ORNL/TM-2017/498

Health and Safety Audit Design Manual

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October 2017

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ORNL/TM-2017/498

Energy and Transportation Science Division

HEALTH AND SAFETY AUDIT DESIGN MANUAL

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Date Published: October 2017

Prepared by
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managed by
UT-BATTELLE, LLC
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-00OR22725

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ACRONYMS

ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CAZ	combustion appliance zone
cfm	cubic feet per minute
CO	carbon monoxide
DOE	US Department of Energy
EPA	US Environmental Protection Agency
ppm	parts per million
VOC	volatile organic compound
WAP	Weatherization Assistance Program

1. INTRODUCTION

The Health and Safety Audit is an electronic audit tool developed by the Oak Ridge National Laboratory to assist in the identification and selection of health and safety measures when a home is being weatherized (i.e., receiving home energy upgrades), especially as part of the US Department of Energy (DOE) Weatherization Assistance Program, or during home energy-efficiency retrofit or remodeling jobs. The audit is specifically applicable to existing single-family homes (including mobile homes), and is generally applicable to individual dwelling units in low-rise multifamily buildings. The health and safety issues covered in the audit are grouped in nine categories: mold and moisture, lead, radon, asbestos, formaldehyde and volatile organic compounds (VOCs), combustion, pest infestation, safety, and ventilation. Development of the audit was supported by the US Department of Housing and Urban Development Office of Healthy Homes and Lead Hazard Control and the DOE Weatherization Assistance Program.

1.1 PURPOSE

The goals of the Health and Safety Audit are to ensure that weatherization and energy-related activities do not cause or exacerbate health and safety problems for workers and occupants and to identify other existing health and safety issues that could be addressed in conjunction with the weatherization or other energy-related work. The integration of a health and safety audit into weatherization and energy-related programs can make the evaluation of dwelling units more comprehensive and could encourage programs to adopt a comprehensive approach to address important health and safety issues.

The audit assesses the impacts existing conditions may have on planned weatherization and energy-efficiency work, and the impacts planned weatherization and energy-related work may have on the health and safety of the occupants and workers. Based on these assessments, the audit recommends actions to address existing health and safety problems, prevent potential problems, and perform weatherization and energy-related work in a healthy and safe manner.

1.2 DOCUMENT OVERVIEW

The Health and Safety Audit allows users to enter information for a dwelling on a series of forms and then generate a comprehensive list of recommendations for that dwelling. A checklist accompanying the recommendations allows the auditor to indicate if the recommendation needs to be performed before or during weatherization or other energy-related work. The checklist also identifies the organization or party responsible for carrying out each recommendation. Accompanying the recommendations is additional guidance relevant to the implementation of recommended measures. The audit's overall design, along with the detailed information entered on each of the General Survey forms, is presented in Section 2. Section 3 presents the detailed information entered on each of the Detailed Survey forms and the program logic used for generating recommendations within the audit.

1.3 DEVELOPMENT RESOURCES

The Health and Safety Audit is based primarily on the document "Healthy Indoor Environment Protocols for Home Energy Upgrades," prepared by the US Environmental Protection Agency (EPA) (EPA 2011). The audit can be viewed as a computerized version of the protocols provided in the body of this document, with modifications based on guidance applicable to the DOE Weatherization Assistance Program. The assessment protocols provided in the EPA document form the basis for the information requested on the audit's General Survey and Detailed Survey forms, and the recommendations provided on the Detailed Survey Form Guidance form. The minimum and expanded actions identified in the EPA document are reflected in the audit's comprehensive list of recommendations (see Section 3) or in the

guidance sections that accompany each of the recommendation sections on the Audit Recommendations form.

EPA released a document in 2016 entitled "Energy Savings Plus Health: Indoor Air Quality Guidelines for Multifamily Building Upgrades" that specifically addresses multifamily buildings (EPA 2016). The Health and Safety Audit can be thought of as generally applying to individual dwelling units within multifamily buildings because of their similarity to single-family homes, but the Health and Safety Audit does not include this latest EPA guidance and does not address the entire multifamily building or common systems found in multifamily buildings (e.g., central heating systems, central ventilation systems) as this latest EPA guidance does.

The Health and Safety Audit includes the guidance provided in Weatherization Program Notice 11-6: Weatherization Health and Safety Guidance (DOE 2011a) and an accompanying October 2010 training slide presentation called "WAP Health & Safety" (DOE 2011b) to make the audit more applicable to the DOE Weatherization Assistance Program. This DOE guidance is included primarily in guidance sections that accompany each of the recommendation sections on the Audit Recommendations form, although some of the program logic used to generate recommendations for the Detailed Survey Form Guidance form and the Audit Recommendations form is also based on this DOE guidance. DOE issued Weatherization Program Notice 17-7: Weatherization Health and Safety Guidance (DOE 2017) on August 9, 2017; it clarifies, updates, and provides additional information related to the implementation and installation of health and safety measures as part of the program. Weatherization Program Notice 17-7 supersedes Notice 11-6 and other notices related to health and safety; therefore, the Health and Safety Audit will be updated in the near future to reflect this updated guidance as applicable to the DOE Weatherization Assistance Program.

2. AUDIT DESIGN

The Health and Safety Audit is organized into four groups of user input forms and audit outputs: General Survey, Detailed Form Guidance, Detailed Survey, and Audit Recommendations (Figure 2.1). A user initially enters audit and dwelling information and answers preliminary screening questions on health and safety issues for a dwelling under the General Survey set of forms. The Detailed Form Guidance form then uses this information to indicate which of the Detailed Survey forms need to be completed to investigate specific health and safety issues in the dwelling. Once the user enters information on the appropriate Detailed Survey form(s), the Audit Recommendations form can be generated for the dwelling.

Figure 2.1. Schematic of the Health and Safety Audit.

2.1 GENERAL SURVEY

The group of General Survey forms consists of three data input forms. The Audit form (Figure 2.2) allows the user to enter general audit information and details about the house or dwelling unit, including the location of the house and the weather file needed to run the audit, characteristics of the dwelling, and characteristics of the occupants.

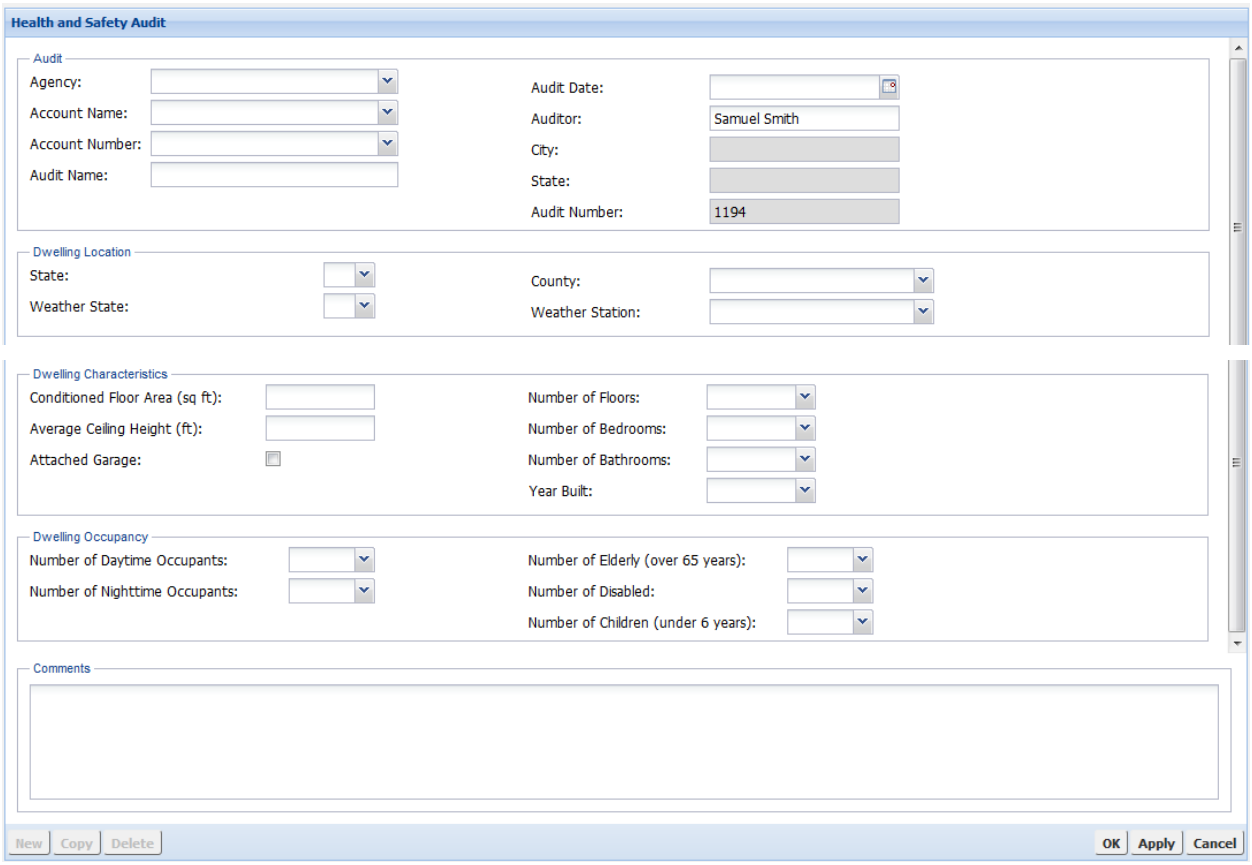
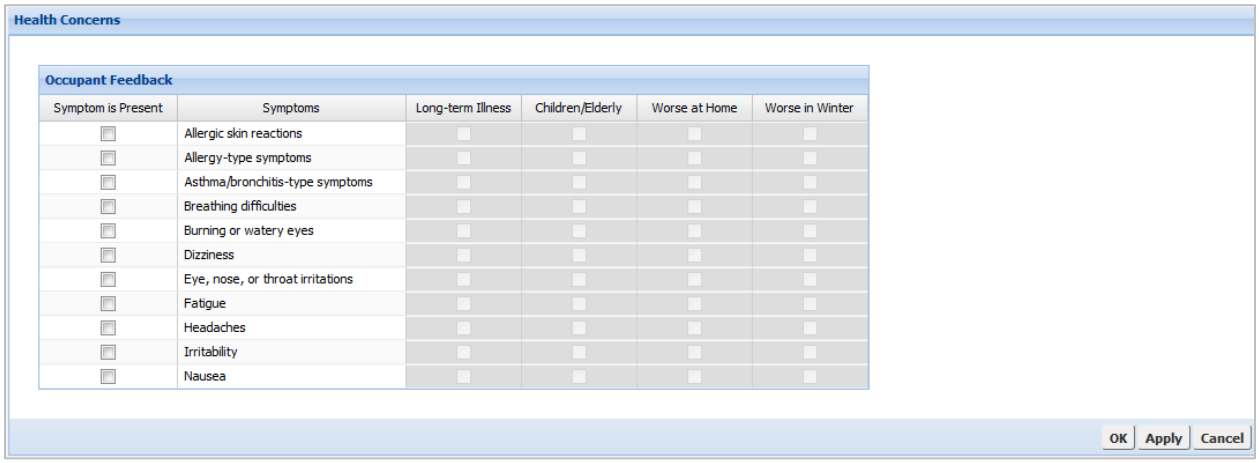


Figure 2.2. General Survey: Audit form.

The Health Concerns form (Figure 2.3) allows the user to identify specific occupant health symptoms as reported by the occupants that may indicate the presence of existing health and safety issues in the dwelling.



Health Concerns

Occupant Feedback

Symptom is Present	Symptoms	Long-term Illness	Children/Elderly	Worse at Home	Worse in Winter
	Allergic skin reactions				
	Allergy-type symptoms				
	Asthma/bronchitis-type symptoms				
	Breathing difficulties				
	Burning or watery eyes				
	Dizziness				
	Eye, nose, or throat irritations				
	Fatigue				
	Headaches				
	Irritability				
	Nausea				

OK Apply Cancel

Figure 2.3.General Survey: Health Concerns form.

The Observations form (Figure 2.4) allows the user to record general observations regarding the dwelling that may indicate the presence of existing or potential health and safety problems. Observations related to mold and moisture, lead, radon, formaldehyde and VOCs, combustion appliances, pest infestation, and planned weatherization work can be identified on the form.

2.2 DETAILED FORM GUIDANCE

Based on user input on the General Survey forms, the audit generates the Detailed Survey Form Guidance form to provide the user with the status of existing or potential health and safety issues and recommendations regarding which issues warrant a detailed survey (see Figure 2.5). This is a read-only form that provides the audit's recommendations regarding which of the Detailed Survey forms are recommended, optional, or not applicable, and the audit's explanation of why the guidance is presented. The audit will always recommend completion of the Safety and Ventilation forms. Note that a user may choose to follow the recommendations provided on the Detailed Survey Form Guidance form and complete only the recommended Detailed Survey forms, or the user may complete any of the optional forms to further investigate those health and safety areas.

The program logic used for generating the Detailed Survey Form Guidance form for each health and safety issue is discussed in Section 3. Table 2.1 summarizes which data from the General Survey forms are used to generate the Detailed Survey Form Guidance form for various health and safety issues. Table 2.1 also lists reference figures showing the program logic for the health and safety issues.

