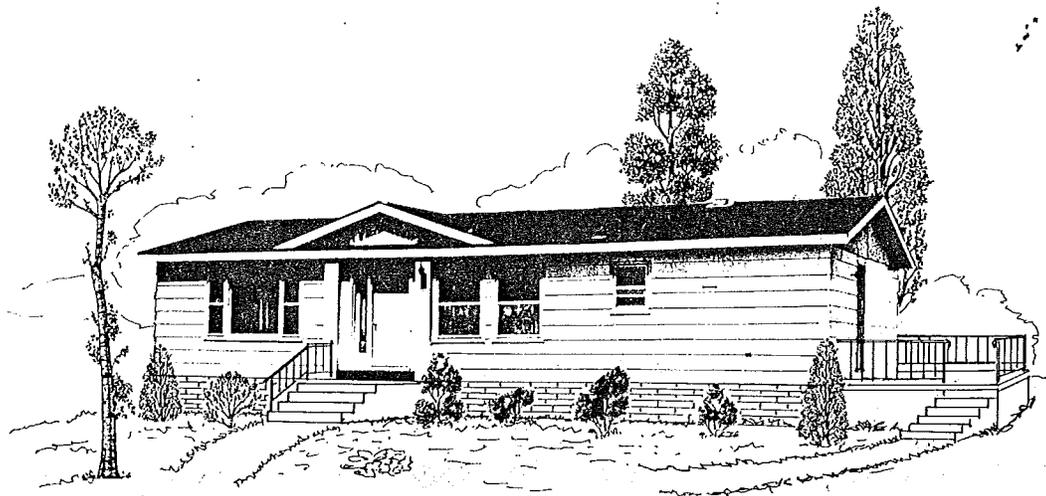


1982

# CHIEF INDUSTRIES, INC.

## Housing Division

Limited  
Manufactured Housing  
Warranty  
and  
Owner's Manual



Dear Homeowner,

Welcome to the growing family of owners of homes built by Chief Industries, Inc., Housing Division.

We have prepared this manual to help you enjoy the comforts and safety of your home for as long as you live in it. The manual includes:

- A copy of our factory warranty
- Procedures for you to follow when you need service
- Recommendations for setting up your home on its site
- Instructions for maintaining your home's operating systems in good working order
- Instructions for maintaining your home's structure and its interior and exterior surfaces
- Some practical safety suggestions
- Procedures for you to follow when you have to move your home to another site.

Perhaps most important of all, the manual carefully outlines the specific responsibilities that you, your dealer, your park operator, and we as manufacturers must fulfill, both before and after you move into your home. Even though you may have lived in a manufactured home before, read the entire manual carefully. By doing so, you can avoid problems, and increase your enjoyment of living in a new home.

Sincerely,  
Chief Industries, Inc.  
Housing Division

# HOUSING DIVISION OF CHIEF INDUSTRIES

Executive Office

P.O. Box 349  
Aurora, Nebraska 68818  
Phone 402/694-2177

## MANUFACTURING PLANTS

BONNAVILLA HOMES, AURORA, NEBRASKA

P.O. Box 127  
Aurora, Nebraska 68818  
Phone: 402/694-2144

BELLAVISTA HOMES, RUSSELL, KANSAS

P.O. Box 553  
Russell, Kansas 67665  
Phone: 913/483-2138

Model \_\_\_\_\_ Serial No. \_\_\_\_\_  
Date of Original Sale Dec. 28, 1982  
Dealer's Name Skip  
Address \_\_\_\_\_ City Watertown State SD  
Phone \_\_\_\_\_ Zip \_\_\_\_\_

First Printing — July 31, 1977  
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# Table of Contents

	Page
Manufacturers and Dealers Addresses .....	ii
Letter of Introduction .....	i
Information About The Warranty .....	1
List of State Administrative Agencies .....	2
Setting, Supporting and Leveling Your Home .....	6
Warranty Information Cards .....	7
Safeguarding Your Investment .....	8
Against Wind .....	8
Against Fire .....	9
Against Humidity .....	10
Living In Your Home .....	12
Caring For Your Home's Operating Systems .....	13
Heating System .....	13
Air Conditioning System .....	16
Plumbing System .....	16
Electrical System .....	18
Emergencies .....	19
Maintaining the Exterior .....	21
Maintaining the Interior .....	24
When You Move Your Home .....	25
Maintenance Check List, Owners Service Directory & Log .....	26-27-28

# I. Information About The Warranty

If you haven't yet looked at the warranty enclosed, study it carefully now before you read the following related information.

Before your home left the factory, it was fully tested and inspected, and met all provisions of the warranty. If for any reason your home does not meet these provisions when the dealer makes his final inspection and transfers possession to you, it is our joint responsibility to have your home in warranted condition.

## How Long the Warranty is Good

Our warranty becomes effective when the dealer transfers possession of the home to you. Usually this takes place as soon as he completes his final inspection. You'll find a discussion of this procedure in this manual under Setting, Supporting, and Leveling Your Home.

Every warranty has a time limit, and our time limit is clearly stated in our warranty. The reason for a time limit is that any problem that results from defective workmanship or materials is likely to occur within the first few weeks that you occupy the home.

## The Federal Law

This manual is provided as a requirement of the National Mobile Home Construction and Safety Standards Act of 1974, and conforms to regulations in that act.

## Obtaining Warranty Service

If, during the first year after delivery of your home to the original retail purchaser you discover a defect, malfunction or other failure of your home to conform to this warranty, simply contact the independent dealer who sold your home or the manufacturing plant in writing. To insure quick service, be prepared to supply the home identification information (model, serial number and date of original sale) listed in the front of the Owner's Manual.

## Dealer's Obligation

By agreement with the manufacturer, the selling dealer is obligated to correct, either by replacement or repair, defects or problems covered by this warranty at no charge to the original retail purchaser.

## Purchaser's Obligation

The purchaser is responsible for the normal maintenance prescribed in the Owner's Manual. If a problem occurs that the purchaser believes is covered

by this warranty, the purchaser should follow the procedures for obtaining warranty service included in this warranty.

The purpose of the Act is to set down construction and safety standards in a federal law in order to provide you with a safe and durable home. Most manufacturers in the industry were already meeting these requirements. The Act in essence limits its standards to construction and safety requirements. It does not cover furnishings, decoration, standard kitchen appliances, or any items or additions that you buy separately from the home itself.

The Act further places on us as manufacturer the burden of correcting any violation of structural or safety standards without cost to you. The procedures you should follow in the event of an alleged violation are clearly stated in the warranty. As an alternate — and slower — procedure, you may contact the mobile home agency in your state (see list on the next page).

The Department of Housing and Urban Development (HUD) is the federal agency administering the Act. Any questions regarding the Act or your rights under the Act should be directed to HUD. To contact HUD, look in your telephone book under United States Government, then under Housing and Urban Development, Department of. If you write or call any local HUD office, address or ask for the Consumer Complaint Officer. If you write or call the central HUD office, the address is Mobile Home Standards Division, Department of Housing and Urban Development, Washington, D.C. 20401. The telephone number is (202) 472-4703.

## Chief's Obligation Under This Warranty

If the defect, malfunction or other failure is covered by this warranty Chief Industries will remedy the problem by repairing or replacing the defective feature on site without charge within a reasonable time after you notify Chief Industries or your independent dealer of the problem. In most instances warranty service will be provided by your independent dealer or by a representative of Chief Industries. However, many of the equipment and accessory items in your home are not manufactured or assembled by Chief and carry separate warranties from their manufacturers. In the event of problems with these items if you are unable to obtain adequate service under those separate warranties, your independent dealer and Chief Industries may cause the manufacturer or his representatives to perform the necessary warranty service.

## II. State Administrative Agencies

- Alabama — Roy Thornell, State Fire Marshal, Insurance Dept., 445 South McDonough Street, Montgomery, Alabama 36104. (205)832-5844
- Arizona — Ram S. Inocencio, Chief Engineer, Arizona Div. of Mobile and Manufactured Housing Standards, 1645 W. Jefferson, Room 431, Phoenix, Arizona 85007. (602)255-4072
- Arkansas — Mitchell Baker, Office of Mobile Home Standards, 500 E. Markham Street, Little Rock, Arkansas 72201. (501)371-1641
- California — Russ Bahr, Dept. of Housing & Community Development 6007 Folsom Blvd., Sacramento, California 95819. (916)445-1249
- Colorado — Leslie G. Tingle, Colorado Division of Housing, 1313 Sherman Street, Denver, Colorado 80203. (303)892-2033
- Florida — Buck Jones, Chief, Bureau of Mobile Home Construction, Dept. of Highway Safety and Motor Vehicles, 2900 Apalachee Parkway, Tallahassee, Florida 32304. (904)488-7657
- Georgia — John R. (Bob) Gore, State Fire Marshal, 7 M.L. King, Jr., Dr., S. W., Atlanta, Georgia 30334. (404)656-2064
- Idaho — Jack C. Stroud, Administrator, Dept. of Labor & Industrial Service, 317 Main Street, Room 400, Boise, Idaho 83720. (208)334-3896
- Indiana — Vernon Eder, Admin. Building Council, 300 Graphics Art Building, 215 North Senate Avenue, Indianapolis, Indiana 46204. (317)232-1405
- Iowa — Donald W. Appell, Office for Planning and Programming, Division of Municipal Affairs, State Planning Code Section, 523 East 12th, Des Moines, Iowa 50319. (515)281-3807
- Kentucky — Chandler Robinson, Office of State Fire Marshal, Manufactured Housing, U.S. 127 South, Frankfort, Kentucky 40601. (502)564-3626
- Louisiana — Clinton Dobson, Department of Public Safety, Mobile Home Div., 9131 Interline Avenue, Building C, Baton Rouge, Louisiana, 70809. (504)925-4917
- Maryland — David Hammerman, Director, Codes Administration, Dept. of Economic and Community Development, 2525 Riva Road, Annapolis, Maryland 21401. (301)269-2701
- Massachusetts — Charles Denizio, Executive Director, State Building Code Commission, John W. McCormack Office Bldg., 13th Floor, One Ashburton Place, Boston, Massachusetts 02108. (617)727-6916
- Michigan — Bill B. Moyer, Executive Director, Construction Code Commission, Department of Labor, 7150 Harris Drive, Lansing, Michigan 48909. (517)322-1701
- Minnesota — Richard Hauck, Building Codes Division, 408 Metro Square Building, 7th & Robert Street, St. Paul, Minnesota 55101. (612)296-4628
- Mississippi — Jerry Black, Mobile Home Inspection Div., P.O. Box 22542, Jackson, Mississippi 39205. (601)354-6304
- Missouri — Douglas Busby, Director, Mobile Home & Recreational Vehicles Division, Missouri Public Service Commission, P.O. Box 360, Jefferson City, Missouri 65101. (314)751-2557
- Nebraska — Jack L. Daniel, Division of Housing and Environmental Health, State Dept. of Health, 301 Centennial Mall South, Lincoln, Nebraska 68509. (402)471-2541
- Nevada — A. Wayne Tetrault, Administrator, Department of Commerce, Manufactured Housing Division, Capitol Complex, Carson City, Nevada 89710. (702)885-4298
- New Jersey — William M. Connolly, AIA, Deputy Director, Division of Housing, Department of Community Affairs, 363 W. State Street, Trenton, New Jersey 08625. (609)292-7898
- New Mexico — Ms. Juanita Pino, Director, State of New Mexico, Mobile Housing Division, Bataan Memorial Building, Santa Fe, New Mexico 87503. (505)827-5571
- New York — Bennett Selekof, Director of Building Codes Bureau, Div. of Housing and Community Renewal, Two World Trade Center, New York, New York 10047. (212)488-2080
- North Carolina — Kern E. Church, North Carolina Department of Insurance, Engineering and Building Codes Div. P.O. Box 26387, Raleigh, North Carolina 27611. (919)733-3901
- Oregon — Trevor Jacobson, Building Codes Division, Department of Commerce, 401 L. & I Building, Salem, Oregon 97310. (503)378-3176
- Pennsylvania — James Shields, Chief, Division of Industrialized and Mobile Housing, Department of Community Affairs, P.O. Box 155, Harrisburg, Pennsylvania 17120. (717)787-9862
- Rhode Island — Joe Cirillo, Building Code Commission, Department of Community Affairs, 12 Humbert Street, North Providence, Rhode Island 02904. (401)277-3033
- South Carolina — Rick A. Howell, Director, Division of General Services, Manufactured Housing Section, 300 Gervais Street, Columbia, South Carolina 29201. (803)758-5378
- South Dakota — Bruce Farus, Director, Division of Commercial Inspection & Regulation, Capitol Building, Pierre, South Dakota 57501. (605)773-3177
- Tennessee — David H. Borum, Chief of Mobile Home Section, 413 Tennessee Bldg., 6th & Church, Nashville, Tennessee 37219. (615)741-7170
- Texas — John P. Steele, Administrator, Texas Department of Labor & Standards, P.O. Box 12157, Capitol Station, Austin, Texas 78711. (512)475-5712
- Utah — Edward T. Himstreet, Director of Mobile Homes & Recreational Vehicles Division, Department of Business Regulations, 330 East 4th South St., Salt Lake City, Utah 84111. (801)533-4242
- Virginia — C. Sutton Mullen, Jr., Deputy Director, Division of Building Regulatory Services, Department of Housing & Community Development, 205 N. Fourth Street, Richmond, Virginia 23219. (804)786-4846
- Washington — James Louvier, Mobile Home Section, 300 West Harrison, Seattle, Washington 98119. (206)464-6580
- Wisconsin — Terry Halverson, Chief, Light Building Section, Dept. of Industry, Labor & Human Relations, 201 E. Washington Ave., Madison, Wisconsin 53702. (608)266-1748

### • HUD MONITORING AGENT

National Conference of States on Building Codes and Standards, Inc.,  
Michael Slifka, PE., Mobile Home Program Director  
481 Carlisle Drive  
Herndon, Virginia 22070  
(703)437-0100

# III. Setting, Supporting, and Leveling Your Home

The First step in properly maintaining your new manufactured home is to provide a solid support for it. Unlike an ordinary home, your home does not need a foundation to support it all the way around its perimeter. The steel frame or chassis on which the home comes to your site supports the home itself. But this chassis must be raised off the ground and supported at key points to prevent it from sagging and to keep it level.

