Structural Components of a Home – You Can Do It Series
Michigan State University Extension Service

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You Can Do It, Too

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Structural Components of a Home

An ounce of prevention can save lots of dollars in the cure. Unfortunately, that's easier said than done when it comes to maintaining a home and its various systems. The National Association of Home Builders estimates that over 3,000 components are used in constructing a house. In many instances, preventive maintenance can extend the life of those equipment and material parts, and thus, it can save you money.

The checklists in the You Can Do It series are designed to help homeowners establish a regular inspection program. By using them, consumers can detect minor problems early and repair or have them fixed before they become major, costly headaches.

If you plan to attempt "do-it-yourself" projects, know your limitations. Falls, shocks, and numerous other accidents happen annually to overzealous, underqualified fix-it-yourself specialists. If you are not qualified, call in a professional. If you are, by all means go ahead and repair the problem.

In either case, whether you do the work yourself or hire it done, you'll find these checklists useful. You may also find a number of other Cooperative Extension Service publications on simple home repairs helpful. Call or visit your local county Extension Office for the latest list of Available Publications or write the MSU Bulletin Office, P.O. Box 6640, E. Lansing, MI 48826-6640. Your local library has a wealth of information on home maintenance and repair, too. Visit with your local librarian to locate good materials.

The following list describes the structural components of a home. The number in front of each component refers to the number given in the figure on p. 3.

Roof

1 Ridge-The top edge of the roof where two adjoining roof surfaces meet.

2 Ridge Board-Board under the ridge used to support rafters.

3 Rafters-Structural members used to frame and support a roof.

4 Collar Beam-(Rafter tie)-Horizontal wooden tie strung between rafters on opposite sides of the roof; tie acts as a brace to prevent rafters from spreading.

5 Ceiling Insulation-A loose fill or blanket material (cellulose, vermiculite, rock wool, or fiberglass are commonly used) placed against the winter warm side of the ceiling (between ceiling joists or roof rafters) to reduce heat loss in winter and heat gain in summer. (Note: Ventilation space is necessary between the insulation and the roof sheathing to allow air to circulate through the attic, preventing moisture build-up.)

6 Roof Sheathing-Structural covering of boards or plywood placed over roof rafters; sheathing provides a structural base for the finish roof.

7 Roofing-The asphalt, fiberglass, or wood shingles-or tile, slate, or metal covering-that provides the outer protection against weather damage.

8 Gutter-Trough attached to the eave line of the roof for gathering and carrying water away from the structure.

9 Downspouts-A vertical pipe used to carry water from the gutter to ground level.

10 Storm Sewer Tile-An underground pipe that carries water from a downspout to a storm sewer. (Note: Splashblocks are commonly used in place of storm sewer tile.)

11 Gable-The triangular end of a building where two sloping roofs meet.

12 Gable Vent-A metal or wooden insert with slanted openings arranged to allow entry of ventilation air but keep out rain. (Note: Circular roof vents or a ridge vent may be used in place of gable vents in some houses.)

13 Soffit Vent-A metal or wooden insert with openings arranged to allow entry of ventilation air; located on the underside of the rafter rail.

Walls

14 Studs-The vertical framing members supporting the walls of the house, usually 2" x 4"s or 2" x 6"s spaced 16 or 24 inches on center.

15 Sill-A horizontal wooden member that rests on the foundation wall, supporting the house framing and structure.

16 Corner Post-Vertical wooden members at the corner of the structure designed to support inner and outer covering materials.

17 Corner Bracing-Diagonal braces (or sheets of plywood in newer construction) placed at the corners of a frame structure to strengthen the walls and keep the frame square.

18 Plate-Flat horizontal wooden members connected to the top (top plate) and bottom (sole plate) of studs to keep them square, rigid, and evenly spaced.

19 Sheathing-Structural covering of boards, plywood, or insulating materials placed over exterior wall studs; sheathing provides a structural base for the exterior siding.

20 Building Paper-A heavy waterproof paper, such as asphalt felt paper, placed on the exterior side of wall sheathing to prevent the passage of air and water into the home. (Note: Building paper is not a vapor barrier.)

21 Clapboards or Beveled Siding-Wedge shaped boards with a thick lower butt and a thin upper edge, overlapped to provide an exterior covering which will shed water. (Note: Brick and stone are also commonly used exterior sidings in Michigan.)

