

MULTI-SECTIONAL INSTALLATION INSTRUCTIONS MANUAL

DETROITER

HOMES



by

HOMARK

ATTENTION

Dear Homeowner:

The Homark Company, Inc. thanks you for selecting a quality Homark home. We urge you to read the Homeowners Manual and Installation Instruction Booklet carefully. Please pay special attention to the topics of ground preparation under your home. The installation and proper ventilation of clothes dryers, skirting ventilation and proper indoor humidity. If you contracted with others to perform any of these services, make sure that they receive a copy of the instructions and that they have been followed.

Remember, improper installation, which would cause misuse of the product, voids your warranty.

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INTRODUCTION

This HOMARK home has been engineered, constructed, and inspected in accordance with The Department of Housing and Urban Development Manufactured Home Construction and Safety Standards as published in the Federal Register and in effect on the date of manufacture. This National Standard sets forth the requirements of design construction, fire safety, plumbing, heating systems and electrical systems for factory built housing to be used as dwellings.

This manual outlines the steps required for proper home installation and should be used by a qualified installation company. Local and state regulations may affect the installation of the home and the homeowner should insist the installation company conform to these regulations.

The drawings in this manual are intended to be representative of the homes; however, designs and specifications could change in the interest of product improvement. This manual is intended to instruct and to assist already qualified personnel in the proper installation of a HOMARK home. It is not intended to enable someone unfamiliar with home set-up to perform the installation.

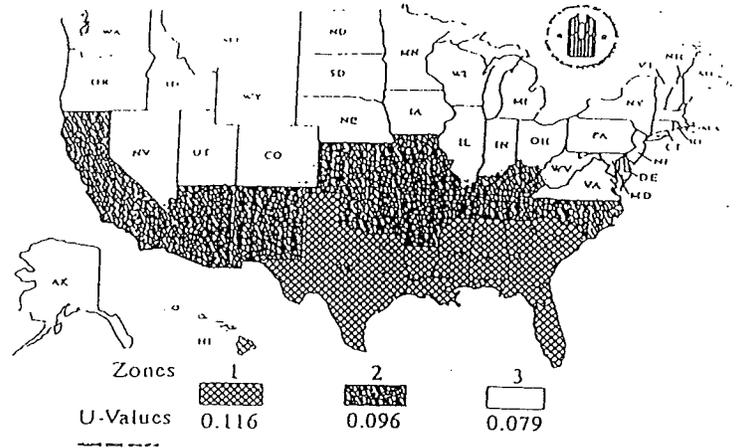
ZONE MAPS

The zone maps will help you make installation decisions with regard to prevailing weather, in the zone where the home is to be located.

From the maps, determine and mark the zone where this home is to be located. This information will be required to determine information from other charts and tables in this manual.

NOTE: Do not install this home in a zone that requires greater loads or climatic requirements than those on the compliance certificate. You may install a home in a zone requiring lesser loads or climatic requirements.

U/O Value Zone Map for Manufactured Housing



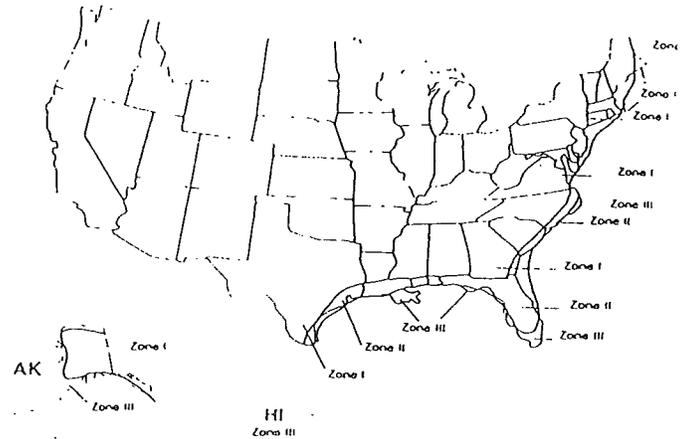
Design Wind-load Zones:

Standard Wind	Zone I	15 psf Horizontal	9 psf uplift*
Hurricane	Zone II	±39 psf Horizontal	27 psf uplift
Hurricane	Zone III	±47 psf Horizontal	32 psf uplift
			* net uplift

Note --
psf: pounds per square foot

Reference -- Manufactured Home Construction and Safety Standards (MHCSS) 24 CFR 3280.305(c)(2), latest edition

Wind-load zone map (Informational only)

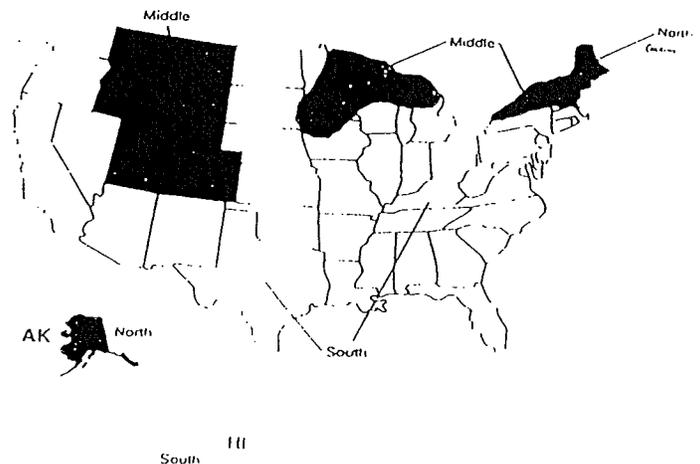


Design Roof-load Zones:

South	20 psf (pounds per square foot) minimum
Middle	30 psf (snow)
North	40 psf (snow)

Reference -- Manufactured Home Construction and Safety Standards (MHCSS) 24 CFR 3280.506, latest edition

Roof-load zone map (Informational only)



SITE PREPARATION

The selected home site must be properly graded and sloped to provide for storm drainage run-off, in particular, the area beneath the home. Check local codes which may specify slope requirements. It is generally recommended that a slope of 1" to 12" be followed and that the site be evenly graded so that there are no depressions where surface water will accumulate, either underneath or outside the home. This is to prevent excessive humidity in the home.

Proper support for the home must allow for soil conditions in the immediate area. Pier footings must be placed on firm, undisturbed soil (not loose fill). Make sure that all top soil and vegetation materials are removed. Pier support may also be placed directly on concrete slabs designed for the home's placement.

Climate conditions must also be taken into account. If footings are placed on a frost-susceptible soil, such as clay or silt, heaving and /or settlement may occur. In areas where temperatures fall below freezing, it is important that the pier footings be located below the frost line.

NOTE: If skirting is to be installed, the entire area under the home shall be covered with a blanket of visqueen (plastic sheeting). This is to prevent excessive humidity in the home. The visqueen should be a minimum of 6 mil thick and be overlapped 12" at all joints.

PIER & FOOTING SELECTION

NOTE: Before any piers or anchors are installed, check to ensure that underground pipes, wires, cables and/or utility services are not located where pier or anchors are located.