## Site Preparation

The process of supporting your home for occupancy has three steps — site preparation, setting and blocking, and leveling. If you are going to live in a park, the site should already be prepared ready for your home. But if you intend to place the home on a site you own, some work is necessary.

The area of the site where you locate the home should be reasonably level. The area beneath the home should slope enough, however, so that water will drain off and not puddle around supports. The rest of the site should be graded so that rainwater or melting snow will run off harmlessly. Supports must rest on undisturbed soil, or fill that is compact and has fully settled.

In addition, provision for utilities must be made before the home is set. Installation of lines and equipment supplying water, electricity and fuel, plus sewage disposal system, must be completed and ready for connection in accordance with all local codes and regulations. Your county engineer, building inspector, or officials of your local utility companies can advise you on the requirements in your community.

## Setting And Blocking

Many local codes require that your home must be set up by a dealer, installer, or home mover specially licensed to do this work. If your dealer is not licensed himself, he will make the arrangements with a contractor who is licensed. You should not try to do this important work yourself.

## Footings

Proper support for your home includes footings and blocking. The footings carry and distribute the weight of the home placed on the blocking. The best footing is a poured concrete slab, often called a pad. A good pad is at least 3½" thick, reinforced with wire mesh, and as large as your home less its hitch. See Figure 1. If, for example, you have bought a home 14' x 68', the pad should be 14' wide and 64' long.

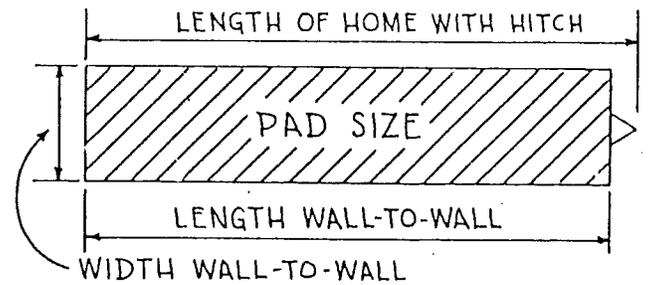


Figure 1. A pad should be the same size as the outside wall-to-wall dimensions of the home.

A good alternate to a concrete slab base is ribbons of reinforced concrete 4" thick and 24" wide, spaced so they lie directly beneath the steel beams of the frame. See Figure 2. The usual spacing between ribbons is 50" for a single-wide home, based on standard spacing of chassis beams.

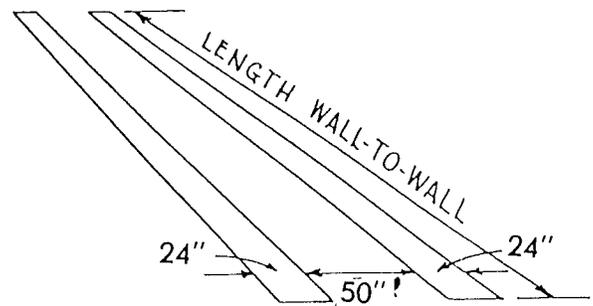


Figure 2. Standard size and spacing of concrete ribbon footings.

Double-wide or sectional homes may be set on a permanent foundation, like a house. If your home has a perimeter frame — that is, the I-beams lie under the outside walls of the house instead of between the wheels — the beams rest directly on the foundation walls. See Figure 3.

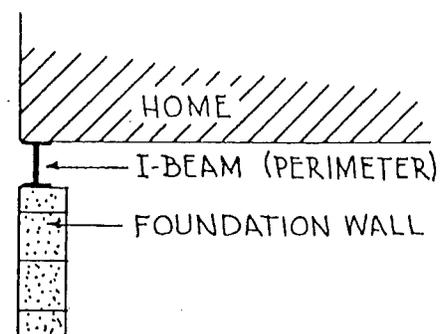


Figure 3. The I-beams of a perimeter frame rest on the foundation wall.

# Setting, Supporting, And Leveling Your Home

If your home has a standard frame, you need some cross support for the I-beams. Figure 4 shows one solution. In either case you will need to hire a contractor to build the foundation. He must be experienced in foundations for manufactured units so that he understands the special problems of sliding your home into its final position.

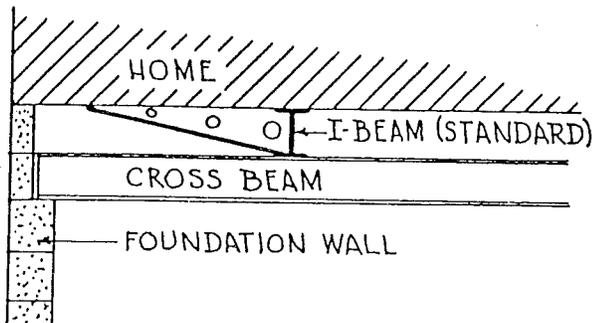


Figure 4. The I-beams of a standard frame rest on cross beams set into the foundation walls.

You may also set a double-wide home on piers. Piers are usually built of concrete block set on individual footings. The dimensions of each footing should be 8" greater than the dimensions of the pier. If you use concrete block 8" wide and 16" long, for example, footings should be 16" wide and 24" long. See Figure 5.

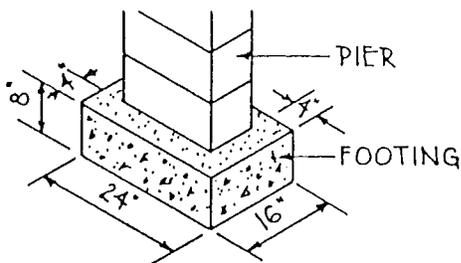


Figure 5. A good footing for a typical pier.

Footings should be 8" thick. They are often poured with their tops level with the surface of the site. You will have fewer releveling problems, however, if the bottoms of footings lie below the frost line in your community so that the piers won't heave in the spring and settle in the fall.

## Blocking

The purpose of supports is to distribute the load of your home as evenly as possible on the footings, and to provide a sturdy base. Adjustable steel jacks make excellent supports, and simplify the job of leveling. Any manufactured supports that you use should be listed and labeled by an approved testing agency. Your set-up contractor or your local building inspector can advise you on the best supports to use.

The most common supports are standard 8" x 8" x 16" concrete blocks, laid flat as in Figure 5. Blocking must be tall enough to raise the under side of the chassis at least 12" off the ground, and to keep the under sides of floor joists at least 18" off the ground. See Figure 6.

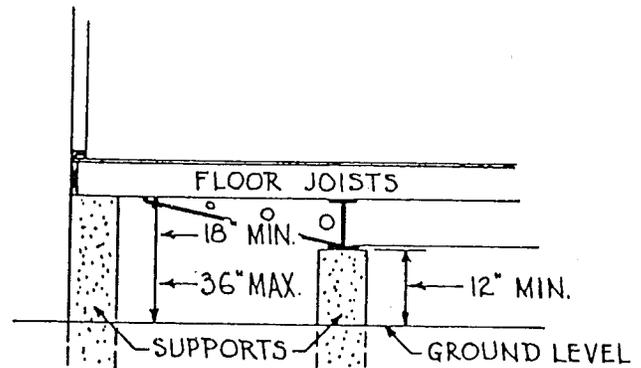


Figure 6. Minimum and maximum blocking heights.

On the other hand, supports taller than 36" are not recommended, even if permitted by code. On side-hill sites where tall piers are unavoidable, many codes require a permanent supporting structure, such as piers of poured concrete or mortared concrete block.

## Locating Supports

Locations of individual supports are very important. The blocking recommendations on the next page presently meet or exceed the requirements of all major building codes in the United States. Codes vary from state to state, however, and are periodically revised. Because of this, you should visit your local building inspection official before set-up work begins to make sure that you comply with all requirements.

Manufactured homes are engineered so that most of their weight rests on the axles. Therefore strong support is needed in this area. Figure 7 on the next page shows where to place blocking, and the correct sequence of operation. The order in which the supports are placed is as important as their locations. Note that supports are always placed in pairs on each side of the longitudinal center line of the home.

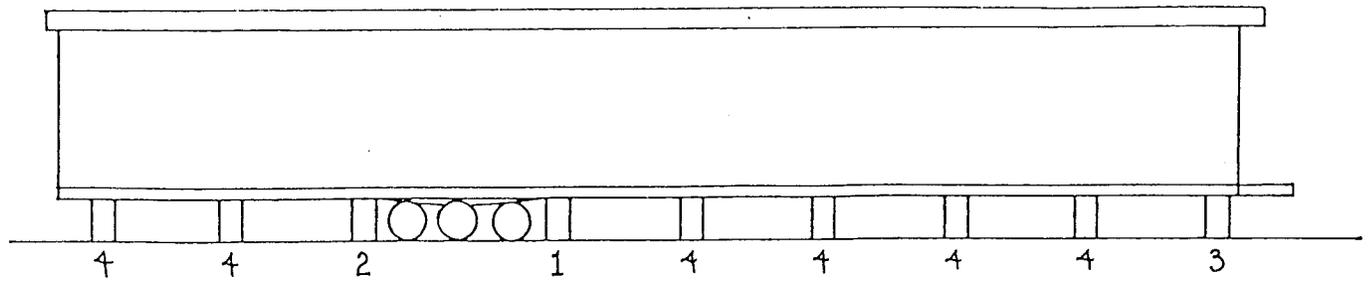


Figure 7. Proper blocking sequence is:

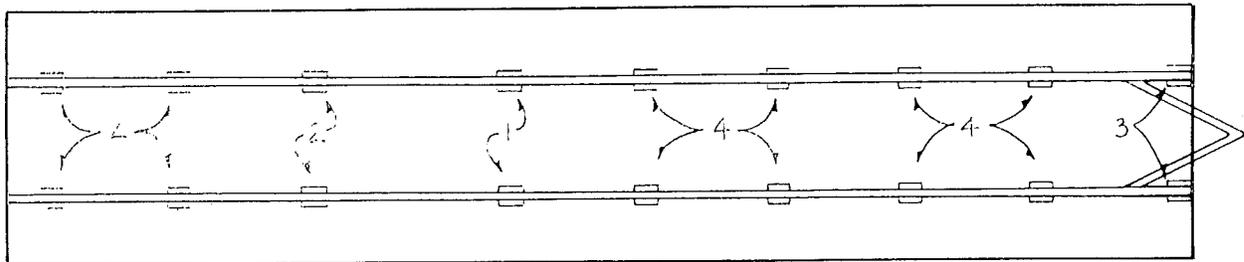
1. Supports under both I-beams just forward of the front spring hanger brackets.
2. Supports under both I-beams just behind rear spring hanger brackets.
3. Supports under both I-beams about 16" behind the front crossmember.
4. Additional supports equally spaced between 1 and 3 above, and between 2 and the rear wall. This spacing must not exceed 128". (See Figure 8) The rear-

most support should be no more than 16" from the rear of the home. Tires should not touch the ground.