Observations

Mold and Moisture

- [ ] Evidence of indoor mold, dampness, water damage, or any moisture-related problem
- [ ] Detection or occupant reports of musty odor inside the home
- [ ] Evidence or occupant reports of high indoor humidity
- [ ] Evidence of exterior mold or moisture problems or drainage issues

Lead

- [ ] Planned weatherization work will disturb paint on interior or exterior surfaces
- [ ] Housing unit is designated for elderly or disabled persons (unless children under age 6 live there or are expected to live there)
- [ ] Housing unit is a zero-bedroom dwelling (e.g., studio apartment, dormitory)

Radon

- [ ] Radon detected in the neighborhood
- [ ] Radon previously detected in the house

Formaldehyde and VOCs

- [ ] Evidence of smoking inside the house (cigarette butts or ashes, tobacco odor)
- [ ] Odors or occupant complaints indicate possible presence of formaldehyde or VOCs
- [ ] Remodeling within last year involving possible VOC sources such as composite wood products, plywood, paints and finishes, carpeting, flooring, furniture, or cabinets
- [ ] Evidence of unsafe use or storage of VOC-emitting products such as paints, fuel and automotive products, pesticides, and cleaning supplies

Combustion

- [ ] Combustion space heating, water heating, or cooking appliance present

Pest Infestation

- [ ] Evidence or occupant reports of pest infestation (rodents, birds, bats, cockroaches, termites, bedbugs, fleas, or other pests)
- [ ] Evidence of pest harborage conditions, food or water sources, or entryways

Planned Weatherization Work

- [ ] Planned weatherization work will decrease house infiltration rate
- [ ] Planned weatherization work could use or install VOC-emitting products such as spray polyurethane foam insulation, sealants, plywood or composite wood products, or paints and finishes

Comments

OK Apply Cancel

Figure 2.4. General Survey: Observations form.

Detailed Survey Form Guidance

Recommendations

Detailed Survey Form	Recommendation	Description
Mold and Moisture	Optional	There is no evidence of existing or future mold or moisture problems.
Lead	Not Applicable	The house can be assumed to be free of lead-based paint because it was built on or after 1978.
Radon	Recommended	The house is located in Radon Zone 1 (highest radon potential), which increases the likelihood that elevated radon levels are present in the house.
Asbestos	Recommended	Asbestos may be present in insulation or other building materials, either from the original construction of the house in 1930-1989 or renovations performed between 1930 and 1989.
Formaldehyde and VOCs	Optional	There is no evidence of existing or future formaldehyde or VOC.
Combustion	Not Applicable	There are no combustion appliances present.
Pest Infestation	Optional	There is no evidence of existing or future pest infestations.
Safety	Recommended	Completion of the Safety form is always recommended.
Ventilation	Recommended	Completion of the Ventilation form is always recommended.

OK Apply

Figure 2.5. Detailed Survey Form Guidance form (example).

Table 2.1. General Survey data used for generating Detailed Survey Form Guidance form

General Survey: Audit form	General Survey: Health Concerns form	General Survey: Observations form	Guidance generated for	Program logic
Presence of elderly or children	Presence of certain symptoms	Evidence of mold or moisture; Potential decrease in house infiltration rate from planned weatherization work	Mold and Moisture	Figure 3.1
Year of construction	–	Housing unit exception for addressing lead-based paint; Potential decrease in house infiltration rate from planned weatherization work	Lead	Figure 3.4
County	–	Likelihood of presence of radon	Radon	Figure 3.7
Year of construction	–	–	Asbestos	Figure 3.10
Presence of attached garage	Presence of certain symptoms	–	Formaldehyde and VOCs	Figure 3.13
–	–	Presence of combustion appliances	Combustion	Figure 3.16
–	Presence of certain symptoms	Evidence of pests	Pest Infestation	Figure 3.19

2.3 DETAILED SURVEY

The group of Detailed Survey forms consists of data input forms corresponding to the nine health and safety issues addressed in the audit: mold and moisture, lead, radon, asbestos, formaldehyde and VOCs, combustion appliances, pest infestation, safety, and ventilation. These forms allow the user to visually determine the existence and severity of problems, make quantifying measurements, and pinpoint the sources of existing or potential problems. Although the Health and Safety Audit allows quantifying measurements from diagnostic tests to be entered, it does not specify how these tests are performed. Such test procedures must be obtained from other sources, including the References section of EPA (2011) and "Test Methods and Protocols for Environmental and Safety Hazards Associated with Home Energy Retrofits" (Cautley et al. 2012).

Each of the nine forms is discussed and shown in Section 3. As previously noted, a user may choose to follow the recommendations provided on the Detailed Survey Form Guidance form and complete only the recommended Detailed Survey forms, or the user may complete any of the optional forms to further investigate those health and safety areas.

2.4 AUDIT RECOMMENDATIONS

The Audit Recommendations form (see Figure 2.6) is generated based on user input on the General Survey and Detailed Survey forms. This form's purpose is to recommend remedial actions for existing health and safety issues and preventive measures for potential issues, and to provide notification when weatherization work should be delayed until corrective actions are taken. The Audit Recommendations form also allows the user to identify measures that need to be performed before or during weatherization or other energy-related work and the organization or party responsible for carrying out each recommendation. The program logic used for generating the audit recommendations for each health and safety issue is shown in Section 3.

Audit recommendations are provided on tabs (i.e., subforms) corresponding to each of the nine health and safety issues. Each tab shows a list of recommendations for each Detailed Survey form completed. For each recommendation, checkboxes are provided to allow the user to (1) indicate if the action must be performed before or during weatherization or other energy-related work, and (2) select if the intended action is to implement the recommendation under the weatherization or other energy-related program, refer the recommendation to another organization, recommend to the client that they need to address the issue, or defer the recommendation.

Guidance specific to the implementation of health and safety measures under the DOE Weatherization Assistance Program is provided below the list of recommendations on all nine of the Audit Recommendation subforms. This guidance is based on DOE Weatherization Program Notice 11-6: Weatherization Health and Safety Guidance (DOE 2011a) and will be updated in the near future based on more recent guidance issued by DOE in August 2017 through DOE Weatherization Program Notice 17-7: Weatherization Health and Safety Guidance (DOE 2017).

Three additional sets of guidance are provided on the Mold and Moisture Audit Recommendation subform. First, guidance is provided to help the user determine if a mold and moisture recommendation should be implemented before or during weatherization or other energy-related work. This guidance is provided in a section called "Factors to Consider in Determining if Recommendation Required Before or as Part of Weatherization." Second, guidance regarding the potential interaction of mold and moisture health and safety measures with weatherization and energy-related measures is provided in a section called "General Notes Regarding Interaction with Weatherization." Finally, guidance on mold cleanup is provided in a section called "Mold Cleanup Guidance."

Guidance in addition to the DOE Weatherization Assistance Program guidance is provided on the Radon Audit Recommendation form in a section called "Radon Mitigation Guidance."

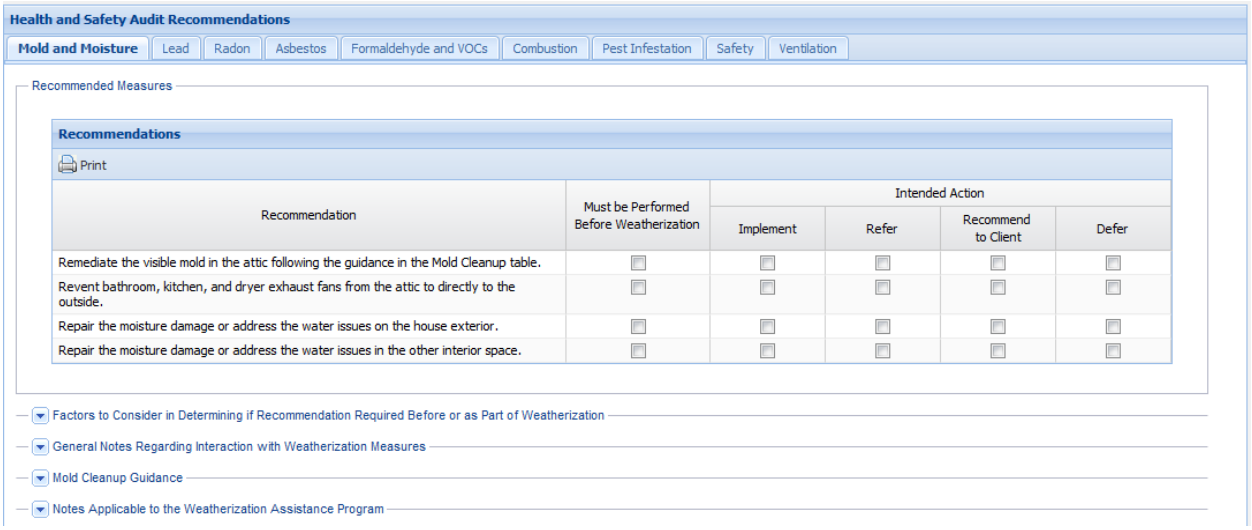


Figure 2.6. Audit Recommendations form (example).

3. PROGRAM LOGIC

This section presents the program logic for generating the guidance provided on the Detailed Survey Form Guidance form and the Audit Recommendations form. The program logic is presented for each of the nine health and safety issues as flowcharts organized in the following order:

Program logic for the Detailed Survey Form Guidance form — On this flowchart, relevant questions from the General Survey forms are shown on the left, and subsequent recommendations that appear on the Detailed Survey Form Guidance form are shown on the right. The arrows indicate user inputs. Note that for Safety and Ventilation, the associated Detailed Survey form is always recommended; therefore, program logic for how the Safety and Ventilation guidance is generated for the Detailed Survey Form Guidance form is unnecessary and is not provided.

Detailed Survey form — The content of the nine Detailed Survey forms is shown.

Program Logic for the Audit Recommendations form — On this flowchart, survey questions from the Detailed Survey form are shown on the left, and subsequent recommendations are shown on the right. The arrows indicate the user input. A solid arrow indicates Yes (i.e., a checkbox is checked or the condition is met), unless noted otherwise. A dashed arrow indicates No (i.e., a checkbox or a set of checkboxes is unchecked, or a condition or a set of conditions is not met).

3.1 MOLD AND MOISTURE

DOE Weatherization Program Notice 11-6 (DOE 2011a) and EPA (2011) provide specific guidance for addressing mold and moisture that was used in developing the Health and Safety Audit. Information entered on the three General Survey forms is used to determine if completion of the Mold and Moisture form is recommended or optional. Figure 3.1 shows the program logic used for generating this guidance. Figure 3.2 shows the content of the Mold and Moisture form. Figure 3.3 shows the program logic used for generating recommendations for addressing mold and moisture issues. With the list of recommendations, the audit provides guidance on how to address mold and moisture issues in conjunction with weatherization and other energy-related activities, including factors to consider in determining if recommendations should be performed before or during these activities, and general notes regarding the interaction of mold and moisture measures with these activities. In addition, guidance adopted from EPA (2011) regarding mold cleanup is provided along with notes specifically applicable to the DOE Weatherization Assistance Program.

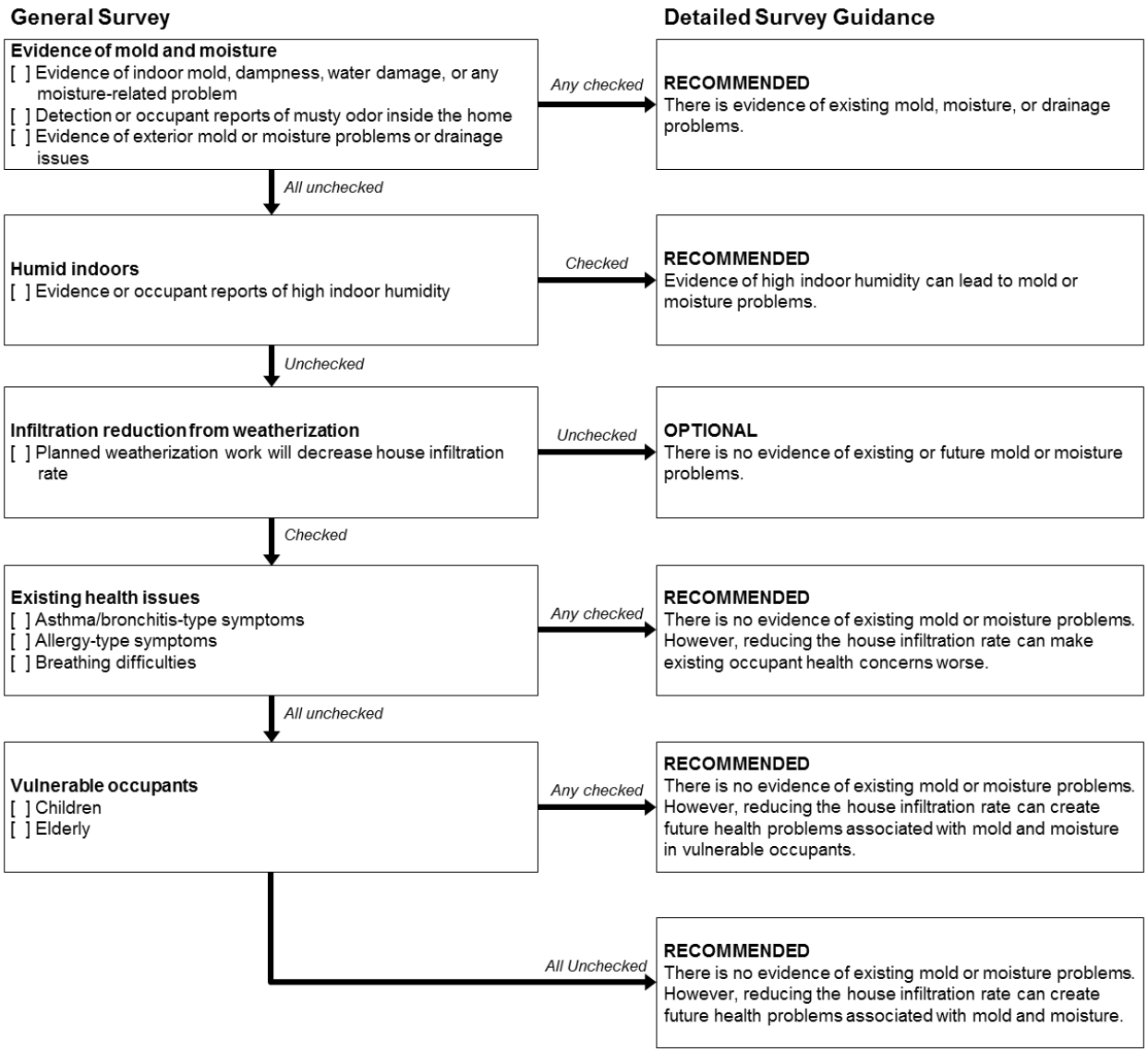


Figure 3.1. Mold and Moisture: Program logic for the Detailed Survey Form Guidance form.