The piers must have enough capacity to transmit the vertical load which includes the weight of the home, it's furnishings, and temporary roof loading to the foundation surface below it. If the load imposed is greater than the capacity of the piers, then additional piers must be installed to equal or exceed the load transmitted.

Complete the following steps to determine the pier and footing requirements for the home:

1. Determine pier height to be used based on site conditions.
2. Determine main beam pier spacing from pier spacing chart.
3. Determine the soil bearing capacity. Contact the local jurisdictional authority for building codes or run tests. If tests are run, always use a qualified professional to determine the capacity.



BLOCKING FOR 28 FT. WIDES WITH 30 PSF ROOF LOAD.
WITHOUT PERIMETER BLOCKING

Table A - I-Beam Pier Loads and Footing Sizes:

Pier Spacing Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	2700	8 x 16 16 x 16	14 x 22 18 x 18	12 x 20 16 x 16	10 x 18 16 x 16	9 x 17 16 x 16
6	4050	8 x 16 16 x 16	18 x 26 21 x 21	15 x 23 18 x 18	13 x 21 16 x 16	12 x 20 16 x 16
8	5400	8 x 16 16 x 16	20 x 28 24 x 24	17 x 25 21 x 21	15 x 23 19 x 19	14 x 22 17 x 17
10	6750	8 x 16 16 x 16	23 x 31 27 x 27	20 x 28 23 x 23	17 x 25 21 x 21	15 x 23 19 x 19

Table B - Piers at Mating Wall and Interior Column Locations.

Column Span Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	3220	16 x 16	19 x 19	17 x 17	16 x 16	16 x 16
6	3760	16 x 16	20 x 20	18 x 18	16 x 16	16 x 16
8	4300	16 x 16	22 x 22	19 x 19	17 x 17	16 x 16
10	4830	16 x 16	23 x 23	20 x 20	18 x 18	16 x 16
12	5370	16 x 16	24 x 24	21 x 21	19 x 19	17 x 17
14	5900	16 x 16	25 x 25	22 x 22	20 x 20	18 x 18
16	6440	16 x 16	26 x 26	23 x 23	20 x 20	19 x 19
18	7000	16 x 16	27 x 27	24 x 24	21 x 21	19 x 19
20	7510	16 x 16	28 x 28	24 x 24	22 x 22	20 x 20
22	8050	16 x 16	29 x 29	25 x 25	23 x 23	21 x 21
24	8590	16 x 16	30 x 30	26 x 26	23 x 23	21 x 21

Notes:

- (1) Applies to homes that do not require perimeter blocking along the side walls.
- (2) The minimum footing depths for precast footings are as follows (Min. concrete strength (fc) of 2500 psi):
4 inches if precast
Add the maximum of 4 inches or 50% of the depth, if footings are poured in place.
- (3) All footing sizes are based upon the pier load listed plus a pier weight of 400 Lbs (Min)
- (4) Based on a box width of 161 inches and an 11 inch eave.
- (5) All footing must rest on undisturbed soil at or below the frost line.
- (6) Consult the Local Jurisdiction for the allowable soil bearing
- (7) Floor system may consist of 2 x 8 No. 2 Spf-S floor joists at 16 inch intervals

BLOCKING FOR 28 FT. WIDES WITH 40 PSF ROOF LOAD
WITHOUT PERIMETER BLOCKING

Table A - I-Beam Pier Loads and Footing Sizes:

Pier Spacing Ft.	Load Lbs	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	3000	8 x 16 16 x 16	15 x 23 19 x 19	13 x 21 16 x 16	11 x 19 16 x 16	10 x 18 16 x 16
6	4510	8 x 16 16 x 16	19 x 27 22 x 22	16 x 24 19 x 19	14 x 22 17 x 17	12 x 20 16 x 16
8	6010	8 x 16 16 x 16	22 x 30 25 x 25	18 x 26 22 x 22	16 x 24 20 x 20	14 x 22 18 x 18
10	7510	8 x 16 16 x 16	23 x 31 28 x 28	21 x 29 24 x 24	18 x 26 22 x 22	16 x 24 20 x 20

BLOCKING FOR 32 FT. WIDES WITH 30 PSF ROOF LOAD
WITHOUT PERIMETER BLOCKING

Table A - I-Beam Pier Loads and Footing Sizes:

Pier Spacing Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	2990	8 x 16 16 x 16	15 x 23 19 x 19	13 x 21 16 x 16	11 x 19 16 x 16	10 x 18 16 x 16
6	4480	8 x 16 16 x 16	18 x 26 22 x 22	16 x 24 19 x 19	14 x 22 17 x 17	12 x 20 16 x 16
8	5970	8 x 16 16 x 16	22 x 30 25 x 25	18 x 26 22 x 22	16 x 24 20 x 20	14 x 22 18 x 18
10	7460	8 x 16 16 x 16	24 x 32 28 x 28	21 x 29 24 x 24	18 x 26 22 x 22	16 x 24 20 x 20

Table B - Piers at Mating Wall and Interior Column Locations.

Column Span Ft.	Load Lbs	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	4030	16 x 16	21 x 21	18 x 18	16 x 16	16 x 16
6	4700	16 x 16	23 x 23	20 x 20	18 x 18	16 x 16
8	5370	16 x 16	24 x 24	21 x 21	19 x 19	17 x 17
10	6040	16 x 16	25 x 25	22 x 22	20 x 20	18 x 18
12	6710	16 x 16	27 x 27	23 x 23	21 x 21	19 x 19
14	7380	16 x 16	28 x 28	24 x 24	22 x 22	20 x 20
16	8050	16 x 16	29 x 29	25 x 25	23 x 23	21 x 21
18	8720	16 x 16	30 x 30	26 x 26	23 x 23	21 x 21
20	9390	16 x 16	30 x 30	27 x 27	24 x 24	22 x 22
22	10060	16 x 16	30 x 30	28 x 28	25 x 25	23 x 23
24	10730	16 x 16	30 x 30	29 x 29	26 x 26	24 x 24

Table B - Piers at Mating Wall and Interior Column Locations.

Column Span Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	3600	16 x 16	20 x 20	17 x 17	16 x 16	16 x 16
6	4200	16 x 16	21 x 21	19 x 19	17 x 17	16 x 16
8	4800	16 x 16	23 x 23	20 x 20	18 x 18	16 x 16
10	5400	16 x 16	24 x 24	21 x 21	19 x 19	17 x 17
12	6000	16 x 16	25 x 25	22 x 22	20 x 20	18 x 18
14	6600	16 x 16	26 x 26	23 x 23	21 x 21	19 x 19
16	7200	16 x 16	27 x 27	24 x 24	21 x 21	20 x 20
18	7800	16 x 16	29 x 29	25 x 25	22 x 22	20 x 20
20	8400	16 x 16	30 x 30	26 x 26	23 x 23	21 x 21
22	9000	16 x 16	31 x 31	26 x 26	24 x 24	22 x 22
24	9600	16 x 16	31 x 31	27 x 27	24 x 24	22 x 22



Notes:

