



HOUSING

Home Repair Inspection and Specifications

Atiya Mahmood, Extension State Specialist; Rebecca Blocker, Extension Regional Specialist; and Randall Griffith, Rural Housing Specialist, USDA, Rural Development

This guide can help you identify basic repair and maintenance problems in your house or a prospective house. It is not exhaustive, but gives you preliminary inspection information and basic suggestions for home repairs that are part of good home maintenance. If this preliminary inspection shows potential problems, you should consider hiring a professional inspector to do a detailed house inspection.

A checklist on the next page can help you determine what repairs are needed. The following specifications can guide you as you contract to have work done. (*Changes made as specified will help the house meet Department of Economic Development and Rural Development guidelines.*)

Suggested specifications for contracting for home repair

1. Re-siding a house

- ✓ Vinyl siding is recommended.
- ✓ Contractor will re-secure all existing siding that is in stable condition.
- ✓ Siding that is unstable has to be removed and replaced with a plywood backer.
- ✓ Contractor will install new 42 mil. vinyl siding to all of the dwellings exterior.
- ✓ Contractor to install new vinyl trim throughout exterior as required for proper installation of new vinyl siding.

- ✓ Exposed wood trim, drips, fascias, etc., have to be covered with vinyl or metal to match new vinyl siding color.
- ✓ Existing soffits have to be repaired to provide adequate backer for new soffit material and new prefinished steel ventilated soffits have to be installed.
- ✓ All installation of vinyl siding will be per the manufacturer's installation instructions.
- ✓ Contractor is required to provide home owner with copy of installation instructions.
- ✓ Warranty to be provided by vinyl manufacturer.

2. Installation of new roof

- ✓ Contractor is required to install new 20-year shingles to entire roof.
- ✓ If more than two layers of shingles are on the existing roof, all existing shingles have to be removed.
- ✓ Contractor will repair all damaged existing roof sheathing with exterior $\frac{7}{16}$ " plywood or oxboard w/ plyclips, apply one layer of 15-pound felt if slope is over 4/12, or two layers of 15-pound felt if less than 4/12 slope.
- ✓ If slope is less than 3/12, roll roofing should be considered.
- ✓ Contractor will re-flash at all roof penetrations with metal flashing. Metal flashing to be let into masonry mortar joints. (Do not use caulk or

tar for flashing purposes.)

- ✓ Install new metal drip edging at all edges of the roof.
- ✓ Install new shingles per manufacturer's installation instructions.
- ✓ Contractor has to provide home owner with copy of installation instructions.
- ✓ All debris generated by re-roofing to be removed from premises.

3. Repair of electrical system

- ✓ Contractor will repair service entrance, power panel(s), wiring, fixtures, etc., to eliminate electrical hazards from the existing dwelling.
- ✓ Knob and tube wiring and all other damaged wiring shall be replaced with new, minimum 12-gauge copper conductors.
- ✓ All junctions shall be in covered junction boxes, exposed wiring to be protected from physical damage, and AC/DC smoke detectors shall be installed per the latest CABO or equivalent code.
- ✓ New wiring needs to meet the current N.E.C. (electrical code).
- ✓ If updating, use 100-200 amp. box per electrician's recommendation.

4. Repair of existing plumbing supply lines

- ✓ Galvanized, corroded, compressed or damaged supply lines are to be

removed and new supply lines installed.

- ✓ All new supply lines required to be copper or Schedule 40 CPVC.
- ✓ Contractor will make provisions to install air chambers to eliminate water hammer.
- ✓ All plumbing required to be adequately secured.
- ✓ All damaged, corroded, dripping or inadequate plumbing fixtures and appliances have to be replaced.
- ✓ New plumbing installations shall be per the latest CABO code.

5. Repair of existing plumbing drain, waste and vent lines

- ✓ Contractor required to replace all inadequate, corroded or damaged DWV lines.
- ✓ New DWV lines need to be Schedule 40 PVC and installed per the latest CABO Code.
- ✓ All penetrations through the roof to be with integral flashing or metal flashing. (Do not use caulk or tar for flashing purposes.)

