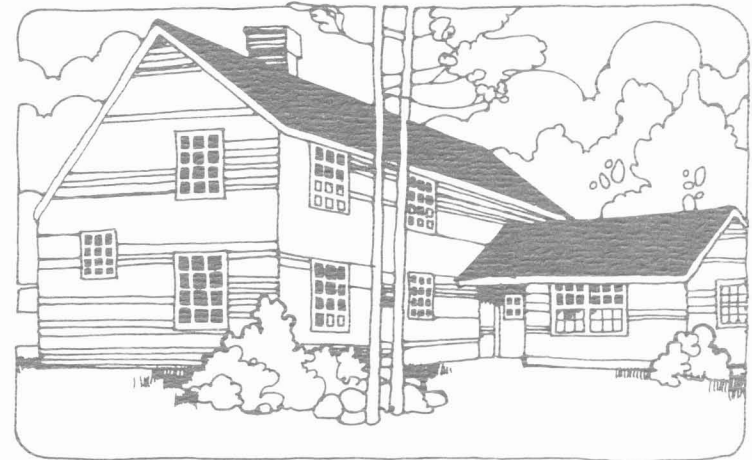
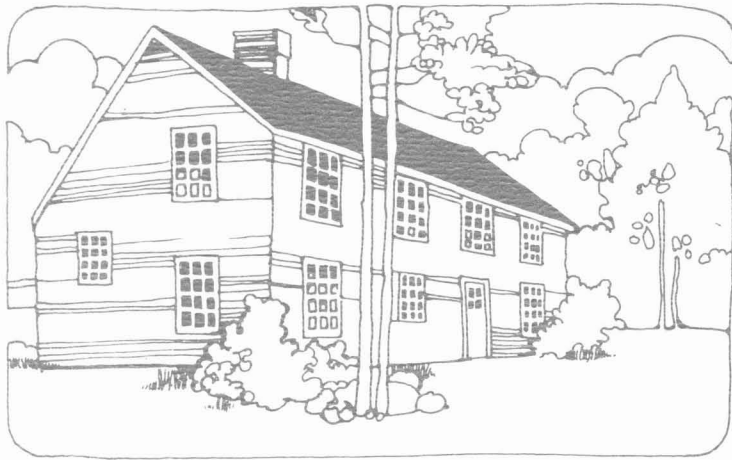


Evaluating the Structure of an Older House



Home Remodeling

EVALUATING THE STRUCTURE OF AN OLDER HOUSE

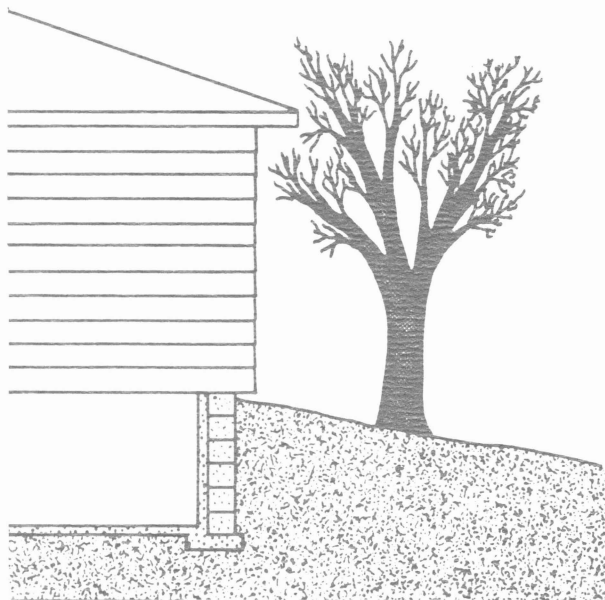
Sue Young*

Many families are considering the purchase of older homes as new home prices rise beyond their reach. They are attracted by the additional space their dollar will buy, established neighborhoods and sound construction.

Most homebuyers know what they want in a house when it comes to location, floor plan and size. These characteristics are easy to identify. Homebuyers want a house that is structurally sound, but evaluating the structure is one of the most difficult aspects in the decision making. A professional home inspection consultant with an architectural engineering or similar background can be hired for approximately \$50 to \$75 to make the inspection. Or, with some study and time devoted to it, the homebuyer can do the job himself. The following are critical areas to consider.

Foundation

Check the masonry foundation for cracks, a common defect that can usually be repaired if not extensive. Hairline cracks rarely require repairs.