- Applies to homes that do not require perimeter blocking along the side walls
- The minimum footing depths for precast footings are as follows (Min. concrete strength (fc) of 2500 psi). 4 inches if precast. Add the maximum of 4 inches or 50% of the depth, if footings are poured in place
- All footing sizes are based upon the pier load listed plus a pier weight of 400 Lbs (Min)
- Based on a box width of 16 1/2 inches and a 1 1/2 inch eave
- All footing must rest on undisturbed soil at or below the frost line
- Consult the Local Jurisdiction for the allowable soil bearing
- Floor system may consist of 2 x 8 No. 2 Spf S floor joists at 16 inch intervals

BLOCKING FOR 32 FT. WIDES WITH 48 PSF ROOF LOAD
WITHOUT PERIMETER BLOCKING

Table A - I-Beam Pier Loads and Footing Sizes:

Pier Spacing Ft.	Load Lbs	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	3590	8 x 16 16 x 16	16 x 24 20 x 20	14 x 22 17 x 17	12 x 20 16 x 16	11 x 19 16 x 16
6	5380	8 x 16 16 x 16	20 x 28 24 x 24	17 x 25 21 x 21	15 x 23 19 x 19	14 x 22 17 x 17
8	7180	8 x 16 16 x 16	23 x 31 27 x 27	20 x 28 24 x 24	18 x 26 21 x 21	16 x 24 20 x 20
10	8970	8 x 16 16 x 16	23 x 31 30 x 30	23 x 31 26 x 26	20 x 28 24 x 24	18 x 26 22 x 22

Table B - Piers at Mating Wall and Interior Column Locations.

Column Span Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	5220	16 x 16	24 x 24	21 x 21	18 x 18	17 x 17
6	6090	16 x 16	25 x 25	22 x 22	20 x 20	18 x 18
8	6960	16 x 16	27 x 27	23 x 23	21 x 21	19 x 19
10	7830	16 x 16	29 x 29	25 x 25	22 x 22	20 x 20
12	8700	16 x 16	30 x 30	26 x 26	23 x 23	21 x 21
14	9570	16 x 16	30 x 30	27 x 27	24 x 24	22 x 22
16	10440	16 x 16	30 x 30	28 x 28	25 x 25	23 x 23
18	11310	16 x 16	30 x 30	30 x 30	26 x 26	24 x 24
20	12180	16 x 16	30 x 30	30 x 30	27 x 27	25 x 25
22	13050	16 x 16	30 x 30	30 x 30	28 x 28	26 x 26
24	13920	16 x 16	30 x 30	30 x 30	29 x 29	27 x 27

Notes:

- Applies to homes that do not require perimeter blocking along the side walls
- The minimum footing depths for precast footings are as follows (Min. concrete strength (fc) of 2500 psi): 4 inches if precast, 5 inches if precast for loads above 13,100 lb. Add the maximum of 4 inches or 50% of the depth, if footings are poured in place
- All footing sizes are based upon the pier load listed plus a pier weight of 400 Lbs (Min)
- Based on a box width of 18 1/2 inches and a 1 1/2 inch eave.
- All footing must rest on undisturbed soil at or below the frost line
- Consult the Local Jurisdiction for the allowable soil bearing.
- Floor system may consist of 2 x 8 No. 2 Spf S floor joists at 16 inch intervals

BLOCKING FOR 28 FT. WIDES WITH 48 PSF ROOF LOAD
WITHOUT PERIMETER BLOCKING

Table A - I-Beam Pier Loads and Footing Sizes:

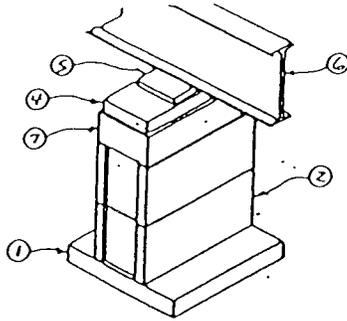
Pier Spacing Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	3250	8 x 16 16 x 16	16 x 24 19 x 19	13 x 21 17 x 17	12 x 20 16 x 16	10 x 18 16 x 16
6	4870	8 x 16 16 x 16	19 x 27 23 x 23	16 x 24 20 x 20	14 x 22 18 x 18	13 x 21 16 x 16
8	6500	8 x 16 16 x 16	23 x 31 26 x 26	19 x 27 23 x 23	17 x 25 20 x 20	15 x 23 19 x 19
10	8120	8 x 16 16 x 16	23 x 31 29 x 29	22 x 30 25 x 25	19 x 27 23 x 23	17 x 25 21 x 21

Table B - Piers at Mating Wall and Interior Column Locations.

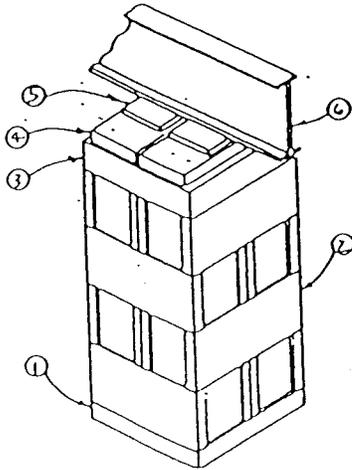
Column Span Ft.	Load Lbs.	Pier Size In. x In.	Footing Sizes (In. x In.) Allowable Soil Bearing			
			1500 Psf	2000 Psf	2500 Psf	3000 Psf
4	4670	16 x 16	23 x 23	20 x 20	18 x 18	16 x 16
6	5450	16 x 16	24 x 24	21 x 21	19 x 19	17 x 17
8	6230	16 x 16	26 x 26	22 x 22	20 x 20	18 x 18
10	7000	16 x 16	27 x 27	24 x 24	21 x 21	19 x 19
12	7780	16 x 16	29 x 29	25 x 25	22 x 22	20 x 20
14	8560	16 x 16	30 x 30	26 x 26	23 x 23	21 x 21
16	9340	16 x 16	30 x 30	27 x 27	24 x 24	22 x 22
18	10120	16 x 16	30 x 30	28 x 28	25 x 25	23 x 23
20	10890	16 x 16	30 x 30	29 x 29	26 x 26	24 x 24
22	11670	16 x 16	30 x 30	30 x 30	27 x 27	25 x 25
24	12451	16 x 16	30 x 30	30 x 30	28 x 28	25 x 25

PIER & FOOTING CONSTRUCTION

Pier & footing design should be as illustrated below:



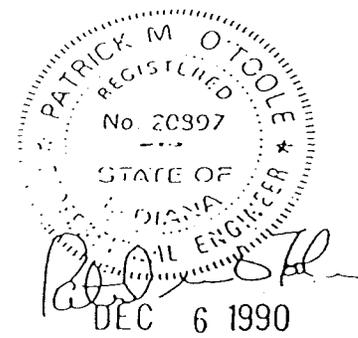
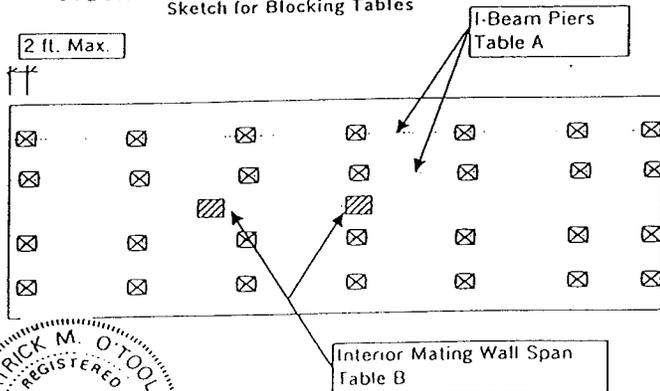
From grade to main beam up to 32" high



From grade to main beam up to 48" high

PIER CONSTRUCTION CONFORMS TO ANSI A225.2 MANUFACTURED HOME INSTALLATION.