Evidence of Issue

Observations						
Space/Component	Visible Mold	Moisture Damage, Water, or Dampness	Condensation or High Humidity	Musty Odor	All Sources Identified on Source Identification Form[1]	Comments
Attic	[ ]	[ ]	[ ]	[ ]	[ ]	
Bathrooms	[ ]	[ ]	[ ]	[ ]	[ ]	
Kitchen	[ ]	[ ]	[ ]	[ ]	[ ]	
Laundry Room	[ ]	[ ]	[ ]	[ ]	[ ]	
Mechanical Room	[ ]	[ ]	[ ]	[ ]	[ ]	
Other Interior Spaces	[ ]	[ ]	[ ]	[ ]	[ ]	
Crawlspace/Basement	[ ]	[ ]	[ ]	[ ]	[ ]	
House Exterior	[ ]	[ ]			[ ]	
Site Drainage		[ ]			[ ]	
Heating System	[ ]	[ ]			[ ]	
Cooling System	[ ]	[ ]			[ ]	
Forced-Air Ducts	[ ]	[ ]			[ ]	
Dehumidifier	[ ]	[ ]			[ ]	
Appliances	[ ]	[ ]			[ ]	
Humidifier/Vaporizer	[ ]	[ ]			[ ]	

[1] *If unchecked for one or more spaces or components where visible mold, moisture damage, water issues, high humidity, condensation, or musty odor was found, additional moisture sources need to be identified on the Source Identification form that are causing the mold or moisture issues in those space or components.*

Source Identification

Attic
[ ] Roof leaks
[ ] Ice dams occur during winter
[ ] Voids present in attic insulation
[ ] Exhaust fans (e.g., bathroom, kitchen, dryer) vented into attic
[ ] Air leakage through attic access door and other attic bypasses
[ ] Recessed lighting fixtures present
[ ] Attic ventilation inadequate
[ ] Other: _____

Bathrooms
[ ] Exhaust fan not present in each bathroom
[ ] Bathroom exhaust fan not operating properly
[ ] Bathroom exhaust fan not used while showering
[ ] Tub or shower enclosure not properly caulked
[ ] Tile grouting around tub or shower enclosure deteriorated
[ ] Other: _____

Kitchen
[ ] Kitchen exhaust fan not present or is a recirculating model
[ ] Kitchen exhaust fan not operating properly
[ ] Kitchen exhaust fan not used while cooking
[ ] Lids not used while cooking
[ ] Kitchen sink or splash plate not properly sealed or caulked
[ ] Tile grouting around kitchen sink deteriorated
[ ] Sink and garbage disposal unclean
[ ] Dishwasher unclean
[ ] Refrigerator drip tray dirty
[ ] Other: _____

Indoor Elements
[ ] Single-pane window(s) with significant condensate runoff during winter
[ ] Firewood stored indoors (including basement)
[ ] Clothes dried indoors
[ ] Clothes dryer vented indoors
[ ] Clothes dryer exhaust duct plugged
[ ] Indoor plants excessive
[ ] Aquariums present
[ ] Other: _____

Comments

Plumbing
[ ] Plumbing leaks present
[ ] Plumbing leaks fixed in past
[ ] Plumbing insulation deteriorated
[ ] Condensation on plumbing
[ ] Plumbing fixture broken or connection improper
[ ] Other: _____

Systems and Equipment
[ ] Unvented combustion space heater used for space heating
[ ] Gas stove or oven used for space heating
[ ] Air conditioner significantly oversized
[ ] Air conditioner condensate not draining properly
[ ] Leaks in forced-air return duct system
[ ] Humidifier or vaporizer used frequently
[ ] Humidifier not operating properly
[ ] Dehumidifier not operating properly
[ ] Other: _____

Basement or Crawlspace
[ ] Crawlspace ventilation inadequate
[ ] Earthen floor not covered
[ ] Cracks in foundation walls
[ ] Exposed dirt or hole(s) through concrete floor or foundation walls
[ ] Cores in concrete block foundation walls open or unfilled
[ ] Sump pump crock or collecting basin not covered
[ ] Other: _____

House Exterior
[ ] Shingles on roof missing
[ ] Pipe flashing on roof deteriorated
[ ] Wall or window drainage planes and flashings inadequate
[ ] Landscaping too close to house
[ ] Other: _____

Site Drainage
[ ] Gutters or downspouts not present
[ ] Gutters or downspouts not working effectively
[ ] Downspouts not connected to sewer or drain, or do not adequately direct water away from house
[ ] Grading around house is poor, allowing water to drain back toward house or pool near house
[ ] Other: _____

Figure 3.2. Mold and Moisture: Detailed Survey form.

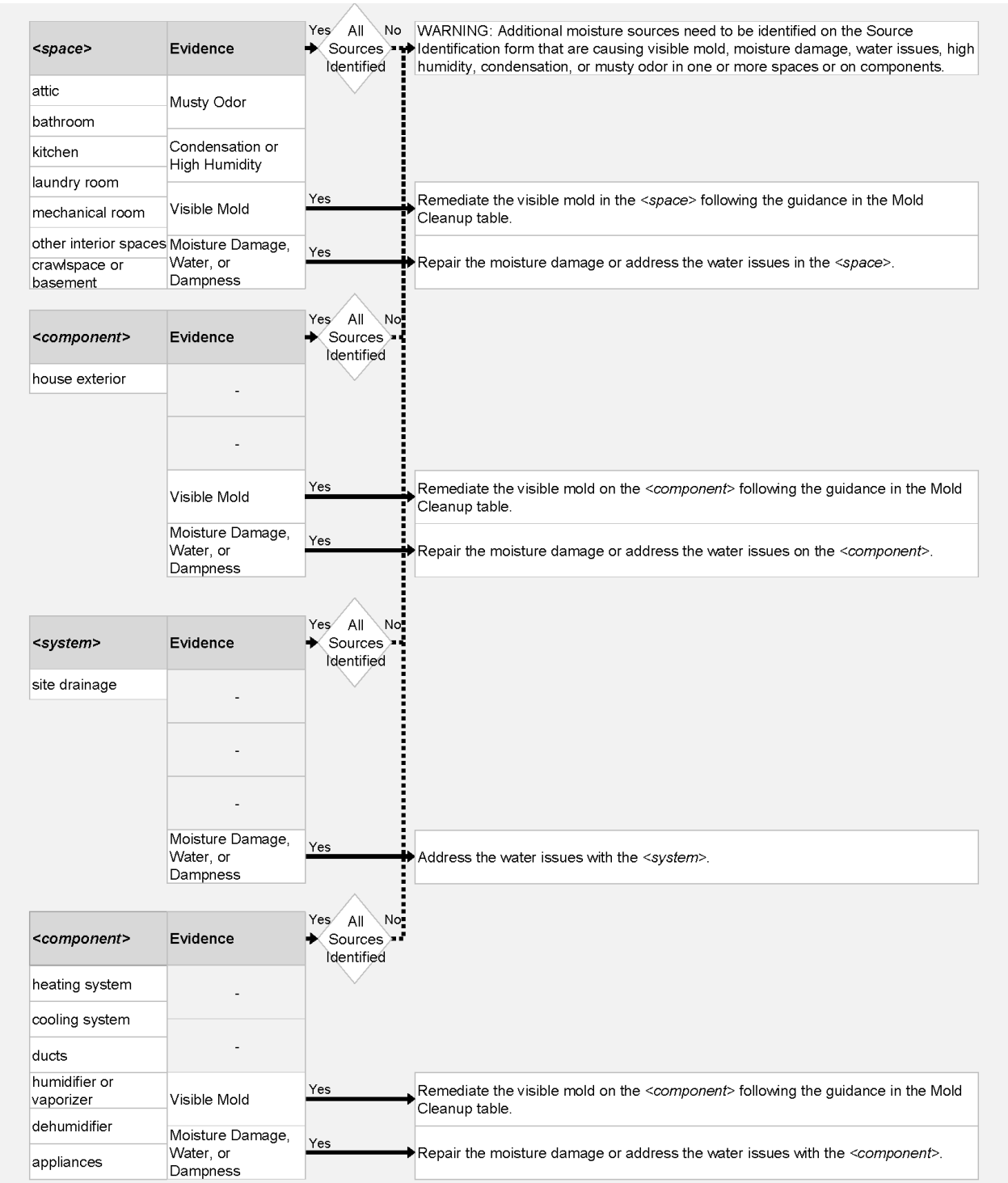


Figure 3.3. Mold and Moisture: Program Logic for the Audit Recommendations form.

Attic	
Roof leaks	Repair roof leaks.
Ice dams occur during winter	Reduce heat gains from house into the attic (e.g., add attic insulation, seal air leaks) to prevent snow melting and formation of ice dams.
Voids present in attic insulation	Add insulation or rake existing insulation to ensure that insulation is installed uniformly in attic.
Exhaust fans (e.g., bathroom, kitchen, dryer) vented into attic	Revent bathroom, kitchen, and dryer exhaust fans from the attic to directly to the outside.
Air leakage through attic access door and other attic bypasses	Seal attic access door, attic bypasses, and other air leaks from house into attic.
Recessed lighting fixtures present	If possible, seal air leaks through recessed lighting fixtures using approved methods.
Attic ventilation inadequate	Provide adequate ventilation in the attic if it is not sealed or conditioned.
Other _____	Fix the other mold and moisture source found in the attic.
Bathrooms	
Exhaust fan not present in each bathroom	Install exhaust fans vented to outdoors in each bathroom where none currently exists.
Bathroom exhaust fan not operating properly	Fix existing bathroom exhaust fans that are not operating properly.
Bathroom exhaust fan not used while showering	Discuss with the client the need to use bathroom fans while showering.
Tub or shower enclosure not properly caulked	Caulk bathroom tubs and shower enclosures that are improperly caulked.
Tile grouting around tub or shower enclosure deteriorated	Regrout tile around bathroom tubs and shower enclosures where the existing grout is deteriorated.
Other _____	Fix the other mold and moisture source found in the bathroom.
Kitchen	
Kitchen exhaust fan not present or is a recirculating model	Install a kitchen exhaust fan that is vented to outdoors.
Kitchen exhaust fan not operating properly	Fix existing kitchen exhaust fan that is not operating properly.
Kitchen exhaust fan not used while cooking	Discuss with the client the need to use the kitchen exhaust fan while cooking.
Lids not used while cooking	Discuss with the client the need to use lids on pots and pans while cooking.
Kitchen sink or splash plate not properly sealed or caulked	Seal or caulk kitchen sink and splash plate.
Tile grouting around kitchen sink deteriorated	Regrout tile around kitchen sink.
Sink and garbage disposal unclean	Clean sink and garbage disposal. Discuss with the client the need to keep the sink and garbage disposal clean.
Dishwasher unclean	Clean dishwasher. Discuss with the client the need to keep the dishwasher clean.
Refrigerator drip tray dirty	Clean refrigerator drip tray . Discuss with the client the need to keep the refrigerator drip tray clean.
Other _____	Fix the other mold and moisture source found in the kitchen.
Indoor Elements	
Single-pane window(s) with significant condensate runoff during winter	Replace single-pane window(s) experiencing significant condensate runoff during winter with energy-efficient models.
Firewood stored indoors (including basement)	Remove firewood from inside the house. Discuss with the client the need to store firewood outside.
Clothes dried indoors	Discuss with the client the need to dry clothes outside.
Clothes dryer vented indoors	Vent clothes dryer outside.
Clothes dryer exhaust duct plugged	Unplug the dryer exhaust duct.
Indoor plants excessive	Discuss with the client the need to reduce the number of plants in the house.
Aquarium present	Discuss with the client the need to use covers over aquariums and/or reduce the number of aquariums in the house.
Other _____	Fix the other mold and moisture source found inside the house.

Figure 3.3. Mold and Moisture: Program Logic for the Audit Recommendations form (continued).

Plumbing	
Plumbing leak present	Repair plumbing leaks.
Plumbing leaks fixed in past	Verify that previous plumbing leaks fare leak free and that no mold and moisture problems exist.
Plumbing insulation deteriorated	Repair or replace plumbing insulation that is deteriorated.
Condensation on plumbing	Install insulation on plumbing that has condensation forming on it or reduce surrounding humidity.
Plumbing fixture broken or connection improper	Repair broken plumbing fixtures or fix improper fixture connections.
Other _____	Fix the other mold and moisture source found with the plumbing.
Systems and Equipment	
Unvented combustion space heater used for space heating	Remove unvented combustion space heaters or discuss with the client the need to discontinue the use of such heaters for space heating.
Gas stove or oven used for space heating	Discuss with the client the need to discontinue the use of gas stove or oven for space heating.
Air conditioner significantly oversized	If installing a new air conditioner, ensure that it is sized properly.
Air conditioner condensate not draining properly	Fix the air conditioner condensate drain on any system that is not draining properly.
Leaks in forced air return duct system	Seal leaks in the forced air return duct system.
Humidifier or vaporizer used frequently	Discuss with the client the need to reduce or discontinue the use of humidifiers or vaporizers, especially in the spring, summer, and fall.
Humidifier not operating properly	Fix the humidifier that is not operating properly.
Dehumidifier not operating properly	Fix the dehumidifier that is not operating properly.
Other _____	Fix the other mold and moisture source found with the system and equipment.
Basement or Crawlspace	
Crawlspace ventilation inadequate	Provide adequate ventilation in the crawlspace if it is not sealed or conditioned.
Earthen floor not covered	Install ground cover over exposed earth in crawlspace or basement.
Cracks in foundation walls	Seal cracks in foundation walls.
Exposed dirt or hole(s) through concrete floor or foundation walls	Cover or seal exposed dirt or hole(s) in concrete floor or foundation walls.
Cores in concrete block foundation walls open or unfilled	Dampproof foundation walls that were constructed using open or unfilled concrete blocks.
Sump pump crock or collecting basin not covered	Cover or seal the sump pump crock or collecting basin in the basement or crawlspace.
Other _____	Fix the other mold and moisture source found in the basement or crawlspace.
House Exterior	
Shingles on roof missing	Replace missing shingles on roof.
Pipe flashings on roof deteriorated	Replace or repair deteriorated pipe flashings on roof.
Wall or window drainage planes or flashings inadequate	Correct drainage planes or flashings on exterior walls or window that are inadequate.
Landscaping too close to house	Fix landscaping that is too close to house and causing moisture issues.
Other _____	Fix the other mold and moisture source found in the exterior of the house.
Site Drainage	
Gutters or downspouts not present	Install gutters or downspouts where missing.
Gutters or downspouts not working effectively	Repair existing gutters or downspouts that are not working effectively.
Downspouts not connected to sewer or drain, or do not adequately direct water away from house	Connect downspouts to sewer or drain, or add extension to direct water away from the house.
Grading around house is poor, allowing water to drain back toward house or pool near house	Improve grading so that water flows away from the house.
Other _____	Fix the other mold and moisture source found with the site drainage.