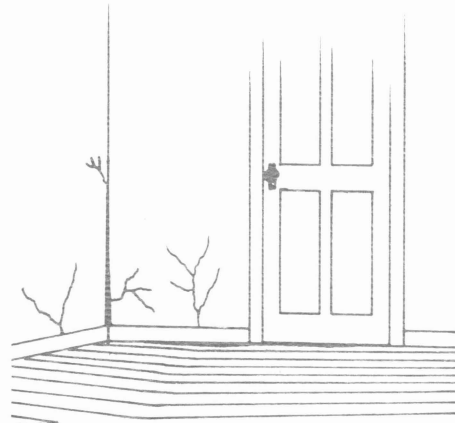


Dampness within a crawl space usually can be avoided with proper wall vents and if the lot slopes away from the house. A ground cover also helps to control moisture.

It is important, especially in slab construction, that the ground slope away from the house. This provides proper drainage and helps prevent flooding.

Crawl space in pier and beam construction should be checked for dryness and ventilation. Foundation wall vents are required to keep the crawl space dry. It is preferable to have a vent near each corner.

Sagging floors may indicate weak or termite-ridden joists. If the foundation has shifted, the cost of leveling is a consideration in whether or not to purchase.



Sagging floors may indicate weak joists or a shift in the foundation. Cost of repairing these defects and the resulting wall cracks add to the purchase price of the house.

Termite Damage

Hire a professional to check for termite infestation if you are seriously considering a purchase. When termite treatment is needed, the exterminator's contract should include a warranty. Five years is the usual term.

It is important that none of the wood in the structure of a house touch the ground. Use an ice pick to probe the wood near ground level. If the pick goes into the wood, it is likely the wood has been eaten by termites. Flattened mud tunnels are often left behind by termites. Termites have broad middles and should not be confused with winged ants which have a narrower midsection.

Plumbing

Hot water should be available quickly and under the adequate pressure. If water runs slowly with all

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faucets on, clogged or corroded pipes may exist. Stains in bathtubs and lavatories may indicate rusting pipes or minerals in the water. Problems occur most often with iron and steel pipes. They can be distinguished from others by use of a magnet. Copper tubing, brass and bronze pipes are best; plastic is becoming more popular.

Water leakage, rust or rot under a sink may be caused by a defective joint, rusted pipe, faulty washer or cracked fixture.

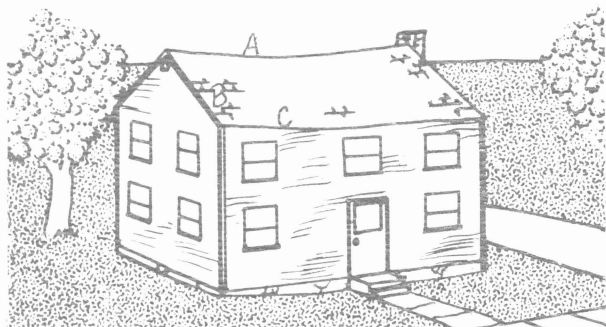
Water Heaters

Glass-lined tanks with a 10-to 15-year guarantee are preferred. Gas units provide hot water faster than electric. The minimum recommended size for a gas heater is 30 gallons. The minimum recommended size for electric heaters is 50 gallons. Rust or leaks at the base of the tank where the pilot light is located are signs of trouble.

Framing

Check the squareness of exterior walls and whether or not doors, windows and floors are level. Signs of defective framing include bulging exterior walls and cracks rising at an angle from the upper corner of window and door frames on the inside of the house.

All houses settle and it is rare for a house not to develop some small wall and ceiling cracks. Yet, uneven settlement may crack window and door frames out of square and loosen interior finish and siding.



Look for signs of defective framing – bulging exterior walls and interior cracks at the upper corners of window and door frames. Check to see that uneven settlement has not cracked window and door frames and loosened interior finish and siding. Watch for roof sag at ridge (A), rafters (B) or sheathing (C).

Windows

Windows should fit snugly, feel solid and open and close smoothly. Water stains or dust streaks around the trim may indicate leakage.

If the house has casement windows, the cranking mechanisms should be checked to insure that they work.

Aluminum windows are less expensive than wooden windows and require little maintenance. Condensation may be troublesome, however.

Wooden windows are better insulators because of low heat conductivity and fewer condensation problems. However, they usually require more maintenance. Weatherstripping is most important in reducing air infiltration and utility costs.