Sketch for Blocking Tables



1. Footing - solid concrete below frost line.
2. Pier - concrete blocks 8"x 8"x 16" (cells vertical).
3. Cap Block - 16"x 16"x 4", solid concrete.
4. Wood Plate - 2"x 8"x 16".
5. Two alternate hardwood shims minimum of 2" in width to be driven in tightly and not to occupy more than 1" vertical space, and used to level the unit.
See shim detail below.
6. Main Frame.
7. Cap block - 8"x 16"x 4", solid concrete.

NOTES:

- A. Pier foundation to be placed on stable soil.
- B. If over 48" in height (from grade to bottom of main frame), pier to be designed by a qualified architect or engineer.
- C. 2"x 8"x 16" solid concrete blocks may be used in combination with item #2.

Alternate methods and materials may be used; however, HOMARK declines any responsibility and requires that a qualified architect or engineer approve the system design.



SHIMS: 4"x 6" Long (min) Not to occupy more than 1" of vertical space.

PREPARATIONS BLOCKING & LEVELING

Basic Tools Requirement:

The listing below contains only major items. Individual set-up crews may have alternate equipment.

1. Four jacks with a minimum 8 ton rating.
 4. Four steel plates with a minimum size of 3/8"x5" to use between the jack and main beams.
 3. 6' carpenters level.
 4. Ratchet and socket wrenches.
 5. Portable electric drill.
 6. Two hand winches (come-alongs).
 7. Pipe Wrenches.
 8. Tin Snips.
 9. Ordinary small hand tools.
 10. Carpentry and electricians equipment.
1. Position "A" half on previously prepared site, spotting for ease of utility hookup. The connecting points for electric, water, gas and drain lines may be determined by checking installation insert pages.
 2. With the use of the hydraulic jacks and safety blocking, place one jack forward of the front spring hanger and another just behind the rear spring hanger until the wheels are off the ground. Disconnect the brake wires and remove axle assemblies by extracting main spring hanger bolts.
 3. Position piers or blocks of desired height and required capacity at the support points. On all units, supports must be installed under both ends of frame not more than one foot from the ends of the I-beams and immediately ahead and behind the spring hangers under each I-beam. Remove jack and lower section to supports.
 4. With the use of the carpenters level, adjust the hitch jack to obtain the length wise level. Adjust or shim supports to hold level.
 5. Place the level across the I-beam behind the hitch and raise the low side with the jack placed under the I-beam just forward of the spring hanger. Adjust or shim support to hold level. Repeat with level at rear of home, placing jack just behind the spring hanger.
 6. Recheck both longitudinal and transverse levels and adjust as necessary.

7. Remove all the wood strips and banding which hold the protective plastic to the sidewalls on each unit. Remove wood strips which hold plastic to roof. Plastic and banding may now be removed.
8. Apply a full width strip of insulation at floor line and end wall connecting points. Apply a 15" full length strip of insulation starting at ceiling height and going up 15".

NOTE: Any shingle paper or other materials at top part of roof cavity should be removed because they would obstruct roof cross venting.

Make sure that the plastic sheeting is removed above the ceiling beam to facilitate cross venting between halves.

9. On the "A" half, apply the 1 1/2" x 3/4" foam tape around both heat crossovers at the marriage. Staple the tape in each corner to hold in place while aligning the halves. Make sure there are absolutely no gaps between the strips of tape.
10. Check both halves of units for electrical crossovers, water crossovers, gas crossovers & drain connections. Make notes on locations for use in setup later.
11. With towing vehicle move "B" half as close to "A" half as possible, using extreme care so as not to damage sections. Position so that bottom of rear walls of both halves are in alignment.
12. Attach come-alongs to I-beams at front and rear and draw "B" half snug to "A" half. Maintain tension on come-alongs.
13. Level both halves as one unit and place supports as instructed for "A" half.

SECURING UNITS TOGETHER

1. With halves together and the initial leveling completed, check the alignment of the end walls, interior walls, roof and floor. Alignment of ceiling and walls can be accomplished by carefully raising outside rear corner and lowering the outside front corner of the "B" half until the sections are in alignment or conversely.
2. With the sections in alignment, tie the floors together with minimum size 3/8" x 4" lag bolts

spaced 48" on center. The lag bolts at the end may be spaced a maximum of 36" in from each end. Washers must be used on all lag bolts. Cut three sides of a 16"x 16" hole in the bottom board at the marriage line of either unit at the locations for the lag bolts. Predrill 3/8" in the rim joist(s) of the unit with the holes in the bottom board. Drill holes in the rim joist of only one unit. Install lag bolts and tighten securely. Replace any insulation removed for installation of bolts. Repair the bottom board as specified elsewhere in this manual.

(ALTERNATE METHOD)

Tie the floors together with 3/8" bolts spaced 48" on center. The bolts at the ends may be spaced a maximum of 36" in from each end. Washers must be used on both ends of all bolts. Minimum bolt size is 3/8"x 5". Cut three sides of a 16"x 16" hole in the bottom board at the marriage line of both units. Drill 3/8" holes through the rim joist of both units. Install the bolts and tighten securely. Replace any insulation removed for installation of the bolts, and repair the bottom board as specified elsewhere in this manual.

3. Place jacks under outside I-beam of "B" half and raise enough to bring roof beams together. Adjust the jacks to provide a tight and flush ceiling joint. If matching halves of ceiling are not flush, use a jack and post with pad to raise low side until flush prior to fastening roof beam together.
4. Roof beams are connected with metal strips. Secure the metal strips on both sides every 12 inches with shingle nails or staples into 2x4 rail located at the peak. Be sure to overlap metal strips at least 6 inches and in the opposite direction the ridge shingles will be overlapped.

NOTE: If tar line on last row of shingles is covered by metal strip, run a bead of tar along edge of metal to secure ridge shingles.



Ridge Shingle Cutting Detail

NOTE: Shipping studs on marriage walls can now be removed.

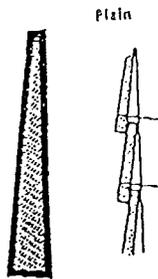
5. From the exterior, fasten the end walls together with 16 penny nails, or 3" (#10) wood screws. Drive nails in a toe nail manner from alternate side at 12" o.c. spacing so that nails will be spaced at 6" o.c.
6. After the halves are secured it is necessary to install supports of required capacities and locations, and re-level the entire home. First level the halves in both directions beginning in the "A" unit. Adjust piers as necessary.

