

## Housing Rehab Standards

*Can They Make Tough Decisions Any Easier?*

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**Chat with us!**  
Why do you go into homes?

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### A Little Background

## Every Good Housing Rehab Program has

- Policies & Procedures**
  - Practices
- Rehab Standards**
- Specifications**

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## Rehab Standards (and when they're important)

- When to Repair vs Replace
  - How old is old?
- What your program covers (allowable expense)
- What your program won't cover (not allowable)
- Mandatory, minimum requirements (bathroom?)
- Consistency
- Challenges




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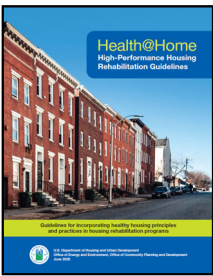
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- HUD *requires* local Rehabilitation Standards of their Participating Jurisdiction HOME-assisted rehab grantees
- HUD *encourages* all housing programs to adopt rehabilitation standards
  - Although you are unencumbered, it might actually be a good idea

<https://www.hudexchange.info/resources/health-at-home/introduction/>




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## Make the **Connections** between **Housing Conditions** and **Health**




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# First, the Principles

## Principles of Healthy Housing (Section A)

### A HEALTHY HOUSING PRINCIPLES

In this section, the Healthy Housing guidelines are organized into principles, developed by the HUD and supported by the Environmental Protection Agency, which are intended to guide practitioners.

|                             |                            |                                     |
|-----------------------------|----------------------------|-------------------------------------|
| 1. Keep It Dry              | 4. Keep It Well Ventilated | 7. Keep It Well Maintained          |
| 2. Keep It Contaminant-Free | 5. Keep It Healthy         | 8. Keep It Energy Efficient         |
| 3. Keep It Pest-Free        | 6. Keep It Safe            | 9. Healthy Living and Active Design |

For each of these principles, we provide relevant building performance measures, key indicators and data, and other information that can help practitioners understand the importance of each principle and how to implement it. The measures and indicators are intended to be used as a guide for practitioners and are not intended to be used as a checklist.

These principles are intended to be used as a guide for practitioners and are not intended to be used as a checklist.

• The guidelines and measures are intended to be used as a guide for practitioners and are not intended to be used as a checklist.

## 1 KEEP IT DRY

Moisture and mold are linked to increased risk of asthma and other respiratory ailments, as well as allergic reactions in some individuals. Excessive moisture can also contribute to pest problems and deterioration of lead-based paint.

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## 1.1 Prevention: Stormwater Management

- Ensure that stormwater management is adequate for the building site and climate.
- Size gutters and downspouts appropriately, either by increasing the dimensions of gutters and downspouts to the next size when the system is inadequate, or by sizing them per the manufacturer's recommendations.
- Downspouts and grading must direct water away from the building to prohibit water infiltration into the structure.
- Sub-surface drainage systems are an approved remedy for moving stormwater away from the structure when sufficient grading is not feasible because of site conditions.

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### 2. Contaminant-Free

- Lead – LBP, Service Lines
- Asbestos
- Radon
- Building Materials
- Carpets & Floors
- Tobacco Smoke
- Sewer Lines

### 3. Pest-Free

- Identify & Address
- Prevent
- Reduce RH
- Adopt IPM

### 4. Ventilated

- Bathrooms, Kitchens, and Dryers
- HVAC Filtration
- HVAC Ducts

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**5. Clean**

- Easily-Cleanable Surfaces
- Job-Site Cleaning
- Resident Actions


**6. Safe**

- Carbon Monoxide
- Smoke
- Lighting
- Reduce Trip & Fall
- Universal Design & Visibility

**7. Well-Maintained**

- Maintenance Checklist
- Materials & Components
- Resident Actions

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**8. Thermally-Controlled**

- Sufficient Heating & Cooling
- Caulk Windows
- Seal Ducts
- Install Thermostats
- Efficient Equipment
- Insulate Walls

**9. Healthy Living and Active Design**

- Physical Activity
- Outdoor Spaces
- Provide safety

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What are your resident's most common housing-related health issues?

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## Next, The Rehab Standards

- 1 Contaminants and Other Hazards – Assessment and Clearance Testing
- 2 Site
- 3 Roofing, Gutters and Downspouts, and Stormwater Management
- 4 Building Exterior
- 5 Foundations and Structure

### B HEALTHY HOUSING REHAB STANDARDS (by Building Component)

The information related to the components listed in Section B of the code of best practices for the construction of long-term healthy housing (rehabilitation) are requirements that are intended to be used as a guide. It is intended that the information be used as a guide to help you understand the standards that would affect a home's value or quality of life. All building components are dependent on other standards. In addition, you may click on the key performance indicators.

