2/29/88

SKYLINE CORPORATION MANUFACTURED HOME INSTALLATION MANUAL

5/87

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: 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.

SEPT. 17 1986

UNDERWRITERS'
LABORATORIES, INC.

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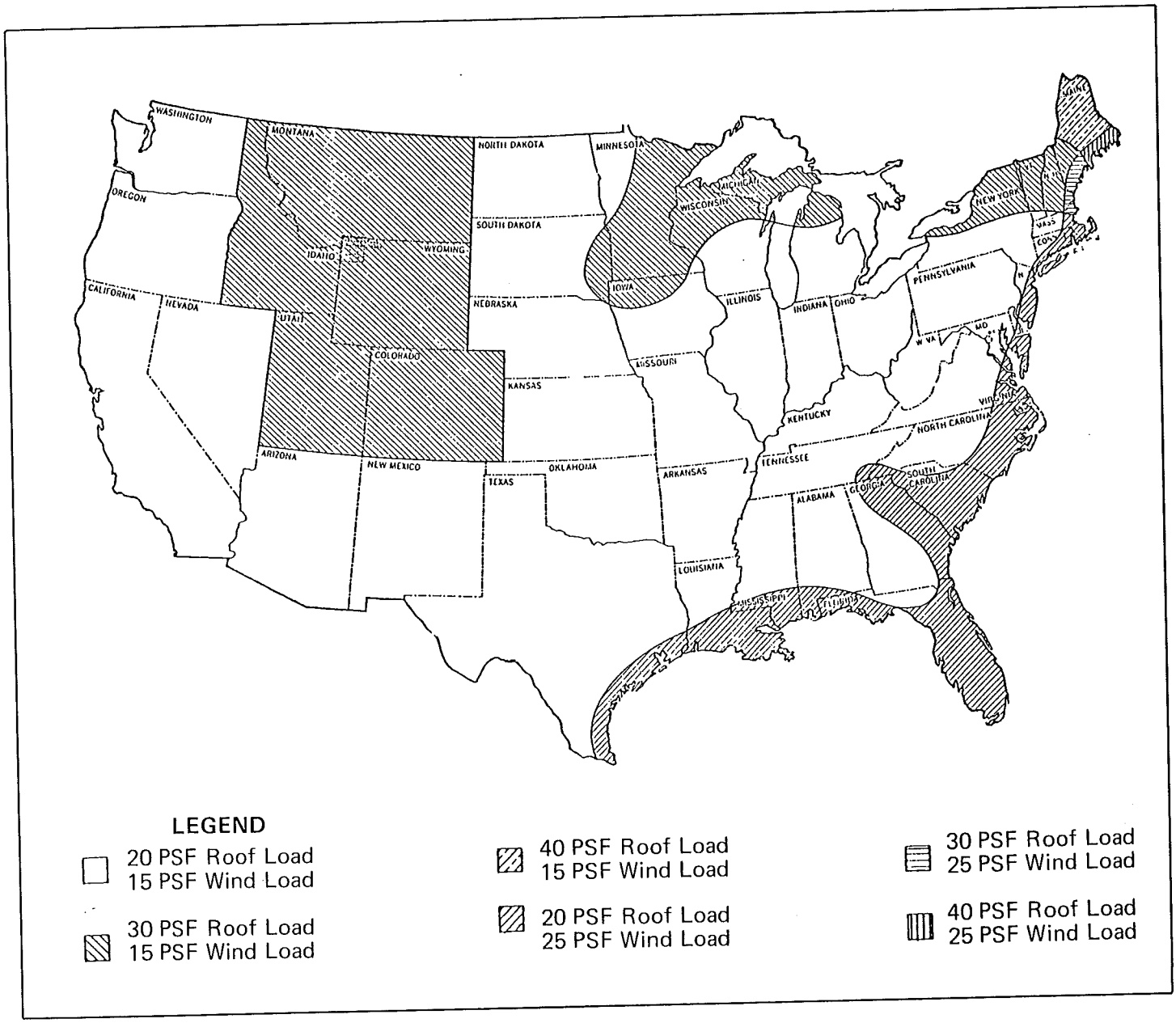
NOTE: THIS MANUAL IS INTENDED TO INSTRUCT AND TO ASSIST ALREADY QUALIFIED PERSONNEL IN PROPER INSTALLATION OF SKYLINE MANUFACTURED HOMES. IT IS NOT INTENDED TO ENABLE SOMEONE UNFAMILIAR WITH MANUFACTURED HOME INSTALLATION TO PERFORM THE INSTALLATION.

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

STRUCTURAL ZONE MAP OF UNITED STATES



SITE PREPARATION

The manufactured 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 manufactured 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 manufactured home placement, as found in many 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.

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

- ☐ Alignment/Close-Off DW
- ☐ Level
- ☐ Foundation
- ☐ Tie Downs

UTILITY CONNECTIONS

- ☐ Fuel
- ☐ Water
- ☐ Electric
- ☐ Sewage
- ☐ Cross-Over Duct

EXTERIOR

- ☐ Doors
- ☐ Windows
- ☐ Roof
- ☐ Siding/Trim

INTERIOR

- ☐ Ceiling
- ☐ Trim
- ☐ Electrical Systems/Fixtures
- ☐ Cabinets
- ☐ Furniture
- ☐ Keys
- ☐ All Warranties
- ☐ Paneling
- ☐ Floor Covering/Drapes
- ☐ Doors
- ☐ Plumbing
- ☐ Appliances
- ☐ All Manuals

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 "Manufactured Home Installation for Perimeter Blocking."

TABLE 1 SOUTH ZONE

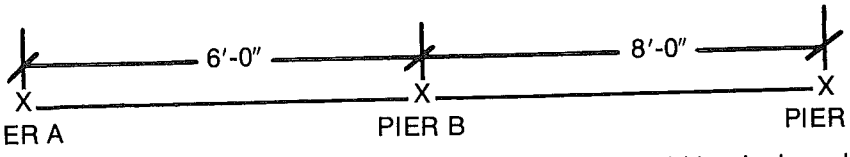
PIER SPACING UNDER MAIN "I"-BEAMS	DESIGN ROOF LIVE LOAD	DESIGN FLOOR LIVE LOAD	TOTAL PIER LOAD		
			12 WIDE	14 WIDE	16 WIDE
4'-0" O.C.	20 P.S.F.	40 P.S.F.	1850 lbs.	2160 lbs.	2420 lbs.
5'-0" O.C.	20 P.S.F.	40 P.S.F.	2310 lbs.	2700 lbs.	3020 lbs.
6'-0" O.C.	20 P.S.F.	40 P.S.F.	2770 lbs.	3240 lbs.	3630 lbs.
7'-0" O.C.	20 P.S.F.	40 P.S.F.	3230 lbs.	3780 lbs.	4230 lbs.
8'-0" O.C.	20 P.S.F.	40 P.S.F.	3690 lbs.	4320 lbs.	4840 lbs.
9'-0" O.C.	20 P.S.F.	40 P.S.F.	4150 lbs.	4860 lbs.	5440 lbs.
10'-0" O.C. (Max)	20 P.S.F.	40 P.S.F.	4620 lbs.	5400 lbs.	6050 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.	2080 lbs.	2440 lbs.	2730 lbs.
5'-0" O.C.	30 P.S.F.	40 P.S.F.	2600 lbs.	3040 lbs.	3410 lbs.
6'-0" O.C.	30 P.S.F.	40 P.S.F.	3120 lbs.	3650 lbs.	4090 lbs.
7'-0" O.C.	30 P.S.F.	40 P.S.F.	3650 lbs.	4260 lbs.	4770 lbs.
8'-0" O.C.	30 P.S.F.	40 P.S.F.	4170 lbs.	4870 lbs.	5460 lbs.
9'-0" O.C.	30 P.S.F.	40 P.S.F.	4690 lbs.	5480 lbs.	6140 lbs.
10'-0" O.C. (Max)	30 P.S.F.	40 P.S.F.	5210 lbs.	6090 lbs.	6820 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 (⅜″ × 2½″ × 5″) or hardwood block (4″ × 4″ × 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 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. 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.