22 Wall Insulation-A loose fill or blanket material (cellulose, rock wool, or fiberglass are commonly used) placed between studs to reduce heat loss in winter and heat gain in summer. (Note: Wall insulation may be absent or minimal in many older homes.)

23 Lath- Sheet metal screening or wooden strips nailed to studs or joists; the lath acts as a base for plaster.

Floors and Ceilings

24 Girder-A main support beam in the floor framing system; often made of steel or wood, it rests on posts while the floor joists rest on it.

25 Joist-A horizontal structural member or beam that supports floors and ceilings; usually 2" x 10"s or 2" x 12"s spaced 16 inches on center.

26 Bridging-Framing members placed between joists to brace them and prevent the joists from twisting or deflecting.

27 Subfloor-Rough boards or plywood sheets laid over the joists, providing a base for the finish floor.

28 Finish Flooring-Visible floor covering, often vinyl, carpet, or tongue and grooved hardwood strips.

29 Post-Major wooden or steel vertical structural member supporting the weight of girders, floor, and wall framing.

30 Pedestal-Concrete or masonry pad, 2 to 3 inches high, used to prevent moisture from damaging wooden posts.

Windows and Doors

31 Window-Glass openings allowing views, natural light and, if operable, ventilation.

32 Window Frame-Stationary wooden members next to the movable parts; the frame acts as a lining for the window.

33 Window Sash-The inner frame or movable part of the window that holds the glass.

34 Header (Lintel)-A structural beam across the top of the window (or door) opening supporting the weight of the wall above the opening.

35 Window Casing (Window Trim)-The decorative strips surrounding and finishing the exterior and interior sides of the window or door opening.

36 Canopy-A projection over a window or door protecting them from weather.

Foundation and Basement

37 Finish Grade Line-The slope of the ground away from the foundation; to prevent rain water from collecting near the basement wall, the ground should slope gently away from the foundation approximately 6 inches in a 10-foot area.

38 Foundation Wall-A wall of poured concrete (shown) or concrete block resting on the footing and supporting the full weight of the house, its contents, and inhabitants.

39 Termite Shield-A barrier (in this case, a metal baffle) used to block termites from access to wooden structural members. (Note: Chemicals are commonly used in new construction.)

40 Footing-An enlargement at the base of the foundation wall that spreads and transmits the weight of the house to the ground.

41 Footing Drain Tile-A pipe, with cracks between sections or small perforated holes along its length, to collect and move ground water away from the foundation. (Note: Drain tile helps prevent wet basements.)

42 Basement Floor Slab-The 4- to 5-inch layer of concrete forming the basement floor.

43 Gravel Fill-Layer of gravel or loose rock placed under the foundation to provide drainage and protect from damp floors.

44 Backfill-Earth used to fill excavated areas around exterior foundation walls.

45 Areaway (Light well)-An open area below grade, around foundation windows or doors, used to provide light and ventilation to the basement.

Stairs

46 Tread-The step or horizontal board of a stair.

47 Riser-The vertical board in a stairway connecting two treads.

48 Stair Stringer-The sloping notched board that supports the stair treads and risers.

49 Newel- The post supporting the handrail at the top and bottom of a stairway.

50 Stair Rail-Safety bar used as a handhold.

51 Balusters-Thin columns or spindles supporting the stair railing.

Fireplace

52 Chimney-A vertical shaft of masonry or other approved non-combustible, heat resistant material enclosing one or more flues; used to vent the products of combustion from solid, liquid, or gas fuels. (Note: In some cases, such as woodburning stove installations, the chimney is the flue.)

53 Flue Liner-A terra-cotta or fire-clay lining protecting the chimney from damage caused by smoke, gas, heat, and condensation.

