Leave a 1/4" space at corner posts and 'J' channels around window and door openings to allow for expansion. Do not fasten within 4" of an accessory. Vertical butt joints in panels should overlap 1". Do not fasten the panel within 4" of the joint. Install vinyl, aluminum, felt or other suitable material for flashing at bottom corners of doors and windows per Detail E.

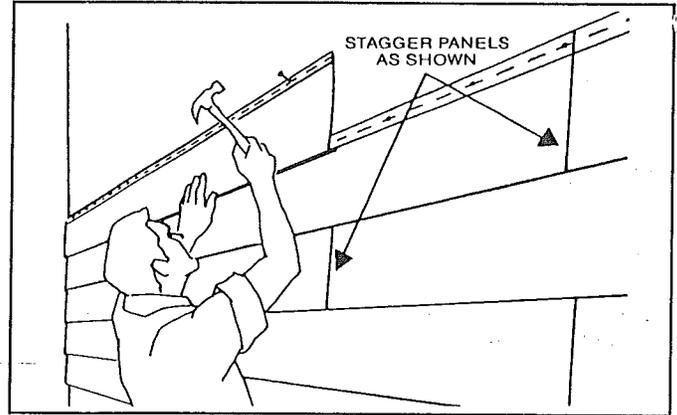
Install successive courses similarly to the first. Butt joints in adjacent courses should be offset by at least 24". Joints in alternate courses should be aligned vertically (see Detail B).

Panels will have to be cut at headers and sills. A single panel should extend without joints across the width of the opening. When cutting a panel at a sill, measure the distance between the bottom of the opening and the top lock of the lower course, then deduct 1/4" (See Detail C).

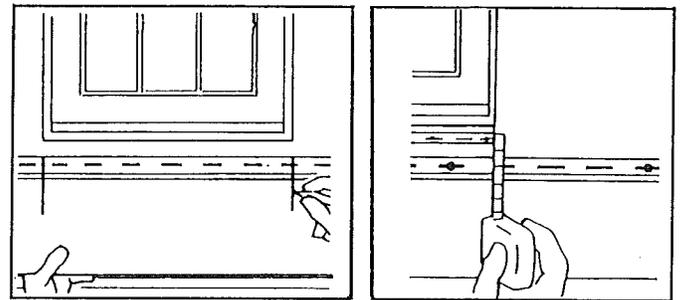
Slide the cut panel into the under sill trim and install. Note that the undersill trim piece may have to be furred to maintain the proper pitch of the siding.

Measure and cut the header panel in the same manner as indicated above.

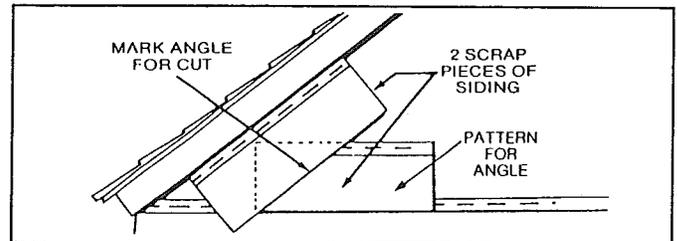
The top sections at the gable will need to be angle cut. Use two scrap pieces of siding to make a pattern (See Detail D). Interlock one piece with the siding panel below. Hold the other piece on top against the gable. Mark a line on the bottom piece and cut. Use this piece as a pattern for cutting gable pieces. Install the gable pieces by interlocking with the lower course, sliding into the gable 'J' rail and fastening.



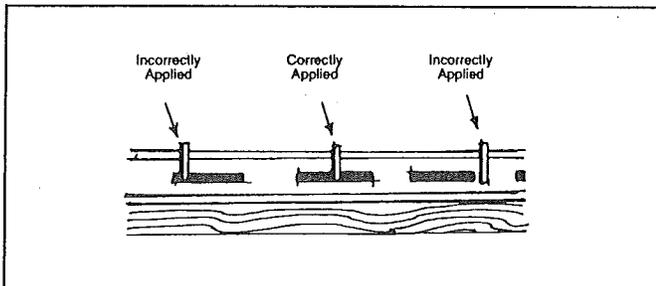
DETAIL B



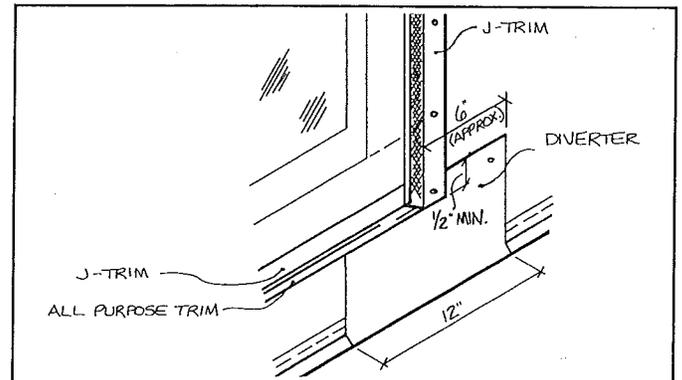
DETAIL C



DETAIL D



DETAIL A



DETAIL E

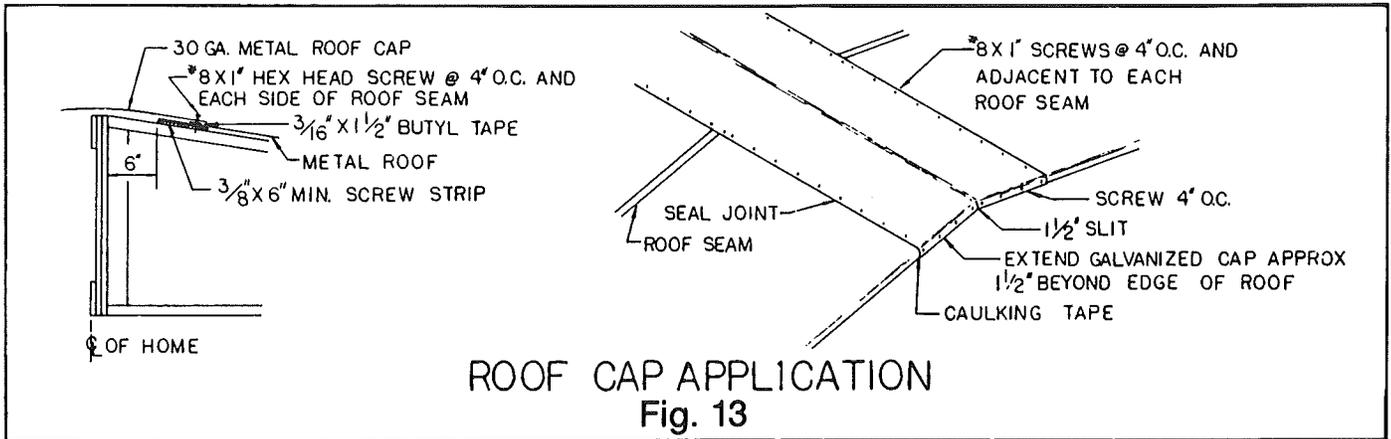
Fig. 12C

### INSTALLATION OF METAL ROOF:

After bolting the units together according to the procedure on page 12, complete the metal roof closure by applying 3/16" x 1-1/2" butyl tape (provided) to each edge of the provided 30 ga. metal roof cap. With the roof cap centered

over the beam screw each edge to the roof with #8x1" hex head screws at 4" o.c. and at each side of each roof seam. At the ends of the roof fold 1-1/2" of the roof cap over the end and screw to the fascia at 4" o.c. See Fig. 13.

## SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP (Cont'd.)

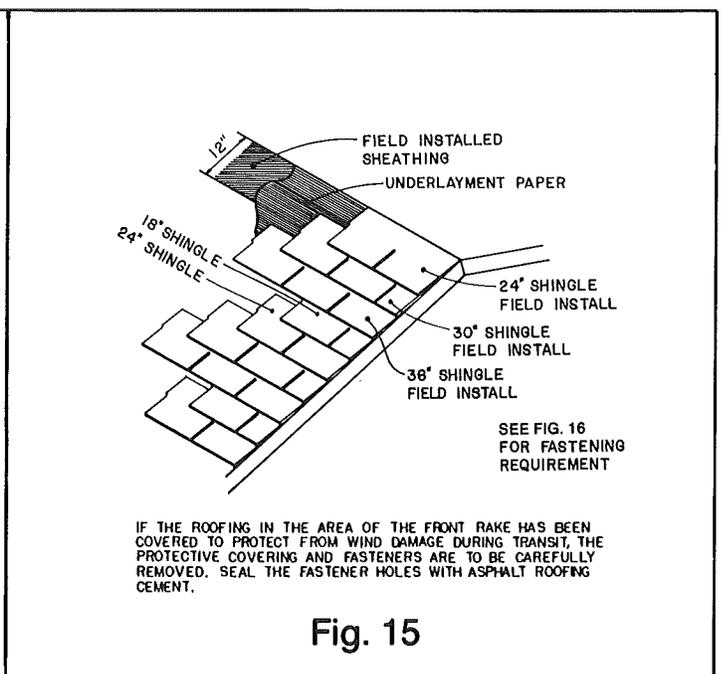
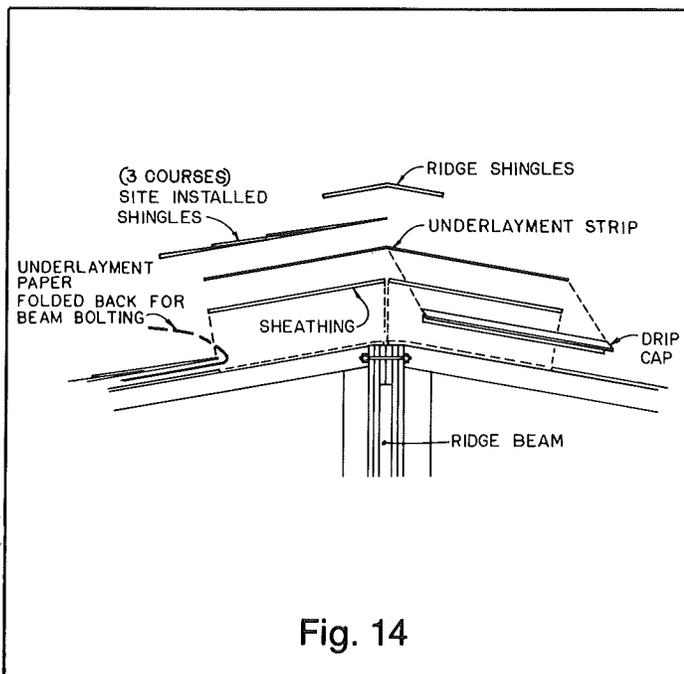


