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Save Home Energy

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Weatherizing a Mobile Home

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Whether one plans to purchase a mobile home or currently lives in one, weatherizing can reduce energy consumption and waste. Because of air leakage and infiltration, it generally costs 50 percent more to heat and cool a mobile home than it does a house the same size. Steps taken to stop air movement will save energy.

Buying a Mobile Home

A careful inspection is needed before any mobile home is purchased. Do not be mislead by inspection tags. Buy new units from reputable dealers and look for the best quality you can afford. Ask the dealer for the exact amount of insulation in walls, ceilings and floors.

To save energy dollars spent for air conditioning, select a mobile home with a light-colored exterior to help reflect heat.

Saving Mobile Home Energy

While many features that help to save energy in conventional site-built houses also will save energy in mobile homes, there are other techniques unique to mobile homes. All energy saving features and practices are critical in reducing energy waste in mobile homes.

Orientation

Placement of a mobile home on a lot has much to do with how much energy is needed for heating and cooling. If possible, position the home so that the longest sides face north and south. Limit the amount of glass area along the west and north sides and try to have the greatest amounts of glass facing south.

Orient the home so that the kitchen does not have a western exposure. Whichever room is facing west will be the warmest year-round.

Because most mobile homes are permanently located on a lot, look for one with the best orientation for saving energy. The next time the home is moved, locate it in such a way to provide the greatest protection from hot summer sun and cold winter winds.

Skirting

Skirting provides insulation while enhancing appearance and providing additional storage space. Skirting for single and double-wide mobile homes should be vented on all four sides to allow air to circulate and prevent a buildup of moisture.

If the mobile home has a gas furnace, locate one vent as close as possible to the air intake be-

Popular Skirting Materials	Features
Plywood Use 3/8 inch, A-C or B-C exterior grade	Easy to install; allow 1/8-inch space between joints for expansion; finish with a coat of primer and paint; requires periodical painting; generally low cost.
Corrugated Metal Use aluminum or galvanized steel	Installation requires special cutting tools; excellent durability and low maintenance; initial cost moderate.
Corrugated Fiberglass	Installation may be difficult for do-it-yourselfer; available in many colors; maintenance low but may crack or break with age; high initial cost.
Vinyl Often sold in kits	Easy to install; highly durable and low maintenance; may provide continuous ventilation; high initial cost.

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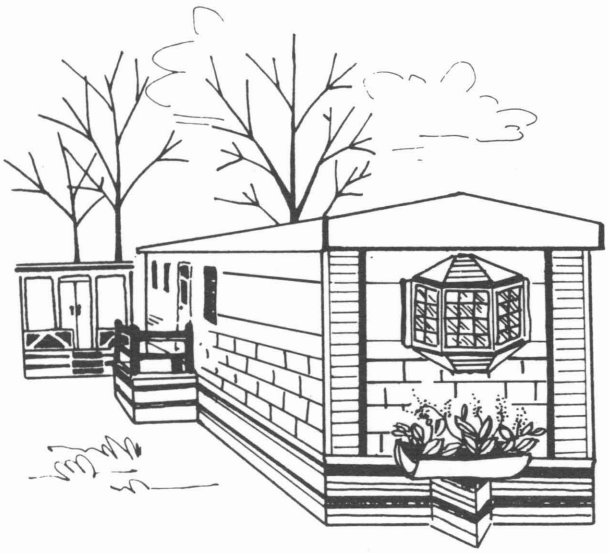
neath the flooring to avoid drawing moisture and musty air inside the home. Do not place any vents within 4 or 5 feet of water supply lines to avoid freezing problems.

Initial cost, ease of installation, durability and maintenance of skirting materials should be considered. The more popular skirting materials are plywood, corrugated metal, corrugated fiberglass and vinyl.



Caulking and Weatherstripping

Much of the air moving through a mobile home can be stopped by sealing cracks and gaps with caulking and weatherstripping, two inexpensive projects. Caulking and weatherstripping help reduce heating and cooling costs as well as helping to control unwanted moisture and dust.

Select high quality caulking compounds that remain elastic after drying. This allows for the expansion of metal parts in the home's construction. Caulks can be purchased in many colors and types for application with a special gun or by hand.

Weatherstripping stops air movement around door frames and window openings. Numerous easy-to-install kits, complete with attaching devices, are available at stores featuring hardware.

Inspect the home for any cracks and openings around seams, joints, moldings, splash panels, windows, doors, roof vents, nails, wheel housing and gutters. These areas are prime targets for caulking and weatherstripping.