EXTERIOR CLOSURE

1. Cut ridge shingles and lay across the peak evenly spaced on both sides. Begin application of shingles by placing the first ridge shingle with it's exposed edge at the end of the roof overhang and nail so that the next ridge shingle will cover the fasteners. The last ridge shingle nails will not be covered and need to be sealed with plastic cement.
2. Install fascia and underhang caps.
3. Prior to installing exterior covering, seal joint with tape or caulk the full length of the joint in the end walls to prevent air infiltration.
4. **MASONITE SIDING INSTALLATION:** Install vertical close-up pieces provided to cover joints on front and rear end walls. Use clear caulk to seal along both edges of vertical piece. Use touch-up paint and caulk as needed for minor repairs and sealing.
5. **VINYL SIDING INSTALLATION:** Install the starter strip at same height as starter strip on sidewalls. Begin attaching siding, starting with the bottom course. Install J-channel at the peak before installing the top course of siding. Secure last piece of siding either with caulking inside the lip or with one screw at the top of the piece

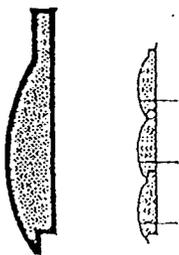
NOTE: Any accessories, such as shutters, need to be installed in a way that still allows the siding to move freely.

6. CEDAR SIDING INSTALLATION: Install with 8d galvanized nails. Attach as shown in figure.



Plain Bevel may be used with smooth face exposed or sawn face exposed for texture effect.
Recommend 1" minimum overlap on plain bevel siding

7. LOG SIDING INSTALLATION: Install with 16d galvanized nails. Attach as shown in figure.



1 1/2" at thickest point.
Nail 1 1/2" up from lower edge of piece.

4. Before installing floor coverings, a strip of linoleum should be secured to cover any cracks between units. Where carpet adjoins linoleum, stretch and secure carpet and install carpet bar. When seaming carpet is required, use seaming tape and iron. Carpet should be installed by a qualified carpet layer. When linoleum adjoins linoleum, a lino bar should be used.
5. If a patio door is installed in the home, remove strapping and install moulding.

CROSSOVER UTILITY CONNECTIONS

ELECTRICAL CROSSOVERS

Depending on the layout and options in the home, there may be more than one junction. There are separate junctions for door chimes and 240 volt connections. An electrical print is sent in each home and can be used to help locate all electrical junctions.

1. Locate junction(s) and remove access cover(s).
2. Electrical cables are numbered to coincide with the designated circuit. Attach cables with like numbers to complete circuit.
3. On a 240 volt connection, feed both cables into junction box and connect.

GROUNDING THE FRAME

The frames of a multi-sectional unit must be grounded together.

1. A grounding clamp with copper wire is attached to one half of home at the mating line.
2. Run copper wire to second half and attach to the grounding clamp already installed.

WATER LINE CROSSOVER

Water line crossover connections are located in the belly at the mating line of the home.

1. Remove access covers from both halves.
2. Feed water lines through the pre-drilled holes in the rim-joist and connect with fittings provided
3. Re-insulate area and attach the access covers.

NOTE: Water line(s) are wrapped with colored tape to show which lines are to be attached.

8. Porch lights are usually shipped loose in the home and should be installed by a qualified electrician.
9. Door plunger and spring for storm doors are shipped loose and need to be installed on site.

INTERIOR FINISHING

1. Trim out archways with ash panel and moulding corners.
2. Install ship loose panels on interior walls where panels have been left short for set-up. Check to see that walls line up before installing panels. Adjust if necessary. Mould all panel seams as required.
3. Install pre-hung doors on marriage wall. Make sure door jambs are properly shimmed and nailed in square allowing doors to open and close properly. Mould doors and seams above doors as required.

DRAIN SYSTEM HOOKUP

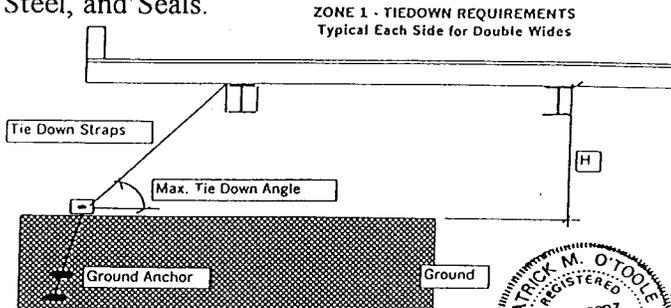
If the home is equipped with a secondary drop it must be connected to the main stool drop with the drain line and fittings shipped loose with the home. The solvent cement used to make the drain line connections must be compatible with the pipe installed in the home and be used in accordance with the manufacturer's instruction on the container.

GAS LINE CROSSOVER

1. Remove protective caps from the gas lines and connectors.
2. Attach the quick disconnect to the supply side and the connector on the other half.

TIE DOWN EQUIPMENT

Anchoring equipment shall be installed in accordance with the product manufacturers instruction. Anchoring equipment shall be capable of resisting an allowable working load equal to or exceeding 3,150 pounds and shall be capable of withstanding a 50% overload (4,725 pounds total) without failure. Frame tie strapping material must meet or exceed the following specifications: Type 1, Finish B, Grade I steel strapping, 1.25" x .035", conforming with ASTM Standard Specification D 3953-91, Standard Specification for Strapping, Flat Steel, and Seals.



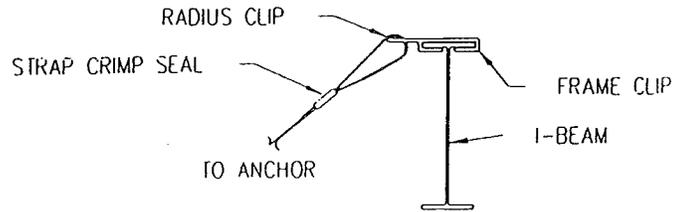
SEE CHART BELOW FOR SPACING OF FRAME TIEDOWN STRAPS

MINIMUM ON CENTER TIEDOWN REQUIREMENTS

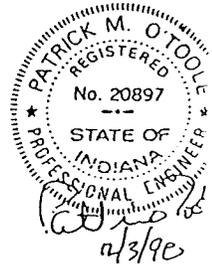
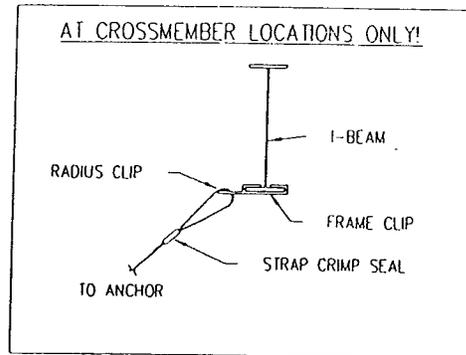
Floor Width (Feet)	I-Beam Spacing (Inches)	I-Beam Height (Inches)	Max. Spacing (Feet)	
Zone I:				
Standard Homes:	28 ft. w/ 7' - 6" Max.		79.5	18 to 48
				8' - 8"
NOTES:	32 ft. w/ 7' - 6" Max.		125	18 to 33
				9' - 5"

- 1) Straps are required along each outside I-Beam.
- 2) Minimum straps to be .035 x 1 1/4" Type 1 Finish B Steel Strap Conforming to ASTM D3953-91. Must be Able to resist a working load of 3150 Lbs. (4725 Lbs. Ultimate).