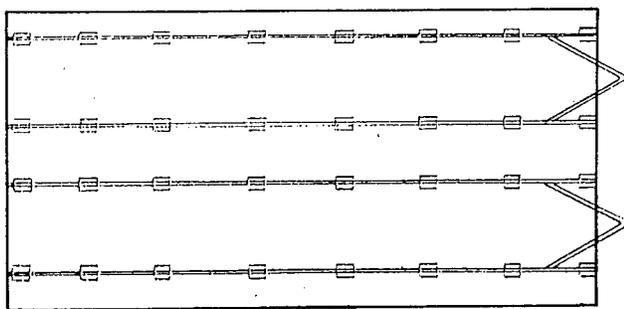
If your home has four axles, add an extra pair of supports between the two middle axles, since spacing between supports 1 and 2 will be more than 128".

### Support Blocking Systems

Please refer to the manufacturer's recommended support blocking instructions included in the Homeowners packet.



TYPICAL SINGLE-WIDE



TYPICAL DOUBLE-WIDE

Figure 8. Top view of typical location of main I-beam supports.

### Leveling

To serve you satisfactorily, your home must stand as level as possible on its supports. If it does not, here are some of the problems that can result:

- Walls, partitions, and floors that buckle.
- Leaks around windows and doors, and at seams in the roof, ceiling, and walls.
- Doors and windows that bind, sag, or won't close tight.
- Cabinet doors and drawers that won't shut properly.
- Wall, partition, and ceiling materials that come loose.
- Floor covering that wrinkles, and floor structure that feels soft and spongy under foot.
- Exterior metal or siding that wrinkles or cracks.
- Piping and wiring that snap under tension.

# Setting, Supporting, And Leveling Your Home

To prevent these problems, your set-up contractor should check and adjust the level of your home after completing step 3 in Figure 7. He should also check and adjust the level after placing each additional pair of supports. Make sure he does.

When your home is ready to live in, it should be level at all points from front to rear, and at all points from side to side.

What is "level?" Ideally, the bubble in the level should lie entirely between the hairlines on the gauge. See Figure 9. But it is almost impossible to achieve absolute level throughout your home because of normal variations in joists and decking. A deviation from level where part of the bubble is less than  $\frac{1}{8}$ " outside one hairline is usually acceptable, as long as you don't get this same reading everywhere. Any deviation greater than  $\frac{1}{8}$ " probably means that your home should be releveled.

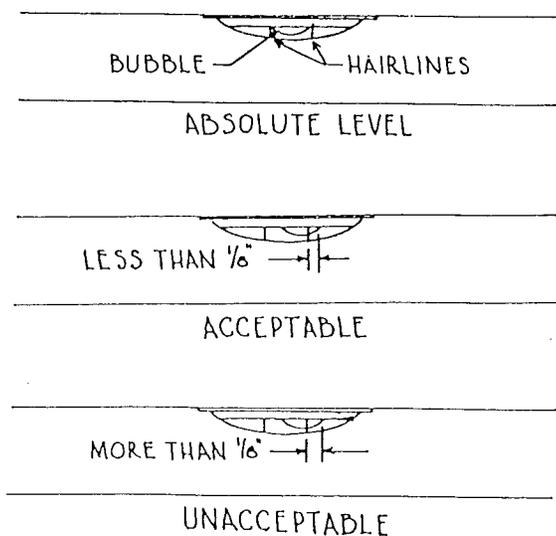


Figure 9. The gauges show absolute level (top), acceptable level (middle), and unacceptable level (bottom).

## Releveling

Even though your home is properly leveled when you move in, you should recheck level once a month for the first three months, and twice a year thereafter — in the spring after frost is out of the ground, and in fall after the first frost. Because of its weight, your home may settle a little in the first few months. All houses do. And because of seasonal freezing and thawing, the ground under your home may rise and fall slightly. The purpose of rechecking the level is to make sure that the normal movement of the ground hasn't moved your home also and thrown it slightly out of level.

Although releveling looks easy to do, the work should be done only by a competent and knowledgeable mobile home mover or installer. The cost of releveling is far less than the cost of repairing a home that is not kept level. And if you have proper footings and blocking under your home, you should rarely have to relevel.

## Responsibilities

You, your dealer or park operator, and the manufacturer of your home each play a part in the total responsibility for having your new home ready to live in. Take the time to study carefully the following list of these responsibilities.

### The Manufacturer

The basic responsibilities of the manufacturer are:

- To build the home in accordance with all requirements of the national mobile home code and of any special requirements of your state code.
- To inspect the home for defects both during and immediately after construction, and to correct any problems that are discovered.
- To have the home free from structural defects in materials and workmanship at the time it is turned over to the dealer. This transfer of possession may take place at the factory, at the dealer's lot, or at your site, depending on the arrangements made for transporting and setting up the home.

A copy of your manufactured home warranty is included with your Home Owner's packet, with your home. It describes the manufacturer's responsibilities for correcting defects covered by the warranty.

### The Dealer

The basic responsibilities of the dealer are:

- To inspect the home upon transfer of possession from the manufacturer to assure that it is free from structural defects as warranted.
- To set up your home on its site, and complete blocking, leveling, and tie-down procedures. These are the dealer's responsibility whether he does the work himself or contracts with a set-up specialist. Set-up becomes the manufacturer's responsibility only when agreed upon between the manufacturer and dealer.
- To make all the necessary utility connections — to power lines, water lines, gas lines, and sewer or septic lines. Some local codes require that any or all connections be made by utility companies or their representatives. In such cases the dealer's responsibility is limited to arranging with the utility company for making the connections.

• To test all utility connections to the home, and to reinspect for defects in accordance with the manufacturer's warranty.

• To correct all possible defects uncovered during this inspection, and to list any defects that he has not yet corrected or is not able to correct. He notifies the manufacturer accordingly.

## Dealer Certifications

The Dealer is responsible for completing the "Dealer Certification" for every home which the dealer sells. This certification should be completed before the sale is final and before the home is delivered.

By his certification, the Dealer certifies that the home, to the extent that the dealer is responsible, continues to conform to HUD regulations.

## Information Cards

The Dealer should prior to delivery of your home ask you to help him complete an information card which will permit Chief Industries to maintain records of your home. This information adds to your protections. Please help the Dealer to secure the necessary information.

## The Park Operator

The park operator has only one major responsibility before you move into your home. That is to have the site graded and cleared, footings or foundations in place, and utilities available on your lot. But if you are placing your home on your own site, these are your responsibilities, and are the first four listed below.

## The Owner

Here are your basic responsibilities as owner between the time you purchase your home and the time you accept it for occupancy:

- Have the site and working access to it cleared of all brush, trees, and overhanging limbs that could interfere with delivery and set-up.
- Have the site graded as outlined previously under Site Preparation.
- Agree with the person or firm responsible for set-up on the type of blocking to be used. This blocking is normally provided by the set-up contractor as part of his cost.
- Have the required footings or foundation in place prior to delivery. Work closely with your dealer and with building inspection officials before this work is done and during construction.
- Arrange with all utility companies to bring lines to the site and to locations on the site recommended by the dealer.
- If at all possible, be present when the dealer makes his final inspection. This is important not only to assure yourself that all items on the inspection check list are actually checked, but also that all bona fide defects are either corrected or listed in the Action List part of the form.
- To sign the completed Customer Acceptance Check list signifying that, to the best of your knowledge, your home is in good condition except as marked in the Action List section. Your signature on the customer Acceptance Check list does not mean the end of the manufacturer's, the dealer's, the park operator's or your responsibilities for your home. These responsibilities continue as outlined in the section on maintenance.

- In connection with the final inspection of your home at the homesite, if you do not feel confident that your home has been received without transit damage and set-up properly, you may wish to retain the professional service and advice of a qualified mobile home inspection service, if available in your area.

## Basement Installation

Your home is designed to be used with a heated basement. Termite and rodent protection is to be in accordance with local, state and federal building codes.

**Important :** Be sure to de-humidify the basement under your home until the concrete is completely dry and cured. The high moisture trapped in a basement for uncured concrete can cause serious damage and warping of floor structure and floor decking which cannot be the responsibility of Chief Industries.

# IV. Safeguarding your Investment

No matter where you live, or what type of home you live in, you must protect the home against two of nature's most destructive forces — wind and fire.

We have built as many safeguards as possible into your home to protect you from these two forces. There are limits to what any manufacturer can do, however, and you must take some precautions yourself.

## Protecting Against Wind

On the data plate in your home is a wind zone map (see page 15). Most of U.S. is in Zone I, Zone II includes the Atlantic coast line from Maine to Texas, all of Puerto Rico, and part of Alaska. Zone II is called the hurricane zone.

Just because you live in Zone I, however, don't think you don't have to protect your home against wind. No home, mobile or fixed, is safe from severe wind storms, such as hurricanes and tornados.

On any site, two types of wind can cause damage. One is horizontal wind — the kind that can blow you off balance as you round the corner of the building. The other is uplift wind — the kind that picks up leaves and other loose items on the ground and carries them upward. You can protect against both types of wind by anchoring.

How necessary is anchoring? At the present time federal regulations do not require you to anchor your home because such a law would be difficult to enforce. More than a dozen state laws call for anchors, however, and your dealer will know if your state is one of them.

More important is the fact that a 60-mile-an-hour wind is strong enough to slide your home off its supports if it isn't anchored. And all parts of the country have winds of this velocity or greater. So for your own safety and to protect your investment in your home, anchor it to the ground.

## Anchoring

We have equipped your home with tie-down straps that your dealer attaches to anchoring devices at the site. If your site is in a park, the anchors should be in place when your home is set up. If you are setting up on your own lot, however, you must provide the necessary ground anchors yourself. Your dealer or local building inspector can recommend anchoring devices which meet federal requirements, and can advise you of the quantity to buy. The type and quantity vary with the length and shape of your home, expected velocity and direction of strong winds, and local soil conditions.

One of the most common types of anchors is the ground auger. You set it in the soil at a slight angle to the vertical so that the head of the anchor is behind the skirting of your home. See Figure 10. You can drive the auger into position with a special machine; or you can dig a hole with a post-hole digger, insert the anchor to full depth, then fill the hole with earth 6" at a time, tamping firmly after each 6" of fill. Without tamping, the soil won't have the necessary holding power. When the anchors are in final position, only their heads show above the ground.

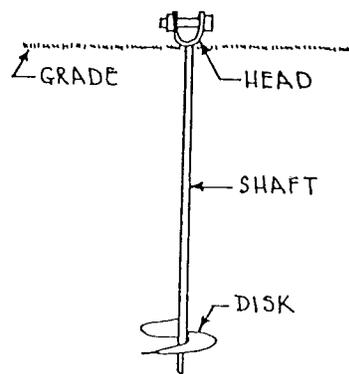


Figure 10. A typical ground auger. Standard length is about 4'.

To connect the anchor's head to the tie-down strap at the I-beams you need a frame tie and some means of placing the tie in tension. Type 1, grade 1 steel strapping, 1½" wide, .035" thick and with a B finish, is commonly used for the frame tie. Cables with a breaking strength of 4,750 pounds may also be used.

With steel strapping and most anchors, you simply insert a tension bolt in the head of the anchor, insert strapping in the slot in the bolt, and turn the bolt with a wrench until strapping is tight. See Figure 11. With cables instead of strapping, you use a turnbuckle, and tighten it steadily until the cables are in tension. See Figure 13.

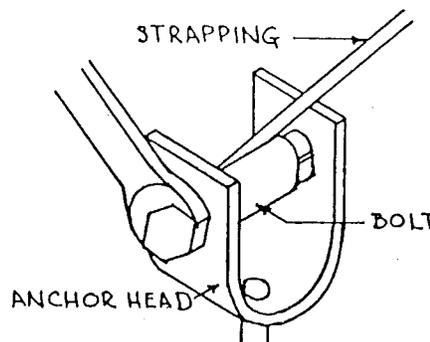


Figure 11. Tension bolt in anchor head, with strapping inserted and wrapped ready for final tightening.

# Safeguarding Your Investment (continued)

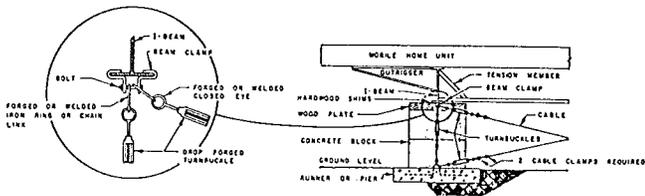


Figure 12. Tie down with a clamp fastened to I-beam and secured to a tiedown cable with turnbuckle.