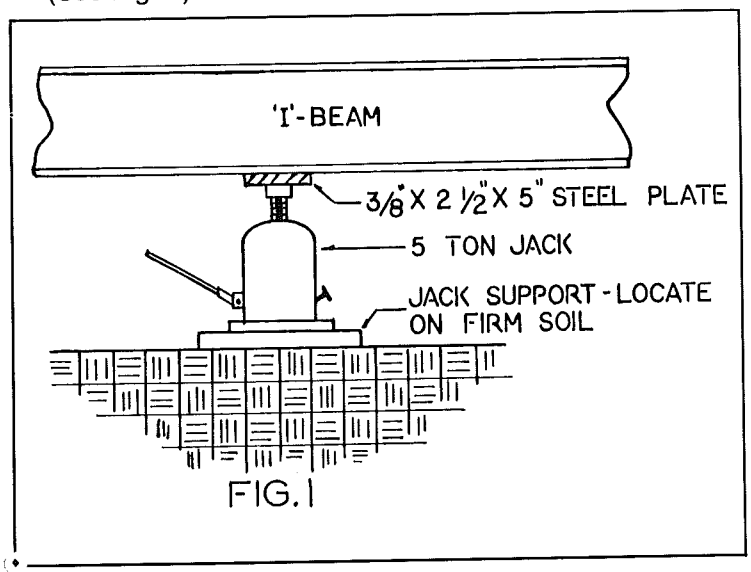


FIG. 1

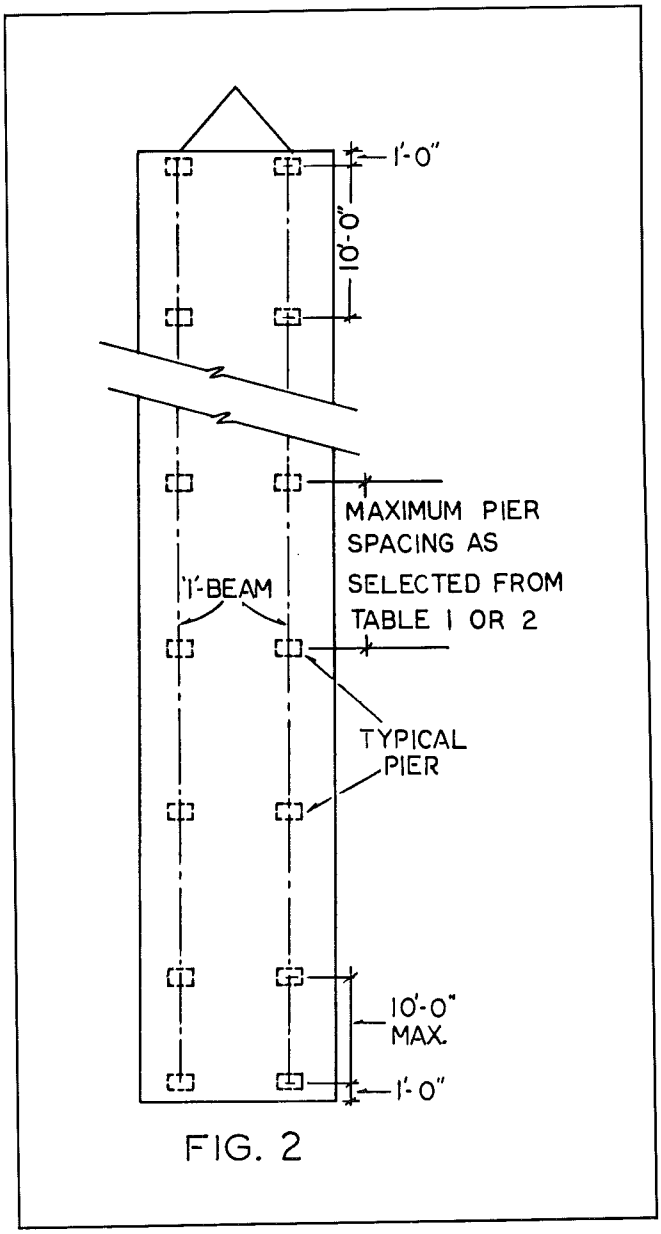


FIG. 2

MANUFACTURED HOME TIE-DOWN INSTRUCTIONS

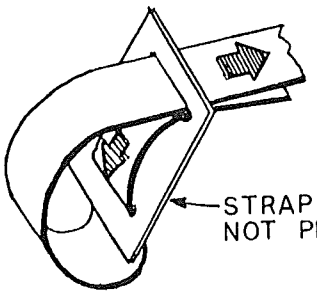
All manufactured homes should be securely anchored to the ground to resist the sliding and overturning effects of high winds.

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.

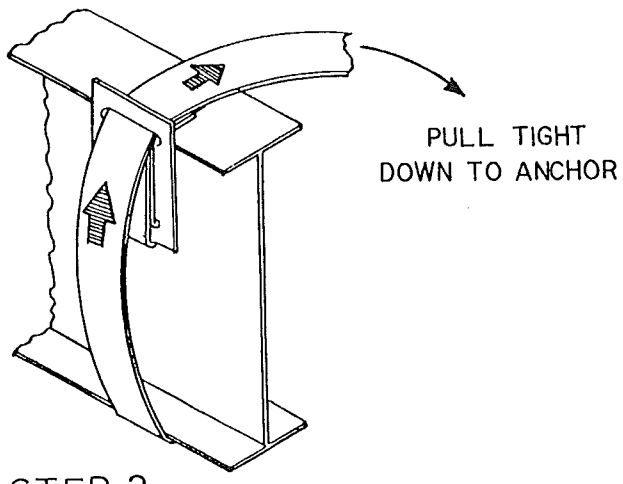
FRAME TIE-DOWN PROCEDURE

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.



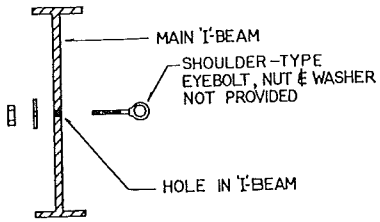
STEP 1



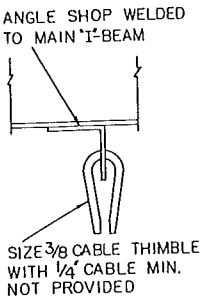
STEP 2

STRAP TO
FRAME TIEDOWN PROCEDURE

FIG. 3



CABLE-FRAME TIEDOWN CONNECTION



ALTERNATE CONNECTION

FIG. 4

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 ¼" inch in diameter or Type 1, Finish B Grade 1 steel strapping, 1¼ 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.

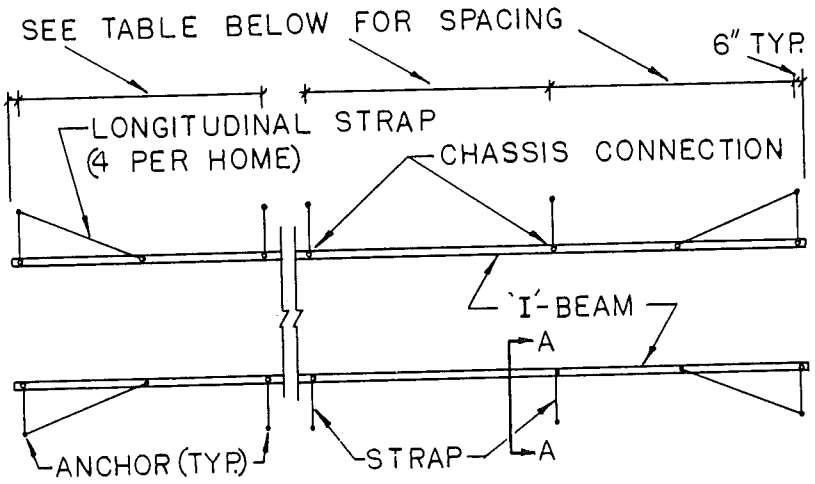
The procedure for tying down the manufactured home is as follows:

1.) Position and install the ground anchors so that the final strap angle will be within the limits shown in Fig. 5.

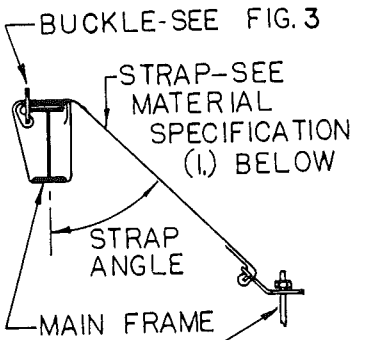
2.) Connect the straps to the frame and ground anchors. (See Fig. 5)

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.



	SINGLE WIDE HOMES		DOUBLE WIDE HOMES	
WIND ZONE	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°



SECTION A-A

JOHN A. MIKEL CERT # 09703 STATE OF INDIANA PROFESSIONAL ENGINEER 5-18-76

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

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.

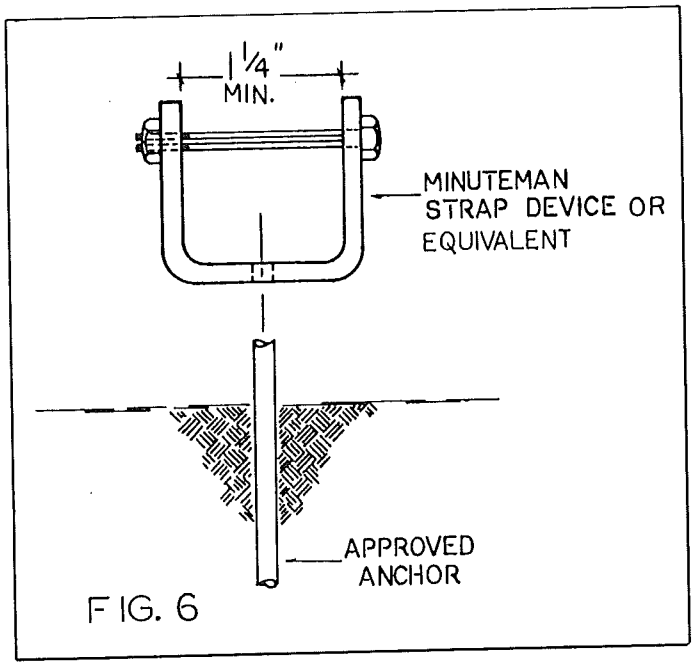


FIG. 6

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.