- 1 Contaminants and Other Hazards – Assessment and Clearance Testing
- 2 Site
- 3 Roofing, Gutters and Downspouts, and Stormwater Management
- 4 Building Exterior
- 5 Foundations and Structure

- 6 Insulation, Air Sealing, and Moisture Control
- 7 Interiors
- 8 Electrical
- 9 Plumbing
- 10 Space Conditioning – Heating and Cooling
- 11 Ventilation
- 12 Appliances

Figure 5. Healthy Housing Reference Manual

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## 3 ROOFING, GUTTERS AND DOWNSPOUTS, AND STORMWATER MANAGEMENT

**Key concepts and relationships**

- Moisture problems resulting from roof leaks are common. Roofing that is watertight and has a reliable useful remaining life is crucial to the health of the occupants and the longevity of the structure.
- The remaining life of existing roofing should be considered before attempting repairs to existing roofing. Replacement is often more cost effective when compared to the risk of damage when the roof is likely to fail within a few years.
- Reroofing over existing roofing is not advised.
- Gutters and downspouts are part of the roofing system, and when designed and installed properly, move stormwater well away from the structure.
- The decking (sheathing), underlayment, flashing, and drip edge are all important components of the roofing system and must be evaluated for condition and expected life.

⚙️  
 - DRY  
 - WELL MAINTAINED

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## Repair or Replace?

### 3.2 PITCHED ROOFS Key Principles: Dry; Well Maintained

**Repair Standard**

Missing and leaking shingles and flashing should be repaired on otherwise functional roofs. Slate, metal, and tile roofs should be repaired when possible and when such repairs will ensure a minimum remaining life of 5 years. If repairs cannot ensure a minimum life of 5 years, replacement is an approved expense. Inactive antennae and or satellite dishes will be removed.

✂️

**Replacement Standard**

No more than two layers of roofing are permitted. Fiberglass, asphalt, three-tab, class A shingles with a prorated 30-year warranty and a continuous ridge vent should be installed over shingle-manufacturer-approved underlayment with a new drip edge along the entire perimeter. Roof sheathing must be intact, structurally sound, and provide an even plane for the new roof covering.

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**Big Impact**

- Stormwater Management



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**An Underground Drain Leader with a "Pop-Up Emitter"**



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**Big Impact**

- Ventilation



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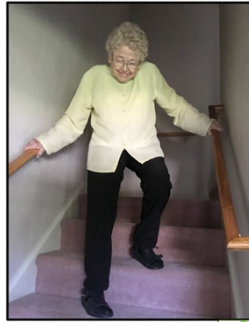
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### Biggest Bang for Your Buck

- Grab bars & Handrails
- Radon testing
- Smoke & CO Alarms
- House numbers
- Air sealing




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Your Most Common Repairs

- Needed & Completed?
- Needed, but...




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### Windows - Find the Section

#### 4 BUILDING EXTERIOR

**Key concepts and relationships**

- Lead-based paint is an important health concern on pre-1978 structures; see the reference to a Risk Assessment in Lead-Based Paint in Section B1, Contaminants and Other Hazards.
- Integrated pest management (IPM) is a strategy that controls pest infestation with measures that minimize the use of pesticides, which are potentially harmful to humans. IPM begins with eliminating pest access into the building.
- Moisture control is a crucial role of the building envelope. The envelope must contain a water control layer that combines a continuous weather-resistive barrier with window and door flashing to create a system that sheds water naturally, minimizing the need for sealants.
- Older fiber cement shingles containing asbestos are safe if intact.
- House Numbers and Mailboxes: The lack of visible house numbers can seriously delay responders in an emergency.

- DRY
- CONTAMINANT FREE
- PEST FREE
- SAFE
- WELL MAINTAINED
- THERMALLY CONTROLLED




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## Windows

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|---|--|
| <b>4.3 WINDOWS</b>  | <b>Key Principles: Dry; Safe; Pest Free; Thermally Controlled; Well Maintained; Contaminant Free</b> |
| <b>Repair Standard</b>  | <b>Minimum Life: 10 years</b>  |
| <p>All windows should operate, remain in an open position when placed there, have a screen to cover the open section, and lock when closed. See Lead-Based Paint in Section B1, Contaminants and Other Hazards.</p>   |  |
| <b>4.3 WINDOWS</b>  | <b>Key Principles: Dry; Safe; Pest Free; Thermally Controlled; Well Maintained; Contaminant Free</b> |
| <b>Replacement Standard</b>   |  |
| <p>Windows that are not repairable may be replaced and should meet the ENERGY STAR® standard for their geographic region. See <a href="http://www.energystar.gov/index.cfm?c=windows_doors_pr_anat_window">www.energystar.gov/index.cfm?c=windows_doors_pr_anat_window</a>. Windows on key facades of historically designated properties should meet the local jurisdiction's requirements for materials and configuration. Other new windows may be vinyl and double-glazed. New window installations should be properly flashed and connected shingle style to other components of the weather-resistive barrier.</p> |  |

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## Common but Expensive

### 8 ELECTRICAL

**ELECTRICAL SERVICE** SAFE

**Key concepts and relationships**

- The ever-increasing number of electrical devices, and the negligible cost difference with electrical services with less capacity, supports the installation of 200-amp services as a standard approach.
- Providing electrical panels with the capacity for expanding the number of circuits over time is prudent.
- Inadequate electrical services and distribution leads to the excessive and often inappropriate use of extension cords.