### INSTALLATION OF SHINGLED ROOF

1. Fold back underlayment paper.
2. Remove the 12 inch wide sheathing at the ridge beam of each half which was temporarily secured to the roof at the factory.
3. Bolt the ridge beam together as outlined on page 12. For models with heat ducts in the roof cavity make the interconnection of two units by running the provided flexible duct through the access hole in the ridge beam. After the mechanical connection is made, tape the joint with 2 inch wide duct tape.
4. See Fig. 14. Reinstall the 3/8" x 12" wide sheathing using 16 gauge x 7/16" x 1 1/2" staples or 8d twist nails 4 inches on center at butt joints and 3 fasteners at each rafter between joints.
5. Tack roof underlayment paper back in place.
6. Staple additional underlayment strip down, centered at ridge.
7. Fasten drip cap to sheathing at roof edge (above felt).
8. Complete installation of shingles (See Fig. 15).
9. Cut shingles for ridge cap and install as shown in Figures 17 and 18.

**NOTE: TO PREVENT WIND LIFTING AND POSSIBLE LEAKAGE, THE RIDGE CAP SHINGLES SHOULD BE ORIENTED WITH RESPECT TO PREVAILING WINDS AS INDICATED IN FIG. 18.**

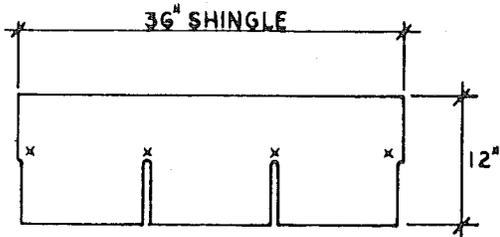
10. Install closure cap at eave joint (See Fig. 19).



**SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP (Cont'd.)**

**FASTENERS:**

USE 1" CROWN X 1" LEG 16 GA GALVANIZED STAPLES OR 1 1/4" 12 GA. GALVANIZED ROOFING NAILS WITH 3/8" DIAMETER HEADS



NAIL 1" FROM EACH END  
5 5/8" ABOVE EXPOSED BUTT &  
5 5/8" ABOVE EACH CUT OUT

Fig. 16

CUT SHINGLE INTO 3 PIECES AS SHOWN BY DOTTED LINE

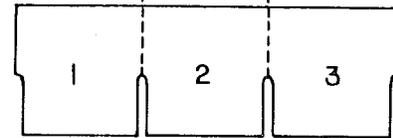


Fig. 17

NAIL OR STAPLE RIDGE SHINGLES AS INDICATED. SEE FIG. 16 FOR FASTENER SIZES

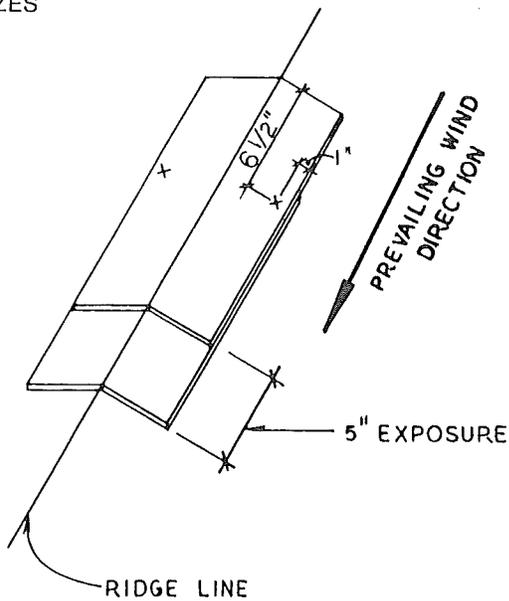


Fig. 18

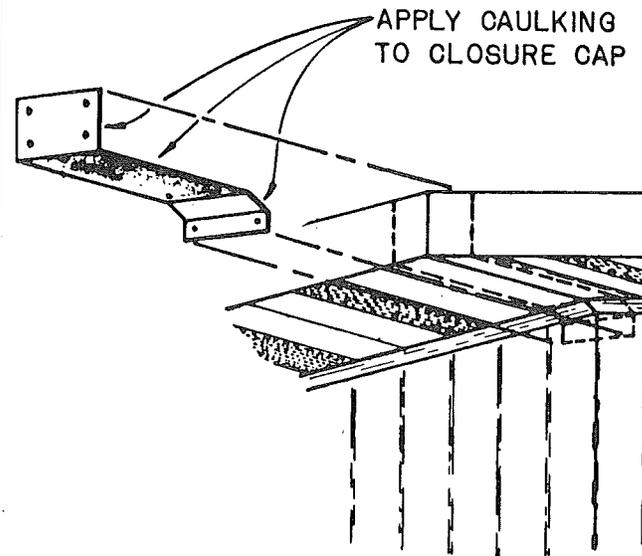


Fig. 19

## SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SETUP (Cont'd.)

### UTILITY INTERCONNECTIONS OF DOUBLE WIDES

#### Bonding

Chassis halves on units with transverse floor joist construction are to be bonded together with the provided bonding wire and lugs.

#### 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. 20).
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.**