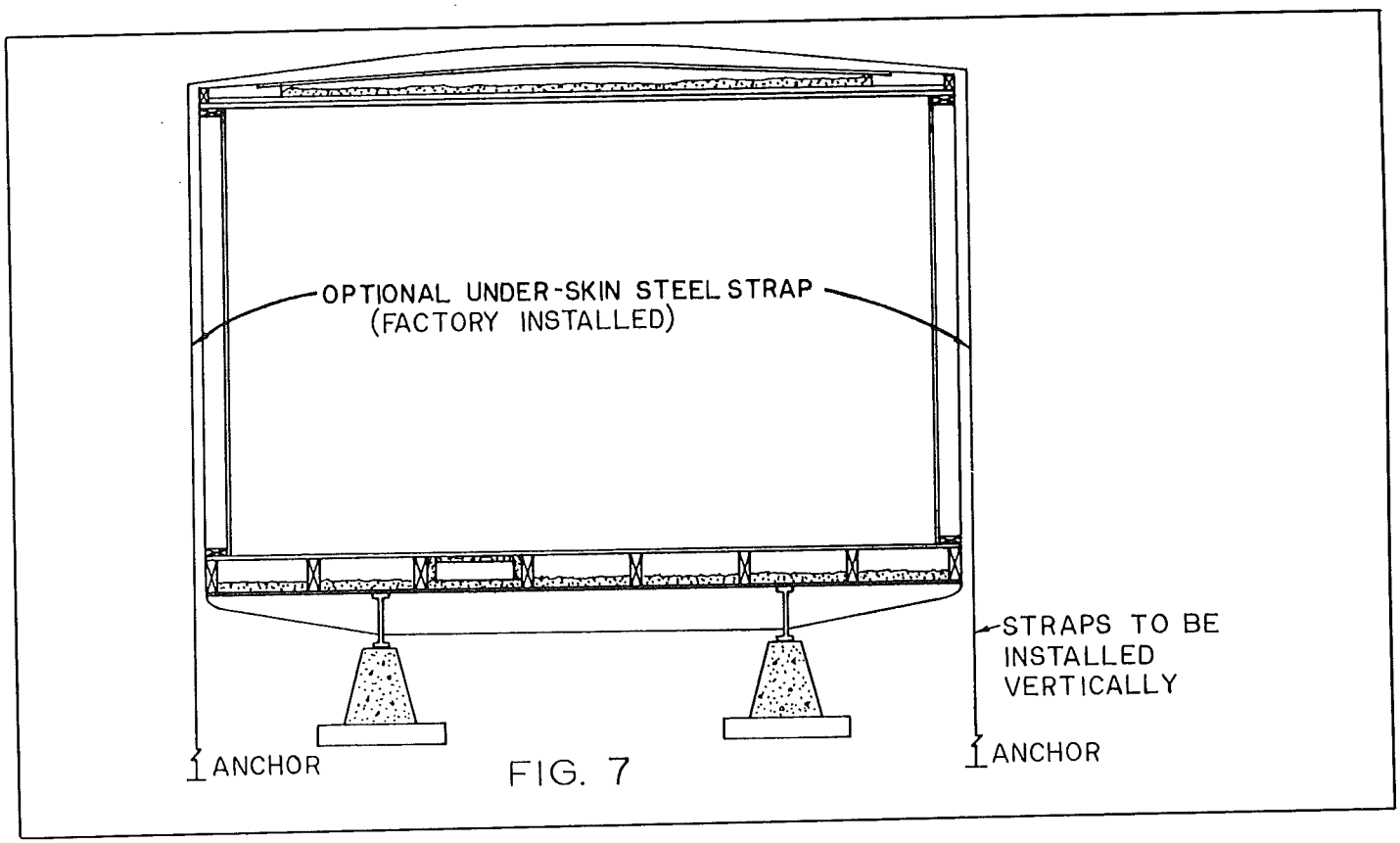


FIG. 7

SPECIAL INSTRUCTIONS FOR DOUBLE WIDE SET-UP

BLOCKING PROCEDURE

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.

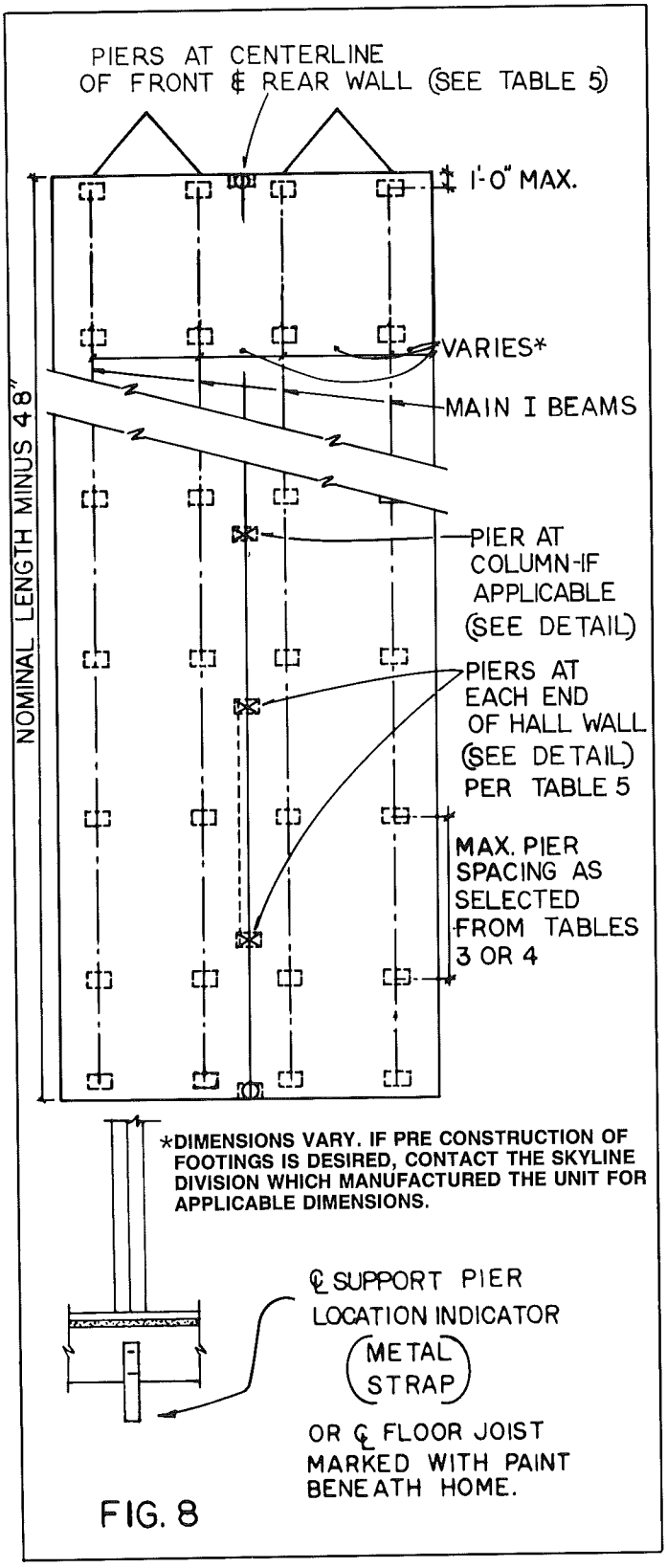
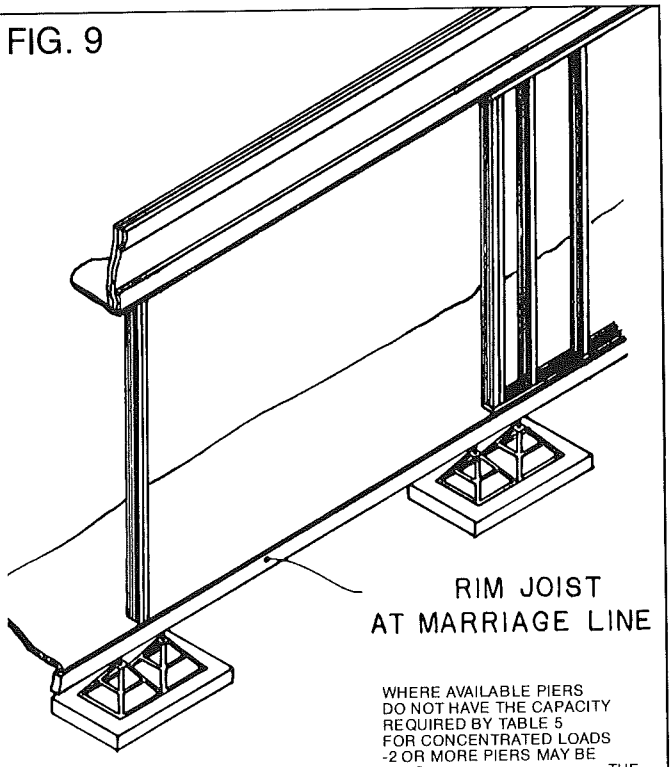


FIG. 8

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. 9



FOOTINGS AND PIERS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY — ANY APPROVED SYSTEM MAY BE USED.

WHERE AVAILABLE PIERS DO NOT HAVE THE CAPACITY REQUIRED BY TABLE 5 FOR CONCENTRATED LOADS -2 OR MORE PIERS MAY BE USED..... THE SUM OF PIER CAPACITIES AT EACH SUPPORT POINT SHALL BE AT LEAST EQUAL TO THE LOADS SPECIFIED IN TABLE 5.

