

RECREATIONAL PARK TRAILER INSTALLATION MANUAL

FAIRMONT HOMES, INC. P.O. BOX 27 NAPPANEE, IN 46550

NOTICE

TO INSTALLERS AND SITE PREPARATION CONTRACTORS

NONCOMPLIANCE WITH THESE INSTALLATION INSTRUCTIONS MAY MAKE YOU LIABLE TO THE RECREATIONAL PARK TRAILER (RPT) OWNER OR OCCUPANTS FOR DAMAGE OR INJURY RESULTING FROM YOUR OMISSIONS OR INCORRECT OR DEFECTIVE WORK. ACCORDINGLY, CARE SHOULD BE EXERCISED IN CONFORMING TO THE REQUIREMENTS HEREIN.

NOTICE

IMPROPERLY VENTED SKIRTING WILL CAUSE MOISTURE TO ACCUMULATE BENEATH THE RPT. WHEN SKIRTING THE BOTTOM OF THE RPT, VENTILATORS MUST BE INSTALLED. THE MINIMUM VENT AREA SHALL BE 1 SQUARE FOOT FOR EVERY 150 SQUARE FEET OF AREA UNDER THE RPT. EACH VENTILATOR MUST HAVE A MINIMUM OF 30 SQUARE INCHES OF NET FREE AREA. THE VENTILATORS MUST BE EQUALLY SPACED ALONG EACH SIDE OF THE UNIT WITH ONE VENTILATOR BEING PLACED WITHIN 4 FEET OF EACH END.

NOTICE

TO THE RECREATIONAL PARK TRAILER OWNER

PLEASE BE ADVISED THAT THIS COMPANY DOES NOT PARTICIPATE IN RETAIL SALES. OUR UNITS ARE PURCHASED BY INDEPENDENT DEALERS, WHO IN TURN SELL THEM TO RETAIL CUSTOMERS. WE, OF COURSE, HAVE NO CONTROL OVER, AND ARE NOT AWARE OF THE TERMS AND CONDITIONS OF THESE SALES, NOR THE MANNER IN WHICH THESE RPTS AND RPT SITES ARE PREPARED FOR FINAL INSTALLATION OF THE UNITS. IN LIKE MANNER, WE HAVE NO CONTROL OR OBLIGATION IN MATTERS CONCERNING AFTER MARKET ITEMS, SUCH AS INSTALLATION, SKIRTING, PORCHES, DECKS, APPLIANCES AND/OR FURNISHINGS NOT ON THE FACTORY INVOICE, AWNINGS, CONCRETE WORK, UTILITY CONNECTIONS, ETC.

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INTRODUCTION

This Recreational Park Trailer (RPT) was designed and constructed to meet or exceed the requirements of the ANSI A119.5, which were in effect on the date of manufacture. This standard sets forth minimal requirements for the design, construction, electrical system, plumbing systems, heating system and thermal protection for park trailers designed to be used as single family dwellings.

These instructions are intended to instruct and assist already qualified personnel in the proper installation of your park trailer. It is not intended to enable someone unfamiliar with park trailers to perform the installation. The installer should guarantee his work in writing for a reasonable time and should agree to realign the RPT in approximately 60 days from the time of initial installation.

A properly maintained installation will, under normal conditions, prevent the park trailer from settling and avoid the possibility of incurring expensive repair bills. If your unit is not set and maintained in proper alignment as it was designed, or if it is not set on a completely firm and proper foundation system as described in this instruction, certain portions of your RPT will undergo undue and unnatural structural strain. Such structural strain could lead to problems later. Typically, these problems appear in the form of the buckling, loosening or separating of wall coverings, exterior siding, floors and their covering, ceilings, metal roof membranes and miscellaneous fixed original fixtures and cabinets of the RPT. Other problems relating to installation include the leaking of doors, windows, roofs, ceilings, and exterior walls due to the loss of the weather seals in these areas, as well as the loss of proper operation of windows and doors and their locking devices.

Applicable local or state laws may have greater or more stringent requirements than outlined in this manual, which must be complied with to obtain or regain the right to occupy the RPT. Therefore, we recommend that you consult with regulatory agencies in your area for codes which may require license and/or permits.

Because new products and methods are constantly being introduced, additional or revised instructions may be required. The applicable addendum may be found inside the back cover of this instruction.

FOUNDATION SYSTEM

1-1 Site Preparation

- **1-1.1** Your Recreational Park Trailer (RPT) has been designed with an integral floor system which must be supported by individual supports or piers. These supports are as important to the correct and proper installation of your unit as is the foundation for a multi-story commercial building. Any shortcoming in the support of your unit will manifest itself in the form of settling, which was discussed in the introduction to these instructions.
- **1-1.2** The RPT manufacturer is not liable for damages or defects in installation or those caused by improper installation or in delivery by other than manufacturer's drivers; nor by acts of God or by damage or defects caused by use of the RPT as a moving van for weights exceeding the original delivery weight, or those caused by improper foundation, pad, piers, or lack of proper alignment.
- **1-1.3** All Park Trailer installations shall comply with the requirements of these instructions or the requirements of local zoning ordinances and conditional use permits established by local authorities pertaining to any health and/or safety codes, whichever is more stringent.

1-2 The Site

- 1-2.1 Your RPT site must be selected so as to provide a reasonably level surface in the area of unit placement. The site must be properly graded and sloped to provide storm drainage run-off. In particular, the area beneath the RPT must be graded to prevent water accumulation. It is recommended that a 2-inch grade be provided from the longitudinal center line of the RPT to each edge. While it is not required, we suggest the entire area under the RPT be covered with 6-mil thick visqueen. The visqueen should be overlapped 6 inches at all joints in a manner to assure proper moisture run-off. To protect the visqueen from physical damage it is recommended that the area under the RPT then be covered with crushed stone or washed gravel (See Figure 1-1).
- **1-2.2** The portion of the lot or site intended for placement of the RPT must be undisturbed soil or compacted fill. If the site is on filled soil, it must be compacted to at least 95 percent of its maximum relative density.

- 1-2.3 Climatic conditions must also be taken into consideration when installing the foundation. The bottom of the footing on which the pier is to be placed must be located below the local frost line. If you elect to locate your footings above the local frost line, your foundation will be susceptible to the heaving and resultant settling action caused by frost. The symptoms of heaving are the same as for settling and can cause damage to your RPT. Consult with the building officials in your area to determine the maximum depth of the local frost line prior to installing your footings.
- It is also very important that the unit be properly skirted to conserve energy and provide added comfort. The skirting must be installed in a manner which prevents it from collecting the water from rainfall or melting snow and ice, which cascades down the sides of the RPT. The area beneath the RPT must be ventilated. The minimum vent area shall be 1 square foot of net free area (area of opening in grillwork) for every 150 square feet of area under the RPT. (Length of RPT multiplied by width of RPT divided by 150 equals net free area of vent required in square feet). Each ventilator must have a minimum of 30 square inches of net free area. Install an equal number of ventilators along each side of the RPT. One ventilator should be within 4 feet of each end of the RPT with the remainder equally spaced along the length of the RPT and located across from one another. This will allow for cross-ventilation and dissipate damaging condensation.
- 1-2.5 For those units having a wood or wood product siding material, care must be taken to ensure that the skirting material and its support structure do not cover any exposed portion of the siding. When covered, trapped moisture will not properly or expeditiously dry, causing the siding material to deteriorate. Installed skirting should allow for vertical movement caused by frost heave and settling.

1-3 Footings

- **1-3.1** For maximum safety and secure living, your RPT must be supported on a solid foundation. The proper size and locations for the foundation footings are shown in Figure 1-2, and in chart 1-1 through chart 1-2a.
- **1-3.2** Poured-in-place or pre-cast concrete footings having a minimum 8-inch thickness are recommended. Where footings must exceed a minimum 8-inch depth to extend below the local frost

depth, pre-cast footings are not recommended. As an alternative to concrete footings, molded ABS plastic footings may be used, providing they are listed for the application and are placed on firm, level soil below the frost line. The concrete must have a minimum 28-day compression strength of not less than 2.000 pounds per square inch. The footings must be flat on the top surface to allow for the proper bearing of the single or double stack concrete block piers. Footings which have rounded top surfaces or are to small in size to allow the entire block pier to bear on them are unacceptable. The maximum allowable slope on the top surface of the footings, in any direction, will be 1/8 of an inch per 12 inches of footing size. In all cases the footings must extend below the maximum local frost line. Consult with your local building officials to determine the maximum depth of the local frost line prior to installing your footings. The stability of your RPT is dependent on the quality of the footing/pier system and the properly installed ground anchors addressed later in this instruction. You may refer to Figure 1-3 for an example of the wide variance of average frost depths throughout the United States.

CAUTION

IF THE FOOTINGS ARE NOT PLACED BELOW THE MAXIMUM LOCAL FROST LINE AND UPWARD HEAVING OCCURS, THE RPT CAN BECOME MISALIGNED AND ACTUALLY DAMAGED BY UNSEEN FORCES. DAMAGE CAUSED BY THE IMPROPER INSTALLATION AND SUPPORT OF YOUR RPT IS NOT WARRANTED BY THIS COMPANY.

1-3.3 Footings must be sized to allow for the entire bearing surface of the concrete block pier. minimum size footings for a single stack pier will be as follows: a square footing must be at least 16 inches by 16 inches (256 square inches) and a round footing must have a diameter of at least 17-1/4 inches (234) square inches). The minimum size footing for a double stack pier will be as follows: a square footing must be at least 16 inches by 16 inches (256 square inches) and a round footing must have a diameter of at least 25-3/4 inches (521 square inches). IN NO CASE SHOULD THE FOOTINGS BE SMALLER IN SIZE THAN THE RECOMMENDED SIZES SHOWN IN CHARTS 1-1 THROUGH 1-2a. FIGURES 1-9 THROUGH 1-14 ILLUSTRATE UNACCEPTABLE FOOTINGS.