Figure 3.3. Mold and Moisture: Program Logic for the Audit Recommendations form (continued).

3.2 LEAD

DOE Weatherization Program Notice 11-6 (DOE 2011a) and EPA (2011) provide specific guidance for addressing lead that was used in developing the Health and Safety Audit. Information entered on the Audit form for the year of construction of the dwelling is used to determine the potential presence of lead-based paint and if completion of the Lead form is recommended or not applicable. Figure 3.4 shows the program logic used for generating this guidance. Figure 3.5 shows the content of the Lead form. Figure 3.6 shows the program logic used for generating recommendations for addressing lead issues. With the list of recommendations, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

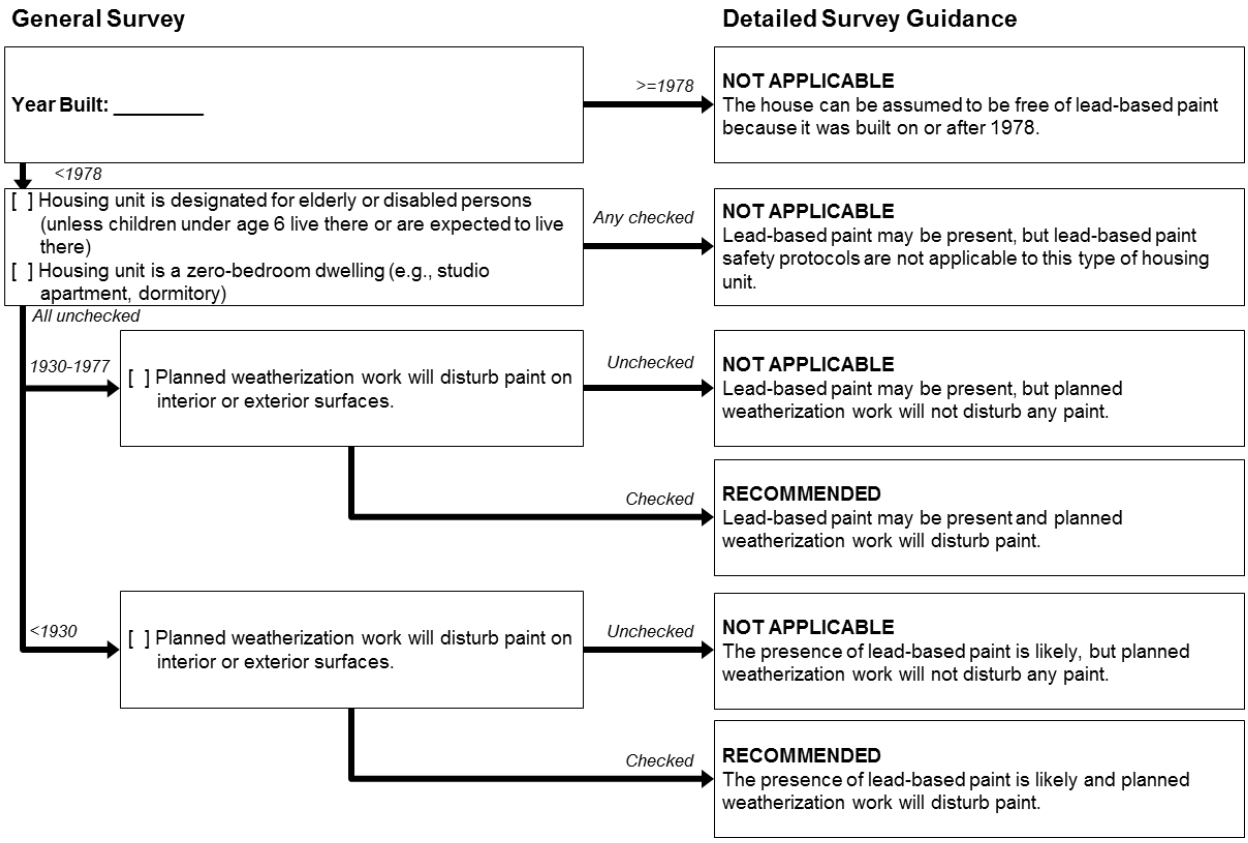


Figure 3.4. Lead: Program Logic for the Detailed Survey Form Guidance form.

Housing Type/Funding Sources

[ ] Housing unit is a HUD program home (i.e., federally owned or assisted housing, including HUD Section 8 vouchered housing)
[ ] Housing unit will be weatherized with HUD funds
[ ] Housing unit will be weatherized under the DOE Weatherization Assistance Program

Evidence of Issue

Painted Surfaces Disturbed by Weatherization								
Surface	Will be Disturbed	Disturbance Exceeds Area Limits[1]	Involves Demolition or Window Replacement	Involves Prohibited Paint Removal Practices[2]	Lead Testing Results[3,4]			Comments
					Not conducted	Any positive	All negative	
Interior	[ ]	[ ]	[ ]	[ ]	O	O	O	
Exterior	[ ]	[ ]	[ ]	[ ]	O	O	O	

[1] **Area limits (applies to area being disturbed, not total painted surface area):**
Interior room: > 6 sq. ft for any interior room, or, for HUD only, > 2 sq. ft for any interior room
Exterior: > 20 sq. ft
Component: > 10% of a small building component (e.g., window) (HUD only)

[2] **Prohibited paint removal practices:**
Open flame burning or torching
Use of heat guns at temperatures greater than 1,100 degrees Fahrenheit
Use of heat guns that char paint (HUD only)
Use of power tools without high-efficiency particulate air (HEPA) exhaust control to collect dust
Abrasive blasting or sandblasting without HEPA local exhaust control (HUD only)
Dry sanding or dry scraping unless done with heat guns, within 1 ft of electrical outlets, or to treat < 2 sq. ft in any one interior room or < 20 sq. ft on exterior surfaces (HUD only)
Paint stripping in a poorly ventilated space using a volatile paint stripper (HUD only)

[3] **Testing methods (positive test indicates that lead is present):**
EPA-recognized on-site test kit (not recognized by HUD)
X-Ray Fluorescence (XRF) testing
Laboratory analysis of paint samples

[4] **Determining if lead testing should be performed:**
Compare the cost of lead testing to the cost of implementing lead protocols. The expense of testing may be greater than the cost of implementing lead protocols when only small areas of paint will be disturbed.
In houses built before 1930, it is logical and usually more cost effective to assume lead-based paint is present.
NOTE: Lead testing and evaluation may already have been done on HUD Program housing.

Comments

Figure 3.5. Lead: Detailed Survey form.

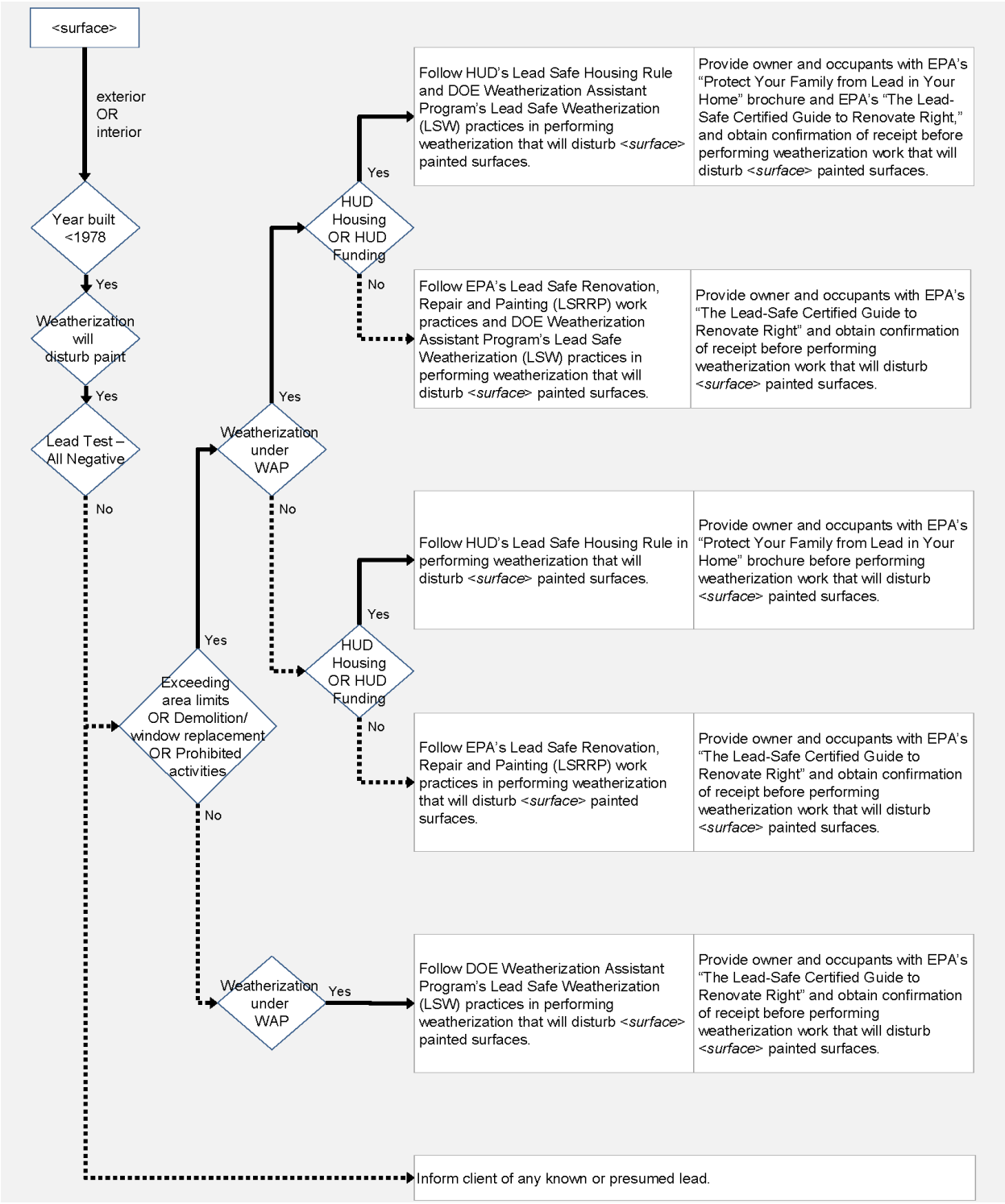


Figure 3.6. Lead: Program Logic for the Audit Recommendations form.

3.3 RADON

DOE Weatherization Program Notice 11-6 (DOE 2011a) and EPA (2011) provide specific guidance for addressing radon that was used in developing the Health and Safety Audit. Information entered on the Audit and Observations forms is used to determine the potential presence of radon and if completion of the Radon form is recommended or optional. Figure 3.7 shows the program logic used for generating this guidance. Figure 3.8 shows the content of the Radon form. Figure 3.9 shows the program logic used for generating recommendations for addressing radon issues. With the list of recommendations, the audit provides radon mitigation guidance adopted from EPA (2011) and notes specifically applicable to the DOE Weatherization Assistance Program.