6. Installation of attic insulation

- ✓ Contractor required to install attic insulation to minimum R-30 (10 inches) over entire attic area.
- ✓ Unfaced insulation or blown-in will be used if applying over existing insulation.
- ✓ Insulation required to be installed in an even layer and provisions shall be made to provide minimum 1 sq. inch ventilation per 1 sq. foot of attic area. (Minimum 20 percent of ventilation shall be from the soffit area and not more than 80 percent near the ridge).
- ✓ A power vent could be used as an option.
- ✓ Contractor needs to assure that insulation does not restrict air flow for soffit ventilation. (Install proper vents at every other rafter.)

7. Insulation of crawl space

- ✓ Floor joists and band joists of the crawl space required to be insulated with R-19 unfaced fiberglass insulation and secured in place with wire lightning rods at 48 inches.
- ✓ Crawl space floor required to be covered with minimum 6 mil. poly, lapped 6 inches and turned up 6 inches on the foundation walls and secured.
- ✓ Ductwork and water supply lines in crawl space to be insulated.
- ✓ Proper ventilation of crawl space must be provided.

8. Weatherization

- ✓ Contractor required to caulk all exterior window and door casings, seal all top sashes of double hung windows, seal around all exterior wall penetrations, and apply new weather-stripping to all exterior doors.
- ✓ Single pane windows need to be covered with a new aluminum combination storm window unit with screens.

9. Regrading site

- ✓ Contractor will add top soil as required to provide a minimum of 6 inches of fall in the first 10 feet away from the dwelling.
- ✓ Minimum 6 inches of foundation required to be exposed (no soil within 6 inches of the siding).
- ✓ New top soil to be raked smooth, seeded and mulched.
- ✓ If necessary contractor shall provide fall from the foundation to a minimum 4-foot wide swale that will divert water away from the foundation.
- ✓ Swale to be raked smooth, seeded and mulched.

10. Installation of new heating system

- ✓ Contractor required to remove existing heating plant and install new

forced air heating system.

- ✓ Contractor required to provide heat loss calculations to homeowner showing the proper size heating plant to be installed.
- ✓ New furnace shall be protected from the elements and installed with all necessary clearances, electrical, venting, supply and return ducts, plumbing thermostat, etc., as required to provide adequate heating (and cooling, if applicable) to each individual room.
- ✓ All ductwork in unconditioned spaces required to be insulated, all ductwork shall be adequately secured and all new work shall comply with the latest CABO code.
- ✓ All gas supply lines need to be checked by a qualified serviceman.
- ✓ All debris generated by this installation shall be removed from this site by contractor.

11. Painting house surfaces

- ✓ Contractor required to clean and prepare the surfaces to be painted by the paint manufacturer's instructions.
- ✓ Acrylic primer needs to be used to prime all bare wood.
- ✓ Brush and/or roller application is recommended (no spraying).
- ✓ Metal primer should be rust-inhibiting type.
- ✓ Paint required to have a 10-year warranty, minimum.
- ✓ Semi-gloss finish, enamel or equal needs to be done.
- ✓ Application shall be such that drips, spatters, flaws, streaking, shadowing or other types of inferior workmanship does not occur.
For pre-1978 houses, there should be an assessment of the lead content in the paint. Please contact the Department of Health at (573) 751-6400 for recommended procedures and a list of certified contractors.