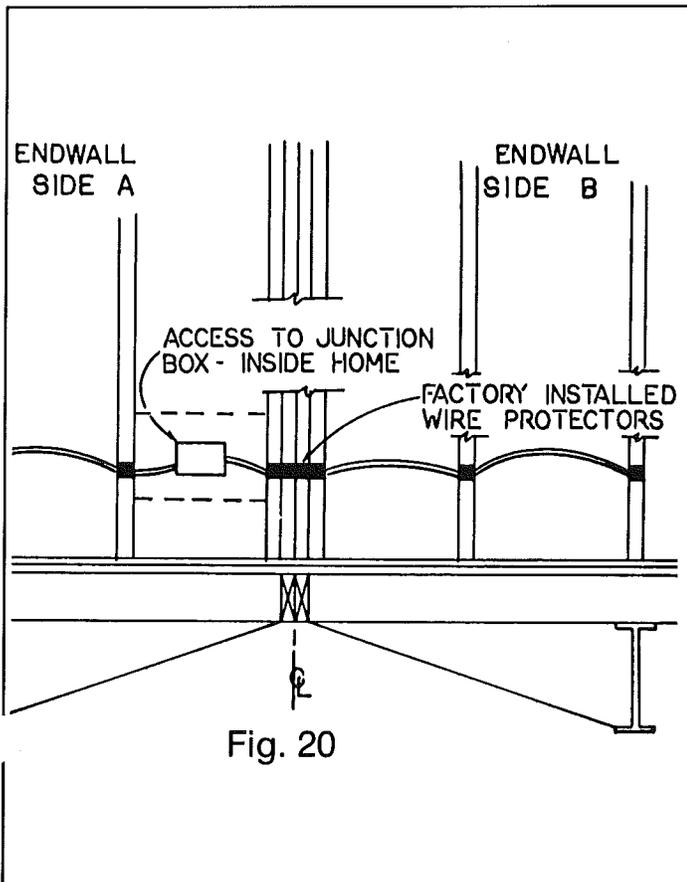


Fig. 20

#### 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. 21).
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.

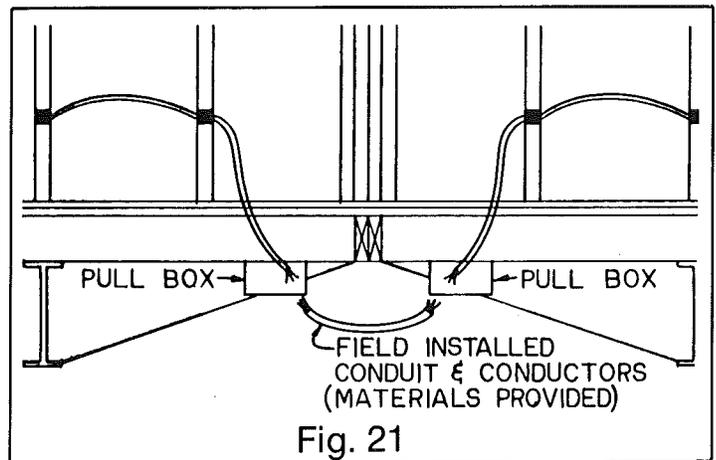


Fig. 21

#### 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.

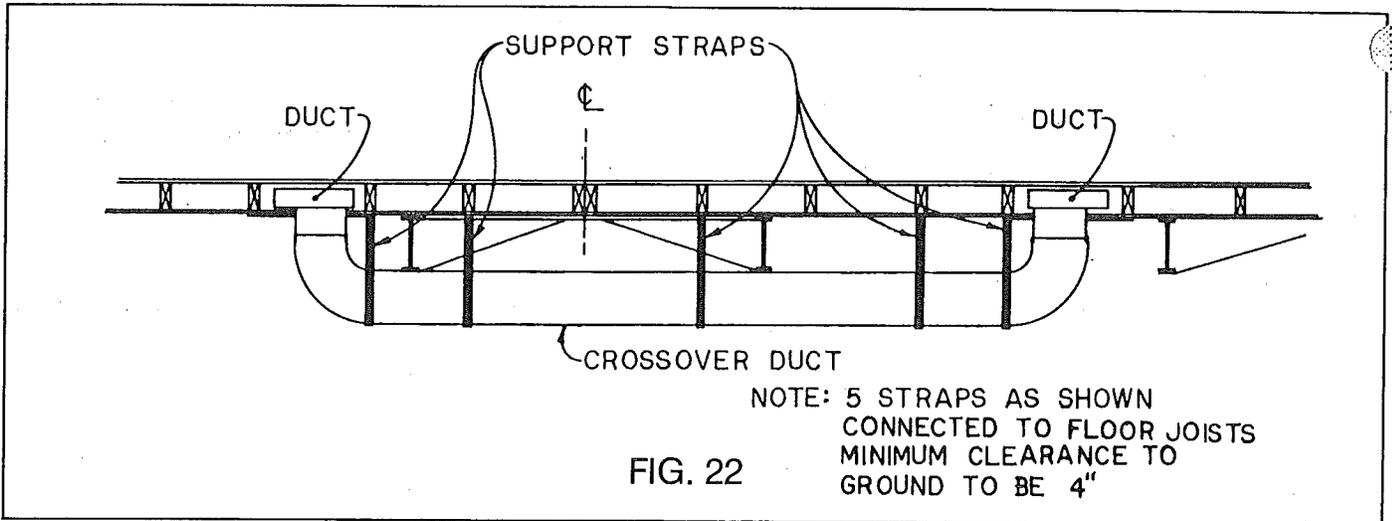
#### Heating Crossover

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. 22. 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 SETUP (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.

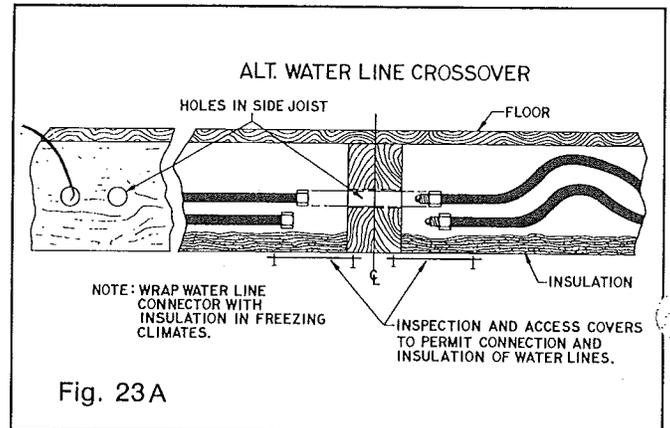
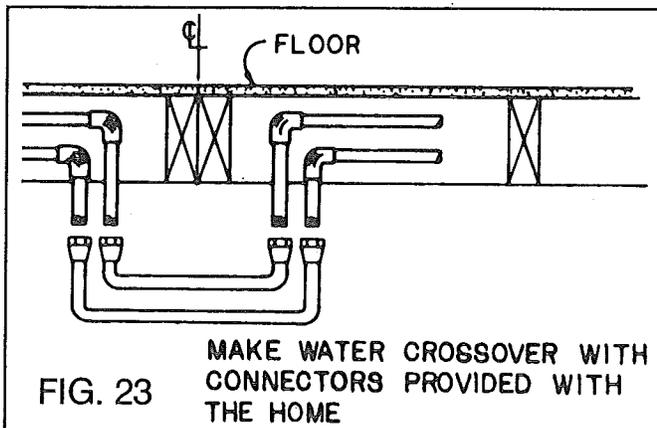
**NOTE: DO NOT USE TOOLS TO CONNECT OR REMOVE FLEXIBLE CONNECTOR QUICK DISCONNECT.**

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. 23 and 23A).

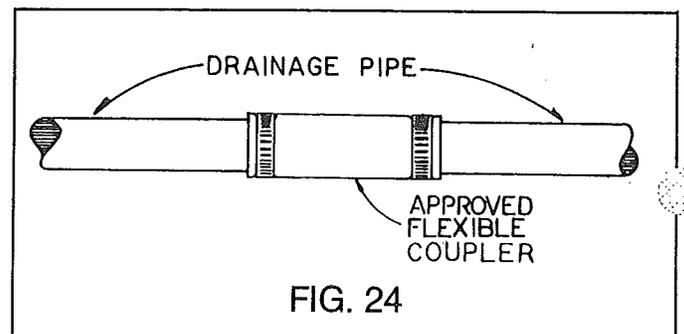
1. Remove the shipping caps from water lines and install the provided connector.
2. Check for leaks.
3. In areas where exposed, piping is subject to freezing. Protect exposed piping with heat tapes listed for use on manufactured homes, and insulation. It is recommended that only U.L. listed heat tapes 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 21), 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. 24.

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 manufactured 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 manufactured 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).

**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.**

## **DRAINAGE — 1½, 1¾ & 2 BATH**

When applicable 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.

**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 manufactured 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. 25).

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 GAUGE CALIBRATED IN INCREMENTS OF NOT GREATER THAN  $\frac{1}{10}$  POUND.
2. Pressurize the system to 3 psi and isolate the source of pressure from the gas piping.

3. Check the gauge after 10 minutes; there should be no drop in pressure.
4. Check the piping to appliances by pressurizing to at least 10 inches but no 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 manufactured 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 manufactured 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. 25

**ELECTRICAL**

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

- a. Listed 50 ampere manufactured 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 manufactured home. A junction box or approved fitting must be used to connect the manufactured home feeder raceway to the supply raceway beneath the manufactured 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.

**ELECTRICAL SYSTEM TEST**

With approved testing equipment, the following tests should be performed before connecting to the power source:

- Continuity Test of Circuit Conductors  
A continuity test with all branch circuit breakers and switches controlling individual outlets in the "on" position should be conducted. There should be no evidence of connection between any of the supply conductors (including neutral) and the grounding circuit.

- Continuity Test of Electrical Grounding System  
All noncurrent carrying metal parts of the electrical system including fixtures, appliances and the chassis of the home should be tested for continuity with the grounding circuit.

The following test should be conducted after connecting and energizing the electrical system:

- Polarity and Grounding Tests of 15 and 20 AMP Receptacle Outlets  
With circuits and lighting circuits energized, use a receptacle polarity tester to check polarity and grounding of each receptacle outlet.

**MANUFACTURED HOME ELECTRICAL SUPPLY REQUIREMENTS**

TABLE 6				
MAXIMUM LOAD & MAIN BREAKER SIZE (AMP)	CONDUCTOR SIZE <sup>1</sup> (AWG) (TWO LINE AND ONE NEUTRAL)	GROUNDING CONDUCTOR SIZE (AWG)	FACTORY INSTALLED FEEDER RACEWAY <sup>1</sup> 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"

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

**WARNING**

CARELESS INSTALLATION OF TELEPHONE AND CABLE TELEVISION LINES MAY BE HAZARDOUS. The manufactured home walls contain electrical circuits and the floor section may contain electrical circuits, plumbing or duct work. Extreme care must be exercised during drilling through and placing of com-

munication cables within these cavities, to avoid contact with these home systems. Such work should be performed only by qualified personnel. **FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.**

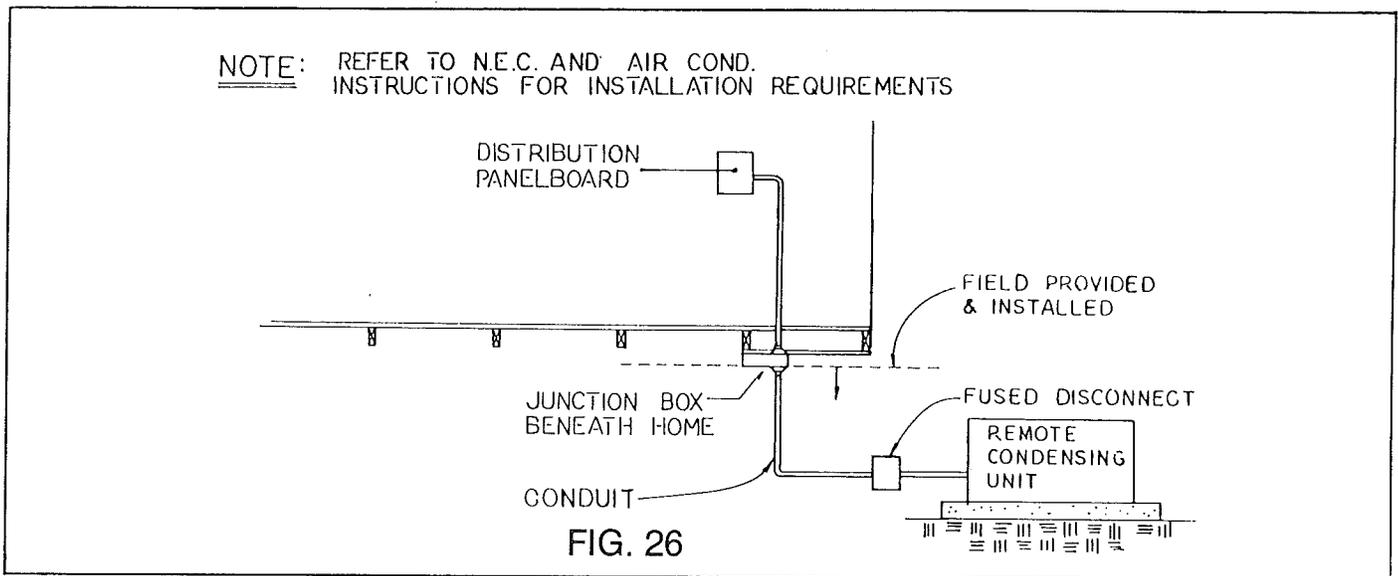
# AIR CONDITIONING ELECTRICAL CONNECTION