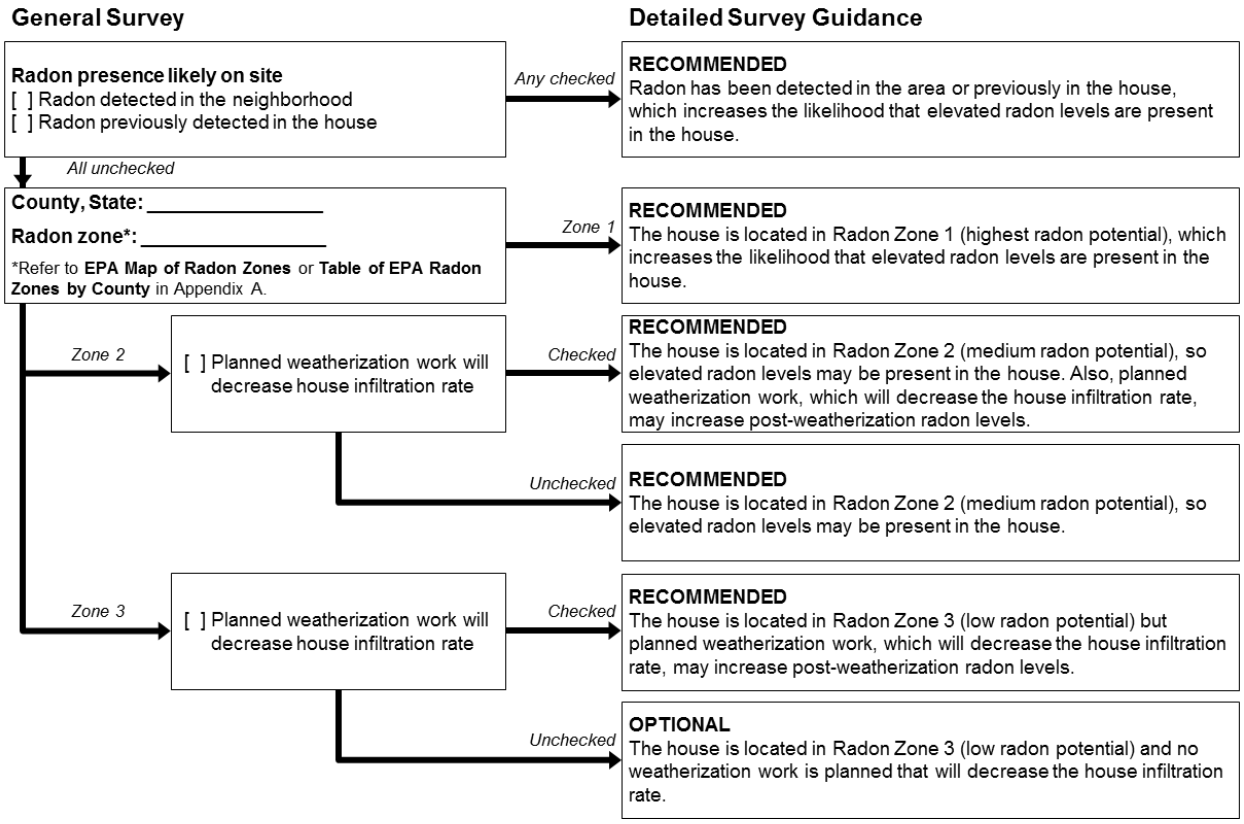


Figure 3.7. Radon: Program Logic for the Detailed Survey Form Guidance form.

Evidence of Issue

Radon Assessment Approach:
[ ] Test in/test out (i.e., before and after weatherization)
[ ] Post-weatherization test only (i.e., also appropriate if the house is not being weatherized)
[ ] None

Testing

Indoor Radon Measurements					
	Testing Performed	Radon level (pCi/L)	Sampling Device[2]	Date Installed	Sampling Duration (Days)
Pre-weatherization[1]	[ ]				
Post-weatherization	[ ]				

Existing radon reduction system: O None O Active O Passive

Source identification

[ ] Earthen floor not covered in basement or crawlspace
[ ] Covers on sump pump crock or collecting basin not airtight
[ ] Foundation floor drain traps not present or are dry
[ ] Penetrations, openings, or cracks in foundation walls
[ ] Penetrations, openings, or cracks in concrete foundation floor
[ ] Top course of hollow foundation block walls not capped
[ ] Pores in face of hollow foundation block wall or along mortar joints
[ ] Other _____

Comments

[1] Pre-weatherization measurement, if available, should be within last 2 years.
[2] Select Sampling Device:
A. Charcoal canister
B. Alpha-track detector
C. Continuous radon monitor
D. Charcoal scintillation
E. Evacuated scintillation cell
F. Pump/collapsible bag device
G. Grab radon sampling
H. Unfiltered track detector
I. Continuous working level monitor
J. Radon progeny integrating sampling unit
K. Grab-sampling – working level
L. Unknown
M. Other

Figure 3.8. Radon: Detailed Survey form.

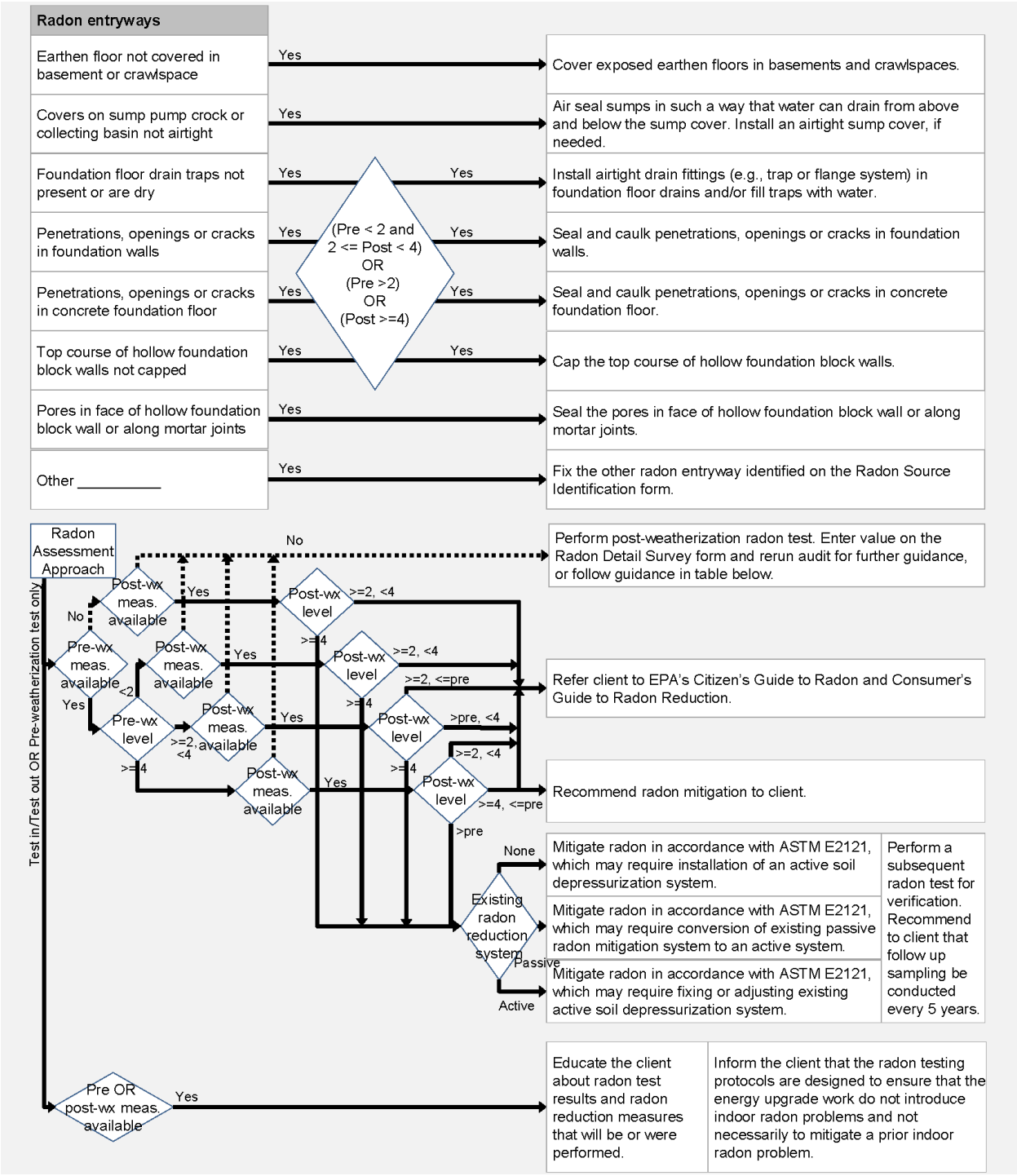


Figure 3.9. Radon: Program Logic for the Audit Recommendations form.

3.4 ASBESTOS

Weatherization Program Notice 11-6 (DOE 2011a) provides asbestos-related guidance under several categories of potential asbestos-containing materials. EPA (2011) provides comprehensive guidance for addressing asbestos under one consolidated category. Guidance from both documents was used in developing the Health and Safety Audit. Information entered on the Audit form for the year of construction of the dwelling is used to determine if completion of the Asbestos form is recommended or not applicable (Figure 3.10). Figure 3.11 shows the content of the Asbestos form. Figure 3.12 shows the program logic used for generating recommendations for addressing asbestos-related issues. With the list of recommendations, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

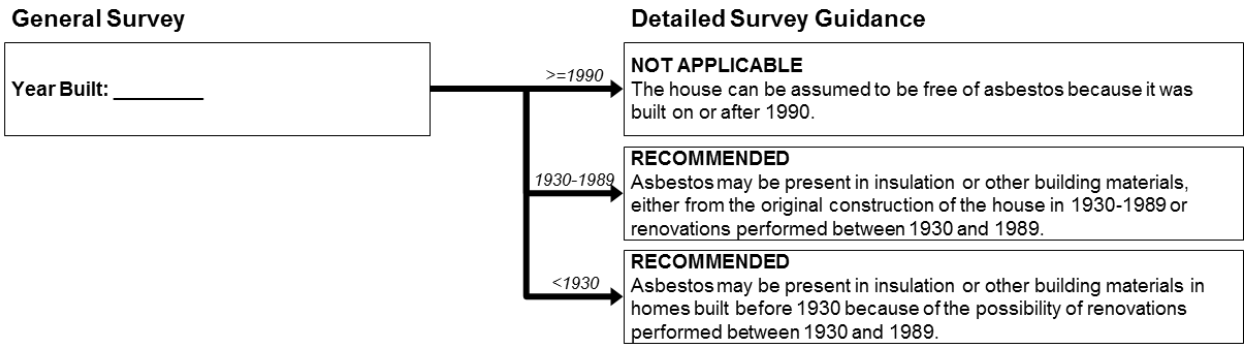


Figure 3.10. Asbestos: Program Logic for the Detailed Survey Form Guidance form.

Evidence of Issue

Observations						
Sources of Asbestos	Presence of Asbestos[2]			Condition of Asbestos Containing Material		Comments
	Yes	Unsure	No	Damaged[3]	Will be Disturbed During Weatherization or Other Activity	
Attic and Walls						
Attic insulation[1]	O	O	O	[ ]	[ ]	
Wall insulation[1]	O	O	O	[ ]	[ ]	
Wall siding	O	O	O	[ ]	[ ]	
Heating System Components						
Insulation around heating equipment	O	O	O	[ ]	[ ]	
Heating equipment door gaskets	O	O	O	[ ]	[ ]	
Insulation on steam pipes	O	O	O	[ ]	[ ]	
Insulation on boiler and furnace ducts	O	O	O	[ ]	[ ]	
Transite (cement and asbestos) combustion vent or flue	O	O	O	[ ]	[ ]	
Artificial ashes and embers in fireplace	O	O	O	[ ]	[ ]	
Building Materials						
Roofing and shingles	O	O	O	[ ]	[ ]	
Plaster	O	O	O	[ ]	[ ]	
Materials sprayed on walls and ceilings	O	O	O	[ ]	[ ]	
Textured paint on walls and ceilings	O	O	O	[ ]	[ ]	
Patching and joint compounds on walls and ceilings	O	O	O	[ ]	[ ]	
Vinyl floors	O	O	O	[ ]	[ ]	

[1] Assume that any vermiculite insulation found in attics or walls contains asbestos unless testing determines otherwise.
[2] For all sources currently identified as Unsure, the presence of asbestos will be assumed to be Yes in homes built prior to1990 because of the original construction of the house or possible renovations performed between 1930 and 1989 .If these sources are also damaged or will be disturbed during weatherization or other activity, testing or assessment by a qualified asbestos professional to verify that asbestos is not present can be less expensive than abatement.
[3] Unraveling, frayed, breaking apart, etc.

Figure 3.11. Asbestos: Detailed Survey form.

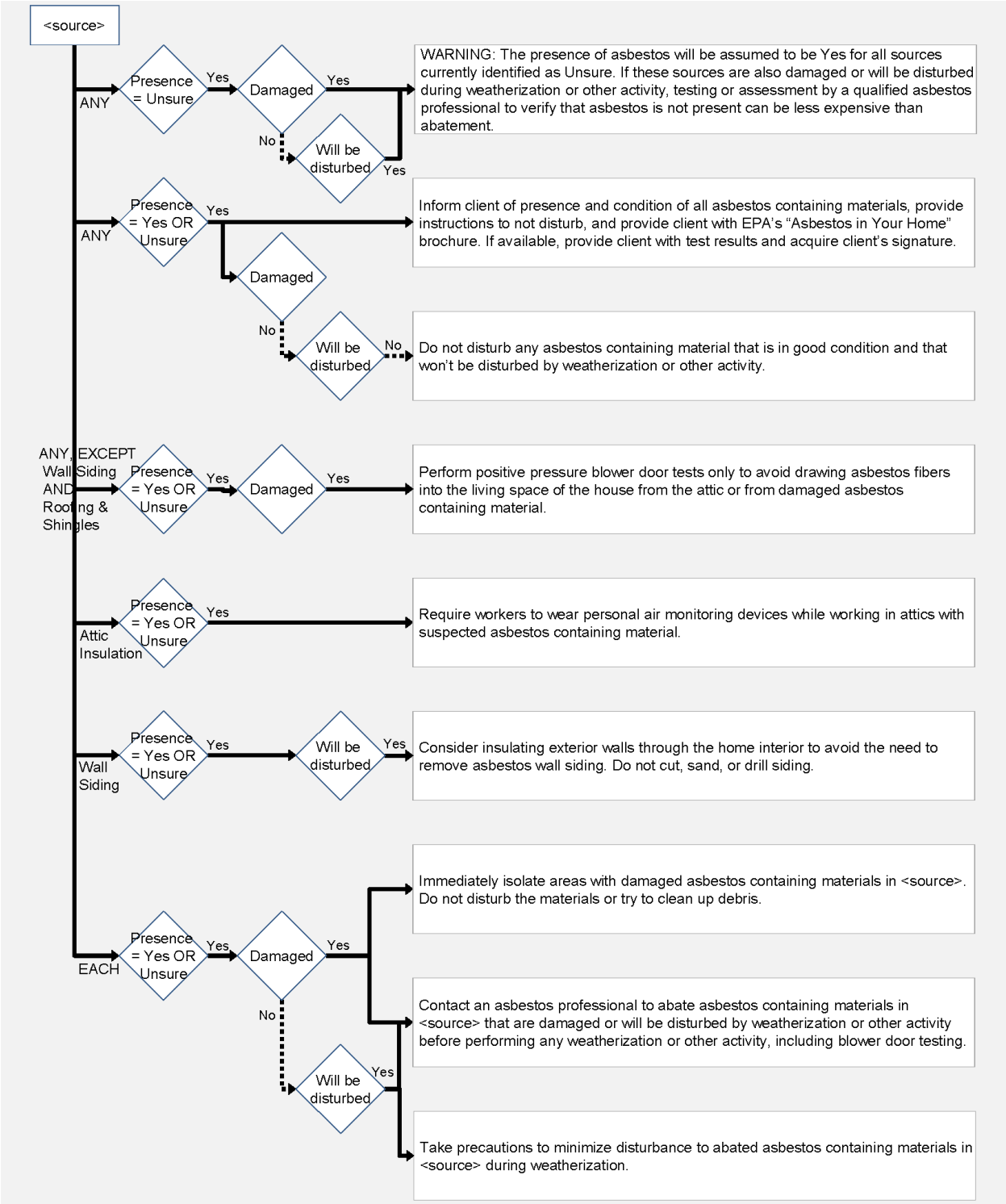


Figure 3.12. Asbestos: Program Logic for the Audit Recommendations form.