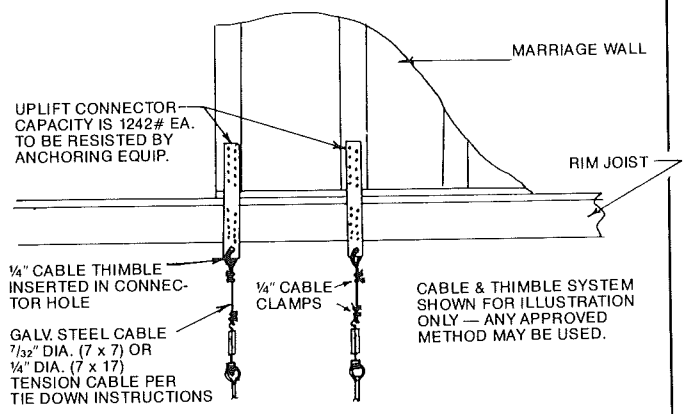


FIG. 9A

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

The procedure is as follows:

WHEN REQUIRED TO WALK ON METAL ROOFS DURING ASSEMBLY, PLACE PLANKS OR 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 removed). For shingle roof units refer to section "Installation of Shingled Roof." Secure beam halves with 3/8" x 4½" bolts at front and rear ends only. Bolts located above a cathedral ceiling must be 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 3/8" x 4½" (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 3/8" x 4½" (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. Predrill ¼" pilot holes for the lag screws at 1½" 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.

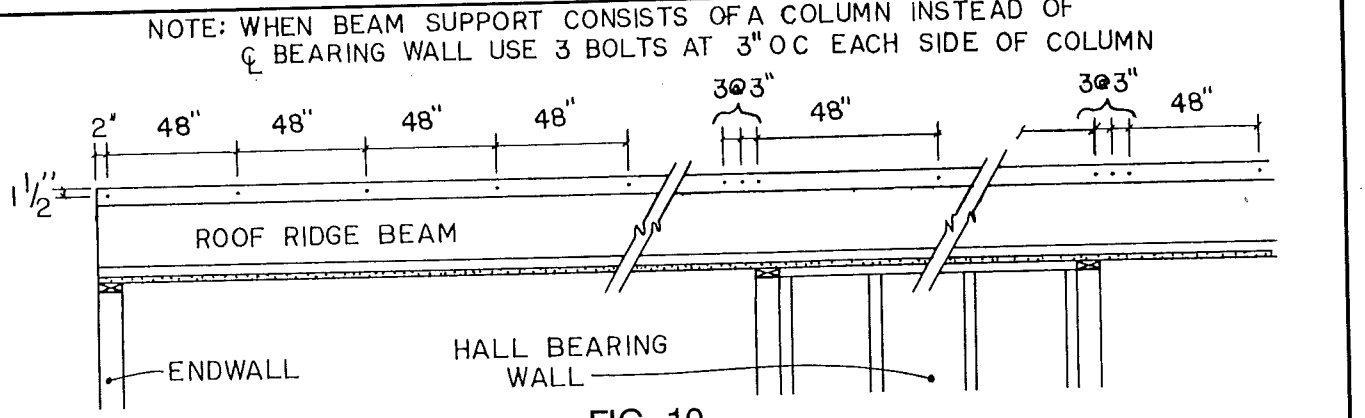


FIG. 10

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.

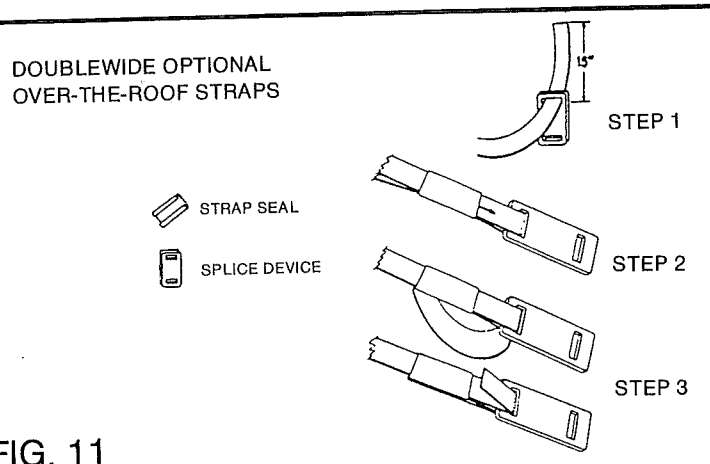


FIG. 11

5. Line up end walls by moving either floor forward or back as necessary. Toenail the end walls together using 16*d* 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 ⅜" 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 ⅜" x 2½" lag screws @ 8'-0" O.C.

TABLE 3 (DOUBLE WIDE HOMES) SOUTH ZONE

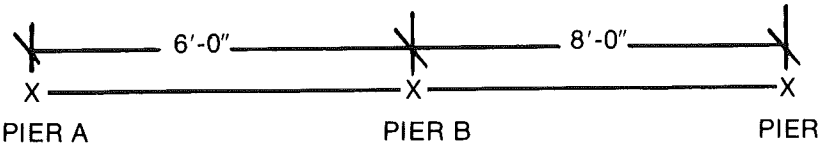
PIER SPACING UNDER MAIN "I"-BEAM	DESIGN ROOF LIVE LOAD	DESIGN FLOOR LIVE LOAD	TOTAL PIER LOAD		
			20' WIDE	24' WIDE	26' & 28' WIDES
4'-0" O.C.	20 P.S.F.	40 P.S.F.	1530 lbs.	1850 lbs.	2100 lbs.
5'-0" O.C.	20 P.S.F.	40 P.S.F.	1920 lbs.	2310 lbs.	2625 lbs.
6'-0" O.C.	20 P.S.F.	40 P.S.F.	2300 lbs.	2770 lbs.	3150 lbs.
7'-0" O.C.	20 P.S.F.	40 P.S.F.	2690 lbs.	3230 lbs.	3675 lbs.
8'-0" O.C.	20 P.S.F.	40 P.S.F.	3070 lbs.	3690 lbs.	4200 lbs.
9'-0" O.C.	20 P.S.F.	40 P.S.F.	3450 lbs.	4150 lbs.	4725 lbs.
10'-0" O.C. (Max)	20 P.S.F.	40 P.S.F.	3840 lbs.	4620 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	26' & 28' WIDES
4'-0" O.C.	30 P.S.F.	40 P.S.F.	1730 lbs.	2080 lbs.	2380 lbs.
5'-0" O.C.	30 P.S.F.	40 P.S.F.	2160 lbs.	2600 lbs.	2975 lbs.
6'-0" O.C.	30 P.S.F.	40 P.S.F.	2600 lbs.	3120 lbs.	3570 lbs.
7'-0" O.C.	30 P.S.F.	40 P.S.F.	3030 lbs.	3650 lbs.	4165 lbs.
8'-0" O.C.	30 P.S.F.	40 P.S.F.	3460 lbs.	4170 lbs.	4760 lbs.
9'-0" O.C.	30 P.S.F.	40 P.S.F.	3890 lbs.	4690 lbs.	5355 lbs.
10'-0" O.C. (Max)	30 P.S.F.	40 P.S.F.	4330 lbs.	5210 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.	3200
		30 P.S.F.	4380
	24' Wide	20 P.S.F.	3820
		30 P.S.F.	5240
	26' & 28' Wides	20 P.S.F.	4290
		30 P.S.F.	5890
Interior Piers at Home Centerline: Designated ⊠ on Fig. 8	20' Wide	20 P.S.F.	6400
		30 P.S.F.	8760
	24' Wide	20 P.S.F.	7640
		30 P.S.F.	10490
	26' & 28' Wides	20 P.S.F.	8580
		30 P.S.F.	11780

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. @ 26' & 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, 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 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. Install interior trim, moldings, carpet, etc., as required.

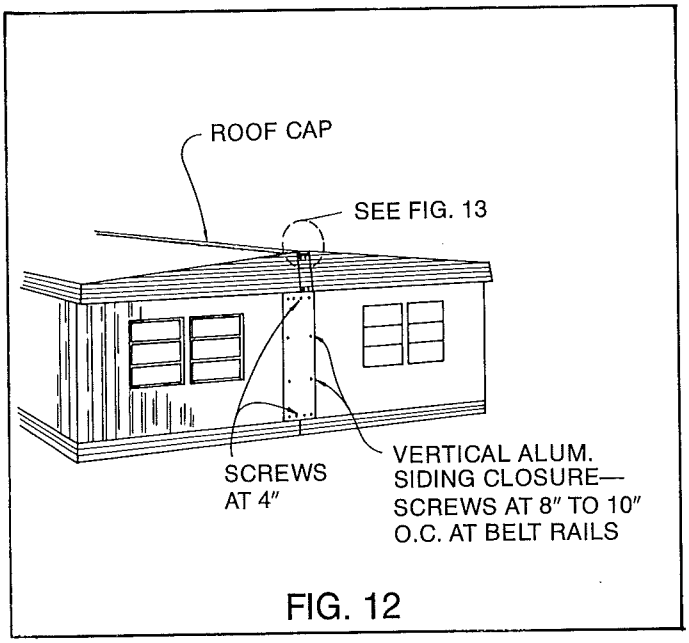


FIG. 12

ALUMINUM LAP SIDING:

Starting at the lowest course, fasten the siding to *each* framing member with a 16 ga. by 7/16" by 1½" aluminum siding staple (6d 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 ½" at vertical joints. (For backed siding, trim the backing so only the aluminum skin overlaps). Vertical joints on successive courses should be separated by at least two feet, but 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 ¼" 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.