1-3.4 Additional footings will need to be placed at the ends of exterior side wall openings which are larger than 4 feet in width in a manner to support the concentrated loads which occur at the sides of these openings and at the sides of exterior doorways when required by the manufacturer. Construction of these footings will be the same as the footings placed under the main steel I-beams of the unit.

1-4 Piers

- **1-4.1** All piers used to support your RPT must have the capacity to carry the vertical load of the RPT itself, its contents, and temporary roof loads such as snow and ice to the footings below.
- **1-4.2** The piers shown in Figures 1-4 through 1-8 are made of concrete blocks and are a nominal 8 inches by 8 inches by 16 inches conforming to ASTM C-90 with the open cells vertical, stacked true, and plumbed with a maximum horizontal block offset of 1/2 inch from the top to the bottom of the pier.
- **1-4.3** Single stacked block piers (Figures 1-4 and 1-5) must be installed with the 16-inch dimension perpendicular to the main I-beam of the frame. The piers must be covered with a nominal 2 inch by 8 inch by 16 inch treated hard wood or concrete cap block conforming to ASTM C-90.
- **1-4.4** The minimum height of any pier must be 18 inches. The maximum height for a single stack pier (See Figures 1-4 and 1-5) is 36 inches and the maximum height for a double stack pier is 57 inches (See Figure 1-6). If the unit has a lowered rear room, the pier height in that area may be reduced to 12 inches.
- **1-4.5** To properly size your footings it will be necessary to know the allowable soil bearing pressure for the soil at your RPT site. This information may be obtained from your local building official or by having a soil investigation and analysis of the site performed. Chart 1-3 has been included in this manual to provide a general description of soils and give an indication of the wide range of soil bearing pressures which may be encountered which will underscore the importance of the soil analysis.
- **1-4.6** The soil analysis and site investigation will also provide important information pertaining to the local water table, the drainage characteristics of the soil, the potential for soil expansion, and frost heave potential.

- 1-4.7 The maximum allowable spacing between the piers is 8 feet on centers. You will need to determine whether you want to use only I-beam blocking or a combination of I-beam and perimeter blocking. (The use of perimeter blocking does not eliminate the need for support of side wall openings in excess of 4 feet in width or at exterior doorways where required by the manufacturer.) The choice is up to you.
- **1-4.8** Select the chart which applies to the width of your RPT and the roof load rating (20 PSF or 30 PSF) and determine the footing size required for the soil bearing capacity of your site based on pier spacing and location. The greater the soil bearing capacity, the smaller the footing required. Footings may be square or round as you prefer but must have a minimum bearing area as called for in the chart.

1-5 Alternate Footings

- 1-5.1 If you are placing the RPT on a pre-existing RPT site, it should be shown that the existing footings are adequate to properly support the RPT. Sites which require that the foundation system be lengthened to accommodate the RPT must be carefully prepared, making certain the new footings are compatible with the pre-existing footings. Unequal or incompatible footings will cause unequal movement in the RPT should frost heave or settling occur which could overstress the structure of the RPT causing a failure as described in the introduction to this instruction.
- Should you decide to install your RPT on a concrete pad, it is recommended that the pad be not less than 6 inches in thickness, that the perimeter of the pad be not less than 10 inches in thickness for a width of 12 inches, that the area within 12 inches of either side of each I-beam be 10 inches in thickness (24 inches wide - See Figure 1-15), and that the pad be reinforced. You will need to determine the location of each pier prior to pouring the concrete. Failure to do so may result in the pier being positioned away from the thickened area of the pad when the RPT is The concrete must have a minimum 28-day compression strength of not less than 3.000 pounds per square inch with a slump of 4. It must be noted that such a pad floats on the earth's surface and is susceptible to frost heave and settling. Spring and fall re-alignment may be needed.
- **1-5.3** A proprietary foundation and/or anchoring system may be used to support the RPT for gravity loads (i.e. roof, wall, and floor including safety

factors) and anchor the RPT against wind loads (i.e. horizontal and up-lift including safety factors) providing it complies with all of the following:

- It has been evaluated and approved by a registered professional engineer or architect;
- 2. It is listed by a nationally recognized third-party agency;
- 3. The width of the RPT is within the system design parameters;
- 4. The roof pitch of the RPT is within the system design parameters;
- 5. Support points along the RPT frame members do not exceed 8 feet on centers.

1-6 Proper Alignment

- 1-6.1 A Park Trailer is cambered and reverse cambered along the I-beam as part of the engineering for the stress of transportation. Likewise, it is cambered from side to side for transportation stresses and live load as well as dead load stresses. Consequently, siding and flooring and roof lines will have variations due to camber lines which are normal. The RPT should be blocked and shimmed on the foundation to follow natural camber and reverse camber lines as the RPT is received from the factory.
- **1-6.2** There are many accepted methods of aligning RPTs; however, the method used in this manual will utilize a "liquid level." A liquid level is simply a plastic reservoir holding a colored liquid with approximately 80 feet of clear plastic tube attached. This device operates on the principle that water seeks its own level. (See Figure 1-16)

1-7 Support Locations

1-7.1 The support system described and illustrated in this manual allows for each I-beam to be supported on piers resting on properly sized footings, which extend below the local frost line, or on a properly constructed concrete pad. The supports must be located within 18 inches of each end of each floor section and at a maximum 8 foot interval in between the end supports.

1-8 Positioning and Blocking

CAUTION

SHOULD YOU DECIDE TO CRANE SET THE RPT ONTO ITS SUPPORTING SYSTEM, EXTREME CARE MUST BE TAKEN TO ENSURE THAT THE

LIFTING DEVICES, STRAPS, OR CABLES DO NOT COME INTO CONTACT WITH THE RPT ABOVE THE LEVEL OF THE BOTTOM SURFACE OF THE STEEL FRAME. THE PERIMETER OF THE RPT WAS NOT DESIGNED TO WITHSTAND THE POINT LOADING OF SUCH CONTACT.

1-8.1 The site must be properly prepared as instructed earlier in this manual prior to positioning your RPT. All concrete work must be completed, all ground anchoring devices must be installed, and all service facilities for water, gas, electrical, and drain connections must be complete.

1-9 Reminders Before Jacking

- **1-9.1** Use only jacks which are in good working condition having a rating of 12 tons or more.
- **1-9.2** To distribute the concentrated loads created by the jacks, a steel plate or pad should be placed between the jacks and the steel I-beam, C-channel, or tube. (See Figure 1-17)
- **1-9.3** Use a solid support under the jack base to keep the jack from settling or tipping. Excessive or non-uniform jacking during the installation process can cause the RPT to be racked or twisted. This could result in serious structural damage to the RPT, thus voiding your warranty.
- **1-9.4** Always follow the sequence of jacking outlined below to avoid overstressing structural members.

WARNING

RPTs WEIGH MANY TONS. SUPPORT BLOCKING SHOULD BE USED TO SAFEGUARD WORKERS AND THE STRUCTURE DURING ALL INSTALLATION PROCEDURES. NEVER ALLOW ANYONE UNDER THE RPT UNLESS BLOCKING IS IN PLACE WHICH WILL SAFELY SUPPORT THE WEIGHT OF THE RPT.

1-10 <u>Jacking</u>, <u>Alignment</u>, <u>Blocking</u> and <u>Connection Procedure</u>

WARNING

YOU ARE SPECIFICALLY WARNED AGAINST UTILIZING THE COUPLER JACK AS A LOAD BEARING POINT FOR THE LATERAL MOVEMENT OF THE PARK TRAILER.

COUPLER JACKS ARE NOT ENGINEERED TO WITHSTAND THE BENDING FORCES THAT MAY OCCUR DURING THE LATERAL MOVEMENT OF THE UNIT. SUCH COUPLER JACKS ARE ENGINEERED TO WITHSTAND ONLY THE COMPRESSIVE FORCES OF THE TONGUE OF THE UNIT DURING TRANSPORTATION STAGING.

FURTHERMORE, ANY 3 POINT SYSTEM USED TO SUPPORT AND CONVEY THE UNIT LATERALLY IS LESS STABILE THAN A 4, 6, OR 8 POINT SYSTEM AND THEREFORE IS INHERENTLY DANGEROUS.

- 1-10.1 If a full concrete pad has not been installed at the site, concrete footings should have been installed as described earlier in this manual corresponding to the spacings called for in the tables. Reminder: all exterior side wall openings greater than 4 feet wide must be supported with piers. These supports are in addition to any perimeter blocking you may have elected to use. Additionally, the exterior door manufacturer may require that the side of the door frame be blocked.
- **1-10.2** Raise the hitch of the unit approximately 2 inches higher than its final position with a heavy-duty hydraulic jack. Adequate blocking should then be placed under the hitch assembly to prevent its falling to the ground if the jack assembly should fail.
- 1-10.3 Place a 12-ton jack under each main frame member just ahead of the front spring handers and to the rear of the rear spring hangers (See Figure 1-18). Including the jack at the hitch, there will be a minimum of 5 points under the frame that will be supported during the jacking operation (5 point set) providing for a more uniform weight distribution. Using fewer support points during jacking operations increases the danger factor for those performing the operation and for the RPT itself. These jacks must be operated simultaneously to raise the RPT until it is approximately 2 inches higher than its final position. Make certain to use jacking plates to avoid damaging the frame.
- 1-10.4 The concrete pad or concrete footings should now be located under the I-beams and/or perimeter edge of the RPT adhering to specified spacing. Concrete block piers are then placed into position at the specified points on the pad or on the concrete footings. These piers must be constructed as

described earlier in this manual and must rest fully on the pad or footings.