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. 26). 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.**

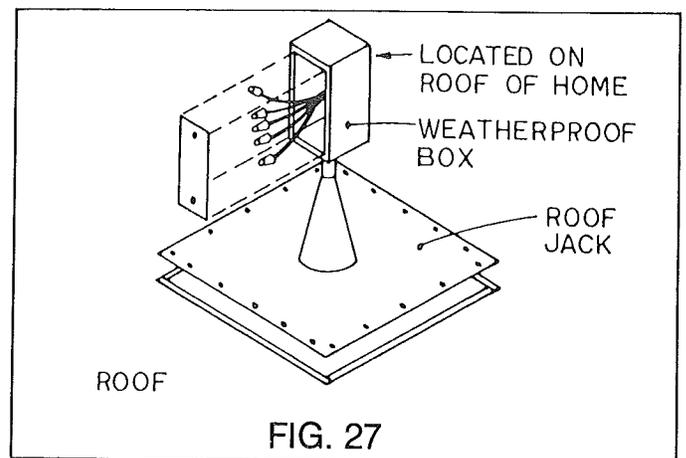
1. On models equipped for installation of optional evaporative cooler, install the roof-mounted cooler according to the instructions with the cooler. For coolers without an integral air duct the cooler box shall be lined with .016 in. metal. The factory installed branch circuit for the cooler is sized 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. 27).

**COLOR CODE**

WHITE ..... Neutral  
 YELLOW ..... Pump  
 BLACK ..... High Fan

RED ..... Low Fan  
 GREEN ..... Ground

## EVAPORATIVE COOLER

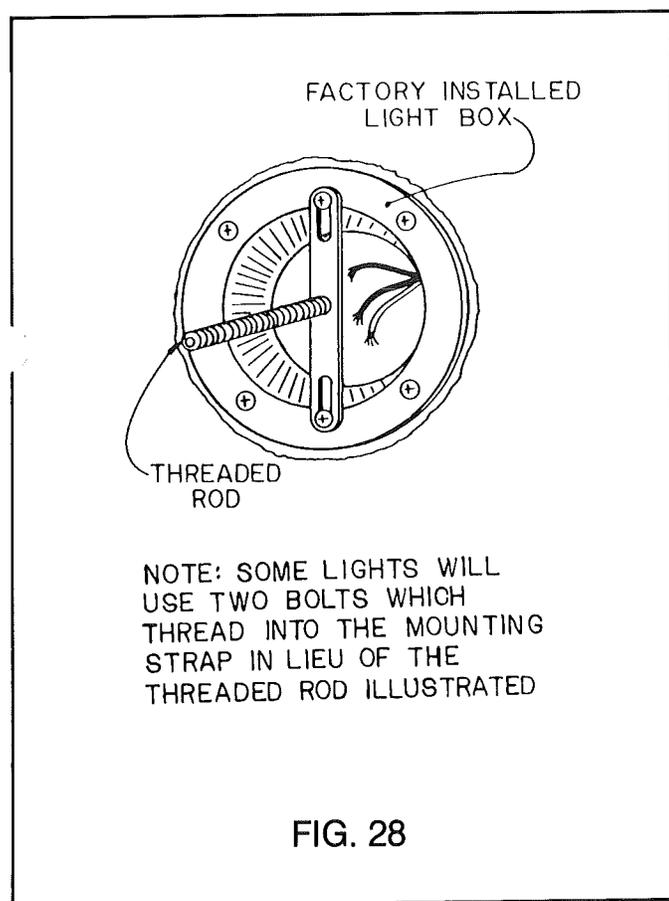


# INSTALLATION OF EXTERIOR LIGHT FIXTURES

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. 28.
2. Apply caulking around base of light fixture to insure a water tight seal to side wall. (Note: on units with masonite siding, make certain the flashing ring is installed around outlet box.)
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.



**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.

## GRILL / RANGE VENTING

When a home is provided with a combination range (cook-top)/grill that contains its own exhaust system, the exhaust must be routed such that it does not terminate beneath the home. To complete the exhaust system the following must be performed:

1. Remove the cover on the factory installed exhaust pipe protruding from beneath the floor in the vicinity of the range.
2. Secure the provided termination fitting at the outside edge of the floor.
3. Run the provided flexible metallic duct between the elbow protruding from the floor and the termination fitting. Support the duct and make the connections per the manufacturer's installation instructions provided with the grill/range.

## PADDLE FAN INSTALLATION FOR DOUBLEWIDE HOMES WIRED FOR MOUNTING ON CENTER BEAM

### A. FLUSH RIDGE BEAM

For proper ceiling fan installation, an electric outlet box and the decorative center beam to contain the box have been provided for attachment to the ridge beam at the unit centerline.

## ELECTRIC DRYER VENTING

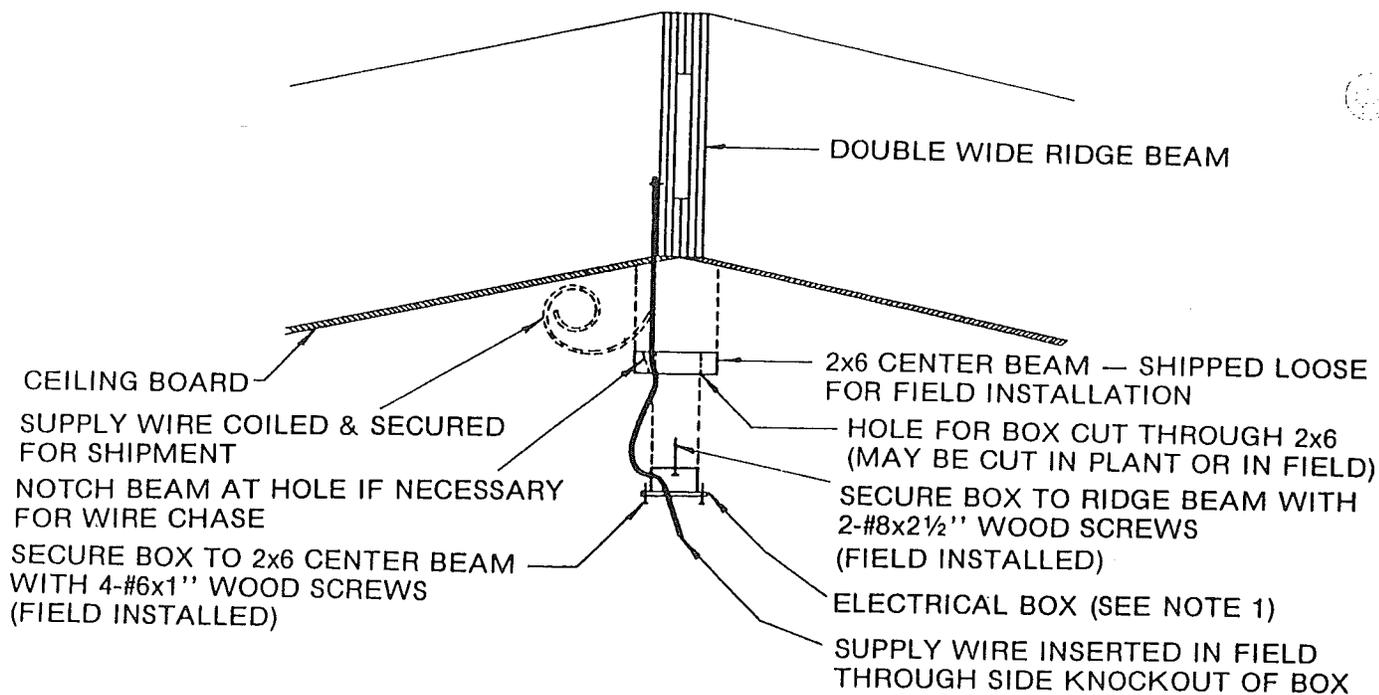
Homes factory equipped with an electric dryer receptacle will also have the moisture-lint exhaust system roughed-in. To complete the moisture-lint exhaust system the following must be performed:

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.

**CAUTION: BEFORE FOLLOWING THE STEP-BY-STEP PROCEDURE, BE SURE THAT POWER TO FAN WIRE IS OFF.**

1. Remove the fan manufacturer's installation instructions from the package and determine the method of fan attachment to the beam. (Also, see Fig. 25 below.)
2. If the center beam (shipped loose) does not contain a precut hole for the electrical box, cut a hole with a hole saw approximately 1/4" larger than the box diameter at the proper location (center line of hole should line up with location of supply wire through ceiling) and centered in the width of the beam.
3. Install the box in the hole and secure flange (Plastic box only) to the center beam with 4 - #6 x 1" screws.
4. a. Insert the ceiling wire through a knock out hole in the side of the electrical box. **NOTE:** It may be necessary to cut a notch from the top on the supply wire side of the center beam hole to allow the supply wire to be inserted in electrical box without binding against center beam during installation.  
 b. Leave approximately 4" of wire free in the box.