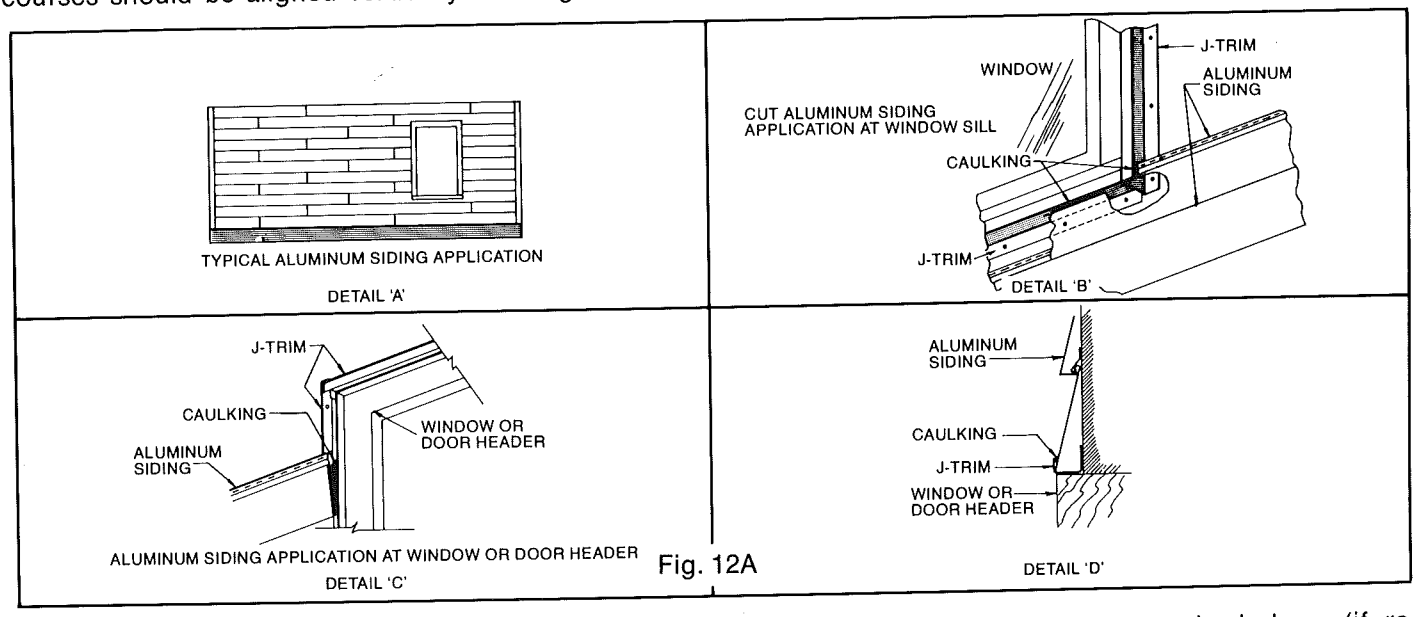


Fig. 12A

MASONITE SIDING:

Fasten the precut strip of masonite with 8d 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 centerline, 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.)

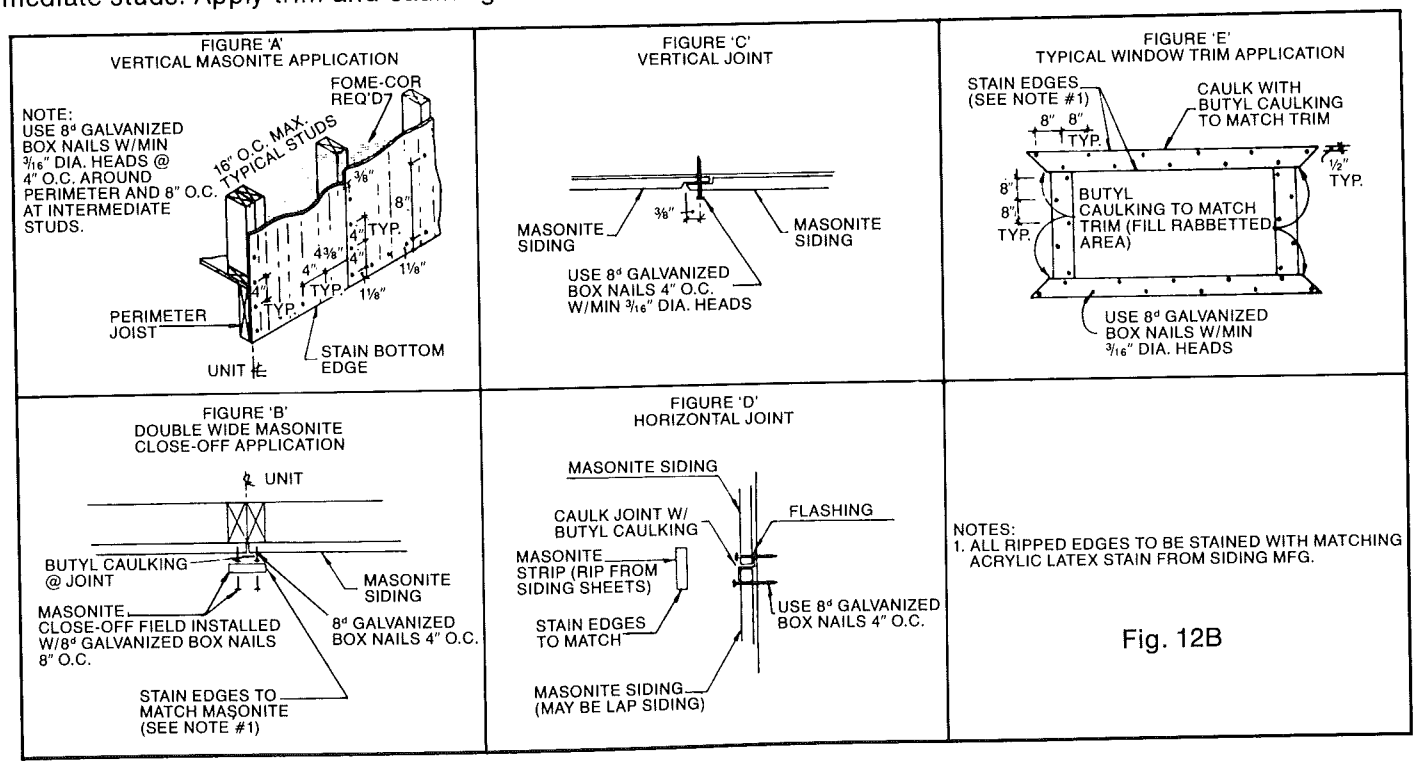
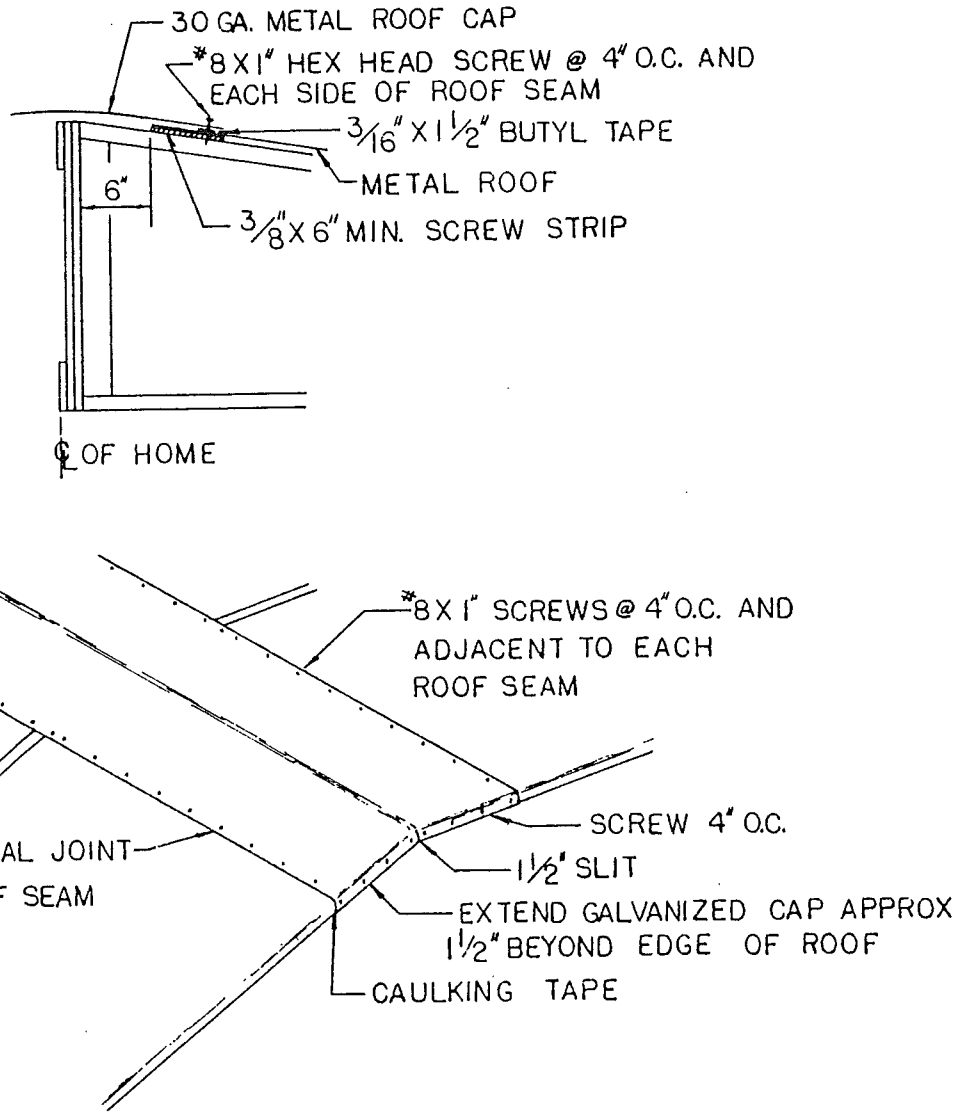


Fig. 12B

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

INSTALLATION OF METAL ROOF:

After bolting the units together according to the procedure on page 11, complete the metal roof closure by applying 3/16" x 1½" 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 1½" of the roof cap over the end and screw to the fascia at 4" o.c. See Fig. 13.