- **1-10.5** If the wheels are to be removed prior to the RPT being fully supported on its piers, safety supports should be placed tightly under the frame members to prevent the RPT from dropping should the jack fail. The wheels can then be removed and placed where the owner specifies for storage.
- **1-10.6** The liquid level previously referred to is now positioned at a height whereby the level of the liquid inside the reservoir is exactly at the height the bottom of the steel frame will be in its final resting position. (See Figure 19)
- **1-10.7** By placing a shut-off valve at the end of the plastic tubing, the liquid will be prevented from escaping when the end of the hose is lowered below the level of the fluid in the reservoir.
- 1-10.8 By pulling the end of the plastic tube to the first pier, the end of the tube is raised above the bottom of the steel frame and the valve is opened. The top of the pier is then shimmed to match the level of the liquid in the tube. Remember that tapered hardwood shims must be added from each side of the frame member so that the frame is not resting on an incline. (See Figures 1-20 through 1-24). When this operation is complete, each succeeding pier is installed in the same manner. This operation will be much simpler if the top surface of all the concrete footings have the same elevation.
- **1-10.9** The safety support placed in the A-frame area should now be removed along with any supports which were placed in the axle area when the wheels may have been removed.
- **1-10.10** The jacks are then lowered together allowing the frame to rest on the tapered hardwood shims on top of the concrete block piers.
- **1-10.11** Remove all the jacks from under the frame.
- **1-10.12** The alignment of the RPT can be fine tuned by driving the tapered hardwood shims between the frame and the piers to even out any low areas caused by the compressive weight of the RPT on the piers.
- **1-10.13** After completion of the alignment and installation procedure, all doors and windows should be checked to see that they operate freely without binding. If binding does occur, the alignment will need

to be adjusted. A properly aligned RPT may not be exactly level. Refer to "Proper Alignment" earlier in this section.

- **1-10.14** At this point the removable hitch and axles can be detached from the integral floor system if desired (removable hitch is optional) and placed where the RPT owner specifies for storage (see Figures 1-25 and 1-26).
- 1-10.15 The completed set-up must be checked in 8 weeks with corrective action being taken to compensate for any pier or footing settlement, as well as any shim compression due to unit weight. All doors and windows should be checked to see that they still operate freely without binding and that the weather seals are still intact. The installation should further be checked on an annual basis as called for in the RPT Owners Manual as owner maintenance.

1-11 Ground Anchoring

1-11.1 Once the RPT is in its final resting position and has been completely supported and aligned, the ground anchoring system can be installed. The purpose of the ground anchoring system is to provide resistance to counter the lateral and uplift forces of the wind which can move the unanchored RPT off its piers causing structural damage.

CAUTION

IF THE ANCHORING SYSTEM IS NOT PROPERLY INSTALLED, THE INTEGRAL FLOOR SYSTEM OF THE RPT COULD ACTUALLY BE DAMAGED OR THE ALIGNMENT OF THE RPT CHANGED. FOLLOW THE EQUIPMENT MANUFACTURERS RECOMMENDATIONS.

1-11.2 Ground anchor straps or cables should be alternately tensioned on opposite sides of the RPT to avoid the problems mentioned above.

1-12 Pre-Anchoring Inspection

1-12.1 At this time all furniture, carpet, fixtures, or other loose items should be installed. All shipping blocks, brackets, and/or clips installed on appliances for shipment should be removed. All clamps or brackets installed on windows and doors for shipping purposes should be removed and the operation of these items checked.

- **1-12.2** At the time of manufacture, the doors and windows were fully operational and were sealed against the weather as needed. Should any windows or doors bind or not close properly, an adjustment to the alignment of the RPT is needed.
- **1-12.3** The utilities should now be connected and tested; however, this will be covered in another section of this instruction.

1-13 <u>Consequences of Incorrect Blocking and Alignment</u>

- **1-13.1** Incorrect blocking and alignment of your RPT could produce a sagging RPT and these related conditions:
- **1-13.1.1** Buckling and/or loosening of walls, partitions, siding, ceilings, doors, floors, linoleum, carpeting, insulation, wiring, sinks, tubs, toilets, weather-stripping and miscellaneous fixed original fixtures of the RPT;
- **1-13.1.2** Leaking windows, doors, roofs, ceilings, walls, floors, seams, and junctions generally caused from rain, snow, or moisture:
- **1-13.1.3** Improper closing, binding, and sagging of windows, cabinets, and interior and exterior doors; and
- **1-13.1.4** Malfunctioning of plumbing, water outlets, lighting fixtures, and electric heating and air conditioning systems.

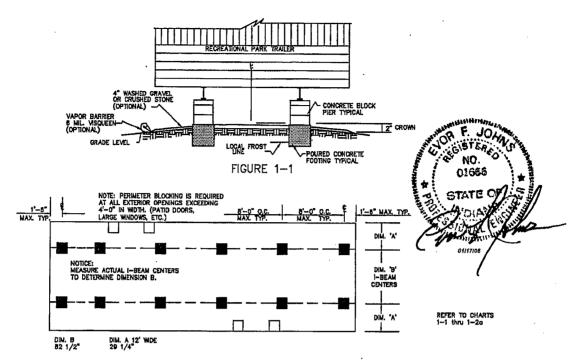
1-14 Porches and Decks

- 1-14.1 Certain porch and deck framework must be supported along its outer perimeter and at the vertical columns along the porch. These supports are to be of the same construction as the piers described earlier in this instruction and must be located as shown on the supplement inserted into the back of this manual.
- **1-14.2** Steps, handrails, and guardrails are to be installed in keeping with the requirements of the local jurisdiction where the offset between the porch or deck surface and the finished grade of the RPT site exceeds the maximum allowed without protection.

1-15 Curtain Walls

1-15.1 The support system for the RPT consists of a series of concrete footings and piers, or similar

alternate construction, as described in the manual. Where the area beneath the RPT is to be enclosed with a curtain wall of wood, poured concrete, concrete block, brick, or other material construction, which would be capable of supporting some part of the weight of the RPT, the wall must be supported by a properly sized footing which has been located below the local frost line. Should the footing be placed above the frost line, your RPT could become misaligned and damaged by unseen forces.



FRAME BLOCKING FIGURE 1-2

CHART 1-1

PIER & PAD SCHEDULE						
PAR	PARK TRAILER 20 POUND LIVE LOAD					
				12 FE	ET WIDE	
	9		8'-0'	O.C.	6'-0'	O.C.
SOIL CAP.	EGEND	PIER LOC.	REQ'D PIER CAPACITY	REQ'D FOOTING	REO'D PIER CAPACITY	REQ'D FOOTING
Ο Λι .	-	200.	(LBS.)	(SQ. IN.)	(LBS.)	(SQ. IN.)
1000		FRAME	4400	729	3300	546
1000						
1500		FRAME	4400	465	3300	348
	Ŀ					
2000		FRAME	4400	341	3300	255
2500		FRAME	4400	269	3300	201
					l	
3000		FRAME	4400	222	3300	165

CHART 1-1a

	PIER & PAD SCHEDULE					
PAR	PARK TRAILER 20 POUND LIVE LOAD					
	\Box		12 FEET WIDE			
ľ	19		8'-0'	O.C.	6'-0'	° 0.C.
SOIL	嵐	PIER	REQ'D PIER	REQ'D	REQ'D PIER	REQ'D
CAP.	LEGEND	LOC.	CAPACITY (LBS.)	FOOTING (SQ. IN.)	CAPACITY (LES.)	FOOTING (SQ. IN.)
1000		FRAME	1863	308	1397	231
1000		PERIMETER	2138	354	1603	265
1500		FRAME	1863	197	1397	148
1300		PERIMETER	2138	226	1603	169
2000		FRAME	1863	144	1397	108
2000	П	PERIMETER	2138	165	1603	124
2500		FRAME	1863	114	1397	85
2000		PERIMETER	2138	131	1603	98
3000		FRAME	1863	94	1397	70
3000		PERIMETER	2138	108	1603	81

CHART 1-2

PIER & PAD SCHEDULE						
PARK	PARK TRAILER 30 POUND LIVE LOAD					
			12 FEET WIDE			
	19	i	8'-0'	O.C.	6'0'	O.C.
SOIL CAP.	LEGEND	PIER LOC.	REQ'D PIER CAPACITY	REQ'D FOOTING	REQ'D PIER CAPACITY	REQ'D FOOTING
9 711.	ר	100.	(LBS.)	(SQ. IN.)	(LBS.)	(SQ. IN.)
1000		FRAME	4950	820	3713	615
100						
1500		FRAME	4950	523	3713	392
1000						
2000		FRAME	4950	383	3713	287
2000						
2500		FRAME	4950	302	_ 3713	227
2000						
3000		FRAME	4950	249	3713	187
5550						