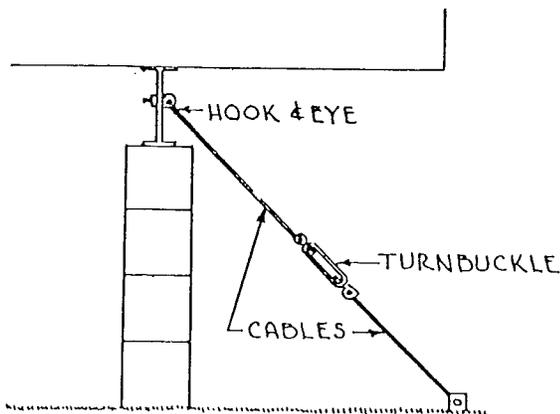


Figure 13. Anchoring with cables and turnbuckles.

Figure 14 shows one recommended method of tying a home to anchors. To prevent the anchor from slicing through the ground in very high winds, some anchor manufacturers recommend that you pour a collar of concrete about 18" deep and 10" in diameter around the anchor shaft. If you supplement frame ties with over-the-top ties, as shown in Figure 15, collars are not necessary.

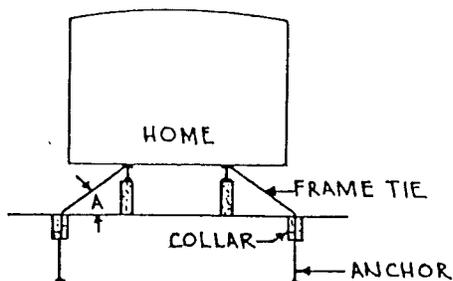


Figure 14. Frame ties extend diagonally downward from I-beams to anchors.

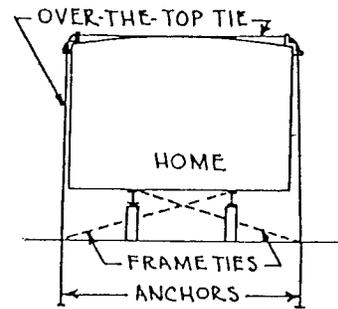


Figure 15. Frame ties and over-the-top ties connect to the same anchors. Frame ties should extend to the opposite anchor (dotted line) when angle A in Figure 14 is more than 45°.

If your home is a double-wide supported on piers, you follow the procedures shown in Figure 14 or 15. But if you place your home on a permanent foundation, one way to tie it down is shown in Figure 16. Anchor bolts must be installed when footings are poured. The flange of the I-beam must be drilled on site to fit over the anchor bolt. After the home is in place, a washer should be welded to I-beams at each anchor bolt, and a nut tightened to hold the assembly securely in position.

Please refer to the manufacturer's recommended tie down and anchoring recommendations in the Homeowner's packet.

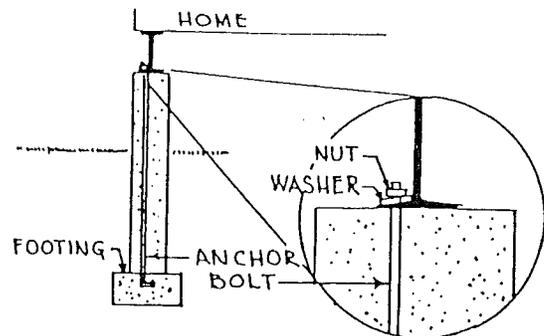


Figure 16. Anchoring to a block foundation wall.

## Protecting Against Fire

We have safeguarded your home by building it to meet all requirements of national fire codes, and by choosing interior materials that resist fire and the spread of flame. Two of the most important safety features are smoke detectors and egress windows.

### Smoke Detectors

In the sleeping area of your home we have installed a smoke detector. There are two detectors in some models. The detectors give out a shrill, penetrating alarm when they sense smoke, gas, or the visible or invisible particles given off in the early stages of any fire. Detectors are mounted on the ceiling or high on the wall where they can detect these signs of fire as early as possible, giving you and your family time to get out of your home safely.

## Safeguarding Your Investment (continued)

A tiny light in the detector stays on all the time to assure you that the detector is working and ready to send out an alarm. When the smoke that sets off the detector clears away, it automatically resets itself.

Included with your other papers is a maintenance manual for your smoke detector. Study it carefully, and follow the instructions in detail.

### Egress Windows

Each bedroom in your home has a special egress window (egress means a way out). This window looks much like other windows, but it is designed to give you a means of fast escape from your home if fire blocks the passage to exterior doors.

To make sure that you know how to use the windows in an emergency, take these steps:

1. Read and memorize the instructions attached to the windows.
2. If your dealer has not prepared the windows before he transfers possession, prepare them yourself. You remove any clips that may have been installed to hold windows firmly while your home was in transit, and take out the manufacturer's clips at hinges or latches.

In case of a fire:

1. Remove the storm sash by turning the clips that hold it in place, or remove the screen by pulling on the tabs.
2. Trip the exit latches at the window sill.
3. Open the egress window either by swinging or sliding it open.
4. Climb out quickly.

In an extreme emergency, break the window with a shoe, drawer, clock or lamp, and dive through it.

Go over these procedures two or three times a year, especially with young children who may forget the steps. At the same time, check to see that storm windows, screens, and egress windows themselves come out easily.

In addition to the emergency egress window in each of the bedrooms of your home to be used for emergency escape, your home also has a minimum of two exterior doors, one located at its front entrance at or near the living room and one located at the rear hallway, which you should not hesitate to use for exit from your home in an emergency if passage to these doors is not obstructed by the cause of the emergency.

### Preventing Fires

Statistics show that there are three fires in conventional homes to every two fires in mobile homes. But because mobile homes are usually smaller than conventional homes, you must be more careful about causing fires. Statistics also show that most fires are caused by people, and could have been prevented.

Here are some simple tips that may keep you from being the cause of a fire:

- Never leave your home with any kitchen appliance on.
- Dust regularly, and do not let lint gather around heat sources such as television sets and furnaces. Lint and dust burn just like paper.

- Do not store flammable liquids in, under, or near your home.
- Throw away oily rags or keep them in an airtight metal container outside your home.
- Keep matches and lighters away from children.
- Don't smoke in bed.
- Avoid using extension cords. Never run cords under a rug or carpet.
- Avoid overloading electrical circuits (see the section in this manual on your Electrical System) and do not tamper with wiring or fuses.
- Use a flashlight to look in dark corners or for gas leaks. Never use an open flame.
- Do not let curtains get close to gas flame at your range.
- Keep a container of baking soda handy in the kitchen to smother grease fires. You can also use salt. Do not use flour or water, which can make the fire worse.
- Do not let grease accumulate in your range hood, or around the kitchen range.

## Protecting Against Humidity

All air contains moisture, and warm air can hold more moisture than cold air. When warm air cools to the dew point — the point where it can't hold any more moisture — this excess water must go somewhere. Since heat always moves toward cold, the moisture forms as drops of water or ice on the nearest cooler surface. You've seen condensation in various forms — as moisture or frost on windows on a cold day, as drops of water on a glass of lemonade or a can of beer on a hot day, and as ice on the windshield of your car in the morning after a clear, cold fall night.

Condensation can be a serious problem in any home. When there is excessive moisture *inside* the home trying to get *out*, it may cause warp, rot, mildew, and paint failure. By nature, moisture will seek dry air (on the outside) and attempt to mix with it. It can force its way through wood, plaster, brick and cement. It can be a source of discomfort and can cost you a great deal of money by deteriorating your home.

The principal sources of moisture in a typical home are the household activities which vary with the living habits of the family. For instance cooking for a family of four adds 4.5 lbs. of moisture a day to a home. Each shower contributes half a pound; weekly laundry, 30 lbs.; human occupancy, 6 to 8 lbs. per day; and dishwashing, 1.2 lbs. Gas appliances will add moisture from the water vapor which is one of the products of combustion when gas is burned. Large fish tanks, watering of plants and humidifiers are other common sources of moisture.

Figures show that the modern living family of four can easily add 150 pounds or more than 18 gallons of water per week to the air in the home. All of this moisture must eventually escape.

# Safeguarding Your Investment (continued)

## Controlling Condensation

How can you control condensation so that it doesn't cause damage to the surfaces and the structure of your home? First, don't add any more moisture to the air than is necessary for comfort; and second, get rid of excess moisture by ventilation.

We have insulated your home to protect you against extremes of outdoor temperatures. With this insulation we provide a vapor barrier that prevents moisture in your home from getting into cooler wall, ceiling, and floor cavities where it can cause damage. Since moisture can't escape through the structure, you must let the excess pass through the vents and windows built into your home.

When you cook on the range, turn on the exhaust fan in the hood above, which will carry moisture from cooking outdoors. When you take a bath or shower, keep the bathroom door shut to confine the moisture to the bathroom alone. Then, with the door still shut turn on the bathroom vent fan or open the window slightly for 30 minutes to let excess moisture escape.

When you do laundry, avoid hanging wet clothes in your home. Use a dryer if you have one; it exhausts moisture directly into outside air. If you don't have a dryer, hang clothes outdoors to dry. In an emergency, hang a few clothes at a time in the bathroom to dry, but shut the bathroom door and either turn on the vent fan or open the window slightly.

In summer without airconditioning, humidity in your home may be as high as 95%, and you feel very uncomfortable because moisture on your skin won't evaporate. In hot weather, air conditioning can help make you more comfortable because it not only lowers inside air temperature, but it also removes excess humidity from the air.

In winter, humidity in your home can be as low as 10%, and you may feel cold even with the thermostat set at 75°, because your skin loses moisture to the dry air. The human body is most comfortable when inside air temperature is about 70° and humidity is about 30%. (This means that the air holds 30% of the total moisture it could actually hold at that temperature.) At any time the humidity reaches between 20% - 30%, or higher (depending on outside temperature) condensation may form inside the home.

The best indication of too much moisture inside of a home is when the windows start frosting over. When this happens the humidity is too high in the home and must be lowered.

With research done by Chief Industries, Inc., Housing Division third party inspection agency, Product Fabrication Service, we quote a statement made by their Professional Engineer as follows:

"My experience indicates that the outside window should be kept open about the thickness of a finger, 3/8 to 1/2 inch, throughout the cold winter months. The way to tell if the outside window is open enough is simple. If the inside window fogs up, the outside window

is open too much. If the outside window fogs up, it's not open enough. If both windows fog up, the humidity is too high and the outside window is open too much. All fans should be fully operable and used. A humidiguide should be used by the homeowner to monitor his humidity level. Portable humidifiers should be shut off." *There is no way that you can control the humidity in your home unless you put in a dehumidifier, or follow our recommendations in this Homeowner's Manual.*

Each Chief Home is equipped with an instrument called a humidistat. Instructions are given for use of this instrument to alert you to humidity levels in your home.

**CAUTION: If the humidity level is higher than recommended levels, excessive condensation may result causing serious damage to your home.**

MAXIMUM RECOMMENDED HUMIDITY					
PRACTICAL OUTSIDE TEMPERATURE	INSIDE AIR TEMPERATURE				
	60°F	65°F	70°F	75°F	80°F
-20°F & Below	20%	17%	15%	12%	10%
-20°F to -10°F	25%	22%	20%	17%	15%
-10°F to 0°F	30%	27%	25%	22%	20%
0°F to +10°F	35%	32%	30%	27%	25%
+10°F to +20°F	40%	37%	35%	32%	30%
+20°F to +40°F	45%	42%	40%	37%	35%

## INSTRUCTIONS TO MINIMIZE CONDENSATION AND FROST

IF YOUR HUMIDITY IS HIGHER THAN RECOMMENDED AND YOU HAVE CONDENSATION DO THE FOLLOWING:

1. Install storm windows (tightly sealed).
2. Vent equipment such as clothes dryers, gas fired ranges, and water heaters.
3. Operate exhaust fans while cooking, bathing, washing, or drying (slightly open a window when operating fan).
4. Ventilate crawl spaces and cover exposed earth with a vapor barrier.
5. Make sure no water leaks from washing machine drain, downspouts, gutters, etc. or seeps through crawl space, roofs or walls.
6. Discontinue using a humidifier if so used.
7. Open windows slightly in kitchen and bathroom when cooking, showering, or bathing if no exhaust fans are provided.
8. Periodically let in a reasonable amount of outside dry air, letting moist air escape.

## Safeguarding Your Investment (continued)

If after following the above recommendations, your humidity is still higher than recommended and/or you are still having condensation and/or frost problems, you **MUST USE A DEHUMIDIFIER** (properly sized) to solve your problem.