Inspection Checklist for Home Repair

FOUNDATIONS AND BASEMENTS	Spring	Fall	Annual
Inspect for signs of termites and for wood decay.			✓
Check grading to assure that water will drain away from house; check closeness of trees to foundation for problems from roots.			✓
Check basement and crawl space for dampness and leakage following wet weather.			✓
Check driveways and walks for cracks, settling and soil erosion.			✓
Clean area wells, window sills and storm drains.			✓
DOORS AND WINDOWS			
Check doors, windows and trim for finish failure or rotted wood.	✓		
Check for broken glass, damaged screens. Clean screens.	✓		
Check glazed openings for loose putty.	✓		
Check hardware and lubricate moving parts.		✓	
Check weatherstripping for damage and tightness of fit. Check joints and caulk.	✓		
Check caulking at doors, windows, and all openings and joints between different materials (such as brick).	✓		
EXTERIOR WALLS			
Check masonry for cracks and loose joints.	✓		
Check painted surfaces for paint failure (<i>pre-1978 homes with cracked or peeling paint on window sills, walls or trim should be referred to Dept. of Health for list of lead inspectors</i>).	✓		
Check siding and trim for damage and decay.	✓		
Check trim for tightness of fit at joints and caulk.	✓	✓	
ROOF			
Check for damaged or loose shingles, blisters, roofing sponginess, etc.	✓		
Check underside of roof where accessible for water stains or dampness.	✓		
Check for damage or if paint is needed on gutters, downspouts, hangers, strainers and splash blocks.	✓	✓	
Clean gutter strainers, gutters, downspouts, splash blocks.	✓	✓	
Evaluate roof for future replacement.			✓
Check fascias and soffits for paint failure and decay. Assure that vents are open and properly vented.	✓		
Check masonry chimneys for cracks (inside and outside) and for obstructions.		✓	
INTERIOR SURFACES			
Check all painted and natural finished surfaces for dirt, finish failure, and for needed repairs (<i>pre-1978 homes with cracked or peeling paint on window sills, walls or trim should be referred to the Dept. of Health for a list of lead inspectors</i>).	✓		
Check all joints in ceramic tile, laminated plastic and similar surfaces. Check caulking around sinks, bathtubs and showers.	✓	✓	

FLOORS	Spring	Fall	Annual
Check for wear, damage, evenness and sponginess. Check particularly where one floor material joins another (e.g., wood to carpet).			✓
Evaluate for replacement or refinish.			✓
Check for handrails on stairs. Make sure they are properly attached.			✓
ELECTRICAL SYSTEM			
Check areas where wiring is exposed, and replace at first sign of damage.	✓	✓	
If fuses blow or breakers trip frequently, electrician should be contacted to determine cause and make necessary repairs.	✓	✓	
Check condition of cords and extension cords to all appliances.	✓	✓	
Check smoke detectors.	✓	✓	
HEATING AND COOLING SYSTEMS			
Have entire system (including gas lines) checked by qualified service person.	✓	✓	
Clean, service or replace filters, humidifiers and dehumidifiers.	✓	✓	
Unvented gas heaters need to have proper ventilation. Have a qualified service person check.			✓
Remove window air conditioners in winter.		✓	
PLUMBING SYSTEM			
Check faucets, hose bibbs, valve stools, sinks and water heater for leakage or corrosion.	✓	✓	
Have service person check septic system.			✓
Check gas lines and make sure no material around water heater is blocking air flow.	✓	✓	
Check to see that water heater vent is not obstructed.			✓
INSULATION			
Ceiling insulation should be an R-30 or approximately 10 inches deep.			✓
Check attic for proper ventilation at soffits and gable to assure air flow.			✓
Wall insulation should be a minimum of R-13 or 3.5 in.			✓
Floor insulation should be a minimum of R-13 or 3.5 in.			✓

Adapted from Home Maintenance Checklist in *Maintaining the Home*, Council Notes, 14 (3), Building Research Council, University of Illinois, 1995.

Construction Terms

Chimney

1. Flue liner
2. Chimney cap
3. Chimney
4. Chimney flashing

Roof

5. Roofing
6. Ridge board
7. Ridge vent
8. Roof sheathing
9. Rafters
10. Collar beam
11. Gutter
12. Downspouts
13. Flat or built-up roof