Insulation and Moisture Protection

Insulation can be added to roofs in the form of urethane foam at least 2 to 3 inches thick. A coat of sealer should be used to protect the urethane from deteriorating. Some sealers and roof paints are reflective to help reduce radiation. Decorative, insulated ceiling tiles inside the home also add protection from heat loss and gain through roofs from inside the home.

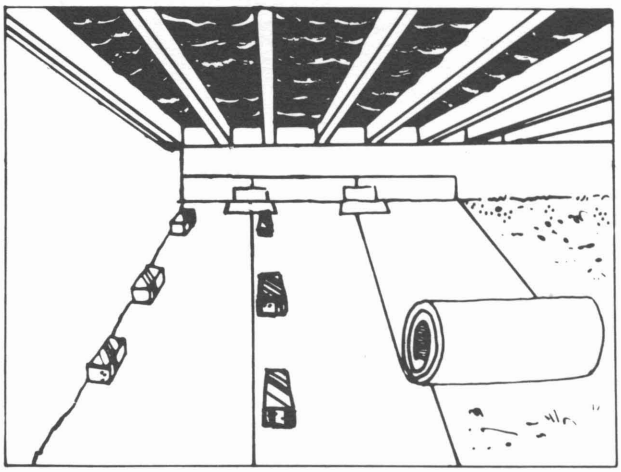
Usually, it is not cost effective to add blown-in insulation to mobile home walls. However, urea-formaldehyde, loose-fill, mineral wool and cellulose can be added where none exists. Consider insulating walls as a last resort and only after determining that the payback period in fuel savings is reasonable.

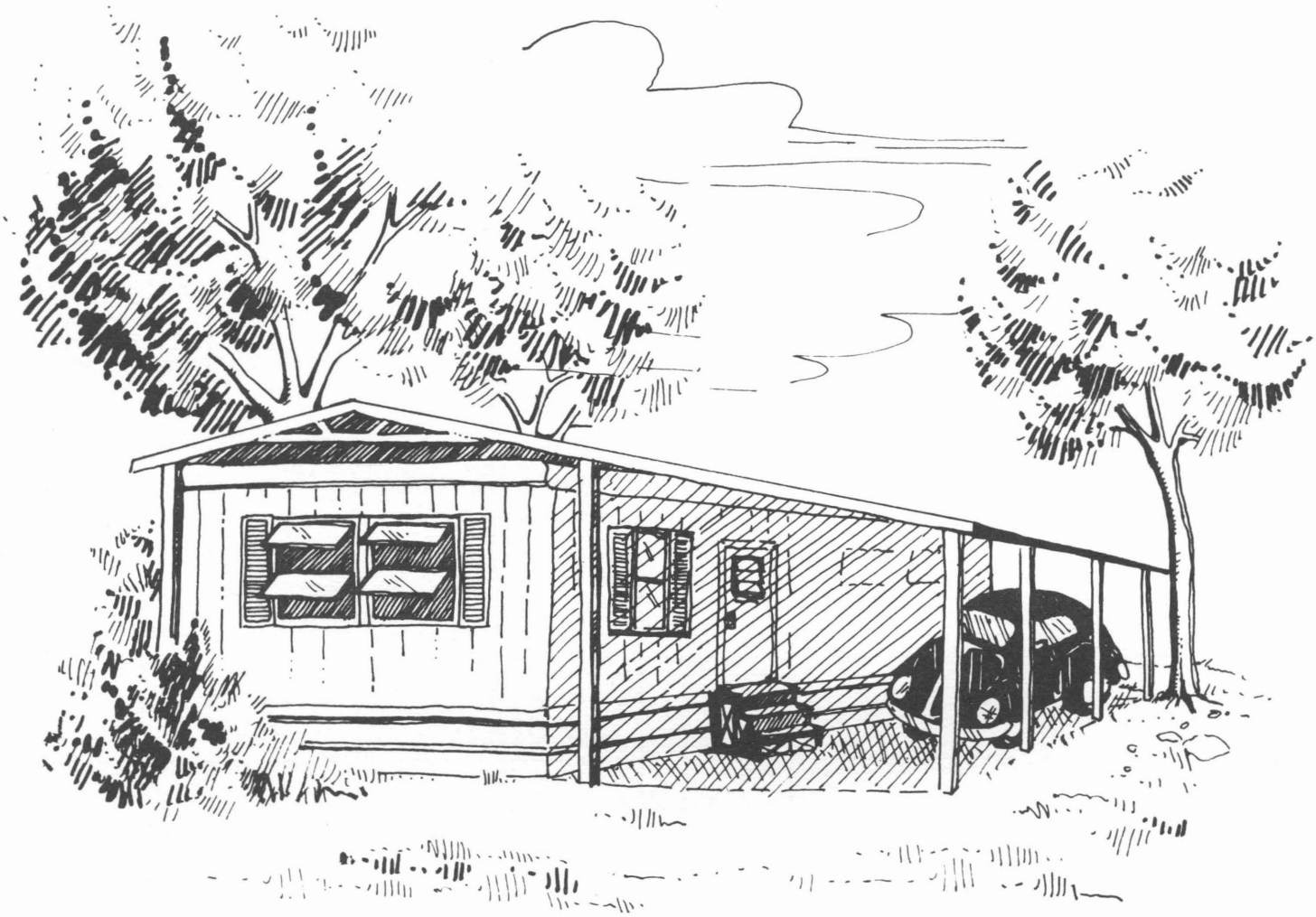
Some insulating protection can be added to inner walls in the form of decorative wall treatments. Consider using carpeting, cork board, unfinished wood or padded fabric coverings over rigid board insulation. For fire protection, one-half inch gypsum board or its equivalent must be placed over the rigid board insulation before the finished wall treatment.