CHART 1-2a

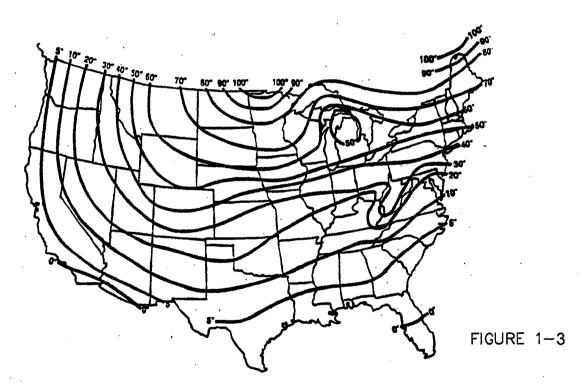
O1 17 11 V	•					
PIER & PAD SCHEDULE						
PAR						LOAD
	[12 FE	ET WIDE	
	9		8'-0'	0.C.	B'0'	O.C.
SOIL CAP.	EGEND	PIER LOC.	REQ'D PIER CAPACITY	REQ'D FOOTING	REQ'D PIER CAPACITY	REQ'D FOOTING
י יייי	╚	200.	(LBS.)	(SO. IN.)	(LBS.)	(SQ. IN.)
1000		FRAME	1863	308	1397	231
1000		PERIMETER	2688	445	2016	334
1500		FRAME	1863	197	1397	148
1500		PERIMETER	2688	284	2016	213
2000		FRAME	1863	144	1397	108
2000		PERIMETER	268B	208	2016	156
2500		FRAME	1863	114	1397	85
2300		PERIMETER	2688	164	2016	123
3000		FRAME	1863	94	1397	70
0000		PERIMETER	2688	135	2016	102

CHART 1-3

SOIL TYPE (2)	ALLOWABLE PRESSURE (3) (POUNDS PER SQUARE FOOT)
ROCK, HARD PAN	4,000 AND UP
SANDY GRAVEL AND GRAVEL	2,000
SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL, CLAYEY SILT	1,500
CLAY, SANDY CLAY, SILTY CLAY, CLAYEY SILT	1,000
UNCOMMITTED FILL	SEE NOTE (4)
PEAT, ORGANIC CLAYS	SEE NOTE (4)

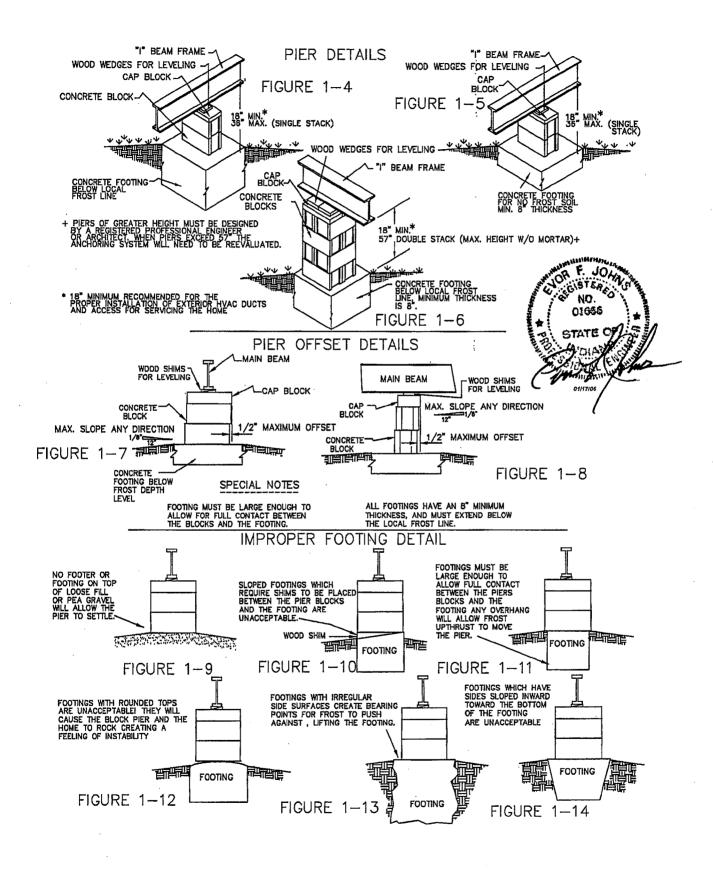
NOTES:

- (1.) TO BE USED ONLY WHEN NONE OF THE FOLLOWING IS AVAILABLE:
 - a. SOILS INVESTIGATION & ANALYSIS OF SITE
 - b. COMPLIANCE WITH LOCAL BUILDING CODES.
 - c. COMPETENT OPINION BY LOCAL ENGINEER OR BUILDING OFFICIAL.
- (2) BASED ON UNIFIED CLASSIFICATION SYSTEM.
- (3) NO ALLOWANCES MADE FOR OVERBURDEN PRESSURE, EMBEDMENT DEPTH, WATER TABLE HEIGHT, OR SETTLEMENT PROBLEMS.
- (4) SPECIAL ANALYSIS REQUIRED.



FROST PENETRATION DEPTHS

U.S. DEPARTMENT OF COMMERCE WEATHER BUREAU



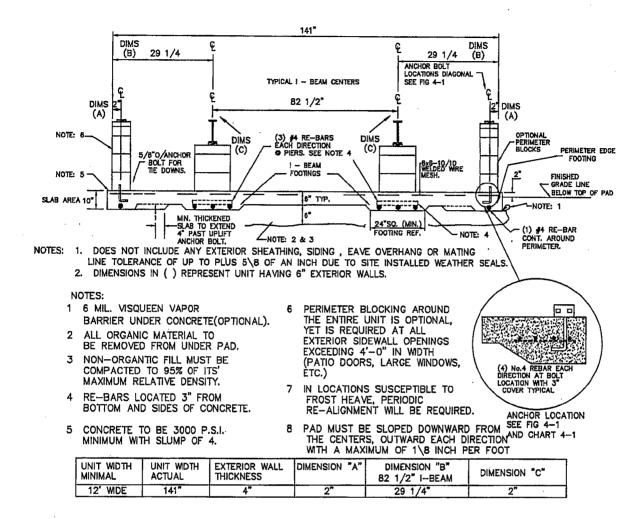
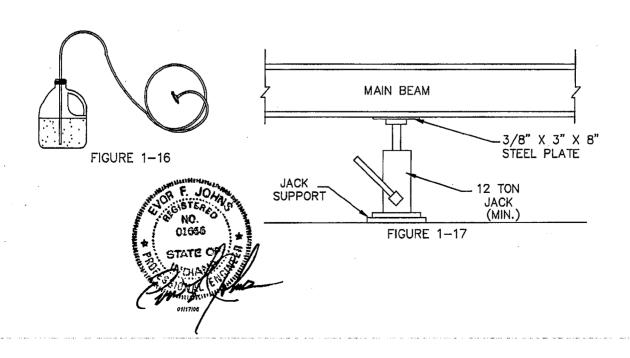
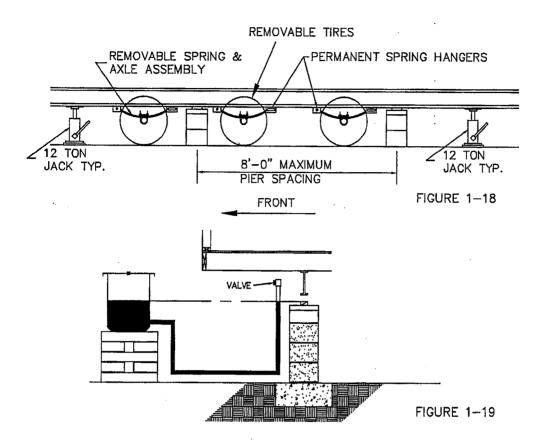
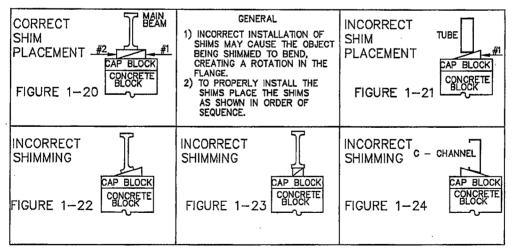


FIGURE 1-15









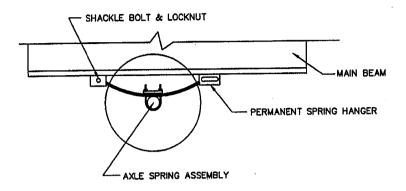
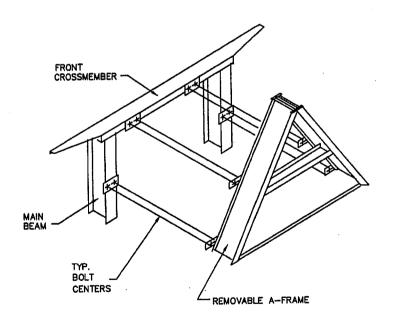


FIGURE 1-25



(NOTE: AS VIEWED FROM UNDERNEATH THE HOME.)

FIGURE 1-26

UTILITY SYSTEMS

2-1 General

- 2-1.1 Before leaving the manufacturing facility, the gas, water, and drain line systems of your RPT were tested for tightness. In addition, the electrical system has been thoroughly tested. However, prior to connecting these systems to their supply, another test should be conducted to ensure that these systems are functioning properly and should be examined for damage which may have occurred in transit or on the dealer's lot.
- 2-1.2 All connections and testing of these systems must be made by an experienced installer. It is nevertheless highly recommended that you make personal inspections, particularly of any exposed water or drain line connections for leaks, inside the RPT and underneath the RPT, and that you confirm that the electrical system has been properly plugged into a receptacle outlet having the same configuration as the power cord supplied with the unit.
- **2-1.3 Note:** It must be possible to gain access to all utility connections through removable sections of the skirting or through access doors.