Walls

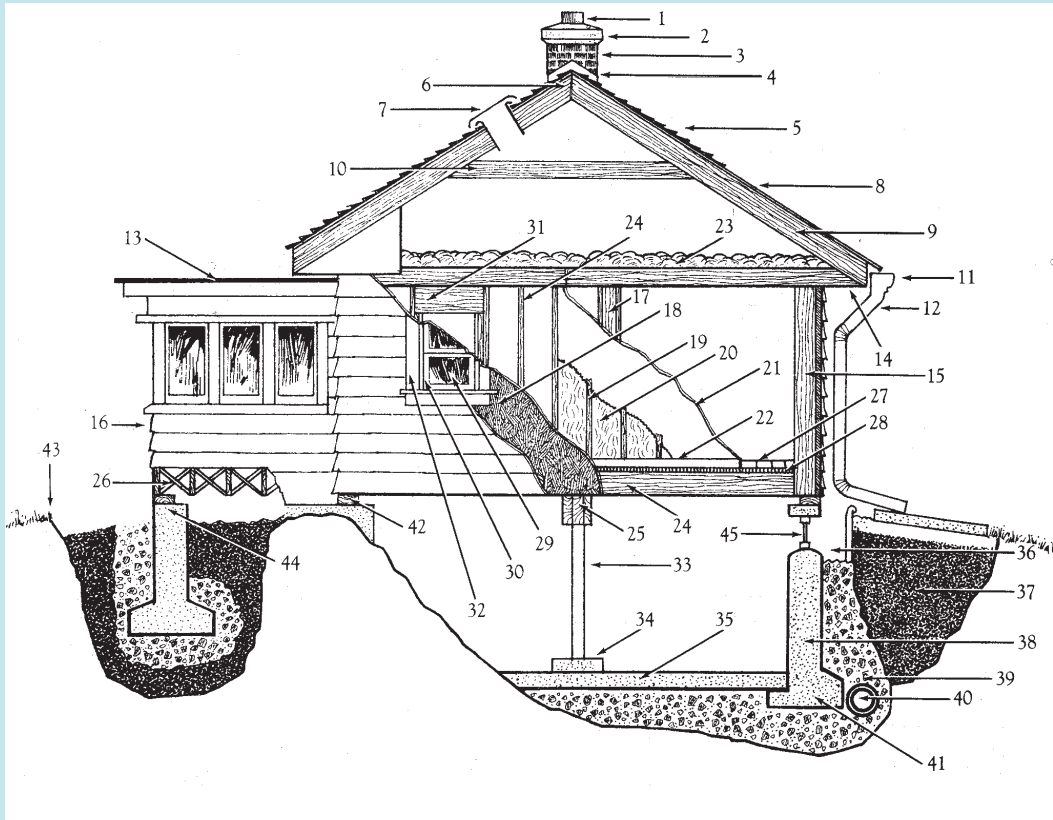
14. Soffit
15. Corner post
16. Beveled siding or clapboards
17. Bearing wall
18. Sheathing
19. Studs
20. Wall insulation
21. Drywall
22. Plates

Floors and ceilings

23. Ceiling insulation
24. Joists
25. Girder
26. Bridging
27. Finish flooring
28. Subflooring

Windows and doors

29. Window sash
30. Window frame
31. Header or lintel
32. Window casing



Foundation/basement

33. Post
34. Plinthblock
35. Basement floor slab
36. Area or window well
37. Backfill
38. Gravel fill
39. Foundation wall
40. Footing drain tile

41. Footing

42. Sill plate
43. Finished grade line
44. Crawl space
45. Basement window

Illustration reprinted with permission of John Merrill, University of Wisconsin Cooperative Extension publication B3412, *Home Inspection Guide*.

References and additional reading

Merrill, J. 1987. *Home Inspection Guide*. Publication number B3412. University of Wisconsin Cooperative Extension.

1995. *Maintaining the Home*. Coun-

cil Notes, 14 (3), Building Research Council, University of Illinois.

1998. *Home Energy Checklist*. MU Extension publication number GH5983.

Peart, V. *How to Make Your Home Last Longer*. University of Florida Cooperative Extension factsheet HE3237.

For more information, contact your local University Outreach and Extension office; Missouri Rural Opportunities Council (573) 751-1238; USDA (573) 876-0990; or Missouri Department of Economic Development (573) 751-4146.

This MU Extension publication is made possible by funding and cooperation of the following organizations:



Missouri Rural Opportunities Council



U.S. Department of Agriculture
Rural Development
Rural Housing Service

Partners
with



The above sponsoring organizations do not accept responsibility of anything that happens on/to a property if these recommendations are followed. They are provided for guidance only and do not provide any guarantees.



OUTREACH & EXTENSION
UNIVERSITY OF MISSOURI
COLUMBIA

■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Ronald J. Turner, Director, Cooperative Extension, University of Missouri and Lincoln University, Columbia, MO 65211.
■ University Outreach and Extension does not discriminate on the basis of race, color, national origin, sex, religion, age, disability or status as a Vietnam era veteran in employment or programs. ■ If you have special needs as addressed by the Americans with Disabilities Act and need this publication in an alternative format, write ADA Officer, Extension and Agricultural Information, 1-98 Agriculture Building, Columbia, MO 65211, or call (573) 882-7216. Reasonable efforts will be made to accommodate your special needs.