|  |                               |
|--|-------------------------------|
| <b>B.1 SERVICE AND PANELS</b>  | <b>Key Principle: Safe</b>    |
| <b>Repair Standard</b>   | <b>Minimum Life: 10 years</b> |
| <p>Distribution panels should have a main disconnect, a minimum of 10 circuit-breaker-protected circuits, a 100-amp minimum capacity, and be adequate to safely supply existing and proposed devices. If a working central air conditioning system is present, the minimum service should be 150 amps.</p> |                               |
| <b>Replacement Standard</b>  |                               |
| <p>Inadequate panels should be replaced with a 200-amp service with a main disconnect panel containing a minimum of 30 circuit breaker positions.</p>  |                               |

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## Common but Expensive

### 10 SPACE CONDITIONING – HEATING AND COOLING

**Key concepts and relationships**

- Consistent and appropriate temperatures can help to reduce some chronic health risks.
- Climate is a key factor in defining standards for heating and cooling equipment, and this template should be adjusted to suit the climate.
- All-electric heat pumps may make sense in warmer climates.
- Gas-fired units may be more affordable to operate in colder climates where natural gas service is available.
- An energy audit by either a BPI- or RESNET-certified auditor, or a manual J calculation by the heating, ventilation, and air conditioning (HVAC) contractor, detailing the building's heating and cooling loads based on the building envelope and climate, with estimated utility costs comparing the fuel options, are the preferred methods for choosing the efficiency rating of mechanical equipment.
- Air conditioning may not be an appropriate requirement in colder climates, but necessary in others. Excessive heat can make some chronic health conditions worse and can result in heat-related illness or death. Running an air conditioning system can also help reduce high humidity levels.
- Distribution systems can significantly affect the effectiveness and efficiency of an HVAC system. Leaky ductwork, special return ductwork, can introduce contaminants into the living space in addition to reducing efficiency and balanced delivery of conditioned air.

**CONTAMINANT FREE THERMALLY CONTROLLED**

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## Heating System

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| <b>10.1 HEATING SYSTEM</b> | <b>Key Principle: Thermally Controlled</b> |
| <b>Repair Standard</b>     | <b>Minimum Life: 10 years</b>              |

Workable existing heating systems should be inspected and serviced to operate in a safe manner. Filters on forced air systems must be replaced as needed. See Asbestos in Section 10.1.1.

|                             |  |
|-----------------------------|--|
| <b>10.1 HEATING SYSTEM</b>  | <b>Key Principle: Thermally Controlled</b> |
| <b>Replacement Standard</b> |  |

If the heating system warrants replacement, new gas-fired heating systems should be rated at >92 percent Annual Fuel Utilization Efficiency (AFUE) or better. New oil-fired furnaces should be rated at >83 percent AFUE or better. New oil-fired boilers should be rated at >85 percent AFUE or better. New heat pumps should be rated at >10 Seasonal Energy Efficiency Ratio (SEER). New units should be sized using the Air Conditioning Contractors of America (ACCA) Manual J load calculation and ACCA Manual S for equipment selection. If new ductwork is to be installed, ACCA Manual D should be used for ductwork design. Heat pumps are an approved option when both heating and air conditioning are required and if they are comparable or better than other alternatives in terms of cost to operate. Thermostats should be programmable and accompanied by appropriate resident education to ensure their proper use. When electric resistance heating systems are replaced, spiffs for ductwork and/or new distribution pipes for hot water heating systems should be provided. Up to 4 lineal feet of resistance electric heating strips per 1,000 square feet of floor area may be retained or installed in areas that are not cost effective to heat via ductwork or hot water distribution systems. New furnaces should have a minimum MERV 8 filter and an airtight filter housing that allows easy access and replacement of filters. Consider using thicker pleated filters to increase the interval between the replacement of filters.

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## Tips for Creating your Organization's Rehab Standard

Template Tool

**Customize for your:**

- Climate
- Housing stock
- Client needs
- Budget

**It's a Process!**

- Case managers
- Intake/underwriters
- Construction & rehab staff
- Volunteer coordinators
- Fundraisers

**Template**  
(In WORD, soon!)

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## Need to Customize

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| <b>1.8 WATER QUALITY TESTING: LEAD AND OTHER CONTAMINANTS</b> | <b>Key Principle: Contaminant Free</b> |
| <b>Repair Standard</b>  | <b>Minimum Life: 5 years</b>           |

Test for lead in drinking water using an EPA-certified laboratory. Lead water supply lines, AKA lead service lines (LSL); inspect for lead supply lines. Check with the municipal water department for records.

Test water in private wells; Test for the presence of lead, total coliform bacteria, nitrates, total dissolved solids, and pH levels. Use an EPA- or state-certified drinking water test for private well water.

Repairs to the domestic water supply system to address contaminants in water are an approved expense.

**Replacement Standard**

Replacement of LSL is an approved expense. Abandonment of a private well and connection to a municipal/local water system is an approved expense. The addition of a filtration system that has been proven to address contaminants present in domestic water supplies is an approved expense.

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