3.5 FORMALDEHYDE AND VOCS

Weatherization Program Notice 11-6 (DOE 2011a) provides specific guidance related to formaldehyde and VOCs. EPA (2011) covers this issue under multiple categories. Guidance from both documents was used in developing the Health and Safety Audit. Information entered on the Health Concerns and Observations forms is used to determine if completion of the Formaldehyde and VOCs form is recommended or optional (Figure 3.13). Figure 3.14 shows the content of the Formaldehyde and VOCs form. Figure 3.15 shows the program logic used for generating recommendations for addressing formaldehyde- and VOCs-related issues. With the list of recommendations, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

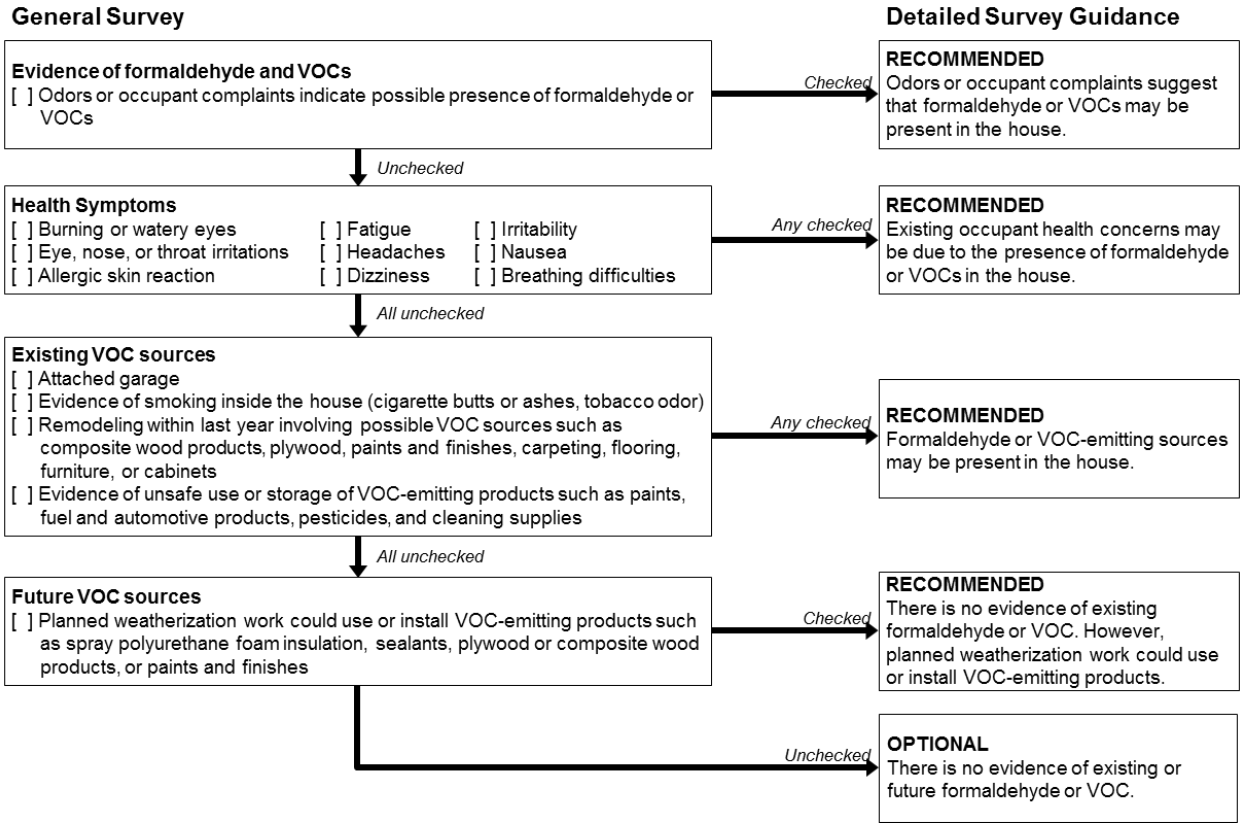


Figure 3.13. Formaldehyde and VOCs: Program Logic for the Detailed Survey Form Guidance form.

Evidence of Issue

[ ] Formaldehyde sampling has been performed
If checked, Measured Formaldehyde Concentration [ppm]: _____

Source Identification

VOC Sources in House or Attached Garage

Identify products that are stored incorrectly and/or may be contributing to the presence of formaldehyde or other VOCs:

[ ] Paints, varnishes or lacquers
[ ] Wood preservatives
[ ] Paint strippers or other solvents
[ ] Glue or adhesives
[ ] Hobby or craft materials
[ ] Fuel or automotive products
[ ] Pesticides
[ ] Air-fresheners, potpourri, incense, candles, etc.
[ ] Cleaners, disinfectants and degreasers
[ ] Other: _____

Other VOC Sources or Conditions

[ ] Composite or engineered wood products installed during remodeling within last year are not low VOC-emitting and were not sealed to reduce VOC emissions
[ ] Evidence of smoking inside the house
[ ] Air cleaning equipment designed to produce ozone in the house.

Existing Conditions in Attached Garage

[ ] Leaks in HVAC system return ducts or air handler in garage
[ ] Supply diffusers or return grilles in garage
[ ] Leaks through the shared walls, doors, floor, or ceiling between garage and living space
[ ] Vehicle left idling in garage

Weatherization Related VOC-Emitting Sources

Identify products that will be used or installed during weatherization that emit formaldehyde or other VOCs:

[ ] Spray polyurethane foam insulation
[ ] Other insulation
[ ] Sealants
[ ] Plywood or composite wood products
[ ] Paints and finishes
[ ] Cleaning supplies
[ ] Other: _____

Comments

Figure 3.14. Formaldehyde and VOCs: Detailed Survey form.

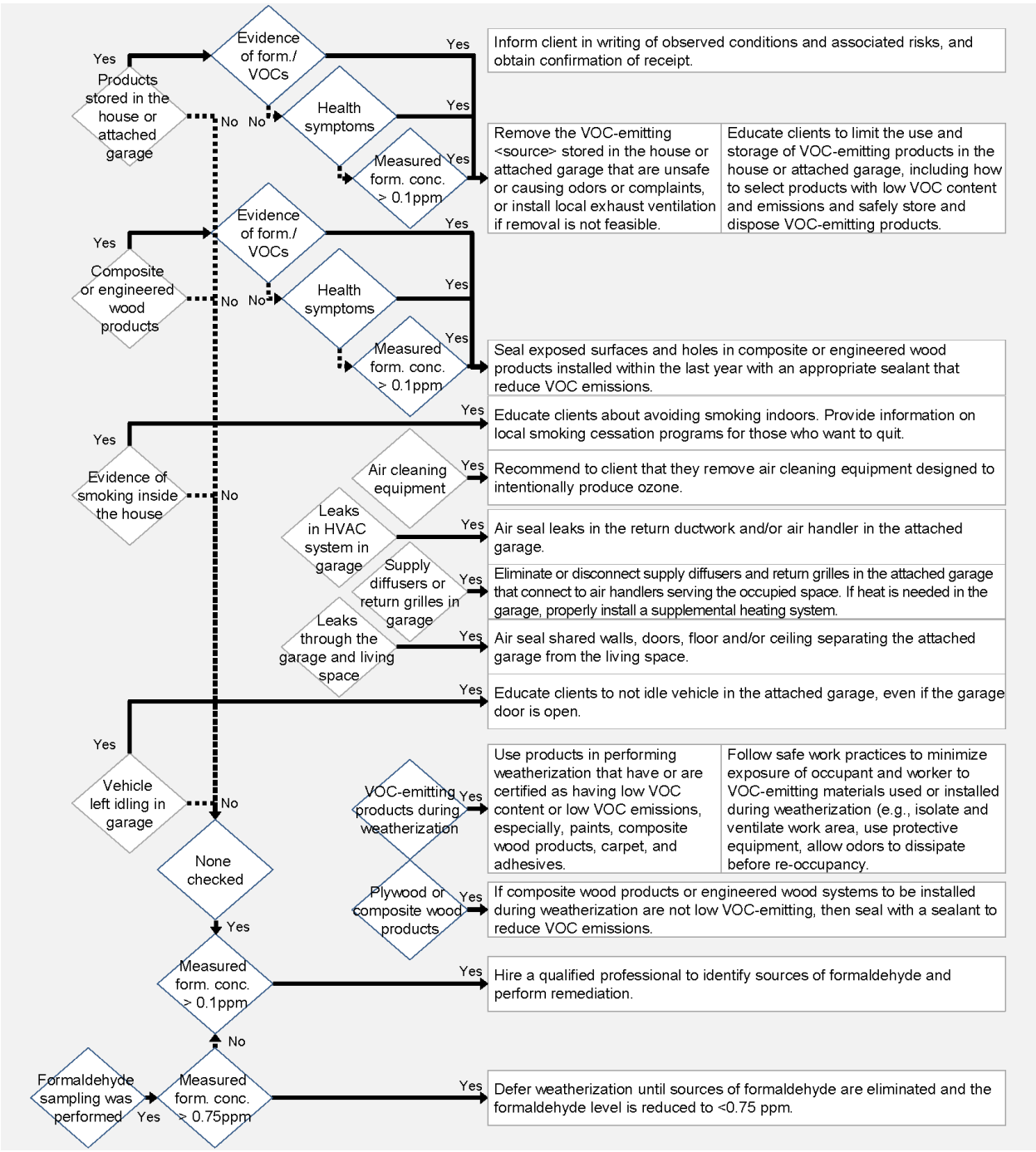


Figure 3.15. Formaldehyde and VOCs: Program Logic for the Audit Recommendations form.

3.6 COMBUSTION

Weatherization Program Notice 11-6 (DOE 2011a) provides combustion-related guidance under several categories, mainly regarding combustion gases and various combustion appliances. EPA (2011) provides combustion safety guidance under unvented and vented appliance-specific categories. Guidance from both documents was used in developing the Health and Safety Audit. Information entered on the Observations form for the presence of combustion equipment is used to determine if completion of the Combustion form is recommended or not applicable (Figure 3.16). Figure 3.17 shows the content of the Combustion form, which includes both a safety inspection and performance testing. Figure 3.18 shows the program logic used for generating recommendations for addressing combustion safety issues. With the list of recommendations, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

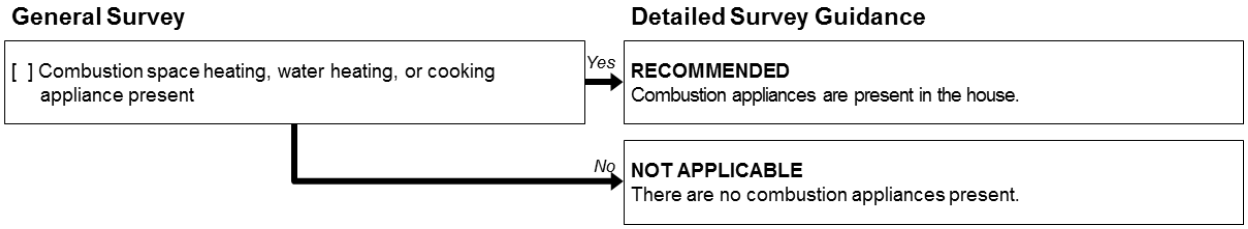


Figure 3.16. Combustion: Program Logic for the Detailed Survey Form Guidance form.