5. Secure the center beam in place over the center joint. Be sure that fan supply wire is not pinched or penetrated with beam fasteners.
6. Secure electrical box to ridge beam with #8 x 2 1/2" wood screws through the two holes in the top of the box.
7. Strip about 3/4" of insulation from the white and black conductor ends.
8. Position the non-combustible flash ring (provided) over the electrical box so that finished surface (adjacent to electric box) which is to be covered by fan canopy is not exposed.
9. Follow the manufacturer's installation instructions for mounting the fan assembly to the box and for electrical wiring of the fan. Use provided electrical connectors for splicing wire. Be certain that fan is grounded as specified in manufacturer's instructions and that wires are connected properly (white-to-white and black-to-black).



**NOTE: APPLICABLE TO U.L. LISTED PADDLE FAN WITH A SWIVEL TYPE MOUNTING BRACKET.**

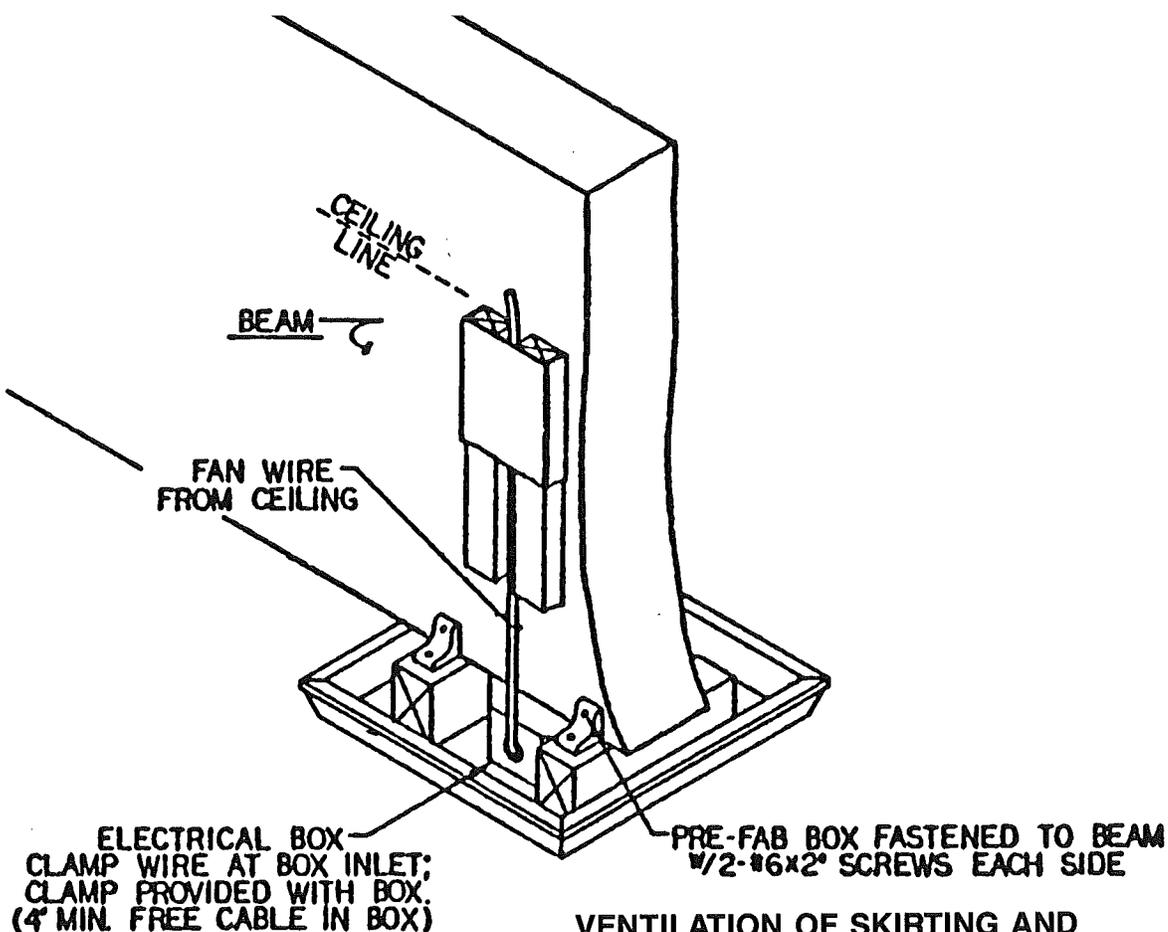
## B. PROTRUDING RIDGE BEAM

For proper ceiling fan installation, a prefabricated box has been provided and includes the electrical box for containment of the spliced wires with their connectors.

The prefab box is also designed to conceal the wire which is run through the ceiling where the fan is to be located. **CAUTION: BEFORE FOLLOWING THE STEP-BY-STEP PROCEDURE, BE SURE THAT POWER TO FAN WIRE IS OFF.**

1. Remove the fan manufacturer's installation instructions from the package and determine the method of fan attachment to the beam.
2. Insert the ceiling wire through a side knock out hole in the electrical box. Secure the wire in the electrical box clamp at a point approximately 4" from its end.

3. Place the prefab box in its final position on the beam and secure the box to the beam with #6×2" wood screws (provided) in the metal corner braces.
4. Strip about ¾" of insulation from the white and black conductor ends.
5. Position the non-combustible flash ring (provided) over the electrical box so that finished surface (adjacent to electrical box) which is to be covered by fan canopy is not exposed.
6. Follow the manufacturer's installation instructions for mounting the fan assembly to the box and for electrical wiring of the fan. Use provided electrical connectors for splicing wires. Be certain that fan is grounded as specified in manufacturer's instructions and that wires are connected properly (white-to-white and black-to-black).



## METAL ROOFS

Metal roofs may be tightened by the use of bonded washers secured to the roof rafter with #8 × 1¼" 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.

## VENTILATION OF SKIRTING AND CRAWL SPACE ENCLOSURE

Skirting or other crawl space enclosures, such as foundations, not only add to the appearance of the home but also provide important benefits in the reduction of heat loss. Enclosures also aid in reducing the danger and inconvenience of damaged plumbing through freeze-up.

Skyline Corporation recommends enclosing the underside of the home; however, it is very important that any enclosure be adequately ventilated. Ventilation openings need to be provided in the foundation or skirting along at least the two long walls of the home. The total area of ventilation openings should be at least 1 ft<sup>2</sup> for each 150 ft<sup>2</sup> of crawlspace area. An opening should be located within 3 ft. of each corner. Other openings should be located so that good cross ventilation is provided.

# Skyline Corporation

## APPENDIX A

Required Pier Load Capacity Pounds	Footing Sizes (IN x IN) Or Equal Areas (IN ^ 2)							
	Allowable Soil Bearing Value							
	1000 Psf		1500 Psf		2000 Psf		3000 Psf	
	Required Areas-In ^ 2	Typical Sizes-In x In	Required Areas-In ^ 2	Typical Sizes-In x In	Required Areas-In ^ 2	Typical Sizes-In x In	Required Areas-In ^ 2	Typical Sizes-In x In
1000	144	12x12	144	12x12	144	12x12	144	12x12
1200	173	12x16	144	12x12	144	12x12	144	12x12
1400	202	12x18	144	12x12	144	12x12	144	12x12
1600	230	12x20	154	12x14	144	12x12	144	12x12
1800	259	12x22	173	12x16	144	12x12	144	12x12
2000	288	12x24	192	12x16	144	12x12	144	12x12
2200	317	24x14	211	12x18	158	12x14	144	12x12
2400	346	24x16	230	12x20	173	12x16	144	12x12
2600	374	24x16	250	12x22	187	12x16	144	12x12
2800	403	24x18	269	24x12	202	12x18	144	12x12
3000	432	24x18	288	24x12	216	12x18	144	12x12
3200	461	24x20	307	24x14	230	12x20	154	12x14
3400	490	24x22	326	24x14	245	12x22	163	12x14
3600	518	24x22	346	24x16	259	12x22	173	12x16
3800	547	24x24	365	24x16	274	24x12	182	12x16
4000	576	24x24	384	24x16	288	24x12	192	12x16
4400	634	24x28	422	24x18	317	24x14	211	12x18
4800	691	24x30	461	24x20	346	24x16	230	12x20
5000	720	24x30	480	24x20	360	24x16	240	12x20
5400	778	24x34	518	24x22	389	24x18	259	12x22
5800	835	36x24	557	24x24	418	24x18	278	24x12
6200	893	36x26	595	24x26	446	24x20	298	24x14
6600	950	36x28	634	24x28	475	24x20	317	24x14
7000	1008	36x28	672	24x28	504	24x22	336	24x14
7400	1066	36x30	710	24x30	533	24x24	355	24x16
7800	1123	36x32	749	24x32	562	24x24	374	24x16
8200	1181	36x34	787	24x34	590	24x26	394	24x18
8600	1238	36x36	826	24x36	619	24x26	413	24x18
9000	1296	36x36	864	24x36	648	24x28	432	24x18
9400	1354	36x38	902	36x26	677	24x30	451	24x20
9800	1411	36x40	941	36x28	706	24x30	470	24x20
10200	1469	36x42	979	36x28	734	24x32	490	24x22
10600	1526	36x42	1018	36x30	763	24x32	509	24x22
11000	1584	36x44	1056	36x30	792	24x34	528	24x22
11500	1656	36x46	1104	36x32	828	24x36	552	24x24
12000	1728	36x48	1152	36x32	864	24x36	576	24x24
12500	1800	48x38	1200	36x34	900	36x26	600	24x26
13000	1872	48x40	1248	36x36	936	36x26	624	24x26
13500	1944	48x42	1296	36x36	972	36x28	648	24x28
14000	2016	48x42	1344	36x38	1008	36x28	672	24x28
14500	2088	48x44	1392	36x40	1044	36x30	696	24x30
15000	2160	48x46	1440	36x40	1080	36x30	720	24x30
15500	2232	48x48	1488	36x42	1116	36x32	744	24x32
16000	2304	48x48	1536	36x44	1152	36x32	768	24x32
16500	2376	48x50	1584	36x44	1188	36x34	792	24x34
17000	2448	48x52	1632	36x46	1224	36x34	816	24x34