Inspect the flooring under the mobile home. Is there any insulation? It generally is cost effective to add batt or blanket insulation equal to an R-19 underneath a mobile home. R values are measures of the insulation's ability to resist heat movement. The higher the R value the better.

Insulate all exposed heating and cooling ducts (usually located under the home) by wrapping them with batts equal to an R-11 to prevent excessive loss of conditioned air. Attach the insulation securely so pets and other animals cannot tear it off. Inspect insulation often to be sure none has been torn off.

Cover the ground under a mobile home with a vapor barrier in damp, humid areas of Texas. This prevents the movement of damp, moisture-laden air into the home and helps eliminate moisture and mildew problems inside. Use a 4- to 6-mil thickness of polyethylene sheeting or 55-pound asphalt roll roofing paper. Overlap the material at least 3 inches and weight it down.





Covers

Covers protect the entire mobile home from direct sun and cold weather. They are most effective when built with pitched roofs to allow air movement between the roof and cover. Have at least 2 feet of overhang on all sides.

Porches, patios and carports also can be added as extensions of the cover. They give added protection from the weather when located on the west and south sides of the home.

Landscaping

Carefully planned landscaping can help reduce energy consumption. Plant evergreen trees for windbreaks on northern sides of the home. Trees, shrubs and vines that lose their leaves in winter give protection from summer sun and allow heat from winter sun.

Grass or ground covers planted on south, east and west sides prevent heat from being reflected onto the home. Paced or asphalt covers reflect much heat onto metal walls and in windows. Contact county Extension agents, horticulturists and nursery owners for a list of plants that are quick growing and require little maintenance.

Protecting Windows

Prevent large amounts of heat gain and loss through glass areas by using storm windows, reflective screens and coatings, awnings and effec-

tive interior treatments. The most effective treatment protects during summer and winter. Treatments such as reflective roller shades and some storm windows give year-round protection while allowing windows to be opened to take advantage of natural breezes on mild days.

Storm windows can be purchased or made from plastic sheeting. To make a storm window, use a 4- to 6-mil thickness of clear polyethylene mounted on wooden frames for installation inside or outside. Be sure storm windows are placed only 3/4 to 2 inches away from the original glass for greatest insulating value. Use storm windows during heating and air conditioning seasons.

Reflective films, coatings and screens reduce up to 80 percent of the sun's radiant heat entering through windows. Many different types of films are available that are applied directly to windows and some are strippable. Reflective roller shades give similar protection with greater year-round flexibility and sun control.

Interior window treatments can reduce effectively the amount of heat gain through windows. The chart below shows that some treatments are more effective than others.

Type of Treatment Used	Percent Saved
White opaque roller shade	50
White translucent roller shade	44
White lined drapery	33
Closed venetian blinds	29

A closed-top cornice and tight-fitting closure at the center and sides will stop heat loss during winter. Keep drapes closed during sunny summer days and open to let in sun during winter.

Heating and Cooling Equipment

Use energy-efficient systems and keep them well maintained. Check filters monthly and change or clean when clogged and dirty. Turn off the furnace's pilot light and gas supply to save on gas heating systems in off season.

Set thermostats at the highest comfort setting during summer and the lowest comfort setting during winter. Use natural breezes whenever possible. Turn the system off during prolonged periods of absence. Bringing the temperature to a comfortable level is less expensive than continually running the equipment.

Saving Heated Water

Set the water heater thermostat at 140°F if the home has a dishwasher; otherwise set it at 120°F. Be sure to repair leaky faucets, especially hot water faucets. Leaks can waste 600 to 6,000 gallons of water a year.