Roofs and Gutters

A good roof will be even and uniform, while a worn roof has an overall ragged appearance. Types of roofing materials most often used include:

- *Composition shingles.* The most obvious deterioration is loss of surface granules. Better composition roofs last 18 to 20 years.
- *Wood shingles.* Individual shingles on the worn roof may be broken, warped and up-turned. The thicker the shingle, the better the quality. The least expensive (3/8 inch thick) may last 15 to 25 years. Wood shakes (3/8 to 1 1/2 inches thick) should last twice as long, depending on the weather conditions.
- *Built up roof* (layers of roofing felt mopped in place with hot asphalt). The roof may need major repairs if there are bubbles, blisters, soft spots, bare places in the surfacing and separations or breaks in the felt. The number of layers of felt and quality of application determine the quality and life of a built-up roof. Five plies are recommended. Two- or three-ply roofing is often used but deteriorates in a short time.

Gutters should be used to prevent uncontrolled water run off, which can cause paint blistering and rot. Plastic and aluminum gutters are recommended.

Ventilation

Attic or under-the-roof ventilation is a must for efficient summer cooling and prevention of winter condensation problems. The amount required depends on where the home is located and the slope of the roof. If the slope is less than 1 foot of rise in 3 feet, the attic should be ventilated with screened vents distributed uniformly along eaves. If the slope is greater than 1 foot of rise in 3 feet, the attic should be ventilated with a vent located near the ridge in each of the gable end walls. Electrical attic ventilating fans usually reduce the interior cooling load sufficiently to more than offset the energy required for the operation of the fan.

Condensation damage resulting from poor ventilation usually shows under the roof where the rafters end.

Insulation

Insulation is important in reducing utility bills and determining comfort. It should be judged on the basis

of the resistance value (R); the higher the (R) the greater the resistance. The resistance to heat flow, rather than just the thickness, determines energy saving. Batts or blankets generally have a higher (R) value than loose fill insulation. Loose fill needs to be thicker to have an (R) value equal to the batt or blanket. In Texas, an (R) value of 26 to 30 of batt or blanket is usually recommended for ceiling and 4 to 6 inches (R 13-19) for walls.

Vapor Barrier

Vapor barriers are sheets of impermeable material applied at the factory to one side of many batt and blanket insulation materials. They prevent water vapor from getting through to where the temperature is low enough to cause condensation. The vapor barrier should face the inside of the house. When loose fill or batts and blankets without vapor barrier are used, a separate vapor barrier of laminated paper, aluminum foil or plastic film may be used.

Vapor barriers are necessary in Texas in insulated wood frame or brick veneer walls, in unvented attics and in ventilated attics where the slope of the roof is less than 1 foot of rise in 3 feet.



The vapor barrier must face the inside of the house.

Wiring

The minimum recommended wiring for most houses today is a three-wire, 240-volt, 100-ampere service. The electricity is brought from the transformer into the house through three wires. In houses where electric heat, central air conditioning or a large number of appliances are used, 150- to 400-ampere service is needed.

A 100-ampere service panel box usually has 12 to 16 fuses or circuit breakers. Circuits serve either a separate area (general circuits) or an individual appliance (separate circuits). Large appliances require heavy wattages and three-wire circuits using wire from number 12 to number 6 size (the lower the number the larger the wire).

When the wire is too small, appliances and lights do not work at peak efficiency and may be damaged.

Additional circuits, if needed, may be added to the existing panel box, or another distribution panel may be added.

It is important to examine exposed wiring in the attic. If insulation on the wiring is frayed, brittle or crumbly, it has probably deteriorated from age or overloading and should be replaced. This is usually an expensive undertaking.

Heating and Cooling System

Turn on both the heating and cooling system for a period of 20 to 30 minutes. It should run quietly, ducts should not rattle and air flow should be even.

The typical house requires one ton of cooling (equal to 12,000 BTU's) capacity for every 500 to 600 square feet of air conditioned area; 30,000 BTU's of heating capacity will heat 1000 square feet. Equipment should carry the certification seal of the Air Conditioning Refrigeration Institute (ARI).

Quality furnaces often have a 10-year guarantee. Those with a 1-year guarantee are made primarily for the development market. Belt driven blower mechanisms are usually most serviceable.

In Texas, gas heating generally has been less expensive than electric, but this may change. Electric heat pumps that provide both heating and cooling use less energy than electric resistance units.

Paint

Most houses require fresh paint every 3 to 5 years. Paint usually "chalks" as it ages, turning to a dull, powdery finish. Blistering and peeling indicate too much water has gotten to the wood.

To Buy Or Not To Buy

All older houses have flaws. It is important to know the extent of the flaws so that when a decision has been made to buy or not to buy, to remodel or not to remodel, it will be one you will be pleased to live with.

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