*Nader Tomashi*  
 JAN 22 1991

## CORPORATE MISSION STATEMENT

Skyline Corporation is a leader in the development, manufacture and marketing of high quality, innovative manufactured homes and recreational vehicles that meet customer needs for housing and leisure lifestyles.

Our mission is to continually improve the quality of our products and the way we do business in order to meet customers' expectations. By pursuing this mission, we will be able to grow and prosper as a business, provide stable employment and a high quality work life for our people, be a responsible community citizen, and return a reasonable profit to our shareholders.

Our mission reflects our deeply held corporate values and principles and its achievement involves these areas:

**SAFETY . . .** We will provide a safe work environment for our people and safe products for our customers.

**QUALITY . . .** We will provide products and services that consistently meet customer needs and exceed expectations for quality.

**CONTINUOUS IMPROVEMENT . . .** We will continually strive for excellence in everything we do. We will constantly seek day-to-day and long-term improvements and not settle for short-term "fixes."

**CUSTOMER FOCUS . . .** Customers are the ultimate reason Skyline is in business and everyone at Skyline must direct his or her efforts to the production of products that exceed customer expectations. Every activity and every job in the Company is part of this process.

**PEOPLE . . .** People are our greatest asset. We will listen to and respect ideas from everyone and will involve our people in the decisions that affect the areas in which they work. We will continually encourage and provide training and educational opportunities for our people, so that they can optimize their performance, their individual development and their contribution to the Company.

**TEAMWORK . . .** Teamwork is the driving force of the Skyline organization, enabling us to coordinate the Company's resources to achieve the Company's mission. The essence of teamwork is breaking down barriers between departments and treating each person and each job as a customer whose needs must be met if the ultimate customer, the buyer of a Skyline product, is to be satisfied.

**INTEGRITY . . .** We will conduct all of our activities in a manner which is at all times fair, moral, ethical, and legal. We will hire, reward and promote without discrimination and without regard to age, sex, ethnic origin, physical condition or religious belief.

**DEALERS & SUPPLIERS . . .** We view our dealers and suppliers as extensions of our Company. We will conduct our business in an atmosphere of trust and work to form mutually beneficial longterm partnerships.

**PROFITS . . .** Profits are the ultimate measure of how efficiently we satisfy our customers' desire for products of superior value. We will strive to achieve the profits required for survival and growth and to provide jobs and security for our people.

# **SKYLINE**

Corporate Office — P.O. Box 743 — Elkhart, Indiana 46515

Department of  
Administration



Our mission:  
To improve the quality  
and productivity  
of Minnesota  
government.

March 13, 1995

Mr. James Kempfs  
Homette Corporation/Skyline  
Hwy. 61 N.W.  
P. O. Box 590  
Lancaster, WI 53813-0590

Dear Mr. Kempfs:

The Minnesota Building Codes and Standards Division has received and reviewed the approved installation manuals for Skyline Manufactured Homes from your corporation. In reviewing Skyline's Installation Manual for permanent foundations, it is noted that stairway details indicated the handrail height of 30" to 34".

The State of Minnesota adopts the Uniform Building Code with amendments as the Minnesota Building Code. Stairways and foundations are on-site construction and subject to the Minnesota Building Code. The 1994 U.B.C. 1006.9 requires handrails on stairways to be placed not less than 34" or more than 38" above the nosing of treads and landings. You may wish to notify your Dealer/Distributors in the State of Minnesota of the U.B.C. handrail requirements. You may also wish to inform your Minnesota Dealer/Distributor to contact the local jurisdictions Building Official prior to bidding or constructing a foundation. Other differences they may be required to comply with for foundation construction in Minnesota are the Energy Code Requirements, soil pressure and type variations, etc..

If you have any questions concerning this matter please contact me at 612/296-9927.

Respectfully,  
BUILDING CODES AND STANDARDS DIVISION

A handwritten signature in black ink, appearing to read "Randy E. Vogt".

Randy E. Vogt  
Building Code Representative

rev/cj

c: Jeannie Magee, H.U.D.

**MANUFACTURED  
HOME  
INSTALLATION  
FOR  
PERMANENT  
FOUNDATIONS**

(TRANSVERSE FLOORS)

(SUPPLEMENT TO MANUFACTURED HOME INSTALLATION MANUAL)

---

**SKYLINE**  
*Bringing America home.*

**NOTE: THIS MANUAL IS INTENDED TO INSTRUCT AND TO ASSIST ALREADY QUALIFIED PERSONNEL IN PROPER INSTALLATION OF SKYLINE MANUFACTURED HOMES. IT IS NOT INTENDED TO ENABLE SOMEONE UNFAMILIAR WITH MANUFACTURED HOME INSTALLATION, TO PERFORM THE INSTALLATION. SETUP SHOULD BE DONE ONLY BY QUALIFIED PEOPLE. WHOEVER DOES THE SETUP 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.**

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

REVIEWED BY ENGINEERING DEPT.  
ISSUED BY FOLLOW-UP SERVICES DEPT.

**AUGUST 14, 1991**

**UNDERWRITERS'  
LABORATORIES, INC.**

## **GENERAL FOUNDATION CONSTRUCTION**

Construct foundation in accordance with the location and general recommendations of Figures 1, 2 or 3 and the enclosed supplement as applicable. Site conditions and local building regulations, however, take precedence over these recommendations.

Install foundation drainage features. Drain tiles are installed around the foundation just below basement or crawl space floor level. Drain tile is set in washed gravel or crushed rock one sieve size larger than the tile joint opening or perforation. At least 2 in. of gravel is below the tile and at least 6 in. above it.

Construct all walls in accordance with local building regulations. Provide a minimum light and ventilation area as required by local code.

Note that indicated foundation and wall construction is for well drained stabilized soils with a minimum bearing value of 2500 psf.

## **BASEMENT CONSTRUCTION**

Install anchor bolts in accordance with column centerline requirements and bolt pattern of column base plates.

Install structural steel columns and beams. Plumb the columns and align the beams. Complete the bolted connections.

Allow sufficient time for walls to cure. Apply a moisture resistant coating. Backfill and compact the excavation with granular material in 18" layers maximum.

Anchor sill plates in accordance with Figure 1.

## **CRAWL SPACE CONSTRUCTION**

Ventilation openings need to be provided in the foundation along at least the two long walls of the home. The total area of ventilation openings should be at least 1 ft.<sup>2</sup> for each 150 ft.<sup>2</sup> of crawlspace area. An opening is located within 3 ft. of each corner. Other openings

are located so that good cross ventilation is provided.

Allow sufficient time for the walls and piers to cure. Add pea gravel and vapor barrier. Backfill and compact the excavation with granular material in 18" layers maximum.

Anchor sill plates in accordance with Figure 3 or 4 as applicable.

For 30 psf homes *only*, install structural steel beams and centerline anchor bolts in accordance with the centerline requirements in Figure 4.

Complete the bolted connections.

## **INSTALLATION OF THE HOME**

Locate the home halves on the foundation, taking care to protect the home from structural distress during movement.

Follow the double wide procedures in the Manufactured Home Installation Manual for alignment, joining, and securing of the halves, and for utility hook-ups.

Complete the rim joist to sill connection in accordance with the nailing and bolting details of Figure 1, 3 or 4.

Install the bottom course of closure siding and complete all siding marriage closures in accordance with the double wide instructions of the Manufactured Home Installation Manual.