2-2 Water Distribution, Connection, and Testing

- 2-2.1 The water distribution system of your RPT has been equipped with a 3/4 inch swivel female hose water service connection. When connecting the site water supply to this connection, care must be taken to ensure that the threads and inside of the pipe are clean and clear of any obstruction which may have occurred while the RPT was in transit or on your dealer's lot.
- 2-2.2 The water distribution system was designed for a maximum water inlet pressure of 80 pounds per square inch. Should you locate your RPT in an area where the water pressure exceeds 80 pounds per square inch, a pressure reducing valve must be installed.
- 2-2.3 It is further recommended that a check valve be installed on the water inlet to prevent water system drainage in the event of a loss of water pressure from the source. Such pressure loss could cause the water heater to drain, exposing the heating elements of electric water heaters causing them to fail.
- 2-2.4 All water heaters are equipped with an approved, fully automatic valve designed to provide

- temperature and pressure relief. These valves are provided with a drain that discharges below your RPT for a residential water heater or to the exterior for a RV water heater. The opening in this drain should be inspected to ensure that it is clear of any obstruction, which may have occurred while the RPT was in transit or on your dealer's lot. (See Fig 2-1)
- 2-2.5 In areas subject to freezing temperatures, all exposed water supply lines must be protected by wrapping with insulation and by using one or more listed electric heat tapes. Use only listed heat tapes. A receptacle outlet has been provided on the underside of your RPT in the area of the water inlet for the express use of the heat tapes.

CAUTION

ONLY LISTED HEAT TAPES MAY BE USED. THEY MUST BE INSTALLED IN ACCORDANCE WITH THEIR LISTINGS AND INSTALLATION INSTRUCTIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN AN ELECTRICAL HAZARD OR SHORT CIRCUIT WHICH COULD CAUSE A FIRE.

2-3 Procedure for Testing the Water System

2-3.1 Testing the water distribution system can be performed by subjecting this system to a hydrostatic pressure of 100 pounds per square inch for 15 minutes without loss of pressure.

CAUTION

- IF AIR ONLY IS TO BE USED IN TESTING THE WATER SUPPLY SYSTEM, THE WATER HEATER SHOULD BE ISOLATED FROM THE TEST.
- 2-3.2 This can be done by disconnecting the hot and cold water lines on the water heater and then joining them together. The piping can then be subjected to an air test of 100 pounds per square inch for a period of 15 minutes. If the water heater is to be left connected to the system while conducting an air test, the pressure should never exceed 30 pounds per square inch. Even though water heaters have a working pressure from 125 to 150 pounds per square inch, it is a hydrostatic or water pressure measurement. Subjecting a water tank to air pressure alone (if it exceeds 30 pounds per square inch) will create a possibility of damaging the tank or having the tank actually explode. THEREFORE, NEVER APPLY

AIR PRESSURE EXCEEDING 30 POUNDS PER SQUARE INCH TO THE WATER SYSTEM UNLESS THE HOT WATER TANK IS ISOLATED FROM THE SYSTEM.

2-4 Draining the Water Lines

- **2-4.1** To ensure that the water supply lines are completely drained it will be necessary to blow out the lines. The air pressure can be supplied by a low-pressure compressor (30 pounds per square inch maximum). The procedure will be as follows:
- 2-4.1.1. Turn off water heater.
- 2-4.1.2. Turn off water supply.
- 2-4.1.3. Open all faucets throughout RPT.
- 2-4.1.4. Disconnect water supply inlet.
- 2-4.1.5. Open any low point drain valves.
- **2-4.1.6.** Let water supply system and water heater drain completely.
- **2-4.1.7.** Flush toilets and drain water tanks completely.
- **2-4.1.8.** Close any low point drain valves and all water faucets with the exception of one.
- **2-4.1.9.** Connect 30 pounds per square inch air supply to water inlet connection.
- **2-4.1.10.** With the air supply on the system, open one faucet at a time throughout the RPT.
- **2-4.1.11.** After entire system has been drained of all water, disconnect the air supply and close off the water inlet valve, close any low point drains, and cap the inlet.
- 2-4.1.12. Pour an antifreeze solution into all drain traps, including sinks, tubs, and toilets. BE SURE THAT THE ANTIFREEZE YOU USE IS SAFE FOR THE FIXTURES AND P-TRAPS.
- **2-4.1.13.** Do not overlook the laundry area if plumbed, and the exterior faucet when installed.

2-5 <u>Waste Drainage System Connection and Testing</u>

- **2-5.1** The waste drainage system in your RPT terminates in a standard 3-inch waste connection which is located underneath the unit in the left rear of the RPT. (See Fig 2-2)
- **2-5.2** Just prior to the connection of the RPT drainage system to the site drain, the system should be plugged and flooded to test for any leaks which may have developed in the system, due to in-transit vibrations, and in the site-installed piping. The procedure for this testing is as follows:
- **2-5.2.1.** With the drainage system outlet tightly capped, fill the system with water through the toilet bowl until the toilet bowl is full to the bottom of the rim. When filling, plug the tub and shower drains when the water level is about 1 inch above the drain. The water should stand without the level falling for 15 minutes.
- 2-5.2.2. Fill fixtures which are higher than the toilet bowl (lavatories, sinks, etc.) with water. Check these fixture connections for leaks as you allow the water to flow through the system as the drains are opened.
- **2-5.2.3.** Any leakage noted during these tests should be isolated and corrected prior to RPT occupancy.
- **2-5.3** In areas subject to freezing temperatures, all exposed drain lines should be protected by wrapping with insulation and by using one or more listed electric heat tapes where insulation alone is inadequate.

CAUTION

ONLY LISTED HEAT TAPES LISTED MAY BE USED. THEY MUST BE LISTED FOR USE WITH THE TYPE OF MATERIAL USED IN THE DRAINAGE SYSTEM AND MUST BE INSTALLED IN ACCORDANCE WITH THEIR INSTALLATION INSTRUCTIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN AN ELECTRICAL HAZARD OR SHORT CIRCUIT WHICH COULD CAUSE A FIRE.

2-6 Gas System Connection and Testing

2-6.1 The gas piping system in this RPT is designed for a pressure not exceeding 14 inches water column (1/2 psi) and not less than 10 inches water column (3/8 psi).

2-6.2 The gas piping system was tested at the time of manufacture, however, it is essential that it be inspected and tested at the site for leaks that may have been caused by in-transit vibrations or physical damage that may have occurred after the time of manufacture and system testing prior to connecting the system to the gas supply.

CAUTION

DO NOT APPLY MORE THAN THE SPECIFIED PRESSURE AS DAMAGE TO GAS VALVES AND/OR REGULATORS MAY RESULT.

- **2-6.3** Before a test is begun, the temperature of the ambient air and the piping should be approximately the same. Conduct the test when air temperatures will remain stable.
- **2-6.4** The gas piping system must be tested two ways:
- 2-6.4.1. Piping only all appliances isolated.
- 2-6.4.2. Entire system with appliances.

A. Piping only test:

- 1. Isolate all appliances from the system by closing all appliance shut-off valves.
- 2. Pressure must be measured with a mercury manometer or slope gauge calibrated in increments of not more than 1/10 pound.
- 3. Pressurize the system to 3 pounds per square inch.
- 4. Isolate the pressure source from the system.
- 5. The gauge must stand 10 minutes without a pressure drop.
- 6. Release pressure and open all appliance shut-off valves.

B. Entire system test:

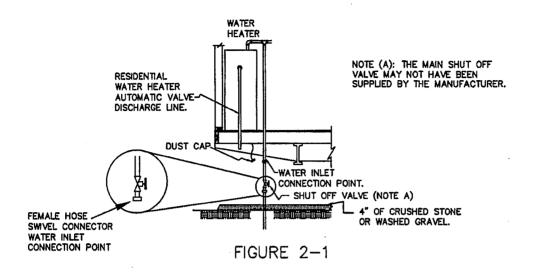
- 1. Pressurize the system to either:
 - a. 3/8 to 1/2 pounds per square inch, or
 - b. 10 inches to 14 inches water column

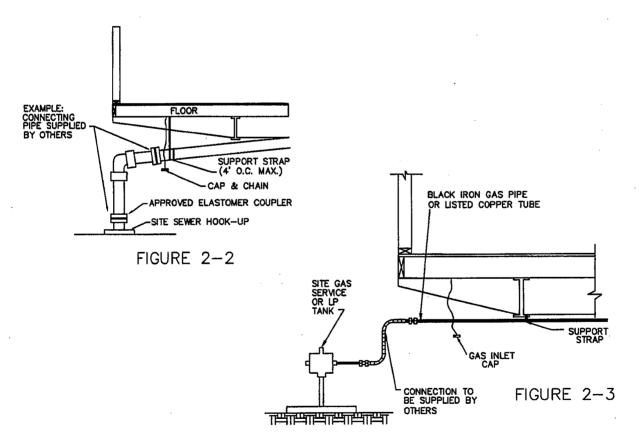
2. Apply bubble solution to all appliance connections.

NOTE

PRIOR TO MAKING CONNECTION TO SITE SUPPLY, GAS INLET ORIFICES OF FURNACES, WATER HEATERS, AND APPLIANCES MUST BE CHECKED TO ENSURE THEY ARE SET UP FOR TYPE OF GAS TO BE USED - L.P. (LIQUIFIED PETROLEUM) OR NATURAL GAS. THE GAS PRESSURE SHOULD NOT EXCEED 14 INCHES WATER COLUMN.

- **2-6.5** If conversion is required, individual appliance, furnace, or water heater manufacturer's instructions must be complied with.
- **2-6.6** Residential gas appliance vents (flues) shall be visually inspected to ensure that they have been connected to the appliance and roof jacks are installed and have not come loose due to transit vibrations. Any portions of a gas vent that was not assembled due to shipping height restrictions must be installed: and inspected.
- **2-6.7** The connection to the gas supply should be made by an authorized representative of the gas company (See Figure 2-3).
- **2-6.8** LP-GAS containers were not installed or provided with the RPT at the time of manufacture. If LP-GAS is to be used, make certain to follow the instructions below:
- A. Consult your local LP-GAS service center or RPT dealer for the connection of the LP-GAS system.
- B. Be sure they:
 - 1. Use only ASME or DOT containers.
 - Locate the containers at or near the LP-GAS system inlet.
 - 3. Use only a 2-stage regulator with its vent pointed vertically down.