ROOF CAP APPLICATION

Fig. 13

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 11. 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 1½" staples or 8*d* 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).

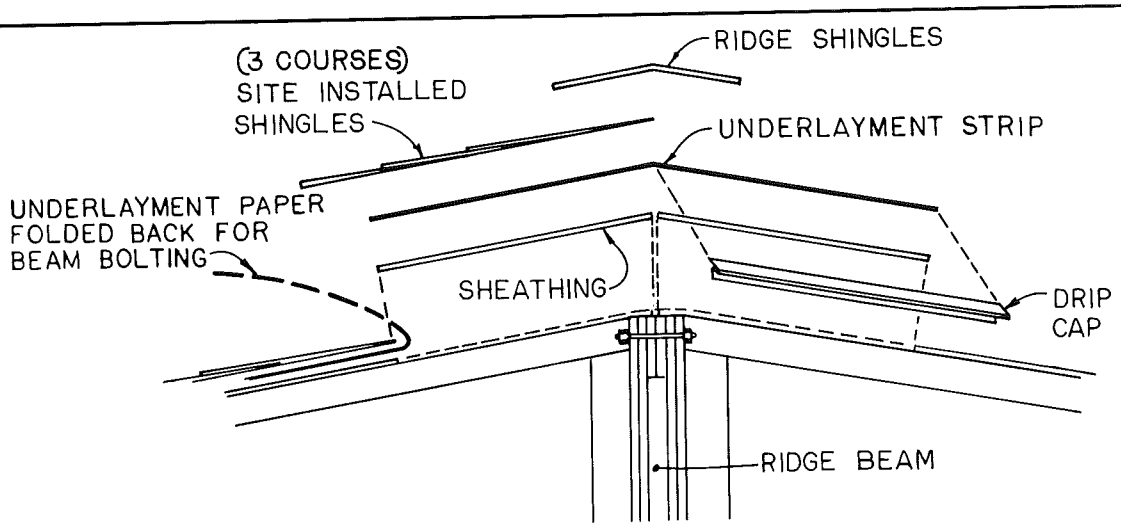
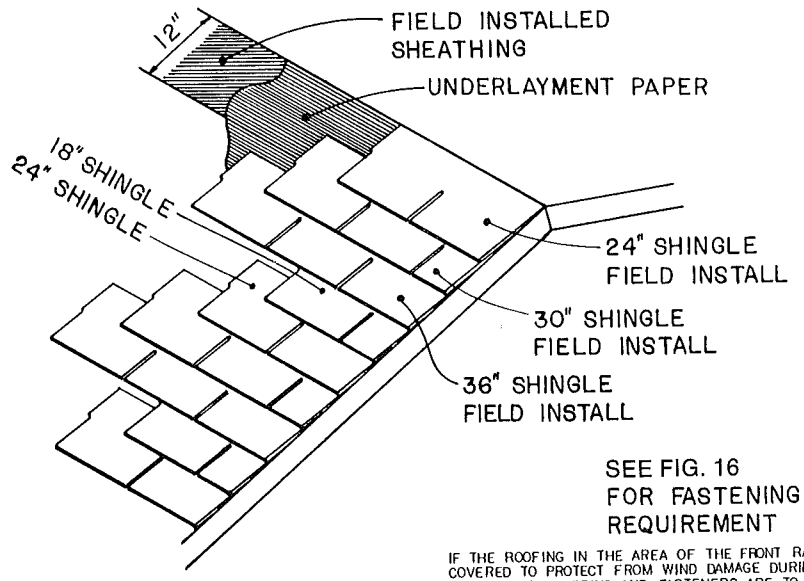


Fig. 14

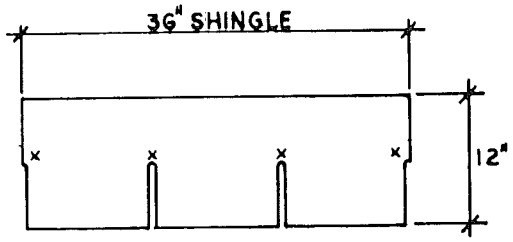


IF THE ROOFING IN THE AREA OF THE FRONT RAKE HAS BEEN COVERED TO PROTECT FROM WIND DAMAGE DURING TRANSIT, THE PROTECTIVE COVERING AND FASTENERS ARE TO BE CAREFULLY REMOVED. SEAL THE FASTENER HOLES WITH ASPHALT ROOFING CEMENT.

Fig. 15

FASTENERS:

USE 1" CROWN X 1" LEG 16 GA GALVANIZED STAPLES OR 1¼" 12 GA. GALVANIZED ROOFING NAILS WITH ⅜" DIAMETER HEADS



NAIL 1" FROM EACH END
5⅝" ABOVE EXPOSED BUTT &
⅝" ABOVE EACH CUT OUT

Fig. 16

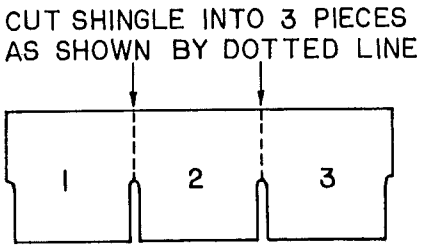


Fig. 17

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

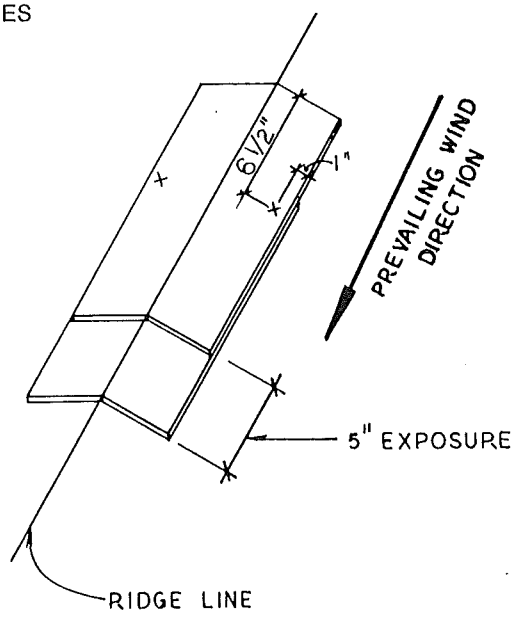


Fig. 18

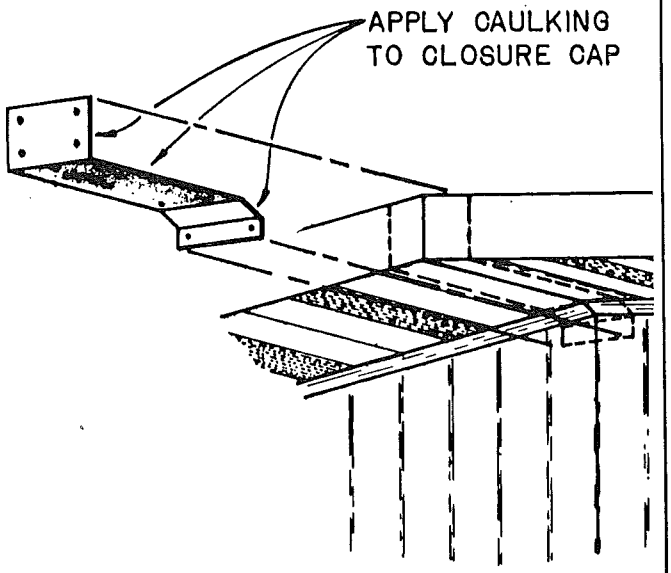


Fig. 19

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.

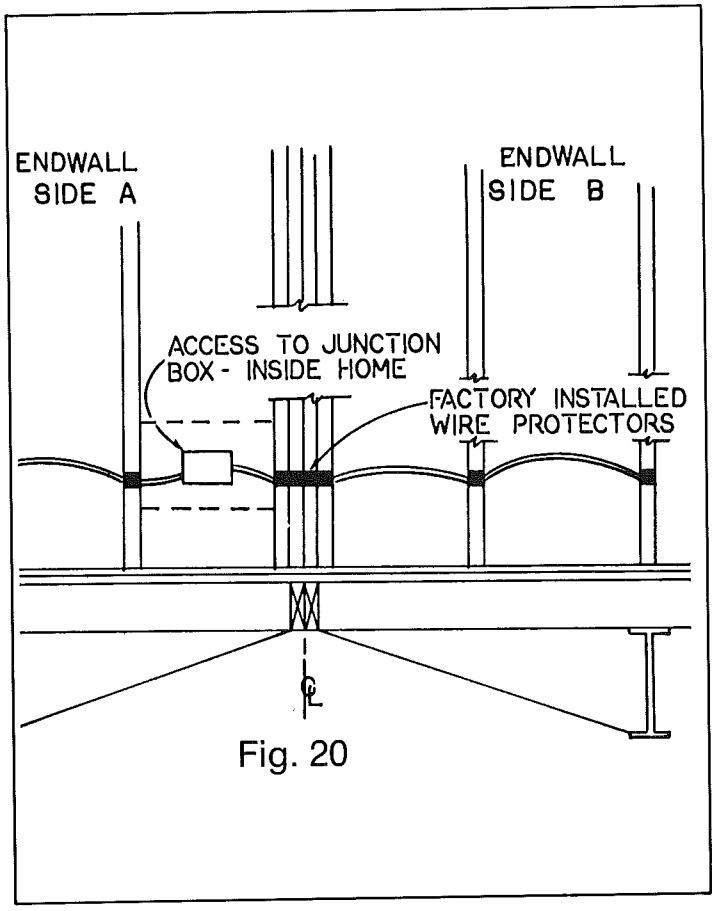


Fig. 20

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.