Safety Inspection

	Observations					
1	**Appliance** (Options: Furnace, Boiler, Space Heater1, Space Heater 2, Space Heater 3, Fireplace, Water Heater, Stove1, Stove2, Clothes Dryer)					
2	**Fuel** (Options: Natural Gas, Propane, Oil, Kerosene, Wood, Coal, Other)					
3	Vented	[ ]	[ ]	[ ]	[ ]	[ ]
4	**Expected Post-Retrofit Status**[1] (Options: Remain, Removed, Removed, Replaced)					
	General Safety					
5	Not compliant with applicable codes or standards[2]	[ ]	[ ]	[ ]	[ ]	[ ]
6	Proper clearance to combustibles not maintained	[ ]	[ ]	[ ]	[ ]	[ ]
7	Fuel leaks, especially at fuel line connections[3]	[ ]	[ ]	[ ]	[ ]	[ ]
8	Electrical connections unsafe	[ ]	[ ]	[ ]	[ ]	[ ]
9	Other general safety problem : _____	[ ]	[ ]	[ ]	[ ]	[ ]
	Vented Combustion Appliance	*Complete this section if line 3 is checked*				
10	Venting system damaged or has leaks, cracks or faulty connections	[ ]	[ ]	[ ]	[ ]	[ ]
11	Venting system inadequately sized, not venting to outside or otherwise inadequate	[ ]	[ ]	[ ]	[ ]	[ ]
12	Other venting problem : _____	[ ]	[ ]	[ ]	[ ]	[ ]
	Solid Fuel Combustion Appliance	*Complete this section if Fuel (line 2) is Wood, Coal, or Other*				
13	Soot on walls or ceiling	[ ]	[ ]	[ ]	[ ]	[ ]
14	Creosote staining near flue pipe	[ ]	[ ]	[ ]	[ ]	[ ]
15	Inside of house smells like wood or coal smoke	[ ]	[ ]	[ ]	[ ]	[ ]
16	Occupant reports of regular (i.e., daily) wood or coal smoke smell indoors during heating season	[ ]	[ ]	[ ]	[ ]	[ ]
17	Opacity of smoke leaving chimney > 20% (if being used) [4]	[ ]	[ ]	[ ]	[ ]	[ ]
18	Size or materials of floor protection inadequate	[ ]	[ ]	[ ]	[ ]	[ ]
19	Not EPA-certified[5]	[ ]	[ ]	[ ]	[ ]	[ ]
20	Is or will be oversized	[ ]	[ ]	[ ]	[ ]	[ ]
	Unvented or Vent-Free Combustion Appliance	*Complete this section if line 3 is unchecked*				
21	Primary source of heating	[ ]	[ ]	[ ]	[ ]	[ ]
	Stove	*Complete this section if Appliance (line 1) is Stove1 or Stove2*				
22	Burner nonoperational or operating improperly	[ ]	[ ]	[ ]	[ ]	[ ]
23	Flame quality poor	[ ]	[ ]	[ ]	[ ]	[ ]

[1] Only appliances with an "Expected post-retrofit status" of "Remain" require further inspection or testing. Inspection and testing of appliances that will be removed or replaced is optional.
[2] For unvented space heaters, does not have ANSI Z21.11.2 label.
[3] WARNING: If the fuel leak is severe, discontinue the audit and correct the leak before continuing with the audit.
[4] 100% opacity means nothing can be seen through the smoke. At 20% opacity, there is very little smoke and you can see almost completely through it.
[5] Per EPA "Burn Wise Guides: Burn Wise Guide for Best Burn Practices for Wood Stoves" and "Burn Wise Tips" (www.epa.gov/burnwise/pdfs/BurnWiseTips.pdf).

Figure 3.17. Combustion: Detailed Survey form.

Performance Testing

Background Measurements

Outdoor temperature [ºF] : _____

CO outside the house [ppm][1] : _____

CO in living space [ppm][2] : _____

[1] Avoid testing near obvious sources of CO (e.g., motor vehicles, lawn equipment).
[2] Avoid testing near combustion equipment that has already undergone CO testing.

Oven Measurements

CO in undiluted flue gases in the oven vent:

Measurement type (select one): [ ] As measured [ ] Air-free

Stove 1 [ppm] : _____

Stove 2 [ppm] : _____

CAZ Measurements

	Measurements					
24	**Vented combustion appliance** *(Copy from line1 if line3 is checked)*					
	CAZ Measurements					
25	**Combustion appliance zone** (Options: Basement, Garage, Living Space, Closet 1, Closet 2, Garage, Other)					
26	CAZ depressurization limit [Pa][1]					
27	CAZ baseline pressure with reference to outdoors [Pa]					
28	CAZ worst-case pressure with reference to outdoors [Pa][2]					
29	CO in the CAZ [ppm][3]					
	Appliance Measurements					
30	Spillage time under worst-case depressurization [sec][4]					
31	Draft in the flue under worst-case depressurization [Pa]					
32	CO in undiluted flue gases under worst-case depressurization [ppm]: (Measurement type : [ ] As measured or [ ] Air-free)					

[1] Refer to CAZ Depressurization Limit Table below.

CAZ Depressurization Limit

Venting Conditioned	CAZ Depressurization Limit
Orphan natural draft water heater (including outside chimneys)	-2
Natural draft boiler or furnace commonly vented with water heater	-3
Natural draft boiler or furnace with vent damper commonly vented with water heater	-5
Individual natural draft boiler or furnace	-5
Mechanically assisted draft boiler or furnace commonly vented with water heater	-5
Mechanically assisted draft boiler or furnace alone	-15
Fan assisted DHW alone	-15
Exhausto chimney-top draft inducer (fan at chimney top)	-50
High static pressure flame retention head oil burner	-50
Sealed combustion appliances	-50

[2] Create maximum negative pressure in the CAZ by activating exhaust fans, clothes dryer, and/or the air handler (but not whole-house fans designed for night cooling); opening and closing interior doors; etc.
[3] Monitor CAZ CO continuously during combustion testing and record highest value. Discontinue testing if CO levels exceed 35 ppm.
[4] At draft diverter, barometric draft control, or burner inlet for fan-assisted appliances.

Comments

Figure 3.17. Combustion: Detailed Survey form (continued).

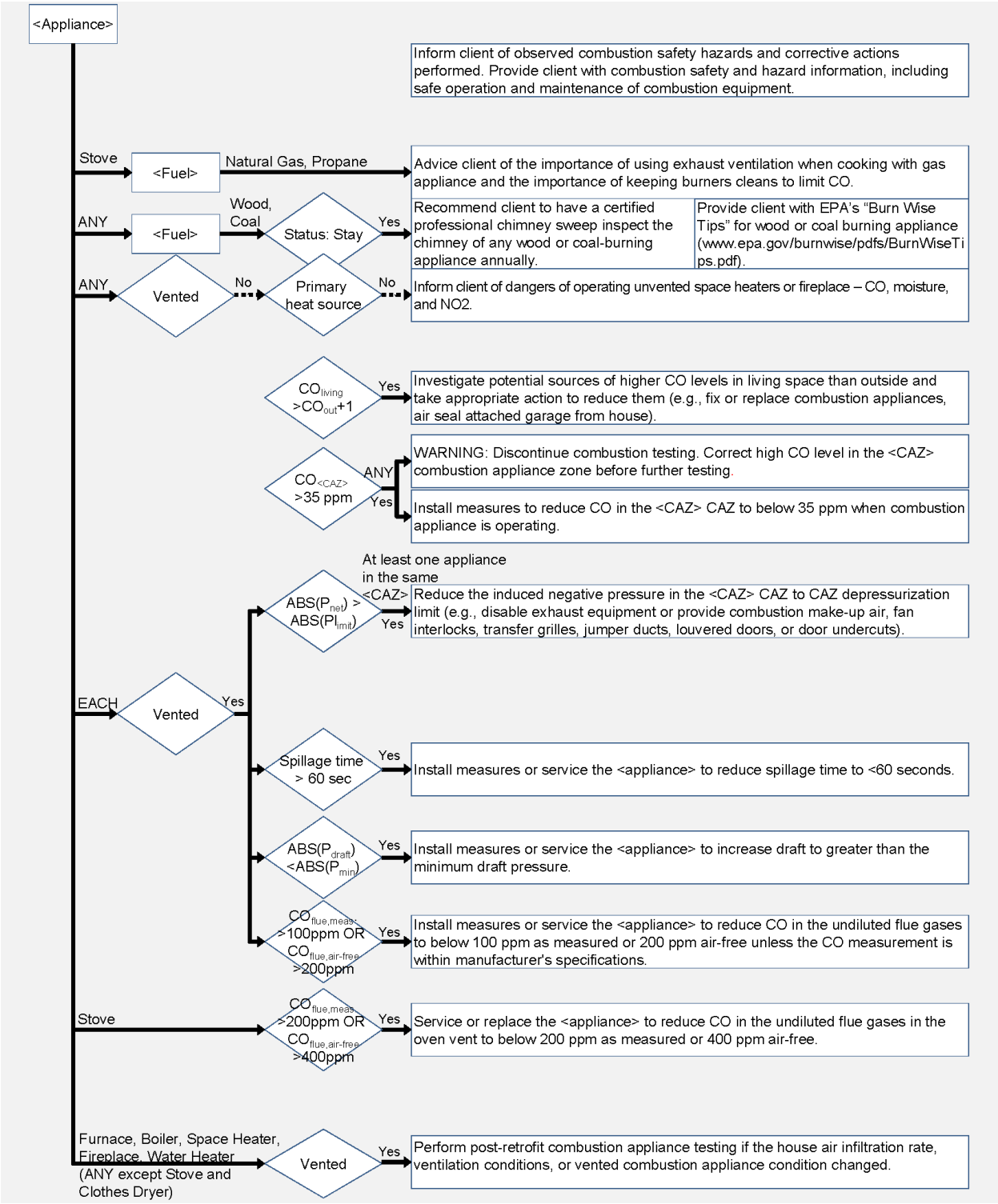


Figure 3.18. Combustion: Program Logic for the Audit Recommendations form.

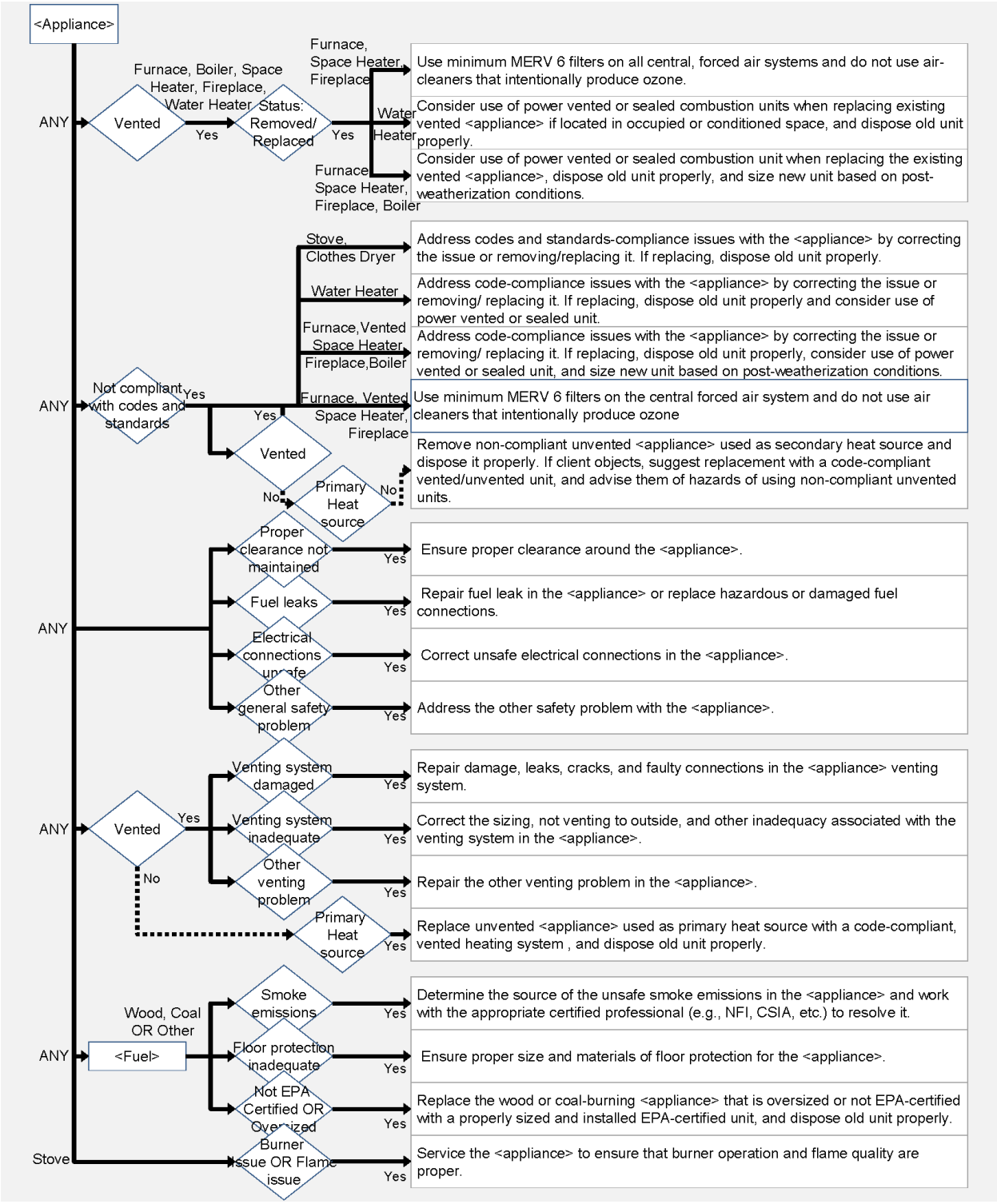


Figure 3.18. Combustion: Program Logic for the Audit Recommendations form (continued).