ELECTRIC SYSTEMS

3-1 Electric System

- **3-1.1** Your RPT is designed to be connected to an electrical supply source rated at 120/240 Volts, 3-pole, 4-wire, 60-Hertz having an insulated neutral. In making the connection to this power source, it is extremely important that the power cord be connected to a receptacle outlet having the same plug configuration. **DO NOT USE AN ADAPTER.**
- **3-1.2** Before locating your RPT at a permanent site or park, make certain that sufficient power is available. Insufficient power will result in the improper operation of motors, appliances, and lights which will further result in a more costly electrical service. Proper performance of your RPT's electrical system depends on a full 120/240 volts of electrical power at an amperage equal to the rating of the main circuit breaker located in the distribution panel within your RPT. The amperage rating of the disconnect circuit breaker located in the disconnect box outside of your RPT must also be equal to that of the main circuit breaker in the distribution panel.
- **3-1.3** The main distribution panelboard within the RPT has been sized for the electrical equipment and/or branch circuits that were installed during the manufacturing process as original equipment. Branch circuits for electrical equipment added to the RPT in the aftermarket such as air conditioning units, heat pumps and water pumps, as well as for ancillary structures such as porches, garages, storage buildings, etc. must originate at a power source outside the RPT.

WARNING

DO NOT INSTALL LAMPS (LIGHT BULBS) IN THE LIGHTING FIXTURES THAT EXCEED THE MAXIMUM WATTAGE LIMIT POSTED ON OR NEAR THE LIGHT FIXTURE. OVER- LAMPING CAN CAUSE AN ELECTRICAL SHOCK OR FIRE HAZARD.

CAUTION

IF YOUR RPT IS EQUIPPED WITH AN ELECTRIC WATER HEATER, DO NOT TURN ON THE CIRCUIT BREAKER IN THE DISTRIBUTION PANEL UNTIL AFTER THE WATER HEATER HAS BEEN FILLED

WITH WATER. ENERGIZING THE CIRCUIT PRIOR TO FILLING THE WATER HEATER WILL RESULT IN SEVERE DAMAGE TO THE HEATING ELEMENT WITHIN THE WATER HEATER.

3-2 Test Procedure for Electrical System

- **3-2.1** The electrical system should be tested to make certain there is no reversed polarity, open grounds, or short circuits in the system. Such tests should be performed after the RPT has been completely set up and assembled, all metal structural and trim pieces have been installed, and the internal electrical connections have been made.
- **3-2.2** All exposed non-current carrying metal parts that may become energized shall be effectively bonded. A test to confirm this bonding should be made **BEFORE** the RPT is connected to 120/240 VAC service.
- **3-2.3** Perform the following checks for proper bonding or continuity using an Ideal No. 61-030 Continuity Tester or equivalent. (This tester is a small pen flashlight using two "AA" batteries and utilizing a long wire lead with an alligator clamp.)
- **3-2.3.1** a. Using the flashlight continuity tester, connect the alligator clip to a positive ground (metal skin, window frames on metal exterior units, floor duct riser (when a metal heat duct system has been installed), or a metal screw head on a receptacle or switch plate) and touch the body of the flashlight to each fixture canopy. The continuity light should light if each fixture is properly grounded.
- **3-2.3.2** b. Using the continuity tester, check all appliances and vent fans. By touching the metal body of the flashlight to the appliance or fan and having the alligator clamp connected to a convenient ground, the light should come on if the appliance or fan is properly grounded.
- **3-2.3.3**. Using the same procedure, check the bonding between the following:
- (1) Metal register boot and convenient ground (only with metal ducts),
 - (2) Steel frame and metal roof,
 - (3) Steel frame and metal exterior skin,

- (4) Steel frame and metal gas piping,
- (5) Metal fireplace and convenient ground,
- (6) Water heater and convenient ground,
- (7) Furnace and convenient ground,
- (8) Steel frame and metal EMT raceway to distribution panel where applicable.

NOTE

BONDING IS NOT REQUIRED ON THE METAL INLET OF PLASTIC WATER SYSTEMS OR ON PLUMBING FIXTURES SUCH AS TUBS, FAUCETS, SHOWER RISERS, AND METAL SINKS WHEN CONNECTED ONLY TO PLASTIC WATER AND DRAIN PIPING.

ANY INDICATION OF AN INADEQUATE BOND BETWEEN ANY OF THE ITEMS LISTED ABOVE WILL REQUIRE INVESTIGATION AND CORRECTION.

- **3-2.4** An additional check using the continuity tester should be conducted as follows:
- **3-2.4.1.** Using the flashlight continuity tester, connect the alligator clip to a positive ground, turn on all light fixture and appliance switches including all fans and the furnace, and touch the flashlight probe to the neutral bar in the electrical distribution panel and each connected load. The continuity light should not light. If the continuity tester does light, it is an indication of an electrical short.
- **3-2.4.2.** Should an electrical short to ground be indicated, the short must be isolated and corrected before connecting the power to the RPT from the source.
- **3-2.5** After the RPT is connected to 120/240 VAC service, make the following checks:
- **3-2.5.1** a. Using a polarity checker, such as a Trinetics Ground Monitor GM-20 or equivalent, plug into each AC receptacle in the RPT noting an indication of reversed polarity, open grounds, or shorts. Any reverse polarity, open grounds, or shorts which are located must be investigated and repaired.

- **3-2.5.2** b. Using a ground fault tester such as a Unitest GFI Circuit Tester or equivalent, check each ground fault circuit breaker or receptacle outlet for proper operation. Any ground fault breaker or receptacle outlet which does not operate properly should be replaced.
- **3-2.5.3** c. Install light bulbs and/or fluorescent tubes in all fixtures and check for proper operation by turning on the appropriate switches. Repair or replace any inoperative light switches or fixtures.

3-3 Test Procedures for Smoke Alarms

- **3-3.1** All park trailers have smoke alarms wired into the unit's electrical system. These devices are sensitive to smoke in the initial stages of a fire and will sound an alarm to alert occupants during a fire. It is essential that the smoke alarms be tested at the time the RPT is installed at the RPT site. Testing smoke alarms is a simple operation, but may require the use of a stepladder to safely reach each one.
- **3-3.2** Begin by locating each smoke alarms and turning off each light switch in the RPT. Where the smoke alarms have battery backup, the batteries must be removed to allow testing of the 120-volt system. To perform the test, simply press the test button until the alarm sounds.

GROUND ANCHORING SYSTEM

4-1 General

- **4-1.1** All park trailers must be securely fastened to the ground to resist the sliding and overturning effects of high winds.
- **4-1.2** This section will provide the information needed to properly install an anchoring system which will provide the resistance to lateral movement (sliding) and overturning (uplift).

CAUTION

ALTHOUGH LOCAL SHELTERED CONDITIONS MAY SEEM TO PERMIT THE INSTALLATION OF YOUR RPT WITHOUT THE USE OF A PROPER ANCHORING SYSTEM, THE ANCHORING SYSTEM MUST BE USED IN ALL CASES FOR YOUR SAFETY AND COMFORT.

4-2 Design Criteria

- **4-2.1.** Anchoring equipment must be capable of resisting an allowable working load equal to or exceeding 3,150 pounds and must be capable of withstanding a 50 percent overload (4,725 pounds total) without failure of either the anchoring equipment or the attachment point on your RPT.
- **4-2.2.** Anchoring equipment means straps, cable, turnbuckles, and chains, including tensioning devices, which are used with ties to secure a manufactured RPT to ground anchors.
- **4-2.3.** Anchoring equipment should be certified by a registered professional engineer, architect, or a nationally recognized testing laboratory to resist these specified forces in accordance with testing procedures in ASTM Standard Specification D3953-91, Standard Specification for Strapping, Flat Steel and Seals.
- **4-2.4.** Ground anchor strapping used in conjunction with the anchoring system must be equivalent of Type 1, Class B, Grade 1 steel strapping, 1 1/4 inches wide and 0.035 inches thick. The strapping must also comply with the requirements stated in para 4-2.3 above.
- **4-2.5.** Ground anchors should be certified by a registered professional engineer, architect, or

- nationally recognized testing laboratory as to their resistance, based on the maximum angle of diagonal tie and/or vertical tie loading. the anchors must be installed in accordance with the manufacturer's installation instructions which are supplied with the anchors.
- **4-2.6.** Ground anchors should be installed to their full depth, below the local frost line and at least 12 inches above the local water table.
- **4-2.7.** Stabilizing devices or cement collars must be installed to provide added resistance to overturning or sliding forces.
- **4-2.8.** Ground anchors must be placed within two feet of each end of the unit and be evenly spaced along its length, being careful not to exceed the maximum spacing shown in chart 4-1.
- **4-2.9.** Ground anchors and anchor heads must be sized to resist the loads listed in the notes for Figure 4-1. The materials necessary to anchor your RPT to the ground have not been provided by this company and may be obtained through your independent park trailer dealer. (See charts 4-2 and 4-3 for examples)

4-3 <u>Installation Instructions - Frame Anchoring</u> Procedure

- **4-3.1.** As noted earlier in this instruction, the ground anchors must be installed prior to locating the RPT on the site in its final resting position. The exact location of the anchor heads is as follows:
- **4-3.2.** The ground anchor should be installed at the same angle as the diagonal tie so that the pulling force on the anchor is in line with the ties. Should this not be possible, a concrete collar shall be poured around the anchor shaft or a metal stabilizing device driven in front of the anchors director of pull. The collar must be 10 inches in diameter and 18 inches deep. See Figure 4-2. As an alternate to the concrete collar, a stabilizing device may be installed on the anchor in such a way that the width of the stabilizing device is perpendicular to the direction of pull on the straps. See Figure 4-3.
- **4-3.3.** The unit must be in its final resting position and in proper working alignment prior to the installation of the anchor ties.