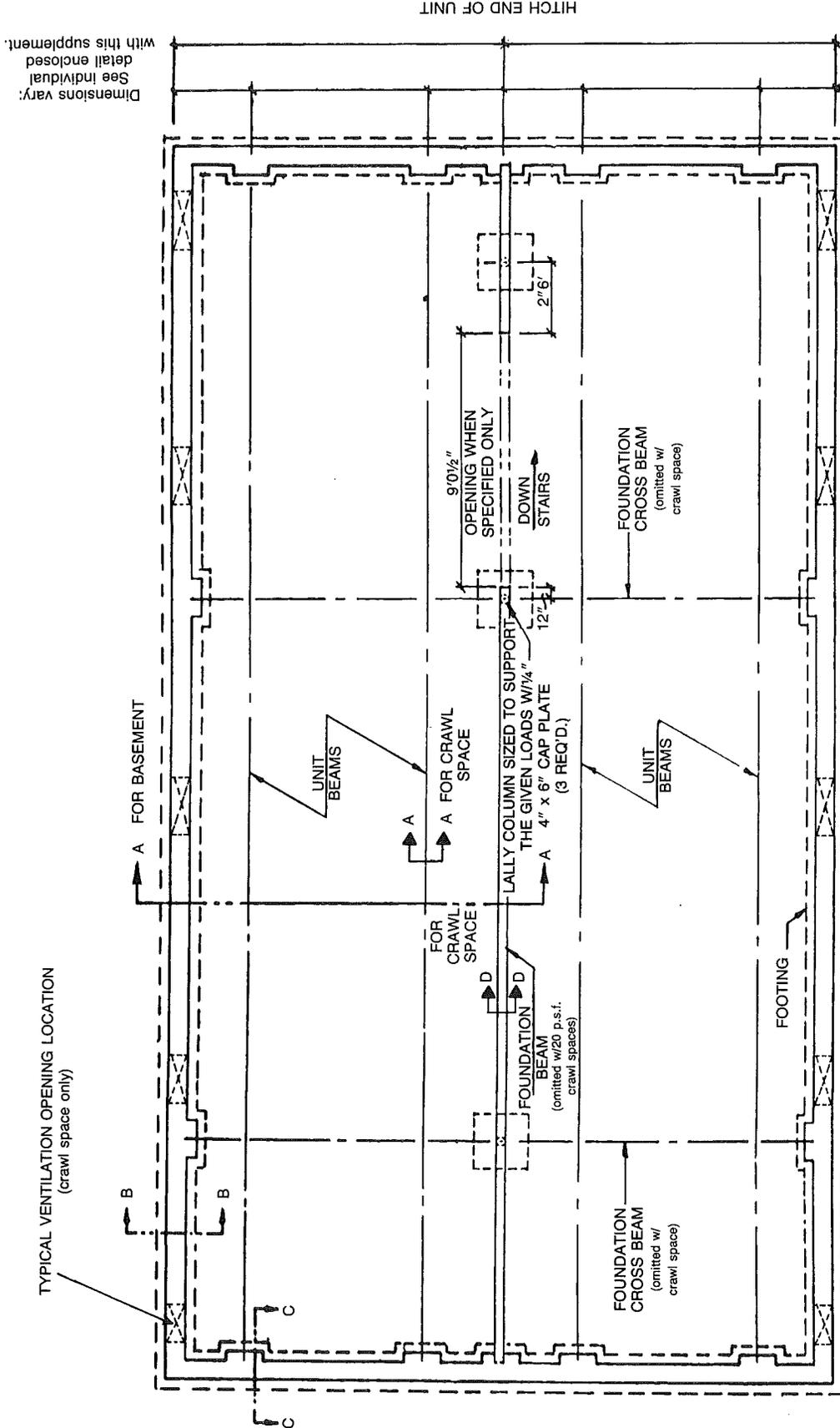
## **BASEMENT FLOOR AND STEPS INSTALLATION**

When applicable, cut and remove bottom board from stairwell area as defined by factory precut floor opening.

If opening is not precut, then cut and remove floor decking and centerline joists as defined by factory markings.

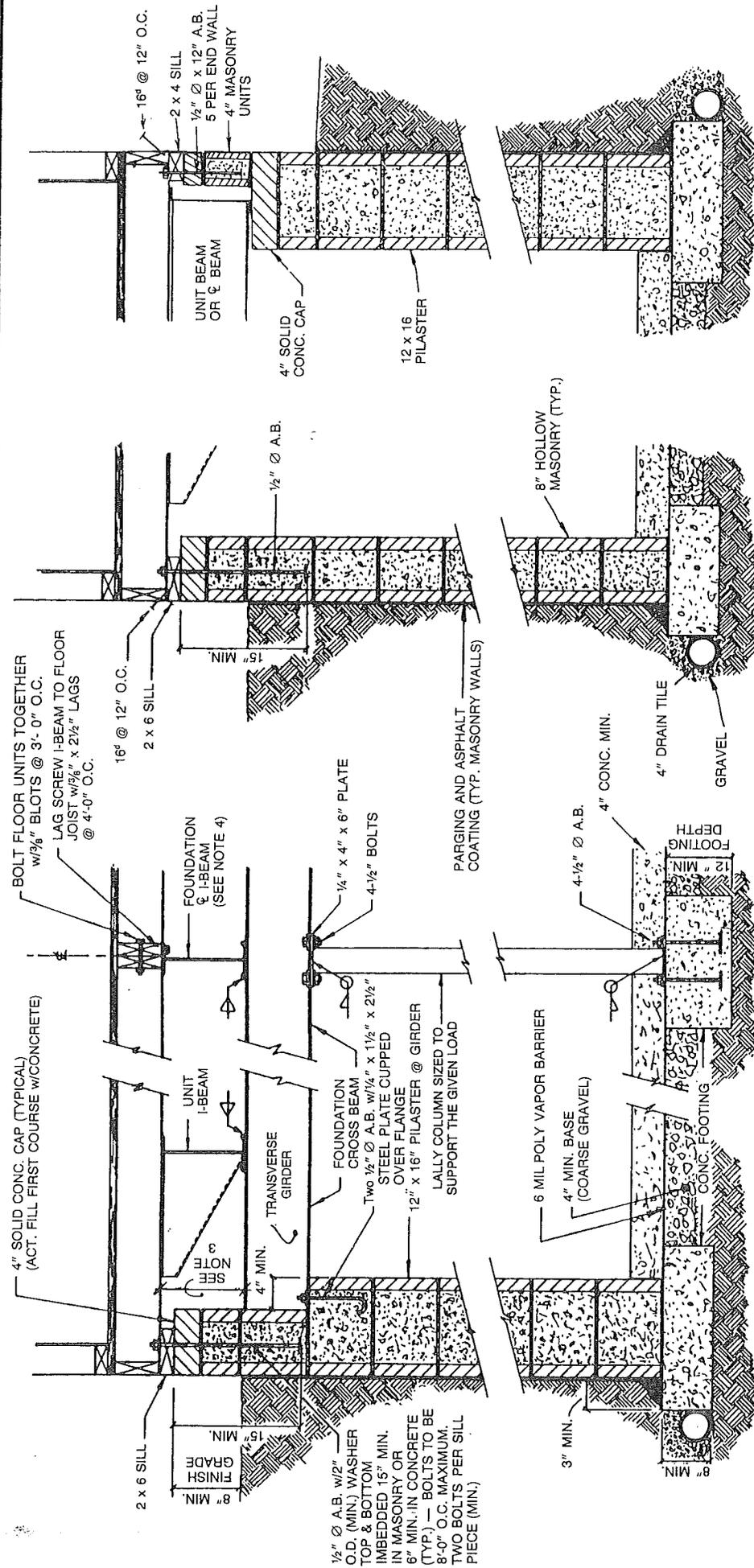
Construct the basement floor in accordance with local building codes and as site conditions require.

Build and install basement steps as detailed in figure 5 or otherwise if local codes require.



Dimensions vary. See individual detail enclosed with this supplement.

# TYPICAL PERMANENT FOUNDATION LAYOUT



SECTION C-C  
ENDWALL FOUNDATION

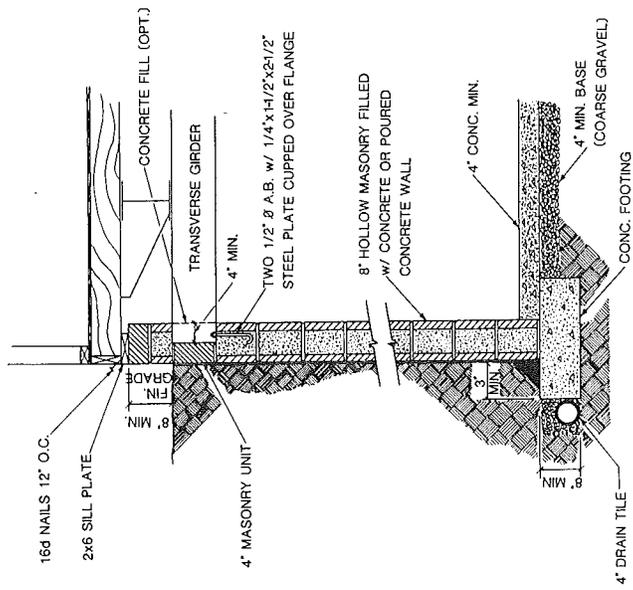
SECTION B-B  
SIDEWALL FOUNDATION

SECTION A-A  
FOUNDATION CROSS BEAM

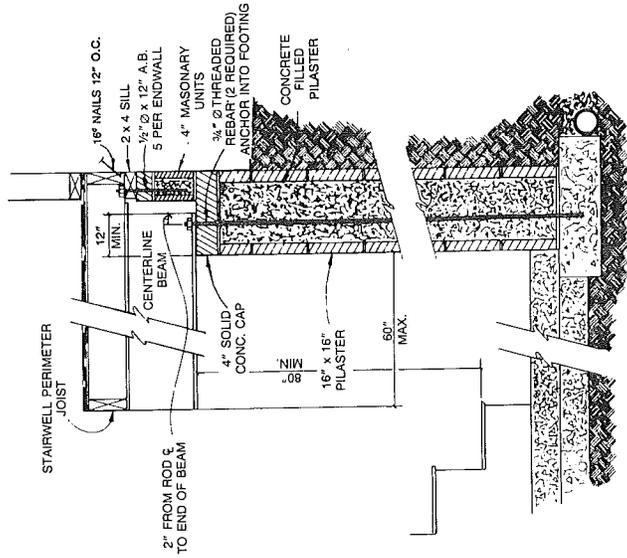
NOTES:

- 1.) FOOTINGS TO BE DESIGNED TO MEET LOCAL SOIL CONDITIONS AND LOCAL BUILDING CODES.
- 2.) BASEMENT WALLS & STAIRWAY(S) TO BE DESIGNED & CONSTRUCTED TO MEET LOCAL BUILDING CODES.
- 3.) DIMENSION VARIES WITH CENTERLINE BEAM SIZE. SEE ENCLOSED SUPPLEMENT FOR BEAM SIZE.
- 4.) CENTER LINE BEAM IS TO BE BOLTED TO FOUNDATION WALL USING THE METHOD ILLUSTRATED IN SECTION A-A FOR THE TRANSVERSE GIRDER TO FOUNDATION WALL.