Add a layer of noncombustible insulation around the outside of the water tank. For a typical gas-fired heater, omit insulation at the top of the tank and around vents or openings leading to the burner compartment. The cost of insulating the water tank can be paid back in less than 5 months, depending on utility rates.

The amount of water used for a tub bath as compared to a shower depends upon the rate of flow, the length of time the shower is running and how full the tub is filled. A typical bathrub filled to overflow holds 25 gallons of water. A conventional shower running at full force may use 3 or more gallons a minute, but a shower head designed to slow down or resist water flow may use as little as ½ gallon per minute. Thus, a short shower bath using a water-resistant shower head will use less water than a typical tub bath.

Decorating to Save Energy

The use of colors, furniture, textures and lighting inside a mobile home influence how comfortable occupants feel despite actual temperatures. Cool colors of blues and greens make rooms appear larger and cooler. Reds, oranges and some purples are called warm colors and make rooms seem warmer and smaller. This principle applies to floor and wall coverings as well as furniture.

Many mobile homes have dark paneled walls. To help with summer cooling costs, consider applying light, cool-colored fabrics to walls. Several temporary applications can be used so that fabrics can be removed during heating seasons.

The furniture in the home has some effect on how much energy is used. Dark, plush upholstered goods used in combination with dark, massive, wooden case goods make rooms seem warmer and smaller. Shiny metals and light-colored furniture covered with smooth textures or glossy paints create the feeling of coolness and spaciousness.

Planning Energy Savings

Maximum energy savings are not realized unless family members develop positive practices and attitudes toward reducing energy waste.

Make the most of the climate. Use natural breezes for cooling; the sun for warmth and drying clothes; and air for drying dishes. Reduce hot water usage. When cooking, plan meals to bake several dishes at one time. Use the smallest unit element or appliance required for the job. Preheat only if foods contain baking powder or yeast. Consider purchasing a microwave oven and using it properly. Keep refrigerator/freezer full; defrost promptly; allow no more than ¼ inch of frost build-up. Wear clothes to fit the season. Teach family members about energy conservation.

To make noticeable reductions, identify the energy-saving features that will result in the greatest savings for the time and money invested. Evaluate alternatives to determine which projects should be carried out and decide when projects will be done.

Saving Mobile Home Energy

Take this simple quiz to see if you can save on the amount of energy it takes to live comfortably in your mobile home. Check "yes" or "no" and if you plan to carry out those features that will SAVE HOME ENERGY.

After completing the quiz, use the Project Plan to determine the cost of each project, how the work will be paid for and who will do it. Develop a time schedule (specific dates) for carrying out each project according to how much effect it will have on fuel savings.

Energy-saving things to do	Yes	No	Plan to do
1. Is your mobile home situated with narrow ends facing east and west?	_____	_____	_____
2. Has additional insulation been added under the floor?	_____	_____	_____
3. Are windows, doors, vent pipes, roof and flooring seams caulked and/or weatherstripped?	_____	_____	_____
4. Is all exposed duct work insulated?	_____	_____	_____
5. Do you have storm windows and doors?	_____	_____	_____
6. Do windows and other glass areas control the sun's rays with awnings, solar screens and sun film?	_____	_____	_____
7. Does your mobile home have properly vented skirting and moisture protection?	_____	_____	_____
8. Do you keep heating and cooling systems maintained and in good working order?	_____	_____	_____
9. Do you need to purchase more efficient heating and cooling equipment?	_____	_____	_____
10. Are the water heater and hot water pipes wrapped with insulation?	_____	_____	_____
11. Is your mobile home entirely covered with a pitched roof that has 2-foot overhangs and center ventilation?	_____	_____	_____
12. Does your mobile home have a light-colored exterior?	_____	_____	_____
13. Is your mobile home landscaped to save energy?	_____	_____	_____
14. Have you added rigid board insulation to interior walls and ceiling?	_____	_____	_____
15. Do you and your family carry out energy saving practices?	_____	_____	_____
16. How long do you plan to live in your mobile home?	_____		

PROJECT PLAN

1. Decide which projects are to be completed. Remember, the first projects should be those that will save the most energy.
2. Compare prices for each project to be carried out. Consider initial and lifetime costs. Decide how projects will be financed — cash or credit.
3. Decide who will do the work. You can do many projects yourself. Consult county Extension offices or libraries for "do-it-yourself" books and enlist neighbors to help with each other's projects.
4. Develop a time schedule.

Energy Saving Projects	Cost Estimates			Who Will Do The Work	Date To Be Completed
	1	2	3		

Cooperative Extension Work in Agriculture and Home Economics, The Texas A&M University System and the United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.
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