- **4-3.4.** The diagonal ties (frame ties) must be spaced as evenly as practical along the length of the RPT with not more than 2 feet open end spacing at each end.
- 4-3.5. Ties can be connected to the frame I-beams by wrapping, clipping or bolting, within six inches of an outrigger, attached to the I-beam. Where the ties are wrapped the strapping must be protected from the edges of the I-beam by crimping another layer of strapping to the top and bottom hangers of the I-beam before making the wrap. Make certain to wrap only at the protected areas. (see Figures 4-4, 4-5, 4-6, and 4-7).
- **4-3.6.** Connect the diagonal ties to the frame (I-beam) and the ground anchors. (see Figures 4-4, 4-5, 4-6, and 4-7).
- **4-3.7.** Tighten the straps using the tensioning device provided with the ground anchors. Following the tensioning specifications provided by the anchor equipment manufacture carefully. Use caution to avoid overtensioning of the straps, which might pull the RPT 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.
- **4-3.8.** The strap tension should be rechecked at frequent intervals until all pier settlement has stopped and alignment adjustments made as needed.

CAUTION

DURING ANY REALIGNING PROCESS, DO NOT JACK THE RPT AGAINST TIGHTENED GROUND TIES.

4-4 Alternate Procedures

- **4-4.1.** Should your RPT be placed on a full concrete slab as shown in Figure 1-15, the ground anchors may be replaced with anchor bolts imbedded in the concrete slab as shown. The location of the anchor bolt in relation to the longitudinal I-beams of the frame will be the same as for the ground anchors. (See Figure 4-8).
- **4-4.2.** If for any special considerations at the RPT site you cannot use this ground anchoring system, you may have an anchoring system designed by a registered professional engineer or architect at the RPT owner's or installer's expense. The design criteria described earlier in this section should be used

for loads, safety factors, and equipment specifications. The engineer or architect should inspect the installed system to ensure proper installation. Above all, your RPT must be properly anchored to the ground.

4-4.3. Anchors embedded into concrete runners under the I-beams rather than the full slab (See Figure 1-15) or into the individual footings are unacceptable unless such installation complies with paragraph 4-4.2 above.

GENERAL NOTES

1. THE ANCHOR MUST BE MINUTE MAN OR EQUAL ANCHOR AND ANCHOR HEAD MUST HAVE AN ULTIMATE STRENGTH EQUAL TO OR GREATER THAN 4725 LBS.

2. ANCHOR BOLTS (REGARDLESS OF ZONING) MUST START NO FURTHER THAN 2'-0" FROM EACH END OF HOME.

3. IF ANCHOR IS INSERTED VERTICALLY, A CONCRETE COLLAR OR STABILIZING DEVICE MUST BE USED AT THE GROUND LINE, SEE FIG. 4-2 & 4-3.

4. EACH OF THE STRAPS AND CONNECTIONS TO THE I-BEAM MUST HAVE AN ULTIMATE STRENGTH OF 4725 LBS. SEE FIG. 4-4 THROUGH 4-6.

5. REFER TO CHART 4-1 FOR MAXIMUM STRAP SPACING FOR THIS ANCHORING SYSTEM.

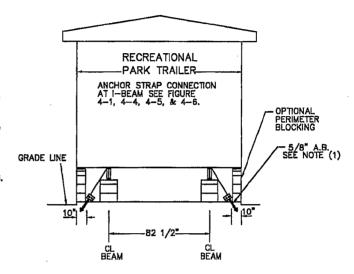
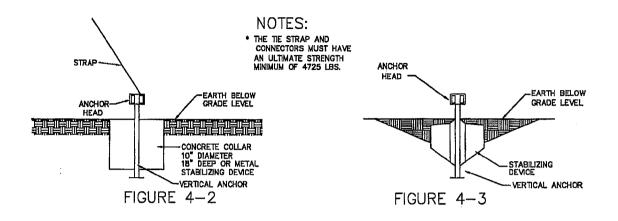


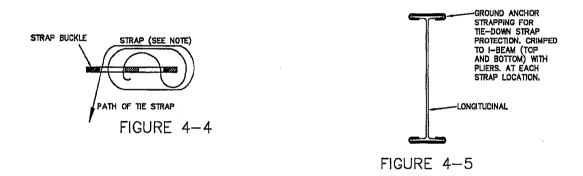
FIGURE 4-1

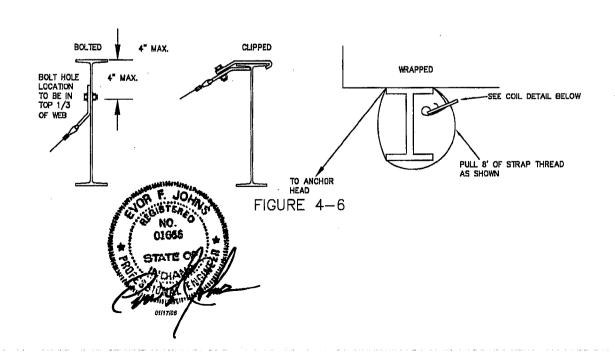
MAXIMUM ANCHOR SPACING (DIAGONAL) 82 1/2" I-BEAM CENTERS

CHART	4-1	MAXIMUM PIER HEIGHT	MAXIMUM SPACING 90 MPH	MAXIMUM SPACING 100 MPH
	, ,	16"	17 ft.	11 ft.
		24"	15 ft.	9.5 ft.
		32"	13 ft.	8.5 ft.
		40"	11.5 ft.	7.5 ft.
		48"	10 ft.	6.5 ft.









NOTE:

ANCHOR BOLT ONLY TO BE USED
WITH CONCRETE PAD. GROUND
SCREW ANCHOR (SHOWN BELOW)
IS TO BE USED FOR ALL OTHER
APPLICATIONS FOLLOWING THE
MANUFACTURER'S RECOMMENDATIONS
AND CONTINGENT UPON LOCAL
SOIL CONDITIONS

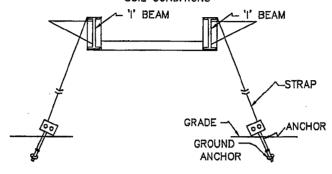


FIGURE 4-7

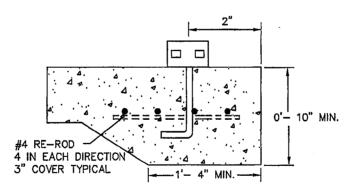


FIGURE 4-8



	MINUTE MAN ANCHORS	3	
MODEL	DESCRIPTION	USE ON SOIL TYPE	DEPTH OF EMBEDMENT
650-DH 5/8	DOUBLE HEAD, EARTH AUGER ANCHOR	2,3,4	48"
650-DH 3/4	DOUBLE HEAD, EARTH AUGER ANCHOR	2,3,4	48"
650-DH 11/16	DOUBLE HEAD, EARTH AUGER ANCHOR	2,3,4	48"
210PDH	DOUBLE HEAD TENSION DEVICE FOR	SLAB	6"
	CONCRETE		

CHART 4-2

	SOIL TYPE FOR ANCHOR EMBEDMENT
1.	SOUND HARD ROCK
2.	VERY-DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, PRELOADED SILTS, CLAYS, AND CORALS. (PROBE TORQUE VALUE RANGE-GREATER THAN 550 INCH POUNDS).
3.	MEDIUM-DENSE COARSE SANDS, SANDY GRAVELS, VERY-STIFF SILTS AND CLAYS. (PROBE TORQUE VALUE RANGE- 350-550 INCH POUNDS).
4.	LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALUVIAN FILL. (PROBE TORQUE VALUE RANGE- 200-349 INCH POUNDS).

CHART 4-3

NOTE:

IT IS NOT THE INTENT OF THIS COMPANY TO LIMIT THE GROUND ANCHORING EQUIPMENT TO THAT LISTED ABOVE. ALTERNATE GROUND ANCHOR EQUIPMENT MAY BE USED AS LONG AS THE EQUIPMENT CAN BE SHOWN TO COMPLY WITH DESIGN CRITERIA PARAGRAPH NUMBER 4–2.5, FOUND EARLIER IN THIS MANUAL. IN ALL CASES, THE LOCAL SOIL CONDITIONS MUST BE CAPABLE OF HOLDING THE ANCHORS USED.

MISCELLANEOUS OPTIONS, CONNECTIONS, AND INFORMATION

5-1 Self-contained Air Conditioning Unit

- **5-1.1** If a self-contained central air conditioning unit is to be used (separate from the furnace), the duct carrying cooled air from the air conditioner to the RPT and back will need to be connected to the bottom of the main duct, located in the floor of the RPT, and to the return air fitting. (Fig 5-7)
- **5-1.2** A combination heating/cooling thermostat will also have to be installed to prevent simultaneous operation of the furnace and the air conditioner.

5-2 General A/C Power Supply

NOTICE

ELECTRICAL CONNECTIONS MADE TO ENERGIZE AIR CONDITIONING EQUIPMENT SHOULD BE MADE ONLY BY QUALIFIED PERSONNEL. THE COMPLETED INSTALLATION MUST CONFORM TO ARTICLE 440 OF THE NATIONAL ELECTRIC CODE AND APPLICABLE LOCAL CODES.