- 3) Straps to be installed at no farther than the indicated spacing and no farther than two feet from each end.
- 4) Straps at end walls must be installed between 30 and 50 degrees from horizontal.
- 5) Minimum anchor capacity to PE or RA certified to the maximum capacity per installed angle and type of soil. Anchors must be installed to full depth and 12 inches above the water table. Stabilizer plates must be installed on all anchors.
- 6) See Manual for pier specifications, spacings, and footing sizes.
- 7) Max. Box widths: 28ft.-161 inches; 32ft.-185 inches. Double wides have 11 inch eaves.



NOTE: Radius clip, strap crimp seal, and strap to be independently certified to meet minimum loads specified by H.U.D. MHCSS, 3150 lbs working load and a 4725 lbs. Ultimate. All parts to be weatherized per 3280.306 in the H.U.D. MHCSS.



ANCHORS

Minimum anchor capacity required is as noted and indicated on P.E. Certified Pier & Tie Down details.

Anchors should be certified by a professional engineer, architect, or a nationally recognized testing laboratory as to their resistance, based on the maximum angle of diagonal tie and/or vertical tie loading and angle of anchor installation and type of soil in which the anchor is to be installed. Not all anchors are approved for use on manufactured homes. Be sure to check with your local and state

building codes for approved anchors.

Ground anchors should be imbedded below the frost line and be at least 12 inches above the water table.

Ground anchors should be installed to their full depth, and stabilizer plates should be installed to provide added resistance to overturning or sliding forces.

ANCHORING EQUIPMENT

Anchor straps should be Type 1, Finish B, Grade 1 steel strapping, 1-1/4 inches wide and 0.035 inches in thickness, certified by a registered professional engineer or architect as conforming with ASTM Standard Specification D3953-91, Standard Specification for Strapping, Flat Steel and Seals.

Where a vertical tie and a diagonal tie are located at the same place, both ties may be connected to a single anchor, provided that the anchor used is capable of carrying both loads simultaneously.

Anchoring equipment exposed to weathering shall have a resistance to weather deterioration at least equivalent to that provided by a coating of zinc on steel of not less than 0.030 ounces per square foot of surface coated.

HITCH & WHEEL REMOVAL

The front hitch used to transport the home is designed to be detachable, for aesthetic purposes it may be removed after set-up. However, the hitch should be retained in the event the home is ever relocated. Common practice is to store the hitch under the home where it will be protected from the elements and concealed by the skirting.

During or after set-up, it is common practice to remove the wheels and tires. The axles and complete suspension system may be removed.

In some states and localities, owners are allowed to dispose of this equipment, which in others, they may not. Before disposing of axles and suspension systems be sure to check carefully with the dealer and/or local authorities.

This equipment is commonly stored under the home on a waterproof substance, like vinyl sheeting,

where it is protected and concealed by the skirting. After wheel removal, hub surfaces should be coated with heavy grease to resist rust and corrosion.

NOTE: The tires, wheels and suspension systems are designed ONLY for use to transport this manufactured home. They are not designed for any other purpose.

EXHAUST SYSTEMS

Visually inspect bathroom and kitchen exhaust vents to see that they are free and clear to the outside of the home and that nothing has been disturbed due to in-transit vibrations.

BOTTOM BOARD PATCHING

Below are listed some of the different patching methods which offer the dealer, or home buyer, a means of resealing the bottom board.

Affix the patch with an approved bottom board tape. It is recommended that #620 tape from First Line Corp. of Valdosta, Georgia be used.

1. Holes or punctures in bottom board are to be taped with #620 tape.
2. Cuts or rips in bottom board required for maintenance work: Draw edges together with 4" strips of tape perpendicular to the direction of opening every 4"-6". Finish applying lengthwise strips of tape over the joined edges insuring a complete edge seal.
3. Large holes or cutouts: A patch may be cut from bottom board material and taped in place per item #2 above. Large patches may require stapling or nailing to adjacent joists to insure the patch will stay in place. In either case, edge taping should be done to seal the edges.
4. Should bottom board material or tape not be available, .019 aluminum may be nailed, stapled or screwed over damaged area and putty caulk used to insure an edge seal.
5. With large holes and cuts or when trying to tape bottom board in cold weather, it is best to spray the area with an adhesive spray, such as Super 77 adhesive made by 3M.

SKIRTING

HOMARK recommends installation of skirting. Not only does it improve the appearance of the home, but it also reduces the energy used to heat and cool your home. Skirting helps keep the floors warmer in the winter, cooler in the summer, and helps prevent plumbing freeze-ups in winter. Some manufactured home parks require that all manufactured homes be skirted.

When skirting your home, provisions should be made to prevent the accumulation of moisture which can cause condensation or damage.

Before skirting is installed, the entire area under the home must be covered with a blanket of visqueen. This is to prevent excessive humidity in the home. The visqueen must be a minimum, of 6 mil thick and be overlapped 12" at all joints.

The skirting around the home must be provided with non-closing vents. The free air of the vents must be equal to, but not less than 1/1500th of the floor area of the home. (Divide sq. Ft. of home by 1500). The vents must be located to provide cross ventilation to the entire area under the home. At least one vent within 3 feet of each corner of the home is needed.

Access opening(s) not less than 18 inches in any dimension and not less than three square feet in area shall be provided and shall be located so that any water supply and sewer drain connections located under the home are accessible for inspections.

Dryer vents, and air conditioning condensation drains must pass through the skirting to the outside of the home.

PERMANENT FOUNDATIONS

The Homark Company has foundation systems available that would be acceptable in most areas, Drawings and instructions are available from Homark upon request.

Once obtained, the drawings must be submitted to the local jurisdiction for all required permits.

UTILITY HOOKUP AND TESTING

This section of the manual deals with the connections of the water supply, drainage, gas, oil

and electrical systems of the home to the site service. All utility connections must be made by qualified service personnel who are knowledgeable of local and state regulations. Testing of all utilities must be satisfactorily performed before occupancy.

The following information will assist in determining the proper connection procedures for which the home was designed and serve as a guide for inspection of the system upon completion.

Upon completion of your utility installation, it is important that access to connections be provided for periodic inspection and possible future service.

WATER SUPPLY SYSTEM

A tag affixed to the exterior of the home will indicate the location of the fresh water connection. If the water supply to the home has a pressure in excess of 80 PSI, a pressure reducer must be installed.

The water system was tested at the factory, however, it is essential that it be rechecked at the site for leaks that may have been caused by in-transit vibrations.

NOTE:

Water heater must be by-passed during test. The test involves use of pressurized air which can permanently damage the water heater or may even cause rupture or explosion which could result in serious injury. The water heater is by-passed by disconnecting both the cold water line inlet and the hot water line outlet from the water heater and connecting the hot and cold water lines together with appropriate connection fittings.