These additional suggestions are recommended to avoid excessive condensation:

- a. Do not stock kitchen cabinets to the point where the circulation of air is impossible.
- b. Do not crowd wardrobes with clothing and other objects, preventing free circulation of air.
- c. Do not locate beds or furniture tight against the walls preventing free circulation of air.
- d. Do not place containers of water on furnace or in ducts, etc. to raise humidity.
- e. Do not tape doors or windows tightly closed to prevent movement of air.
- f. Do not operate vaporizing inhalers and etc, for prolonged periods unless adequate ventilation of moist air is provided.
- g. Keep registers and furnace blower clean to insure maximum air circulation.
- h. Thoroughly air out each room in your home at least once a day.

### Living In Your Home

1. Operate all appliances in accordance with the instructions furnished by the manufacturer of the appliances.
2. **NEVER**, under any circumstances, overload electrical circuits. Use only the recommended specified parts and/or devices on electrical equipment and systems.

3. Do not use water heater and furnace areas for storage of any foreign materials.
4. Maintain humidity conditions at levels recommended in the humidity chart to prevent condensation damage.

**REMEMBER:** The major contributing factor to the humidity level and excessive condensation is the way you live in your home.

**VENTILATE PROPERLY OR USE A DEHUMIDIFIER. EDUCATE YOUR FAMILY ABOUT CONDENSATION!!!**

### Insurance

To protect yourself from financial loss, you should have insurance coverage. Many insurance companies have insurance programs designed to meet the needs of the mobile home owner. You can buy protection not only while your home is on its site, but while it is in transit between sites.

A good mobile home insurance program serves several purposes. Comprehensive physical damage coverage pays you for certain types of damage to your property. Liability coverage defends you against lawsuits if someone is injured on your property, and pays the injured person if you are found liable. Credit life coverage will pay off your home loan if you should die. Credit accident coverage will make monthly payments on your home loan if you are not able to work.

Before you take title to your home and move in, discuss insurance coverage with your insurance agent or advisor. Be sure that the agent who sells the insurance fully understands your insurance requirements.

# V. Caring for Your Home's Operating Systems

Because you will be using most of your home's operating systems as soon as you move in, you should become familiar with them as soon as possible. The place to start is with the data plate.

## The Data Plate

Somewhere in your home you will find a data plate or certificate similar to the one on the next page. The data plate in most models is posted next to the electrical service panel, but it may instead be attached to the inside of a cabinet door in the kitchen. The data plate is partly filled in, and there is space for you to write other important information on it. Leave the data plate where it is for future reference.

## The Heating System

On the data plate is a map showing the various weather zones in the U. S. Find on the map which zone you live in. Then find elsewhere on the data plate the zone for which your home's heating system was designed. The two zones should be the same. If you did not order storm windows, note how much they reduce the load on your furnace, and therefore would reduce your fuel bills.

Your home may have an electric, oil, or gas furnace. Their preparation, operation, and care are slightly different.

## Electric Furnace

An electric furnace comes completely wired, and no other connections are needed. As soon as your dealer inspects the furnace, removes shipping brackets, and completes the main electrical connection to your home, the furnace is ready to operate.

## Oil Furnace

If you set your home on your own lot, you will need an oil storage tank. A tank with a capacity of 275 gallons is a common size. Because the fuel that fires a vaporizing-type oil furnace flows by gravity, the bottom of the tank must be at least 18" above the oil control valve on the furnace, and the top of the tank must be no more than 96" above the valve. The tank must have a manually-operated shutoff valve at the outlet. Keep the tank capped, but not sealed, as air must enter the top so that the oil will flow.

Check the oil line between tank and furnace for leaks and kinks. In very cold weather, wrap the supply line with an insulating material to keep oil from

thickening. When the furnace is not operating, as in summer, keep the tank full to prevent rusting and to keep moisture from condensing in it. A filter in the fuel line will help to trap dirt and condensation.

Some parks have a central oil distribution system that operates under pressure. You don't need a tank-only an oil line from the connection at the site to your furnace.

If your oil tank is filled at the time your home is set up, your dealer will make the connection, look for leaks, inspect the furnace, remove shipping brackets, and check the furnace stack (exhaust flue) before turning on the oil and lighting the pilot. If your tank is not in place and filled, he will prepare the furnace, but you must call the oil company's service man to connect the tank and light the furnace at your expense.

To relight the furnace in the fall, first read carefully the manufacturer's instructions, which are included in the same packet with his warranty. Recheck the oil line and stack for tightness, and make sure that the oil is free of dirt and water before you light the pilot. If oil is dirty, your fuel oil supplier may remove water and dirt as part of his regular delivery service.

## Gas Furnace

All gas appliances in your home, including the furnace, are preset to burn natural gas. If you plan to burn liquid petroleum gas-also called LP or bottled gas-the gas orifices or metering jets must be changed. Make certain that the serviceman who connects your LP gas system installs the proper orifices in all gas appliances.

At the time he sets up your home, your dealer will inspect the furnace, remove shipping brackets, test all gas connections, check the flue for tightness, and call your local gas utility to send a serviceman to light the pilot.

If the pilot should go out after you move in, a shutoff valve automatically closes off the supply of gas. Don't try to relight the pilot yourself, but call your gas utility for service. Read the furnace manufacturer's manual so that you know what steps you must take, if any, before the serviceman arrives.

If you use bottled gas for heating, cooking, or both, be very careful, before turning on the gas at the cylinder. All appliance valves must be closed. It is better to ask the serviceman who delivers the new cylinder to turn on the gas for you.

Natural gas has an odor, and LP gas has an odorizer in it so that you can smell gas in case of a leak. Don't ever use a match or open flame to test for a leak. Instead, mix up a solution of soapy water, and apply it to all connections. Wherever there is a leak, the gas forms bubbles in the soapy water.

# Caring For Your Home's Operating Systems (continued)

## Air Intakes

All furnaces, whether they are fueled by electricity, gas, or oil, require a certain amount of combustion air to operate properly. The combustion air intake is under your home, and feeds into a sealed chamber. Also under your home is another intake that brings in fresh air. This outside air mixes with inside air before the furnace heats it.

You must keep these two air intakes open. If you plan to add skirting between the floor of your home and the ground, install vents in the skirting large enough to let ample air reach the combustion air and fresh air intakes.

The blower that pulls in outside air also pulls inside air back to the furnace through return air openings. Because these return air openings are sized to the air requirements of the furnace, you must not cover or close up any part of these openings in any way. A furnace that is starved for air can't heat properly, uses excessive fuel, and can be a serious fire hazard. Check openings weekly during heating season.

## Reading The Data Plate

The data plate illustrated on this page contains important information.

At the top is space for the date on your specific home. Check the serial number listed against the number stamped into the front crossmember of your home. They should match.

Next, on the three maps, mark the location of your home. On the wind zone map you will live either in Zone 1 or Zone 2. Check the wind zone listed under the heading "Design and Construction Certification" to make sure the two zones agree.

Similarly, You will live in the south or middle roof load zone unless you live in Alaska. Check the roof load zone listed under "Design and Construction Certification" to make sure the two zones agree.

Again unless you live in Alaska, you will live in outdoor winter design temperature Zone 1 or 2. Check the zone listed under the heading "Heat Loss Certification"; to make sure the two zones agree.

In the remaining blanks on the data plate are the model number and manufacturer's name of the equipment installed in your home at the factory. Make sure the numbers match those on the data plate attached to each item of equipment. These appliances are warranted by their manufacturers; warranties and operating instructions are included with your packet of shipping papers.

### DATA PLATE

MANUFACTURER'S MODEL AND SERIAL NO. \_\_\_\_\_

PLANT LOCATION \_\_\_\_\_

MANUFACTURER'S NAME \_\_\_\_\_

DATE OF MANUFACTURE \_\_\_\_\_

DESIGN APPROVAL BY \_\_\_\_\_

#### DESIGN AND CONSTRUCTION CERTIFICATION

This mobile home is designed to comply with the Federal Mobile Home Construction and Safety Standard in force at the time of manufacture. It was constructed as a completely integrated structure capable of sustaining the design load requirements of Wind Zone \_\_\_\_\_ and Roof Load Zone \_\_\_\_\_ as defined in the Wind Zone and Roof Load Zone maps.

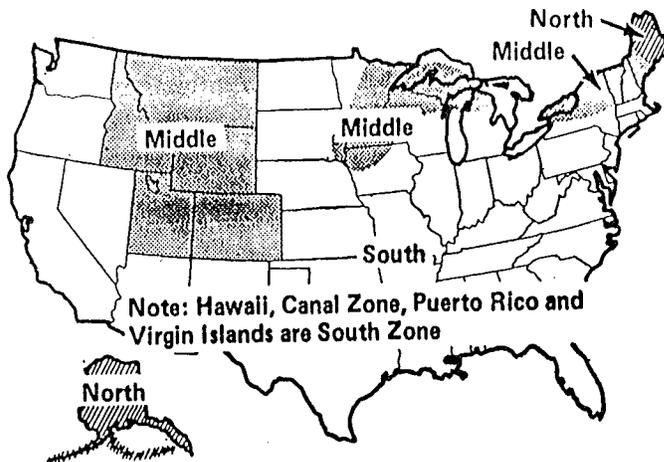
#### HEAT LOSS CERTIFICATION

This mobile home has been thermally insulated to conform with the requirements of the Federal Mobile Home Construction and Safety Standards for all locations within climatic zone \_\_\_\_\_.

Heating Equipment Manufacturer \_\_\_\_\_

Heating Equipment Model \_\_\_\_\_

The above heating equipment has the capacity to maintain an average 70° F temperature in this home at outdoor temperatures of \_\_\_\_\_ F.



ROOF LOAD ZONE MAP

South	20 PSF	
Middle	30 PSF	
North	40 PSF	Other _____ PSF

# Caring For Your Home's Operating Systems (continued)

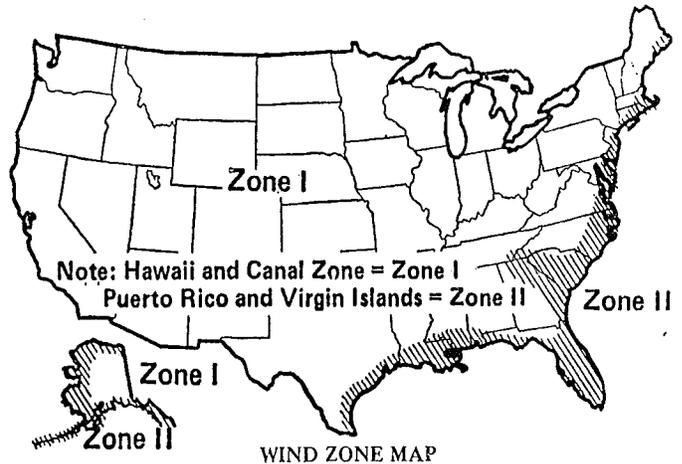
To maximize furnace operating economy, and to conserve energy, it is recommended that this home be installed where the outdoor winter design temperature (97½%) is not higher than \_\_\_\_\_°F.

The above information has been calculated assuming a maximum wind velocity of 15 mph at standard atmospheric pressure.

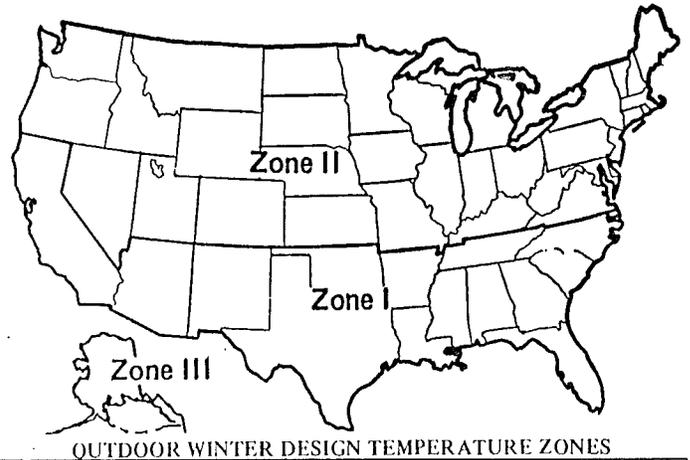
## FACTORY INSTALLED EQUIPMENT

Equipment	Manufacturer	Model Number
For Heating	_____	_____
For Air Cooling	_____	_____
For Cooking	_____	_____
Refrigerator	_____	_____
Water Heater	_____	_____
Washer	_____	_____
Clothes Dryer	_____	_____
Dishwasher	_____	_____
Garbage Disposal	_____	_____
_____	_____	_____
_____	_____	_____

## COMFORT COOLING CERTIFICATION



Standard Wind	Zone I	15 PSF Horizontal	9 PSF Uplift
Hurricane Resistive	Zone II	25 PSF Horizontal	15 PSF Uplift



## Air Distribution System

The same blower that pulls cooled air into the furnace for reheating also forces warmed air through floor ducts to the various rooms. Both the ducts and the grilles in each room are sized to the air requirements of the furnace. Do not cover these grilles. If they have dampers, use the dampers to balance the flow of air, not to shut it off completely.