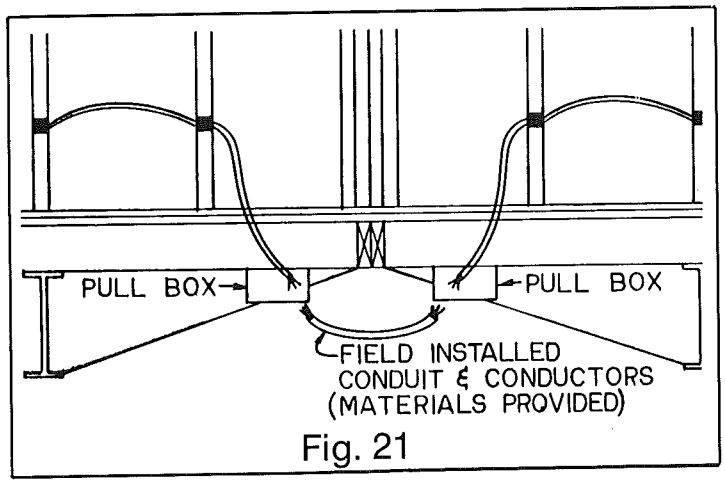


Fig. 21

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.

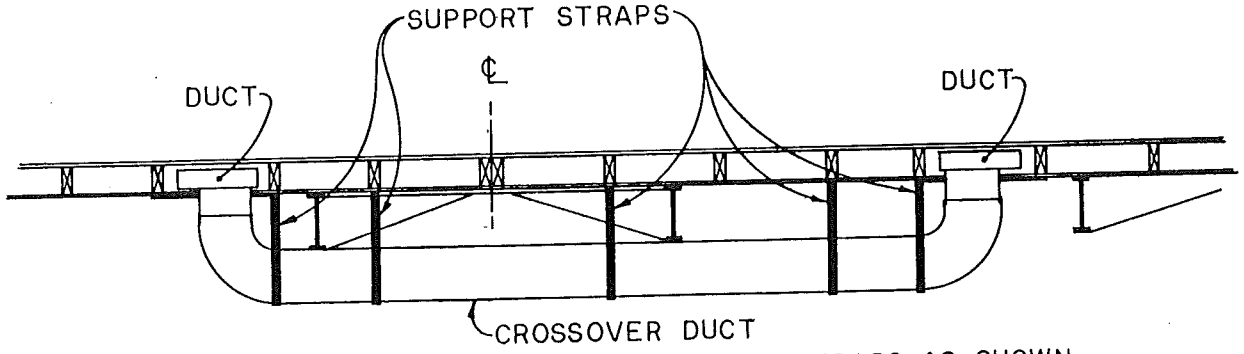
Heating Crossover

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 SET-UP (Cont'd)



NOTE: 5 STRAPS AS SHOWN CONNECTED TO FLOOR JOISTS MINIMUM CLEARANCE TO GROUND TO BE 4"

FIG. 22

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.

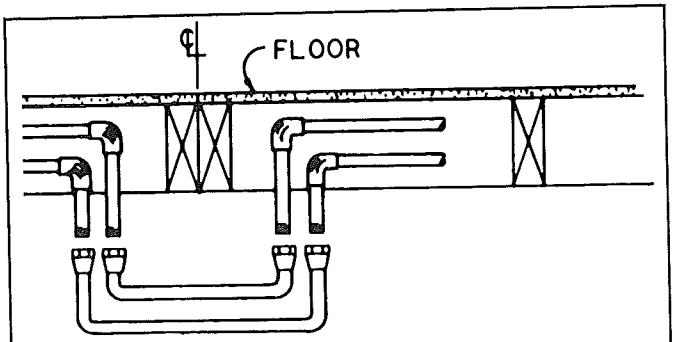
NOTE: DO NOT USE TOOLS TO CONNECT OR REMOVE FLEXIBLE CONNECTOR QUICK DISCONNECT.

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.



MAKE WATER CROSSOVER WITH CONNECTORS PROVIDED WITH THE HOME

FIG. 23

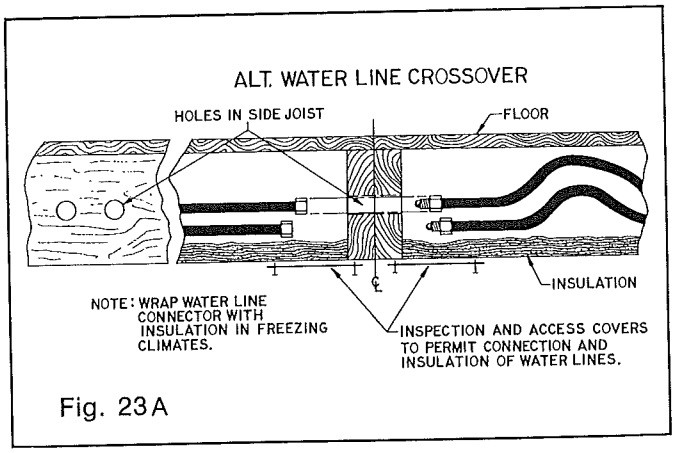


Fig. 23A

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 20), 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.

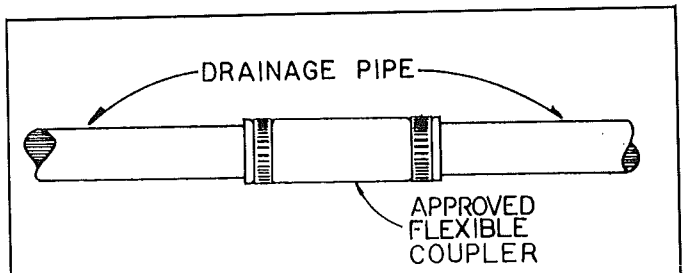


FIG. 24

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).

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.

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 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 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 ☐ 250,000 Btuh or more.

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 ☐ 250,000 Btuh or more.

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[1] (AWG) (TWO LINE AND ONE NEUTRAL)	GROUNDING CONDUCTOR SIZE (AWG)	FACTORY INSTALLED FEEDER RACEWAY[1] 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.

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 communication 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 EVEN 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.