WATER TESTING PROCEDURE:

1. Close all water faucets, spigots and stool tank float valves.
2. Pressurize the system to 100 PSI.
3. Isolate the pressure source from the system.
4. The gauge must stand 15 minutes with no drop.
5. If leakage is evident, locate the problem and correct it. Retest the system as described above.

6. After successful completion of the test, reconnect the water supply to the home water inlet.
7. Turn on the water supply and visually check all connections for leakage. Operate all water faucets, shower etc. to clear air blocks.

DRAIN SYSTEM TESTING

The drainage system was checked for leaks at the factory; however, it is essential that it be rechecked at the site for leaks which may have been caused by in-transit vibrations.

With the drop under the home tightly capped, and the tub and shower drains plugged, fill the drain system until the toilet bowl(s) are full to the rim(s). The water should stand without dropping for 15 minutes.

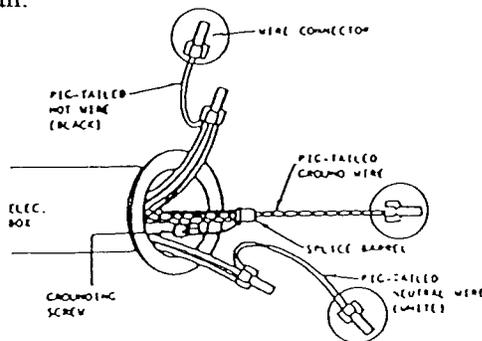
Fill fixtures which are higher than the toilet bowl (lavatories, sink, etc.) with water. Check these fixture connections and P-traps for leaks as you allow the water to flow through the system.

ELECTRICAL SYSTEM HOOKUP & TESTING

The electrical test and connection of the home should be made only by qualified personnel in accordance with applicable sections of the national Electrical Code along with any additional requirements imposed by local authorities having jurisdiction.

Exterior light fixtures and other 110 volt appliances:

1. Connect wires, black to black, white to white, and ground to ground, using wire nuts.
2. Push wires into box and place putty tape on light fixture base. Secure fixtures in position.
3. Install bulb and apply caulking around base of light fixture to insure a water-tight seal to the wall.



Connection of the electrical services: To determine applicable feeder size amperage, see main breaker and the label on electrical distribution panel. Using this information, determine the required feeder size from the following table.

ELECTRICAL FEEDER AND EQUIPMENT SIZES				
Feeder Size (AMPS)	Minimum Required Junction Box Size (Inches)	Feeder Sizes Based Upon Use of 75° C Insulated Copper Conductors		Conduit (Inside Dia.)
		Black-"Power" Red -"Power" White-"Neutral"	Green or Bare Ground	
100 amp	10x10x4	#4	#8	1 1/2"
125 amp	10x10x4	#2	#6	1 1/2"
200 amp	12x12x6	#2/0	#4	2"

Conductor Types and Sizes
RH-RHH-RHW-TBHW-TBW-TBWN-TBNN-XBHW-USE

Copper	Aluminum or Copper-Clad Aluminum	Service or Feeder Rating in Amps
AWG	AWG	
4	2	100
3	1	110
2	1/0	125
1	2/0	150
1/0	3/0	175
2/0	4/0	200
3/0	250 kcmil	225
4/0	300 kcmil	250
250 kcmil	350 kcmil	300
350 kcmil	500 kcmil	350
400 kcmil	600 kcmil	400

CAUTION: If the home has an electric water heater, it must either be filled with water or have the circuit breaker turned "OFF" before energizing the home electrical system or severe damage to the heating element will result.

With the main panel box circuit breaker and all individual circuit breakers in the home turned off, make electrical service connections. When connections are complete, turn on power at electric meter source. Do not turn on the main panel box circuit breaker in the home until the grounding and continuity testing has been performed.

The grounding bar in the main electrical distribution panel box must be grounded by qualified personnel only. The grounding electrode conductor shall be sized in accordance with Article 250 Table 94 as follows, #8 for 100 & 125 Amp ser., #4 for 200 Amp ser.

This home should be retested after set-up for the possibility of loosened connections which may have occurred during transit.

GROUNDING & CONTINUITY TEST

Perform the following test after all structural assembly, metal and trim installation is finished.

1. Connect one clip of flashlight continuity tester to a convenient ground (metal skin, window frame on metal skinned units, floor duct riser, screw head on receptacle or switch plate etc.) and touch the other clip to each light fixture canopy (where the light is mounted to ceiling or wall). The continuity tester should light if each fixture is properly grounded.
2. Using the continuity tester, check every direct-connected appliance or fan. The tester must be hooked to a convenient ground and to the metal frame of the appliance.
3. Using the continuity tester, check the continuity between the following:
 1. Between one riser of furnace duct and convenient ground.
 2. Between metal roof and steel frame.
 3. Between metal gas piping and steel frame.

NOTE: Continuity to ground is not required on metal inlet of plastic piped water system.

4. Between electrical distribution panel and steel frame. When plumbing fixtures such as metallic sinks, tubs, faucets and shower risers are connected only to plastic water piping and plastic drain piping continuity to ground is not required.
5. In addition, if home water distribution lines are metal, the ground continuity between the water line inlet and steel frame and all metallic plumbing fixtures such as sinks, tubs, faucets, etc. must be checked.
6. Any loss of grounding continuity found in the above will require investigation and correction.
- 7.

POLARITY & OPERATIONAL TEST

Turn on main panel box circuit breaker and then one at a time, turn on the individual home circuit breakers and perform the following test. Should any breaker trip, this indicates a problem with the circuit that must be located and corrected.

CAUTION: Make sure the water heater is filled with water before energizing.

1. Plug an AC receptacle wiring tester into each receptacle in the home to check for reversed polarity, open grounds and shorts.
2. Install light bulbs and fluorescent tubes in all light fixtures. Make sure each light fixture is operable by turning the appropriate switch to the "ON" position.
3. Repair or replace any defective light fixtures or switches. Check operating of furnace and water heater thermostats and set. Check and run furnace blower.
4. Conduct test of GFI (Ground Fault Interrupter) circuit breaker in accordance with the breaker manufacturer's instructions.
5. Conduct tests of the smoke detector(s) in accordance with the manufacturer's instructions.

GAS SYSTEM HOOKUP & TESTING

The gas piping system was tested at the factory, however, it is essential that it be rechecked at the site for leaks that may have been caused by in-transit vibrations.

When gas appliances are in both units a quick connector is provided under the home to couple the halves together.

NOTE: Do not apply more than the specified pressure as damage to gas valves and/or regulators may result.

Before a test is begun, the temperature of the ambient air and the piping should be approximately the same. Conduct the test when air temperature will remain stable.

The gas piping system must be tested two ways:

1. Piping only - all appliances isolated
2. Entire system - with appliances

PIPING ONLY TEST ONLY

1. Isolate all appliances from the system by closing all appliance shut-off valves.
2. At the home gas inlet, attach a pressure gauge calibrated in ounces.
3. Pressurize the system to 3PSI or 48 ounces of air pressure.
4. Isolate the pressure source from the system.
5. The gauge must stand 10 minutes with no drop.