## Maintaining Your Heating System

With a little maintenance and regular service, your furnace will provide comfortable heating for many years. The instruction booklet that comes with your furnace explains the care required. Read and follow these instructions carefully. As an owner, you can perform the necessary maintenance, but don't try to service the equipment. Such work should be done only by trained servicemen.

In general you should take the following steps, in addition to those recommended by the furnace manufacturer:

- Clean the blower regularly — about every three months. If the blower or squirrel-cage cover get dirty or full of lint, the blower motor can overheat and burn out.

- Oil the blower according to the furnace manufacturer's instructions. Too much oil is as bad as too little.
- Change or wash all air filters once a month during the heating season. Wash with a mild detergent and water.
- With gas and oil furnaces, check the flue pipe and roof jack every three months, and remove any accumulation of soot. Inspect at least once a year for signs of rust and corrosion. If you find them, replace the flue pipe.
- After any releveling of your home, check all fuel lines for leaks, following the method described under The Heating System.
- At the beginning of each heating season, check gas orifices for signs of pitting or other wear. Replace worn parts.
- With vaporizing-type oil furnaces, keep the filter clean between the oil cylinders and the furnace.
- Clean the burner of a vaporizing-type oil furnace at least once during the heating season. The sign of a dirty burner is sooty smoke exhausting through the roof jack.
- Replace the nozzle of a gun-type oil furnace each year. At the same time, adjust and clean the electrodes in the ignition system.

## Caring For Your Home's Operating Systems (continued)

### Furnace Warranty

Your furnace is warranted by its manufacturer, and a copy of his warranty is included in your homeowner's folder. Tear off the warranty card, and send it to the furnace manufacturer right away to assure full service. At the same time, enter the model number and manufacturer's name on the data plate.

### Furnace Service

If you have a problem with your heating system while our warranty is still in effect, contact the dealer who sold you your home. He should be able to determine whether the problem is one he can correct under our warranty, or whether the problem is with the furnace itself and falls under the furnace manufacturer's warranty.

If the problem occurs after our warranty has expired, but while the furnace manufacturer's warranty is still in effect, call the furnace manufacturer's nearest service representative for help. Your dealer has his name, address, and telephone number.

After all warranties have expired, or for ordinary service, such as restarting the furnace, or for maintenance that you won't want to take care of yourself, call the furnace manufacturer's service representative. The cost of such service call, of course, is not covered by warranty, and is your expense.

### The Air Conditioning System

If you have airconditioning equipment installed, either as part of the heating system or as a separate system, the installer will provide you with operating instructions and a copy of the airconditioning manufacturer's warranty. Our only responsibility is to provide in your home a duct system large enough to handle the air distribution requirements of standard central equipment for a home the size of yours.

### Service

Any service or maintenance needs you may have, whether or not covered by the equipment manufacturer's warranty, should be taken up directly with the man or firm that installed the equipment.

### Maintenance

The operating manual that comes with your airconditioning equipment tells you how to keep it running smoothly. Equipment must be properly wired into your home's electrical system and fully grounded before you turn it on. If it fails to function, check first for a blown fuse or tripped circuit breaker. When you find signs of

an electrical problem, try to determine the cause and have it corrected before you attempt to operate the equipment again.

Airconditioning equipment requires little maintenance. Check all air intakes and outlets regularly to make sure that they are completely free from any obstructions. Also, check the return air filter, which must be kept clean. To clean the filter, remove it and flush it with water from a hose or faucet. For the best cleaning job, use hot water and a standard kitchen detergent.

### Warranty

Your airconditioning equipment is warranted by its manufacturer, and a copy of his warranty is included with his operating instructions. Tear off the warranty card, and send it to the equipment manufacturer right away to assure full service. At the same time, enter the model number and the manufacturer's name on the data plate.

### The Plumbing System

Included in your home's plumbing system are water lines, drain lines, plumbingware, the water heater, and perhaps some water-using appliances.

### Water Lines

The water connection between your home and the water supply line at the site is a standard  $\frac{3}{4}$ " pipe fitting. All fittings used in the home's plumbing system are also standard parts available at any plumbing supply store and many hardware stores.

Check your water system on a regular basis for major leaks that not only waste water but will cause extensive damage if not found promptly. Notify your dealer at once if you spot a severe leak.

Except in cold climates, you have no other maintenance on your water system. If you live in an area where outdoor air temperatures are below freezing much of the winter, the water supply line to your home must be installed below the frost line. All pipes and fittings above the frost line must be insulated.

You can protect your water system with any one of a number of insulating products on the market. One type commonly used is an electric heating element, called heat tape. You wrap the heat tape around piping as directed by its manufacturer, and connect the wiring to the electrical system. Use only heat tapes that are approved for manufactured home use.

Your water system is warranted against major leaks. Our warranty, however, does not include minor leaks, such as at faucets, that you can correct with a washer. This is part of ordinary maintenance. Nor does the warranty include piping outside the home that has not been adequately protected from freezing and other damage.

### Drain Lines

When properly installed, drain lines require little maintenance. Most models of homes have a single drain outlet that connects your home to the sewer pipe. Some models, however, have a second drain line from a remote room. Usually this line is shipped loose, is installed outside your home at the time of set-up, and connects to the main drain outlet.

Drain lines must slope at least 1/8" per foot over their entire length so that waste will flow and not freeze in the pipes and burst them. Never pour fats, grease, or oils into drains; they can partially or completely clog a drain line or trap in a few weeks.

Keep all drains and traps clean. Many owners pour a commercial drain cleaner down the kitchen sink about once a month. Be sure to use a cleaner that won't damage plastic pipe or the rubber drain hose at your sink.

If a line becomes clogged, you may use one of several chemical products recommended for plastic pipe. Or you may use a mechanical device, such as a plumber's snake, to clean out obstructions. Be careful, however, not to damage fittings, seals, and plumbingware itself.

### Plumbingware

Plumbingware — sinks, lavatories, toilets, bathtubs, and shower stalls — may be made of enameled steel, vitreous china, or durable plastics. You can usually tell the difference between materials by tapping the plumbingware with a nickel or quarter. A "clink" means that the material is steel. A "ping" indicates china. A dull "thunk" indicates plastic.

All three materials can be damaged, and you must treat them carefully. Enameled steel will chip, dent, and become pitted if not properly maintained. Vitreous china will break under impact. Plastic is more flexible, but it will also crack under abnormal stress.

To clean enameled steel, use warm water and mild detergent. If surfaces become badly stained, ask your hardware or plumbing supply dealer for his recommendation of a cleaner that will restore the finish without harming it. Do not use harsh abrasive cleaners or metal scouring pads.

Vitreous china does not absorb dirt, so you can usually wipe off surfaces with a clean, damp cloth. To remove stains, such as in a toilet bowl, use a brush and mild detergent, or a commercial toilet bowl cleaner.

To clean plastic, use only warm water and mild detergent. Strong detergents, abrasive cleaners, and compounds with ammonia in them may scratch, dull, discolor, or even attack the surface. You can repair minor chips and scratches with repair kits available in a number of colors at most paint and hardware stores.

### The Water Heater

Whether gas or electric, your water heater requires some care. It has an adjustable thermostat that starts the

heater when water temperature drops below a certain level. The usual temperature setting is 150°. It has a temperature and pressure relief valve (T&PR) that prevents dangerous build-ups of either temperature or water pressure. If temperature or pressure gets too high, the valve opens and allows excess water to drain out harmlessly under your home.

If you have an electric water heater, be sure that the water connections are completed and the tank is filled before you turn on the power. Otherwise you can burn out the heating element.

If you have a gas water heater, check two points before having it lit. First, make sure that the gas orifice is proper for the type of gas you are using. And second, make sure the flue pipe is securely in place and the draft hood is properly installed.

### Solving Hot Water Problems

Unless water in your community is unusually soft, or you have a water softener, sediment may build up on the bottom of the tank. When this happens, your water heater will rumble and burble. By draining a little water from the heater each month, you can usually overcome this noise problem.

When water coming out of faucets is too hot, check the thermostat setting on the water heater. It may be too high. See instructions for regulating temperature in the operating manual that came with the water heater.

When water is not hot enough, again check the thermostat setting. It may be too low. Also look for leaks in hot water lines, and dripping or running faucets.

If lack of adequate hot water is a sudden problem, and you can't locate the cause, call the water heater manufacturer's nearest service representative. If the problem has gone on for some time, ask your gas utility company to check gas input to your water heater. An underfired heater won't heat as much water.

Remember, too, that in cold weather the water entering the water heater is colder and takes longer to heat. Possibly you and your family are wasting hot water, using more during short periods of time than the water heater can provide. The only answers here are better control of hot water usage by you and your family or, if possible, a larger water heater.

If you are getting no hot water at all from an electric water heater, check the circuit breaker in your service entrance panel to see if it has tripped. In such a case, you simply reset the breaker.

With a gas water heater, take these steps:

1. Make sure the pilot is lit. If not, follow lighting instructions in your water heater manual. When water gets too hot, the T&PR valve shuts off the gas. If this is the reason the pilot went out, your thermostat may be set too high.

2. Make sure the manual gas shutoff valve is open, and also that the thermostat indicator knob is on, as explained in the lighting instructions.

3. A gas water heater requires combustion air, which enters the water heater compartment through louvers

in the water heater door compartment wall or floor inlet. Be sure that nothing is plugging up the louvers that let in this air.

If you can't locate the trouble, call the water heater manufacturer's service representative.

### Water Heater Warranty

Your water heater is warranted by its manufacturer, and a copy of his warranty is included in your homeowner's folder. Tear off the warranty card, and send it right away to the water heater manufacturer to assure full service. At the same time, make sure the model number and manufacturer's name are entered on the data plate.

### Water and Gas Leaks

If you suspect a water leak, look at all pipe connections for signs of water. If you find any, wipe the joint dry and watch to see if water reappears. Often in hot, humid weather moisture will form on pipes, and even puddle on the floor. This water problem is caused, not be a leak, but by condensation, which we have discussed previously under the heading "Condensation."

Also check the drain valve and T&PR valve for leaks. Hot water dripping from the drain line under your home doesn't necessarily mean a leak; it usually means that the T&PR valve is doing its job.

If you can't stop the leak with a joint sealing compound available from your plumbing supply dealer, close the gas shutoff valve and the cold water inlet valve at the heater. Then, if our warranty is still in effect, call your dealer. If our warranty has expired, call a plumber.

If you suspect a gas leak, apply a soapy water solution to all pipe connections, and watch for bubbles. Never use a match or open flame, which will cause an explosion. If you find a gas leak, close the gas shutoff valve immediately. Then turn the thermostat valve indicator knob to the "off" position. And call your gas company.

### The Electrical System

Your electrical system is the same type of system used in site-built homes. The power may come to your service entrance panel from power lines overhead or in an underground conduit. The service entrance panel is mounted on or near an exterior wall, usually close to the service door of your home. The capacity of the panel appears on the handle of the main breaker in a circuit breaker box, and on the inside of the door to a fuse box. At the time that your home's electrical system is connected to power at the site, make sure that the supply line is large enough to match the capacity of the service entrance panel.

### Electrical Conductor Sizing

100 Amp. Main Distribution Panel - 1 1/4"  
Copper Conductors - #3 - 75 Degrees Centigrade  
Minimum Size Junction Box If Used - 8"  
150 Amp. Main Distribution Panel - 1 1/4"  
Copper Conductors - #1/0 - 75 Degrees Centigrade  
Minimum Size Junction Box If Used - 9"  
200 Amp Main Distribution Panel - 2"  
Copper Conductors - #H3/0 - 75 Degrees Centigrade  
Minimum Size Junction Box If Used - 12"

From the service entrance panel, power goes over branch circuits to various lights, outlets, and special appliances. The wiring system in your home meets all the requirements of the National Electrical Code — the same code that governs wiring in any type of building.

Among the branch circuits are individual circuits for the furnace and such electrical appliances as the water heater, range, oven, air conditioner, and laundry equipment. Each of these circuits is sized to the electrical requirements of the appliances installed at our factory. If at any time you install replacement appliances, be sure that their requirements do not exceed the capacity of the appliance circuit to them.

You also have two portable appliance circuits, each with a 20-ampere capacity. These circuits serve the kitchen and the dining areas. Electrical outlets in other rooms and light fixtures throughout your home are on 15-ampere general lighting circuits.