5-3 Furnace Roof Jack

5-3.1 The furnace roof jack for your RPT may have been shipped loose to comply with transportation height requirements. A warning tag may be attached to the fuel supply line, the furnace, and the furnace thermostat if the furnace roof jack was shipped loose. The furnace roof jack and instructions for the installation of the roof jack are provided with your RPT.

WARNING

THE FURNACE ROOF JACK MUST BE INSTALLED BEFORE THE FURNACE IS OPERATED.

5-3.2 If this RPT is installed in an area which receives large amounts of snow fall, the flue piping on the furnace may need to be extended to ensure an adequate amount of combustion air. Flue pipe extensions are available from the furnace manufacturer and their service centers. To extend the flue, the termination cap is removed, the extension

installed and the termination cap reinstalled. Exact instructions are supplied by the furnace manufacture with each extension and must be followed exactly.

5-4 Optional Dryer Venting Installation

5-4.1 A gas or electric clothes dryer installed in the RPT must be exhausted to the outside by a moisture lint exhaust duct and termination fittings, unless it is a listed ventless appliance.

CAUTION

DRYER EXHAUST SYSTEM MUST NOT TERMINATE UNDERNEATH THE RPT.

- **5-4.2** An access panel is located in the dryer area to provide access to the dryer end of the duct system. (See Figures 5-1 and 5-2)
- **5-4.3** Access to rough-in from outside may be located on the bottom side of the floor or on an exterior wall. (See Figure 5-1)
- **5-4.4** The exhaust system shall be completed on site as shown with materials provided by the owner. (See Figures 5-1 and 5-2)
- **5-4.5** Exhaust duct and termination fittings must be listed by an approved testing agency or certified as components of the dryer.

5-5 Installation of Accessories

- **5-5.1** If additional decorative or functional accessories are to be attached to your RPT such as utility buildings, carports, skirting, and awnings, the following practices must be observed:
- **5-5.2** Read carefully and follow the instructions for any supplemental accessory which are provided by the manufacturer of such accessory. Always check to determine that the installation conforms to applicable building codes.
- **5-5.3** If direct attachment to the RPT is necessitated, make certain that solid structural members are behind the attachment point. In the event a carport or awning is being installed, it should be attached only along the top of the wall or the edge of the roof. Proper size fasteners should always be used, and interlocking parts should be carefully fitted.

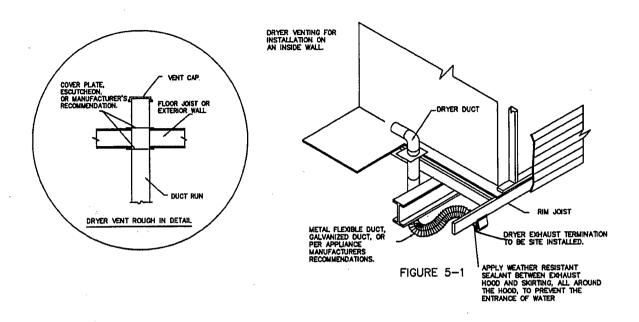
- **5-5.4** In installing carports, awning rails, or small storage buildings, select a unit that is designed with support columns which will carry its own weight. As little weight as possible should be attached to the RPT itself.
- **5-5.5** The foundation system for any structure attached to the RPT must be equal to the foundation system for the RPT. If the foundations are not equal, frost heave or settling cold occur at different rates. This unequal movement can result in structural damage or lost weather seals which will promote air and water infiltration.
- **5-5.6** All joints created by attaching accessories to the RPT should be properly sealed with weather-stripping and covered, if possible, with molding or flashing. Attaching fasteners should be caulked or sealed. All holes or openings necessitated in the walls or roof of the RPT should be covered and sealed to insure against leakage.

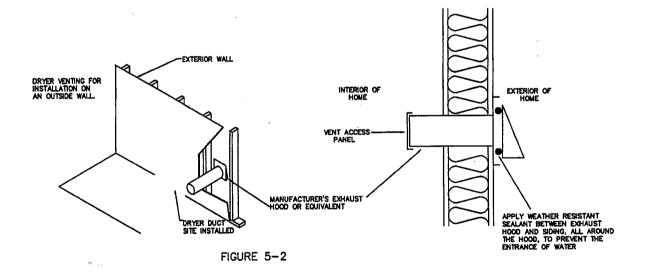
CAUTION

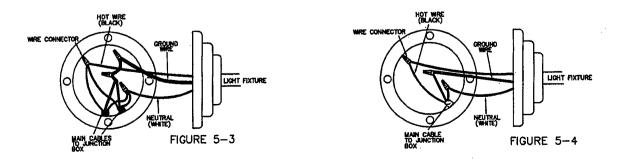
MODIFICATIONS OR ALTERATIONS OF YOUR RPT MAY MAR ITS APPEARANCE AND WEAKEN IT STRUCTURALLY WHICH COULD VOID YOUR WARRANTY RIGHTS.

5-6 Light Fixture and Ceiling Fan Installation

- **5-6.1** Some light fixtures and ceiling fans may not be installed when the RPT is built because of possible damage to the fixture while the RPT is being moved. These fixtures include exterior lights, ceiling fans, and chain hung interior fixtures. When installed, all fixtures must be grounded either by a fixture mounting screw or a fixture grounding conductor. In the case of a chain hung fixture, both are required. Typical installations are shown in Figures 5-3, 5-4, and 5-5.
- 5-6.2 The mounting bracket for ceiling fans must not be fastened to the electrical box for support unless the electrical box is listed for that purpose and the total supported weight is not greater than 35 pounds. See Figure 5-6 for fan support independent of the electrical box.







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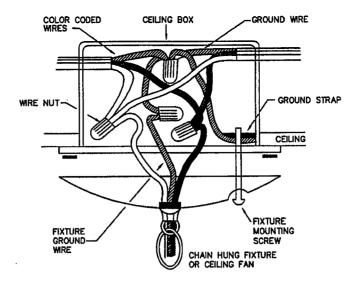
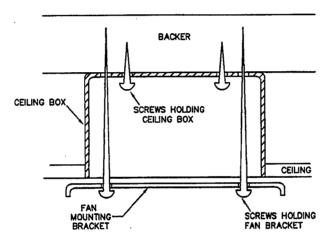
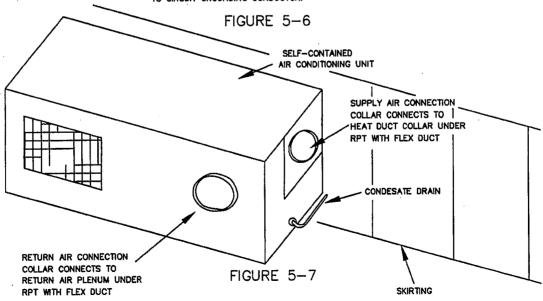


FIGURE 5-5



- 1. USE (2)TWO #8 SCREWS TO HOLD BOX TO BACKER.
- 2. USE (2)TWO #8 SCREWS TO HOLD BRACKET TO THE BACKER THROUGH THE BOX.
- 3. BOX MUST NOT SUPPORT BRACKET.
- 4. FAN BRACKET GROUND CONDUCTOR MUST CONNECT TO CIRCUIT GROUNDING CONDUCTOR.



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FINAL INSPECTION

After your RPT has been completely installed, a final inspection should be made to insure that no items have been overlooked which could cause a problem. Special emphasis should be placed on the following items:

6-1 Exterior Siding and Trim

6-1.1 A thorough check should be made of all portions of the exterior siding to make certain that it is not cracked or split, buckled, or loose in any manner. Any siding observed to be in this condition should be repaired or replaced. All fasteners that are loose should be retightened or replaced. All decorative trim pieces or molding strips, including molding along the edge of the roof, should have special attention to make certain there are no gaps or voids in the sealant tapes or caulking material. If any such places are observed, they should be resealed.

6-2 Roofs

6-2.1 The roof must be checked to make certain that all vent, flue and intake flashings are firmly in place. Also check that the roof ventilators, flue pipes, exhaust vents, and air intakes have not become damaged or loosened in transit or installation and that any ridge vent and/or shingle ridge cap is firmly in place.

6-3 Clearances

6-3.1 If there are any low-hanging trees or bushes adjacent to your RPT which could damage the exterior or the roof, they should be trimmed or cut accordingly. Future growth of these bushes or trees should be considered in connection with their possible movement during wind conditions or under snow or ice loads.

6-4 Egress Windows

6-4.1 An egress window is provided for each bedroom and a label is located on or near the window to identify it. The egress windows must be checked to assure that all shipping clips on screens, storm windows, and other appurtenances are removed so that quick and safe exit is possible. Check the window to assure it opens properly.

6-5 Exterior Doors and Storms

6-5.1 Exterior doors are provided with door plungers and chain stops. Doors must be checked to ensure that these items have been installed and adjusted.

6-6 Winter Precautions

- **6-6.1** In the event you elect to vacate your RPT during the winter months, care should be taken to ensure that adverse weather conditions will not damage your RPT.
- **6-6.2** Follow the procedures listed in the Utility Systems section to properly drain your water system and add antifreeze to your P-traps at all locations.
- **6-6.3** The heat should be left on, where recurrent home inspection is possible, to maintain a temperature that will not allow the build-up of moisture and the growth of mold. Moisture build-up can cause swelling or warping of materials and furnishings.
- **6-6.4** Provisions should also be made to inspect the RPT on a recurrent basis to ensure that the skirting ventilators are open and not snow-covered and to remove any ice and snow build-up along the eaves, as stated in the Homeowners Manual, to prevent the water created by melting ice and snow from backing up under the shingles or entering the RPT by other means.