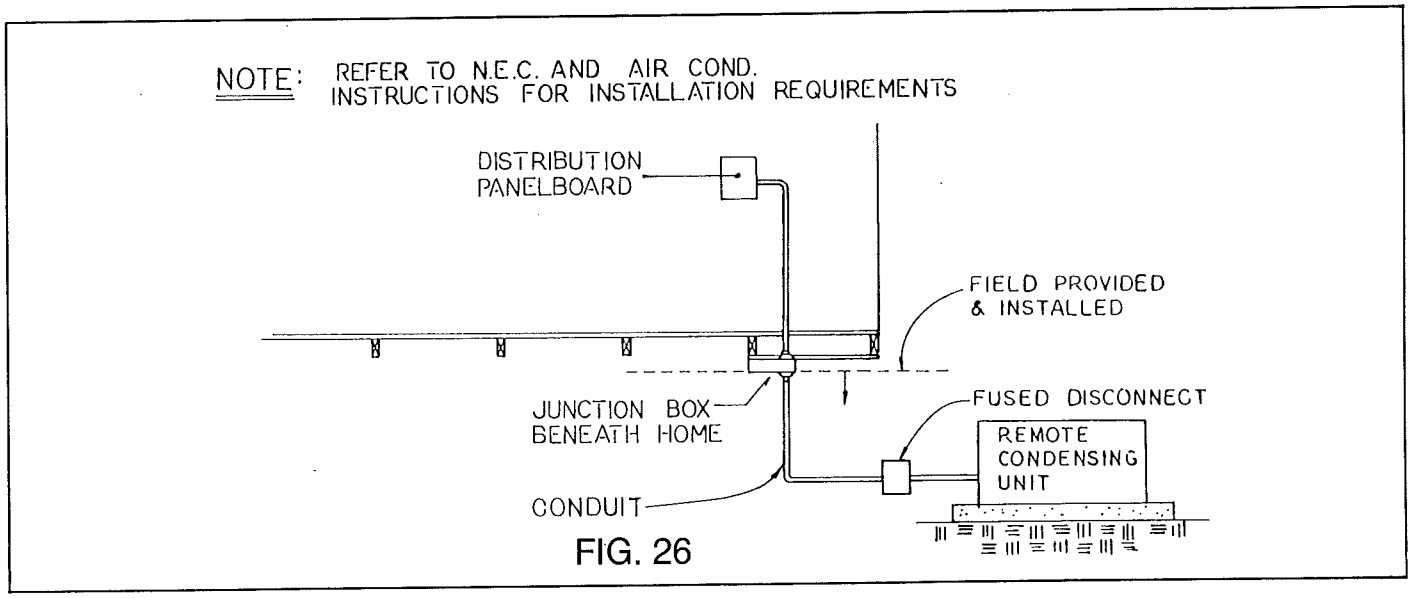


FIG. 26

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

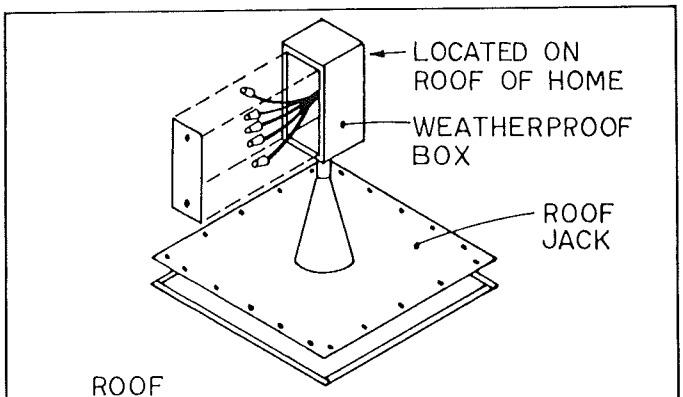


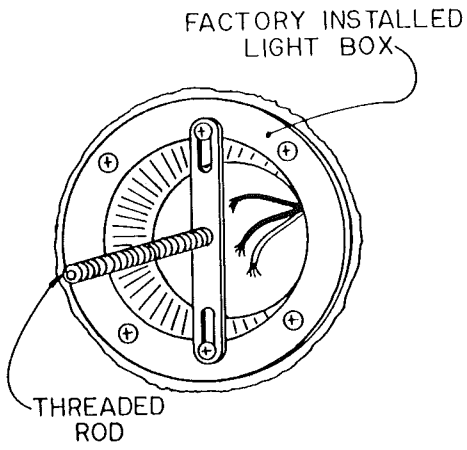
FIG. 27

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: SOME LIGHTS WILL USE TWO BOLTS WHICH THREAD INTO THE MOUNTING STRAP IN LIEU OF THE THREADED ROD ILLUSTRATED

FIG. 28

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.

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.

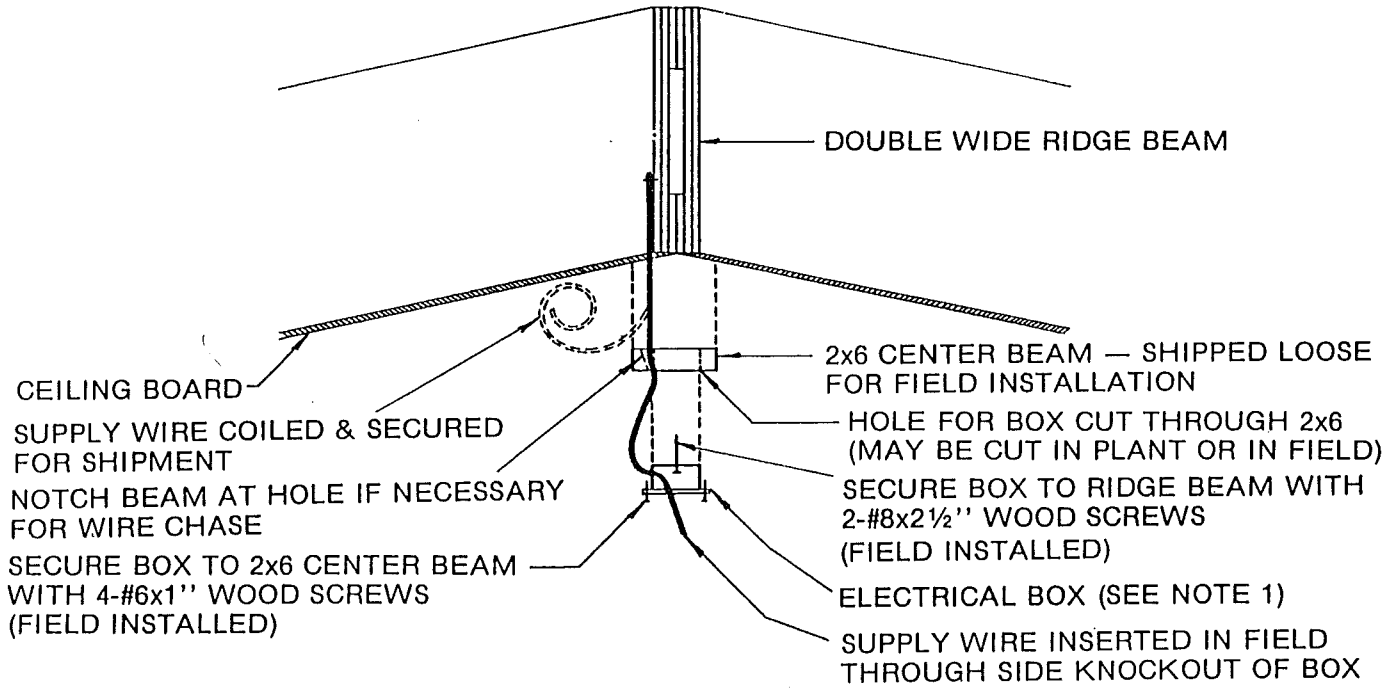
PADDLE FAN INSTALLATION FOR DOUBLEWIDE HOMES WIRED FOR MOUNTING ON CENTER BEAM

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.

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 ¼" 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 × 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 line joint. Be sure that fan supply wire is not pinched or penetrated with beam fasteners.
6. Secure electrical box to ridge beam with #8 × 2½" wood screws through the two holes in the top of the box.
7. Strip about ¾" 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).



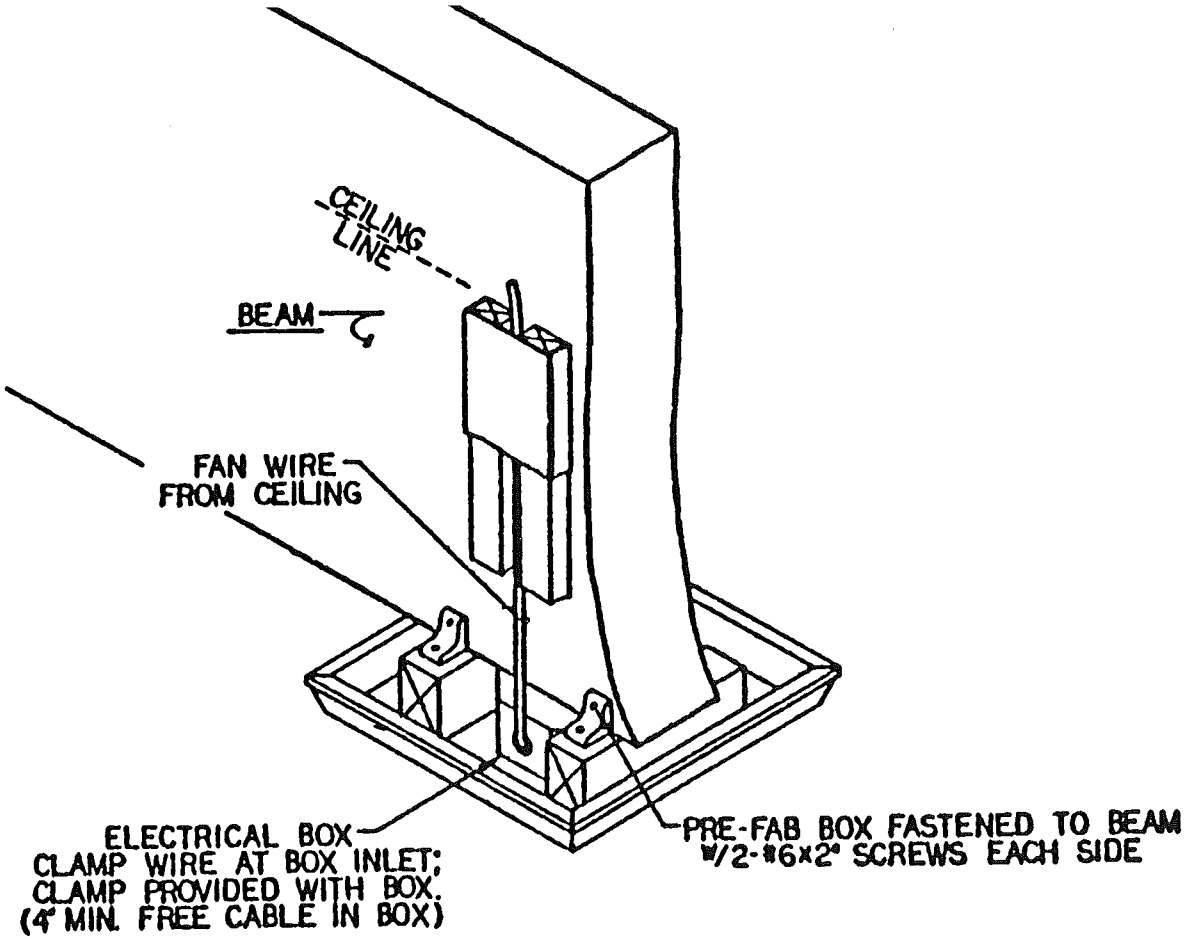
NOTE: APPLICABLE TO U.L. LISTED PADDLE FAN WITH A SWIVEL TYPE MOUNTING BRACKET.

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.

SKYLINE

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

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