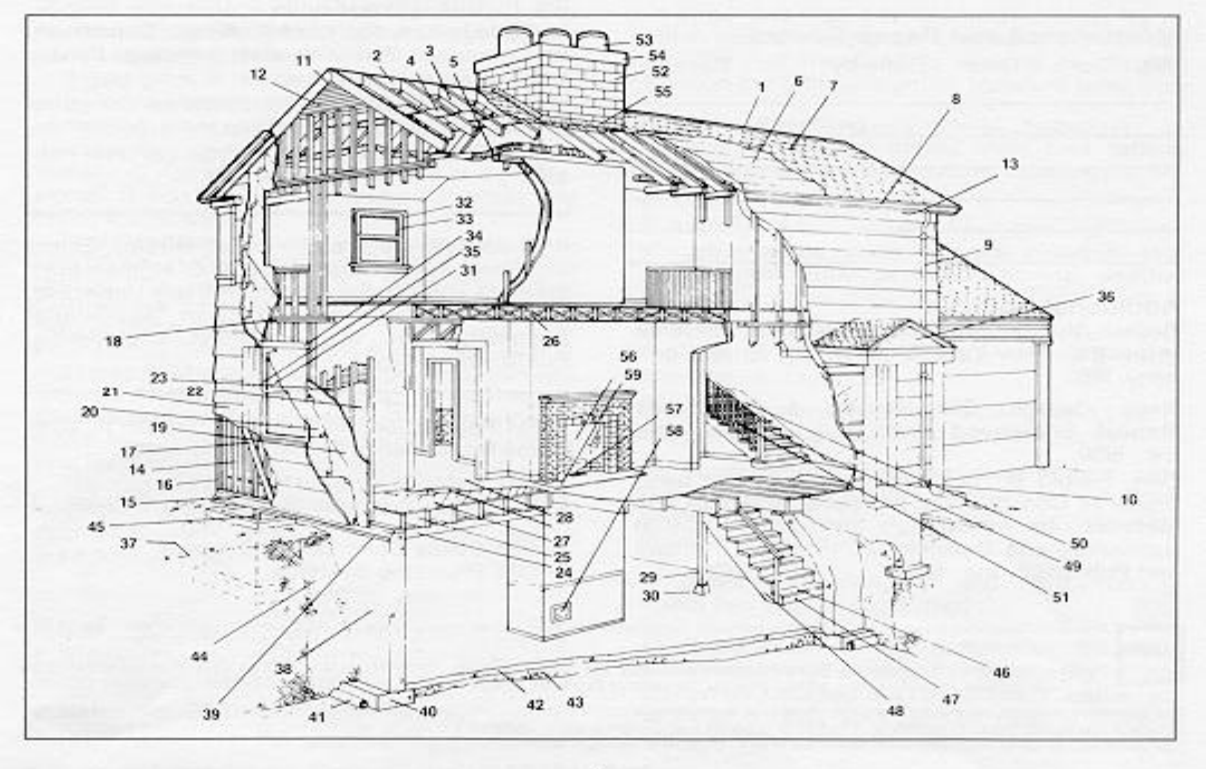
54 Chimney Cap-A cover, often of concrete, used to protect chimney brick from weathering.

55 Chimney Flashing-The material (often sheet metal) used to provide a water-tight joint between the chimney and the roof. (Note: Flashing is used at roof intersections and around other roof projections to make them watertight.)

56 Firebrick-A type of brick that is especially hard and capable of withstanding the heat of direct fire, it is used to line the fireplace.

57 Ash Dump-A trap door used to drop ashes to a storage ashpit located below the fireplace.

58 Cleanout Door-Door to the ashpit, allowing easy access for ash removal and chimney cleaning.



59 Hearth-Floor of the fireplace; it should extend into the room for safety from stray sparks.

Directory of Repair Specialists

	Name	Address	Phone
Builder:			
Electrician:			
Heating System:			
Plumber:			
Major Kitchen Appliances:			
Landscaping:			
Other:			

Equipment Purchase Record

Item	Purchase Date	Warranty Description	Warranty Life

Maintenance and Repair Record

Work Done	Date	Done by	Cost

Additional Sources

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Sherwood, Gerald E. **New Life for Old Dwellings: Appraisal and Rehabilitation.** Agriculture Handbook No. 481. Washington, D.C.: U.S. Government Printing Office, 1979.

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Whitman, Roger C. **More First Aid for the Ailing House.** New York: McGraw-Hill Book Co., 1977.

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Other Publications in the "You Can Do It, Too" Home Maintenance Checklist Series:

E-2091 Exterior Structural Items
E-2092 Interior Structural Items and Outside Areas
E-2093 Space Conditioning Systems
E-2094 Plumbing Systems

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(Home Maintenance)