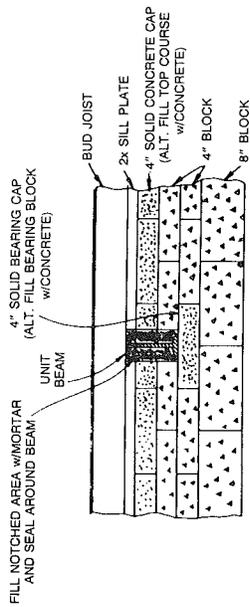
**FIGURE 1**  
TYPICAL BASEMENT  
FOUNDATION CONSTRUCTION



ALT. SECTION A-A  
OPT. BEAM POCKET



SECTION C-C  
CANTILEVERED & BEAM WHEN STAIRWELL  
IS LOCATED AT END OF HOME

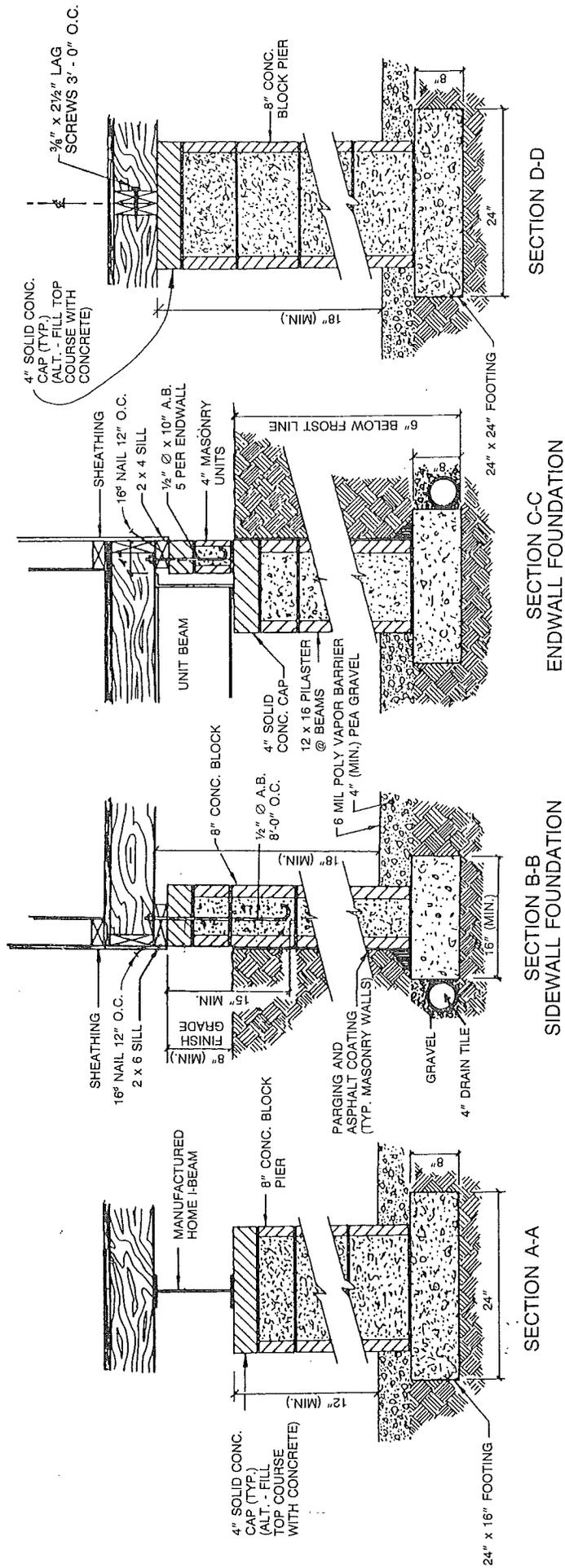


DETAIL A  
UNIT BEAM PENETRATION AT PORCH

NOTES FOR BEAM POCKET DETAIL:

- 1.) MAY ALSO USE WITH UNIT BEAMS AND CENTERLINE BEAM.
- 2.) MAY NOT USE WITH CANTILEVER CENTERLINE BEAM WHEN STAIRWELL IS LOCATED AT END OF HOME.
- 3.) NUMBER, SIZE AND SPACING OF ALL ANCHOR BOLTS TO REMAIN THE SAME.

## FIGURE 2 CRAWLSPACE & BASEMENT DETAILS

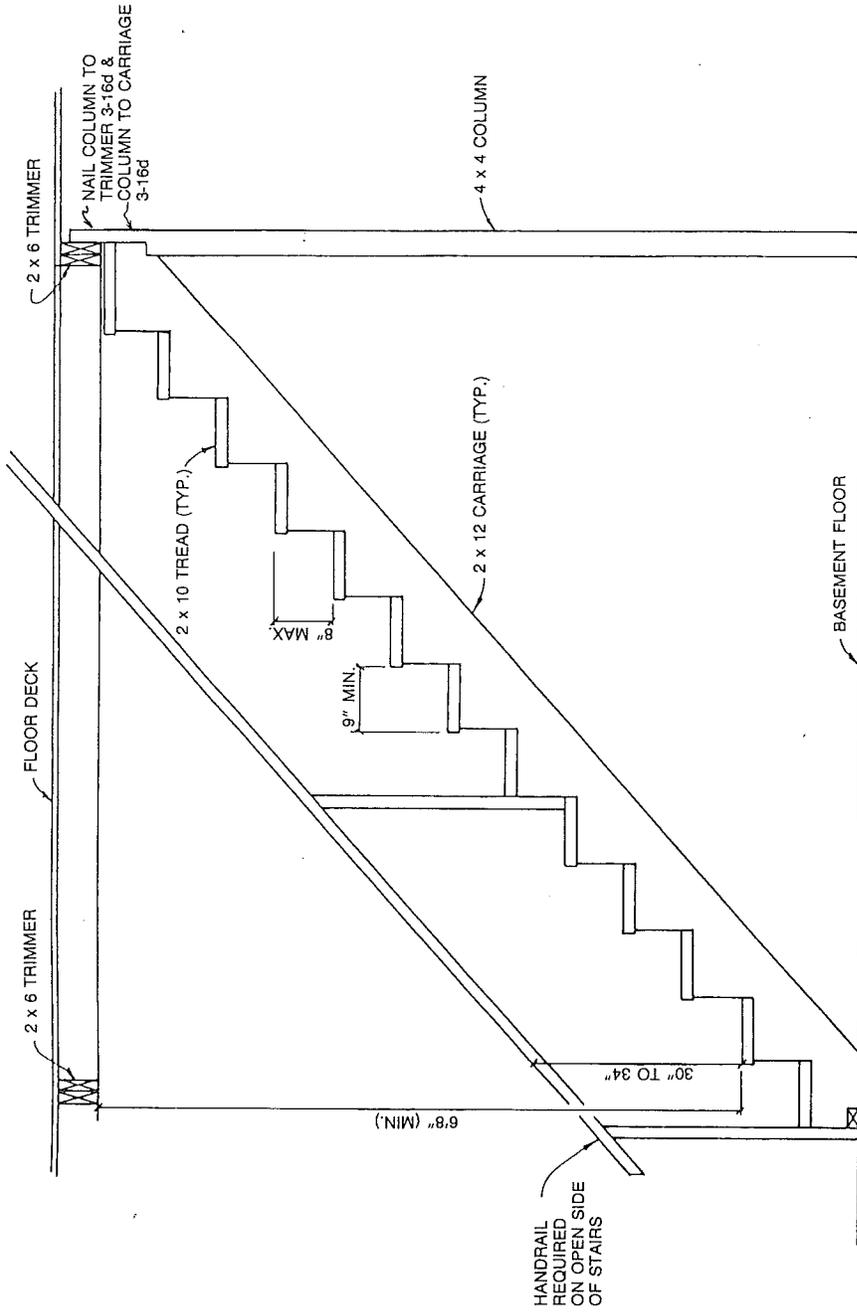


**NOTES:**

- 1.) FOOTINGS TO BE DESIGNED TO MEET LOCAL SOIL CONDITIONS AND LOCAL BUILDING CODES.
- 2.) CRAWL SPACE TO BE VENTILATED IN ACCORDANCE WITH THE LOCAL CODE AND PAGE 1 OF THIS INSTRUCTION.
- 3.) MINIMUM DISTANCE BETWEEN FINISH GRADE & FLOOR JOISTS IS 18".

**FIGURE 3**  
 TYPICAL 20 P.S.F. CRAWL SPACE





**FIGURE 5**  
 TYPICAL BASEMENT STAIRWAY CONSTRUCTION  
 (USED WHEN STAIRWELL IS FACTORY INSTALLED)