The electrical system will provide you safe and convenient service for years, as long as you do not overload the branch circuits. How do you know when you have overloaded a circuit, and how do you prevent this from happening?

### Preventing Circuit Overloads

Attached to the inside of the cover to your service entrance panel is a chart. This chart is laid out like the face of the breaker or fuse box — in two vertical columns. Written on the chart are the special appliance circuits. These circuits have special receptacles, and are not for any other use except to plug in the appliance. Often there will be stickers beside the matching breaker or fuse that read "Furnace" or "Range". If your box doesn't have such stickers, you can buy them in a sheet at your nearest electrical supply store.

Other circuits may be labeled "portable appliances" and "lighting," or they may be identified by the rooms they serve, such as "MBR, B" for master bedroom and bath.

A typical circuit chart, then should look something like this:

- |   |                |    |                 |
|---|----------------|----|-----------------|
| 1 | Dishwasher     | 7  | Range, oven     |
| 2 | Furnace        | 8  | Aircond.        |
| 3 | Washer & dryer | 9  | BRs, hall, bath |
| 4 |                | 10 | LR, DR, kit.    |
| 5 | Port. app.     | 11 | Outdoor         |
| 6 | Port. app.     | 12 |                 |

## Caring For Your Home's Operating Systems (continued)

Note that you may have one or two spare circuits for future use.

To determine exactly which lights and outlets are on a lighting circuit, turn on all lights in your home, and plug a lamp, clock or portable light into an outlet in each room. Next open each 15-amp. breaker or unscrew each 15-amp. fuse to see which lights go off. Then make sure your chart correctly lists which rooms that breaker or fuse controls.

Follow the same procedures with the 20-amp. appliance circuits, and mark on your chart which outlets each breaker or fuse controls.

Now that you know which outlets and light fixtures are on each circuit, and the capacity in amperes of that circuit, you need to find out the voltage of your power supply line, and the electrical requirements in amperes of the lamps and small appliances that you use.

The voltage supplied to your home will be between 110 and 144 volts for lighting and small appliance circuits, and from 220 to 288 for special appliance circuits. Your local power company can tell you what voltage they supply. For the discussion that follows, let's assume you receive 125 volts.

Light bulbs and tubes are rated by wattage such as 100 watts. To convert watts to amperes, you divide the wattage by the voltage of your supply line.

It's almost impossible to overload a circuit with lights, but it is easy to do with portable appliances, especially those that cool or produce heat. A window air conditioner, as an example, draws 10 amperes —  $\frac{2}{3}$  of the capacity of a 15-ampere circuit. A room heater draws as much as 14 amperes, leaving little left over for lights. Turn on the television, and the circuit is overloaded.

A data plate on each appliance gives the appliance's requirements in either amperes or watts. The data plate on your toaster, for example, may say 8.3 amps., or it may say 1050 watts. A 20-ampere small appliance circuit can easily handle the electrical load of a toaster and coffee maker. But if you want to use an iron or a deep fat fryer at the same time, plug it into the other small appliance circuit to avoid an overload.

Motors are rated by horsepower. One horsepower equals 746 watts. Thus, if you have a power tool with a  $\frac{1}{4}$  HP motor in it, it will draw about 1.5 amps.

By knowing how many amperes every appliance draws, and which outlets are on each appliance circuit, you can avoid overloading. If you do overload a circuit and trip a breaker, reduce the overload before you reset the breaker. If you blow a fuse, again reduce the overload, and install a new fuse of the same capacity as the circuit. Do not put a 20-ampere fuse in a 15-ampere circuit to increase that circuit's capacity. You could easily start a fire.

### Extension Cords

Electrical outlets are conveniently spaced on partitions and walls throughout your home. With as many outlets as we have provided, you should never need to use an extension cord anywhere. Extension cords can

be dangerous. They carry a lower amperage rating than branch circuits, and can get hot with long usage. Avoid them.

### Grounding

Provision has been made for grounding your home to protect you from the danger of a short circuit. Metal parts of the home, including exterior metal, the steel frame, water lines, and gas lines, must be connected through grounds to an electrically isolated grounding bar in the service entrance panel. This bar grounds all non-current-carrying metal parts to the electrical system and to your home at a single point. For safety's sake, it is extremely important that the work of grounding your home is done by a licensed electrician.

### Ground-Fault-Interrupter Circuits

Ground-fault-interrupter (GFI) receptacles are provided in all bathrooms and outside the home (except heat tape receptacle located on underside of home near water inlet)

The purpose of the GFI is to prevent accidental shock in high moisture areas. In the event the receptacle does not function, check the breaker for that circuit in the breaker box and re-set or, if you have an electrical problem while our warranty is in effect, call your dealer. Make sure first, however, that the problem isn't the result of a faulty extension cord, a burned out light bulb, or an overload you put on a circuit.

When you need service after our warranty has expired, call a licensed electrician. Do not attempt to solve electrical problems yourself.

### Emergencies

To be ready for any emergency, you should learn how to shut off any system in your home. Here is what you do:

**Electrical.** To shut off all electrical current, go to the service entrance panel and flip the top circuit breaker to the "off" position. This is the main disconnect breaker, and it cuts off all power.

**Gas.** If your home is piped for gas appliances, you can shut off the gas at two locations. There is a shutoff valve just outside each gas appliance, in the gas line itself, that will stop the flow of fuel to that appliance.

The main gas valve that shuts off all gas to your home is located in one of two places outside the home, and the location is marked with a metal decal. If you use natural gas, the valve is located underneath the side wall of your home opposite from the front door, and near the middle of its length. If you use bottled gas, the shut-off valve may be at this same location, or at the A-frame at the front of the home.

## Caring For Your Home's Operating Systems (continued)

**Gas Pressure.** The gas piping supply system in this home is designed for a pressure not exceeding 14" water column ( $\frac{1}{2}$  psi) and not less than 7" water column ( $\frac{1}{4}$  psi). Chief Industries is not responsible for any local requirements that are beyond these limitations. Please refer to the written instructions on the furnace and/or air conditioner, if supplied, for the fuel pressure range for safe operation of the piping system in your heating and cooling system.

**Oil.** The valve that shuts off the flow of oil to an oil furnace is in the oil line between the tank and furnace. It's most common location is outside the home at the point where the oil line passes through the floor.

### Inlet Water Pressure

Your home has been designed for an inlet water pressure of 80 pounds per square inch and if your home

is installed in an area where the water pressure exceeds 80 psi, a pressure reducing valve must be installed.

### Master Shut-Off

When a master cold water shut-off full flow valve is not installed on the main water inlet line in an accessible location, it is to be installed at the time of set up. This shut-off is to be supplied by the customer and is to be installed in the water supply line adjacent to the home. It shall be either a full port gate valve or a full port ball valve and have threaded or soldered joints.

### Diagrams

Technical diagrams of your home's heating, plumbing, and electrical systems are available upon request from your home's manufacturer.

# VI. Maintaining the Exterior

Like a car, or tools, or a watch, a home lasts longer and serves you better when you take good care of it. There are two secrets to good maintenance: making regular inspections to look for trouble before it actually begins, and taking care of trouble immediately as it comes.

As we said earlier in this manual, keeping your home level is the most important step in preventive maintenance. At the time your home is set up, your dealer will look it over carefully, and make any minor repairs, both inside and outside, resulting from your home's trip from factory to site. Once you take possession, the job of looking for problems and taking care of most of them is yours.

Every time you give your home a checkup — and you should examine the exterior thoroughly every three months — look at the condition of the roof, trim, siding, windows and exterior doors, the bottom, wheels and tires, and the frame, and any skirting you have added.

## The Roof

The standard mobile home roof is made of sheets of galvanized steel that interlock at seams to form one continuous roof. These seams and joints where vents and jacks pierce the roof surface are sealed at the factory with a waterproof coating. Leaks occur when water seeps through cracks in this coating or breaks in the metal, or settles in puddles on an uneven roof surface.

You can inspect, clean, and repair most of your roof from a stepladder. Do not walk on the roof if you can possibly avoid it, because your weight can open up cracks. If you must climb on the roof, take two pieces of plywood or 1x12 boards at least 8 feet long with you. Lay them across the rafters to distribute your weight, and walk on the boards.

During every inspection:

- Remove any leaves and debris.
  - Make sure that branches of overhanging trees are not scraping the roof's surface and tearing it.
  - Look for cracks and dents in entire roof, particularly at the edges. A tiny crack can let in water that can damage the roof structure, your ceiling, and interior furnishings as well.
  - Seal any cracks promptly. Use a standard roof sealer manufactured for this purpose, and apply it with an applicator according to manufacturer's instructions. The best sealers do not dry hard, but flex with the roof as it moves from heat and wind. Look for a type that is guaranteed not to streak the sides of your home during a rain.
  - Fill small dents to roof level with sealer. If you have a large depression in the roof that holds water, check with your dealer. You may have a structural problem.
- In addition to the regular steps above:
- On a warm day in the spring and fall, wash the roof with a mild soap solution, and rinse with clear

water. If you don't remove dirt, it may corrode the metal. You can use a hose for rinsing, but let the stream fall like rain; don't use pressure that will force water into the roof seams.

- At the end of the first year, coat the entire roof with a good white or aluminum roof coating. Several types carry warranties up to ten years; ask your dealer what he recommends.

A quality roof coating will also help to reduce the extreme heating and cooling of the metal roof which may cause crackle and popping noises as it expands from the heat of the sun and contracts as it cools down. The long term benefits of a roof coating recommend it to be a wise investment for long term roof protection.

Because a metal roof is not fastened down except around the edges, certain wind conditions may cause it to rattle. Chief provides diagonal roof straps across the roof to minimize this condition. In extreme cases it may be necessary for you to take further steps. Consult your dealer or firm experienced in working with metal roofs.

## A Shingled Roof

The roof of a sectional home is similar to the roof of most houses, except that rafters are connected at the ridge on site. Maintenance required is the same as on any pitched shingled roof.

You can walk on a pitched roof, but wear soft-soled shoes so that you don't damage the surface. Look for cracks in shingles and for turned-up corners, especially at the ridge. Use standard roofing cement to seal cracks. Apply the cement with a putty knife. Use a narrow coat on top of the shingle to close the crack, and a heavier coat on the under side to keep the crack from opening up again. To seal down corners, place a dab on the under side, then press down on the shingle to spread the cement.

Always work on a shingle roof in warm weather when the shingles are soft. In cool weather they may break instead of bend, and you can make the problem worse instead of better.

## Roof Trim

The edge trim of a metal roof is set in a heavy bed of caulking, and attached with screws. Trim not only finishes the edge of the roof, but holds it in place.

As a part of your 3-month roof checkup, make sure that all screws are tight. Reset any loose screws in caulking, and replace rusty ones. You may also want to coat screw heads with preservative to prevent corrosion.

Look for breaks in gutters, and close any breaks with roof sealer or putty. A leak in the gutter can let rain-water work its way into roof and wall structure where it can cause serious damage.

## Maintaining The Exterior (continued)

### The Exterior Walls

#### Wood Siding

Wood siding comes already painted or stained. Because of its texture, wood retains dirt more easily than other types of materials, and you may need to scrub the surface lightly with a soft brush to loosen dirt as you wash with clean water. The coating should last from three to five years with normal care. After that time you will need to apply a single coat of paint or stain to keep the exterior walls looking fresh.

#### Vinyl Siding

Vinyl and vinyl-coated surfaces shed airborne dirt easily. A good rain will usually wash off most of it. If dirt builds up, wash with clean water when the vinyl is cool, and use a sponge, rag, or soft brush to loosen it. Do not wax vinyl.

Some airborne chemicals and pollens from flowers and trees may stain vinyl. To remove such stains, use a household cleanser, soft brush, and gentle rubbing action. Rinse the surface thoroughly after cleaning.

#### Windows And Exterior Doors

During your exterior checkup, have someone inside your home open and close each window while you watch from outside. Look for any places where windows are not closing tight, or are binding during operation. These are often the first clues that your home needs to be leveled, and you should have this done immediately.

At least once a year lubricate all moving parts of windows and exterior doors — hinges, latches, knobs — with a little oil or powdered graphite. Also tighten all screws that hold hardware in place. At the same time make sure that the screws holding windows themselves in place are tight and free from rust. Replace rusty screws, and reset new or loose screws in caulking. Finally, check caulking around window and door frames, especially at the top, for cracks and pockets. Seal these defects with caulking to prevent leaks.

You don't need to paint metal windows and doors, but you should wash them at least every three months. House-type doors, however, are prefinished with either paint or stain, and you must repaint or restain before weather wears away the factory coating.