6. If pressure loss occurs, check all joints in piping system beneath the home and at all shut-off valves with soapy water or bubble solution until leak is located.
7. Repair leak and retest.

ENTIRE SYSTEM TEST:

1. All gas equipment controls and pilot light valves gas equipment manufacturer's instructions.
2. Gas shut-off valves for all gas equipment must be in the open position.
3. At the home gas inlet, attach a pressure gauge calibrated in ounces.
4. Pressurize the system to 6 to 8 ounces of air pressure.
5. With soapy water, or bubble solution, check all gas shut-off valves and flex line connections to valves and appliances for leaks.

CAUTION: Do not bubble check brass fittings with solution containing ammonia

6. If leak is found, repair and retest.

NOTE: Prior to making connection to site supply, gas inlet orifices of furnaces, water heaters and appliances must be checked to insure they are set up for type of gas to be used - L.P. (Liquefied petroleum) or natural gas. The gas pressure should not exceed 7" to 14" water column.

If conversion is required, individual appliance, furnace or water heater manufacturer's instructions must be complied with.

Gas appliance vents shall be visually inspected to insure that they have been connected to the appliance and roof jacks are installed and have not come loose due to in-transit vibrations.

The gas connection to the gas supply should be made by an authorized representative of the gas company. This connection shall not be down sized from what is provided on the home.

If the home has gas piping stubbed in for future installation of appliances, a shut-off valve and threaded pipe plug or cap will be installed at the factory and all of the above tests should be performed on the system.

After completion of tests, close equipment shut-

off valves and connect gas supply to the home gas inlet. One at a time, open each equipment valve and light pilots and adjust burners according to each appliance/equipment manufacturer's instructions. Check the operation of the furnace and water heater thermostats and set.

CAUTION: Make sure water heater is filled with water before lighting pilot.

OIL PIPING HOOKUP & TESTING

Homes produced by THE HOMARK COMPANY, INC., which are equipped with oil burning furnaces, must have the oil supply piping installed on site. Piping is not supplied by HOMARK.

The furnace manufacturer's instructions must be consulted for proper pipe sizing and installation procedures.

In addition, unless the home is installed in a park with a centralized oil distribution system, an oil storage tank of suitable capacity must be installed outside the home in a location accessible for service, and safe from fire and other hazards.

For gun type oil furnaces the location of the oil storage tank is left to the discretion of the home owner. Since the furnace includes a fuel pump, the tank may be installed above or below the ground. For tanks installed below ground the filler neck should extend 1 foot above grade and a 1-1/4 inch diameter minimum vent pipe extending at least 2 feet above grade must be provided.

Regardless of the type of oil furnace served, or the tank location, the tank should be installed to provide a gradual slope toward the fill end or drain plug (if so equipped) to facilitate pumping of draining of water and sludge.

An accessible and approved manually operated shut-off valve must be installed at the oil tank outlet. Additionally, it is recommended that a suitable filter be installed in the fuel line near the tank to help trap dirt and water

NOTE: All oil storage tank and oil piping installations must meet all applicable local regulations and should be made only by experienced, qualified personnel.

BEFORE setting the system in operation, the tank installation and supply piping must be checked for leakage. The tank must be filled to capacity with the fuel to be burned and all joints in the system checked visually for leakage.

OPTIONAL ITEM INSTALLATION

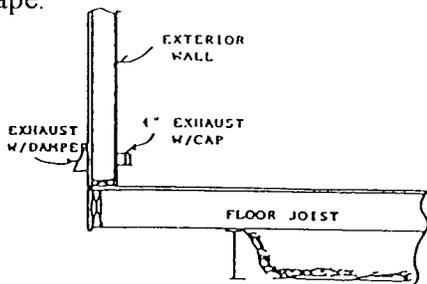
The HOMARK Company, Inc. cannot be responsible for any damage resulting from installation of accessories, nor any modifications to the home after shipment from the factory. Such alterations are undertaken at the risk of the installer and/or home owner.

CLOTHES DRYER

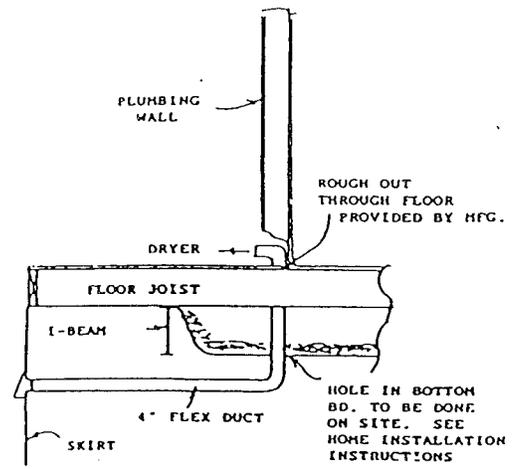
Your home may be designed for the future installation of an electric or gas clothes dryer. A venting system access through the floor or wall has been installed at the factory and the complete installation should be in compliance with the appliance manufacturer's instruction.

Homes factory equipped with the provision for the installation of a dryer will also have the moisture-lint exhaust system roughed-in. To complete the moisture-lint exhaust system, the following must be performed:

1. Remove cover from vent pipe if through sidewall. If through floor remove panel on wall, cut out floor vinyl and cut hole in bottom board.
2. If venting design is through the floor, termination fitting is to be installed at the outside edge of the skirting.
3. Secure flexible duct between the termination fitting and dryer by use of clamps. (Do not use sheet metal screws or other devices which extend into the interior of the duct).
4. Seal all holes where the duct goes through the floor or wall with a good grade of caulking or tape.



DRYER VENTING THROUGH EXT. WALL



DRYER VENTING THROUGH FLOOR

Homes factory equipped with a gas dryer stubbed-in outlet will be provided with a shut-off valve and threaded pipe plug or cap and will also have an access for the moisture-lint exhaust system. All gas supply piping and venting must be installed according to the dryer manufacturer's installation instruction. Gas dryer installation must be handled by fully qualified, experienced personnel only.

NOTE: The dryer must not exhaust into the skirted area under the home. This is to prevent excessive humidity in the home.

FIREPLACE CHIMNEY INSTALLATION

Homes equipped with fireplaces may require installation of additional section(s) of chimney pipe and a rain cap assembly be made on site.

For a **wood fireplace**, the finished chimney **MUST** extend 3 feet above the highest point where it penetrates the roof and **MUST** be at least 2 feet higher than any building or other obstruction located within a horizontal distance of 10 feet.

For a **gas fireplace**, the finished chimney **MUST** have a minimum height of 1 foot from roof opening to the lowest discharge opening.

The chimney heights are necessary in the interest of safety and do not ensure draft-free operation. Trees, buildings adjoining roof lines, adverse wind conditions, etc., may create a need for a taller chimney, should down drafting occur.

Chimney installation must be made in accordance with fireplace manufacturer's instructions. Typical chimney installation is as follows:

1. Remove transit protective covering from over the chimney.
2. Install additional chimney section(s) provided and secure.
3. Install spark arrestor.
4. Install rain cap assembly.

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