Look for warpage. When a door warps, it usually warps inward at top and bottom as a result of the difference in temperature between the warm interior and cold outdoors. A warped door may straighten out in warm weather, but in the meantime it leaks cold air and increases the cost of heating. You can reduce the heat loss from warpage with additional weatherstripping, but the only good solution is to replace the door.

#### The Bottom

Between the structural floor system of your home and its steel chassis is a layer of waterproofing material usually called bottom sheathing or bottom board. The

material serves three purposes: it protects the floor structure from moisture in the air; it holds floor insulation in place; and it keeps insects and rodents out of your home.

Once your home is set up and the bottom properly sealed, the bottom sheathing needs no maintenance. During your dealer's inspection, make sure that any rips or holes in bottom paper have been patched, and that the paper fits tightly around drain piping and air intakes through it. It is part of your dealer's responsibility to take care of the necessary patching at time of set-up.

Please refer to the repair and patching instructions information in the Homeowners packet.

If you accidentally punch a hole through the paper while you are living in the home, call your dealer for service at your expense. He has the knowledge, the materials, and the tools to do a good patching job. Do not attempt to do the patching yourself.

#### Wheel And Tires

Although you may never use them again, you should protect wheels and tires.

When your home is blocked, tires should be kept inflated. They will last longer, too, if you lay boards under them to prevent direct contact with the soil. Skirting and the natural overhang of your home will keep most sun and weather off tires, but you can protect them further with a coating of rubber tire paint.

After blocking, clean all wheel bearings and hubs, and repack them with grease. Fill them completely so that no moisture can reach any metal parts to cause corrosion. At least once a year inspect and clean the bearings, even though you haven't moved your home.

#### Steel Frame

The chassis beneath your home is painted at the factory to protect it from rust and road dirt during the trip to your site. The coating may last for years, or it may show signs of rust in a few months. How soon you find rust depends primarily on the amount of moisture in the air in your community.

Inspect the frame twice a year for signs of rust. When you find it, clean the rusting area thoroughly with a wire brush, then wash off all dirt, scale, and other loose material. To prevent water from getting into the floor structure, do not use a hose to wash off the chassis.

Coat the cleaned area with a metal primer, following the paint manufacturer's directions. After the prime coat has dried, apply one or two coats of metal paint. You may paint with either a brush or a spray gun, as long as there is little wind on the day you spray.

#### The Hitch

You maintain the hitch — towing assembly attached to the steel frame at the front of your home — in the same way that you maintain the frame itself.

In addition, however, you should regularly clean and grease the jack mechanism by which the front of your

## Maintaining The Exterior (continued)

home can be raised or lowered. Use the same grease on all moving parts that you use to lubricate the wheels.

### Skirting

As we pointed out in the section of this manual on your heating system, you must allow air to circulate

beneath your home. If you install skirting, you must provide vents in it.

The best locations for these vents are beneath front and rear walls. If you use two large vents, center them in the skirting. If you use four smaller vents, place them at the corners. With four vents you don't have any unventilated pockets where moisture can linger under your house and cause damage.

# VII. Maintaining The Interior

Most of the materials used on the interior of your home are the same materials used in conventional homes and apartments everywhere. Since you should already know how to take care of these materials — floor covering, carpeting, kitchen cabinets, and countertops as examples — we won't discuss their care here.

Some of the other materials in your home may be new to you, however, and we'll discuss their care in detail.

## The Ceiling

The ceiling panels in most mobile homes are made of soft fiberboard that absorbs sound and makes for quieter living, but because fiberboard is soft, you can damage it easily.

You can remove most dirt smudges with an art gum eraser. In some cases you may also have to rub the soiled spot afterward with soft white chalk.

You can cover up scrapes, scratches, and small chips by rubbing the damaged spot with chalk, then wiping off the excess with a clean dry cloth. On a deep cut you may have to apply chalk more than once.

For large chipped spots and gouges, clean out all loose particles, and fill the holes with spackling paste applied with a putty knife. Fill the damaged spots level with the surface of the ceiling. Then, after the paste has dried for a few minutes, sculpture the surface to match the pattern of the ceiling material. If the color of the paste doesn't match the color of the ceiling panel, touch up the repaired area with flat interior paint.

Stains from water leaks and condensation are difficult to remove. That is one reason why ventilation and regular roof inspections are important to prevent such staining.

Sometimes you can remove water stains with bleach mixed in water according to the bleach manufacturer's instructions. More often, however, the only solution is to repaint after you have corrected the cause of the water damage, and the ceiling panel is completely dry.

## Gypsum Board

Some ceilings — and some walls, too — are made of panels of gypsum wallboard that are burn resistant. These panels have a smooth, hard surface that you can easily patch with drywall joint compound applied with a putty knife. You can easily repaint gypsum board after damp-dusting the surface thoroughly.

## Walls And Partitions

Most interior walls are finished with plywood paneling that has a vinyl coating on it. Walls require no maintenance except for regular wiping with a damp cloth. Do not use soaps or cleansers on vinyl surfaces.

To touch up nicks and small cracks, use a putty stick

in a color that matches the wood tone of your paneling.

If a wall panel becomes loose or bows, first try to determine the cause. It may be a sign that your home needs to be leveled. If your home is still level, the next step is to find the vertical lines of nails that hold the panel in place. Nails are usually set into grooves in the paneling.

Make sure all these nails are doing their job before you refasten the panel. Before you nail down the loose edge, take any bow out of the center of the panel first by nailing with additional brads. Then re nail the edge at new nailing points. If possible, use colored brads that match the tone of the wood. Your dealer may have some, or can tell you where to buy them.

## Tileboard

The walls surrounding the tub in your bathroom may be sheet plastic or tileboard. Plastic materials need no care except for an occasional wiping to remove mineral deposits left by hard water.

Tileboard is a hardboard product with an enameled surface that won't absorb moisture. If you chip the enamel in any way, repaint the chipped area at once with waterproof enamel. Hardboard without the enamel coating will absorb moisture.

Strips of metal or plastic trim cover joints between panels at corners of the tub. This trim is set in mastic. At least once every three months, check this caulking carefully for tiny cracks that could let water seep behind walls. Seal any cracks with compound made specifically for this purpose. It comes in a gun, and is available at any hardware store.

## Interior Trim

The trim around doors and windows and at corners of most rooms may be plastic or wood. Plastic trim has a solid color and you maintain it like any other plastic material. Most wood trim — unlike wall paneling — is not vinyl coated. The matching wood grain is printed on the surface, and you can wash it off with repeated scrubbing.

To avoid this problem, protect trim with several coats of wax. The wax will not only maintain the natural beauty of the wood, but will also protect the trim especially at floors, from damage as you wash the floor or vacuum the carpeting.

Because trim is thin, it is also fragile. Treat it with care. If you should break or split a piece, glue the two pieces together. Then drive a colored brad into each piece near the break to hold the two pieces in place.

## When You Leave Home

If you plan to leave your home unoccupied for some time — while on vacation, for example — you must take a few special precautions:

- Make sure all windows and doors are closed tight

## Maintaining The Interior (continued)

and locked securely.

- Turn off the water heater and shut off the water supply at the main valve.

In the winter you must take these additional steps:

- Leave the furnace on, but turn down the thermostat to about 50° — low enough to save fuel but high enough so that water lines won't freeze.

- If you turn off your furnace completely, remove all water from the toilet tank, and drain hot and cold water lines by opening the main drain valve. Then pour antifreeze down the drains of all fixtures to fill the traps — the sink, bathtubs, shower drains, toilets, and lavatories. A burst trap or pipe is expensive to replace.

If you will be gone less than two weeks, it is better to leave heat on and ask a neighbor to check your house every day, than to drain your water system. It's too easy to miss something, and return home to burst water lines or broken fixtures.

## When You Move Your Home

We hope you won't ever need to move your home from its original site. But if you do, there are many steps you must take to prepare for a safe move.

First, call a professional mover and arrange a time for the move. Never try to move your home yourself.

Check the condition of the tires and wheels. If you have followed the maintenance instructions in this manual, they should be ready to go. If you see a problem, tell your mover in advance so that he will be prepared to solve it for you.

Arrange with local utility companies to disconnect gas, oil, and electrical lines.

Pack breakable items such as dishes, knickknacks, and clocks in cartons among towels and pillows.

Tie items too big to pack, such as floor lamps and pictures, to the sofa where they won't move if the driver has to stop suddenly.

Run strips of masking tape diagonally across the fronts of chests and cabinets to keep drawers and doors from opening.

Tape doors to appliances shut. If any appliance must be moved for better distribution of weight, ask the mover to do it for you. He has the equipment to do the job more safely than you can.

Place furniture so its weight is evenly distributed throughout your home. Do not place cartons or heavy furniture at the front or rear ends of your home, or along the walls outside the I-beams.

Disconnect the drain line and water supply line, and cap both outlets to keep out dust and dirt during the move.

Close all windows and lock all doors. Tape them shut as an extra precaution.

## Consult Your Mover

If you like, you can have your mover completely prepare your home for the move. He will be happy to do so for a standard fee that includes full responsibility for the work he does.

Since he is responsible for your home while it is in transit, ask your mover how he wants you to distribute

the load. Loose items in a moving mobile home tend to shift toward the front and the right side. Most of the loose items and the weight, then, should be placed near the center of the home and on the rear side of a partition. Heavy unbreakable items should be placed over the axles.

And here's an important warning. Do not ship anything inside your house that was not on the original factory invoice. Your home must not be used as a truck. Pianos, freezers, large trunks, lawn equipment, blocks, and similar heavy items must be shipped separately. Your mover probably will not accept the moving job with such items on board anyway.

## Removal & Replacement of Frame From Self-Supporting Floor System

If your home has been designed for the frame to be removed before setting the home, the following steps should be taken to complete the removal of the frame:

- I. Position home adjacent to actual location where home will be set.
- II. Remove all wiring from tail lights and axles to front of home.
- III. Block home on dolly system used to roll home into place.
- IV. After home has been blocked, support frame so that during removal, the home will not be damaged due to the frame falling.
- V. Remove carriage bolts at front of home.
- VI. Remove lag screws from the main frame members. It is advisable to leave the lag screws on the ends until the last to prevent too great of a pressure on the floor system.
- VII. Remove last lag screws from floor assembly and lower frame.
- VIII. Remove frame from area and finish setting home as outlined in the Double Wide Set Up Manual.
- IX. Locate second half of home and repeat steps II. through VIII.

For replacing frame on floor system:

- I. Move first half of home away from set position.
- II. Position frame under home so that front crossmember of frame aligns with the third 2" x 6" located behind the front rim joint.
- III. Lag front crossmember to front joist with 5 - #18 x 2½" lag screws.
- IV. Lag remainder of frame to floor system entire length of both main I-beams with #18 x 2½" lag screws 16" on center.
- V. Connect all tail lights and brake wires.
- VI. Remove blocking from under frame and dollies.
- VII. Move section of home away from site.
- VIII. Locate second half of home and repeat steps II. through VII.

# VIII Maintenance Checklist

To keep your home in tip-top condition for as long as you live in it, take these maintenance steps at the times of year indicated:

What To Do	A warm day (3/15-4/15)	Mid-summer (6/15-8/15)	Early fall (9/15-10/15)	During winter (12/15-1/15)
Inspect the roof, remove debris, make repairs (page 21)	x	x	x	x
Wash and rinse a metal roof	x		x	
Trim back tree branches and shrubbery close to the roof and walls	x	x	x	x
Tighten any loose trim	x	x	x	x
Wash and rinse exterior walls	x	x	x	
Wipe exterior walls with a damp cloth				x
Lubricate windows and doors, check tightness of fit, and correct warpage (page 22)				x
Wash windows and doors	x	x	x	x
Caulk any small cracks around openings	x	x	x	x
Check the anchoring system for slack, and tighten turn-buckles if necessary (page 8)	x	x	x	x
Clean and grease wheel bearings, hubs, and jack mechanism (page 22)		x		
Clean and wash hitch and steel frame. Paint if necessary (page 22)	x		x	
Inspect vents in skirting for obstructions	x	x	x	x
Wrap the fuel supply line with insulation			x	
Check the fuel supply line for leaks and kinks			x	x
Check and clean the flue pipe and roof jack (page 15)	x	x	x	x
Fill the oil tank		x		
Check fresh air intakes and remove obstructions (page 14)	x	x	x	x
Inspect the furnace (page 16)			x	x
Clean and oil the furnace blower	x	x	x	x
Clean the filter on the air conditioner (page 16)	x	x		
Protect water pipes from freezing (page 16)			x	
Inspect, clean and oil all exhaust fans	x		x	
Check floors for level (page 5)	x		x	
Check blocking for cracking and slippage	x			
Wax interior trim (page 24)		x		x