3.7 PEST INFESTATION

Weatherization Program Notice 11-6 (DOE 2011a) and EPA (2011) provide specific guidance for addressing pest infestation that was used in developing the Health and Safety Audit. Information entered on the Observations form for pest infestation is used to determine if completion of the Pest Infestation form is recommended or optional. Figure 3.19 shows the program logic used for generating this guidance. Figure 3.20 shows the content of the Pest infestation form. Figure 3.21 shows the program logic used for generating recommendations for addressing pest infestation issues. With the list of recommendations, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

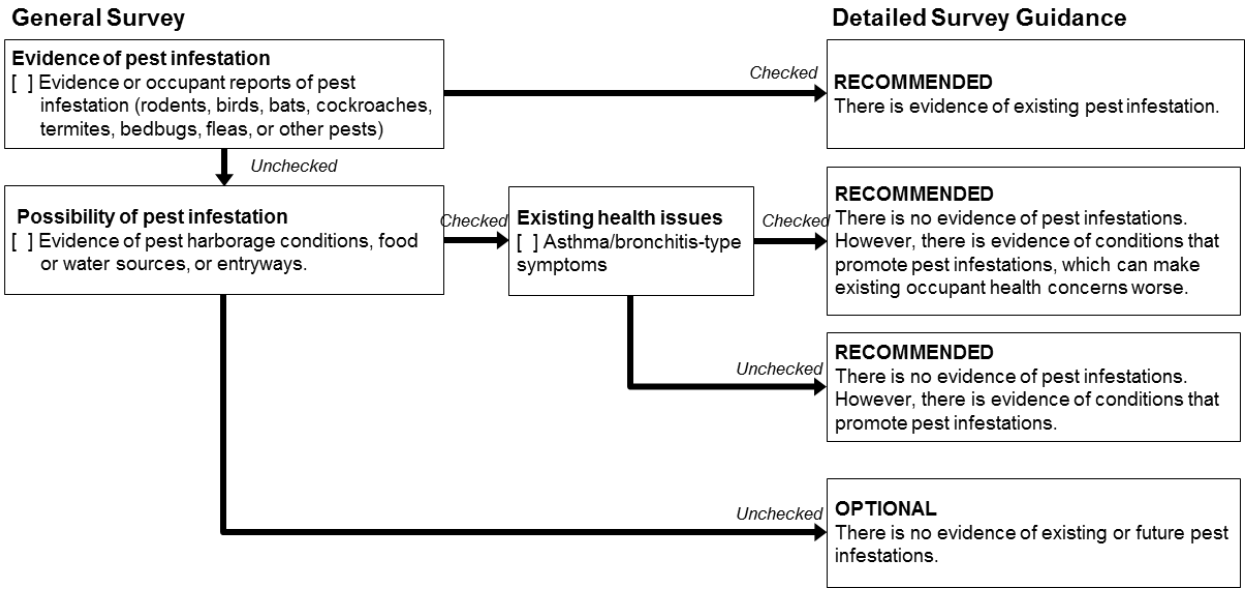


Figure 3.19. Pest Infestation: Program Logic for the Detailed Survey Form Guidance form.

Evidence of Issue

Observations											
Pest	Infestation[1]				Pest-Contaminated Materials[2]				All Sources Identified on the Source Identification Form[3,5]	Harmful Rodenticides or Pesticides Being Used[4]	Comments
	Degree of Infestation			Mitigation Required Before Weatherization	Degree of Contamination			Removal or Clean Up Required Before Weatherization			
	None	Occasional /Moderate	Persistent /Severe		None	Moderate	Severe				
Rodents	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Termites	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Birds or bats	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Cockroaches	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Bedbugs	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Fleas	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Other insects	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	
Other animals	O	O	O	[ ]	O	O	O	[ ]	[ ]	[ ]	

[1] Occupant reported, live or dead pests, body parts, droppings (feces), nests, or other indications
[2] Droppings (feces), nests, dead pests, body parts
[3] Sources of pest harborages, food and water, and entryways
[4] Sprays, foggers, bombs, Chinese Chalk, Tres Pasitos, Tempo®, or other harmful chemicals
[5] If unchecked for one or more pests for which degree of infestation or degree of contamination is other than None, additional sources of pest harborage, food and water, and entryways that encourage pest infestation need to be identified on the Source Identification form for those pests.

Source Identification

Pest Harborage

[ ] Appliances (e.g., toaster, microwave, countertop grilles, clocks) not clean
[ ] Indoor clutter (clothes, boxes, paper, bottles, etc.)
[ ] Bushes, trees or other vegetation closer than two feet from the home
[ ] Wood piles near house
[ ] Other: _____

Pest Entryways

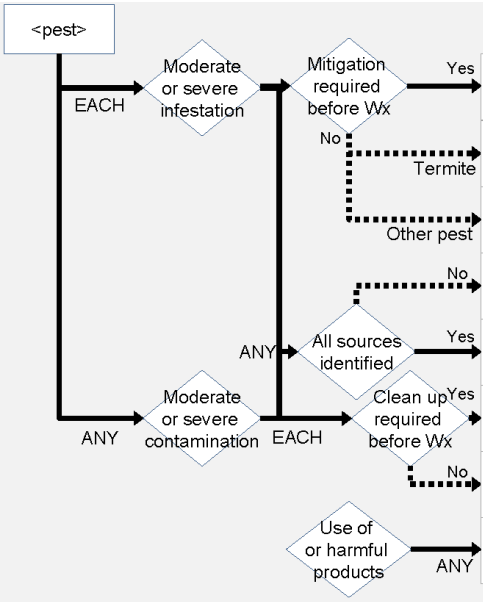
[ ] Large exterior holes and gaps in areas with evidence of rodent infestations
[ ] Window or door screens loose, torn or missing
[ ] Air intake screens or dampers missing, broken, or dirty
[ ] Exhaust vent screens or dampers missing, broken, or dirty
[ ] Other: _____

Food and Water Sources

[ ] Boxed, loose, or pet food not properly stored
[ ] Open food packages, pet food, food debris or dirty dishes left out overnight
[ ] Indoor waste containers not tightly closed or not emptied every night
[ ] Outside garbage cans not sealable or not used properly by occupants
[ ] Leaky faucets or water pipes
[ ] Other: _____

Comments

Figure 3.20. Pest Infestation: Detailed Survey form.



Mitigate the <pest> infestation that prevents weatherization or obtain assistance from an Integrated Pest Management professional to do so.	
Advise client to seek assistance from an Integrated Pest Management professional to mitigate the termite infestation.	
Advise client to mitigate the <pest> infestation using targeted, safer products and techniques (e.g., baits or traps) or seek assistance from an Integrated Pest Management professional.	
WARNING: Additional sources of pest harborage, food and water, and entryways that encourage pest infestation need to be identified on the Source Identification form.	
Inform client of conditions and associated risks of any observed pests infestations and pest-contaminated materials.	
Remove the <pest>-contaminated materials that prevent weatherization or obtain professional assistance to do so.	
Advise client to remove the <pest>-contaminated materials or obtain professional assistance to do so.	
Advise client to discontinue the use of harmful pesticides and rodenticides, and to use targeted, safer products and techniques (e.g., baits or traps) instead.	

Pest Harborage	
Appliances (e.g., toaster, microwave, countertop grilles, clocks) not clean	Clean dirty appliances and advise client to regularly clean them to prevent pest harborage.
Indoor clutter (clothes, boxes, paper, bottles, etc.)	Eliminate indoor clutter and advise client to avoid generating indoor clutter that impedes cleaning and encourages pest harborage.
Bushes, trees or other vegetation closer than two feet from the home	Remove bushes, trees or other vegetation closer than two feet from the home to prevent pest harborage.
Wood piles near house	Eliminate wood piles near house to prevent pest harborage.
Other _____	Eliminate other sources of pest harborage identified on the Source Identification form.
Food and Water Sources	
Boxed, loose, or pet food not properly stored	Advise client to store boxed, loose, and pet food properly.
Open food packages, pet food, food debris or dirty dishes left out overnight.	Advise client to avoid leaving open food packages, pet food, food debris, or dirty dishes out overnight.
Indoor waste containers not tightly closed or not emptied every night	Provide indoor garbage cans with lids and advise client to use them appropriately, or advise client to empty open waste containers every night.
Outside garbage cans not sealable or not used properly by occupants	Provide sealable outside garbage cans and, if needed, advise clients to use them appropriately.
Leaky faucets or water pipes	Repair leaking faucets or water pipes.
Other _____	Eliminate other sources of pest food and water identified on the Source Identification form.

Pest Entryways	
Large exterior holes and gaps in areas with evidence of rodent infestations	Patch large exterior holes in areas with evidence of rodent infestations using pest resistant materials (e.g., copper mesh, hardware cloth, sheet metal, concrete, steel wool, copper scrub pads) before applying air sealing materials or before insulating to prevent rodent entry.
Window or door screens loose, torn or missing	Install/fix screens on windows and doors to prevent pest intrusion.
Air intake screens or dampers missing, broken, or dirty	Clean/fix screens or dampers over exterior air intakes, and advise client to do so regularly to prevent pest entry .
Exhaust vent screens or dampers missing, broken, or dirty	Clean/fix screens, dampers, or louvers over exterior exhaust vents, and advise client to do so regularly to prevent pest entry.
Other _____	Block other pest entryways identified on the Source Identification form.

Figure 3.21. Pest Infestation: Program Logic for the Audit Recommendations form.

3.8 SAFETY

Weatherization Program Notice 11-6 (DOE 2011a) and EPA (2011) provide safety-related guidance under multiple health and safety issues that was used in developing the Health and Safety Audit. Safety issues are grouped in four categories on the Safety form: general safety, structural safety, fire safety, and electrical safety. Figure 3.22 shows the content of the Safety form divided into these four categories.

Completion of the Safety form is always recommended, unlike most of the Detailed Survey forms, for which information entered on the General Survey forms determines if completion of the respective Detailed Survey form is recommended, optional, or not applicable.

Figure 3.23 through Figure 3.26 show the program logic used for generating recommendations for addressing safety issues under the four safety categories. With the list of recommendations, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

General Safety	Comments
Injury prevention	
[ ] Clutter on the floor, stairs, or landings	
[ ] Cables or cords lying in the traffic area	
[ ] Flooring, carpet or rugs damaged or worn-out	
[ ] Throw-rugs without non-skid backing	
[ ] Hazardous chemicals (e.g., strong cleaners and pesticides) not stored in appropriate and controlled locations.	
[ ] Hot water supply temperature >120ºF	
Hazards for elderly and disabled	
[ ] Door thresholds raised or deteriorated	
[ ] Bathroom wall fittings loose	
[ ] Grab bars by the bathtub and toilet not present	
[ ] Non-skid mat or strips on tub bottom not present	
[ ] Night lamps in hallway and stair not present or burned out	
[ ] Lighting level in hallway and stair inadequate	
[ ] Light switches in hallway and stair improperly located (e.g., not present at the top and bottom of stairs)	
Child safety hazards	
[ ] Window guards missing	
[ ] Window blinds with looped cords present	
[ ] Infant sleep environment unsafe	
[ ] Necessary safety gates missing at the top of stairs	
[ ] Flammable products or igniters within children's reach	
[ ] Medicines and vitamins within children's reach	
[ ] Cleaning supplies within children's reach	

Structural Safety	Comments
Roof *(if not a multifamily intermediate unit)*	
[ ] Sagging or damaged	
Walls	
[ ] Bulging, buckling or sagging	
[ ] Surface finish damaged or missing	
Windows	
[ ] Window pane broken or missing	
[ ] Window sill damaged	
[ ] Window frame loose or damaged	
[ ] Hardware or lock loose, damaged, or jammed (window inoperable or not lockable)	
[ ] Security bars prevent egress (for windows designed for fire exist)	
Doors	
[ ] Door panel damaged or missing	
[ ] Threshold or frame loose or damaged	
[ ] Hardware or lock loose, damaged, or jammed (door inoperable or not lockable)	
[ ] Necessary security door damaged or missing	
Stairs	
[ ] Supports or frame damaged	
[ ] Banister or handrail loose, damaged or missing	
[ ] Steps non-intact, damaged or missing	
Ceiling	
[ ] Bulging, buckling or sagging	
[ ] Tiles or panels damaged or missing,	
Floor	
[ ] Bulging, buckling or sagging	
[ ] Subfloor damaged or cracked	
[ ] Floor covering or tiles damaged or missing	
[ ] Porch, patio or balcony	
[ ] Baluster or side rail loose, damaged or missing	

Fire Safety	Comments
Smoke alarms	
[ ] Not installed on all floors and in vicinity of all bedroom doors	
[ ] Not working -- broken	
[ ] Not working -- dead battery	
CO alarms	
[ ] Not installed on all floors and in vicinity of all bedroom doors	
[ ] Not working -- broken	
[ ] Not working -- dead battery	
Fire extinguisher	
[ ] Fire extinguisher inaccessible or improperly located	
[ ] Fire extinguisher not present or not working	
[ ] Fire extinguisher operation unfamiliar to occupants	
Fire hazards *(See electrical safety for specific electricity-related hazards)*	
[ ] Flammable products improperly stored or stored near ignition sources	
[ ] Insufficient clearance around heating systems	
[ ] Any other fire hazard/code-compliance issue present	

[1] See electrical safety for specific electricity-related hazards

Electrical Safety					Comments
Knob and Tube Wiring					
Location	Present	Unsafe	Installation of insulation planned	Code allows insulating over knob and tube wiring	
Attic	[ ]	[ ]	[ ]	[ ]	
Basement/ Crawlspace	[ ]	[ ]	[ ]	[ ]	
Exterior walls	[ ]	[ ]	[ ]	[ ]	
Other	[ ]	[ ]	[ ]	[ ]	
Other Electrical Hazards					
[ ] Electric space heater present					
[ ] Electrical wiring or components damaged or exposed					
[ ] Extension cords used unsafely					
[ ] Electrical circuits overloaded (especially with electric space heater)					
[ ] Nonpolarized cords or plugs used for polarized appliances					
[ ] Electrical outlet or switch cover plates missing or broken					
[ ] Working GFIs in kitchen, bathrooms, or laundry not present					
[ ] Water leaks or puddling near electrical equipment					
[ ] Wiring in attic unsafe					
[ ] Voltage drop detected at electrical outlets					
[ ] Faulty wiring					
[ ] Other hazards/code compliance issues					

[1] Damaged wiring insulation, inadequately sized, alterations performed that may have created an electrical hazard, circuits overloaded, or otherwise unsafe.

Figure 3.22. Safety: Detailed Survey form.

		Inform client in writing of observed possible general safety hazards and associated risks, and get the notification signed.	
Injury prevention			
Clutter on the floor, stairs, or landings	→	Remove clutter from the floor, stairs, and landing.	Educate client about maintaining clutter free indoor environment.
Cables or cords lying in the traffic area	→	Remove cables and cords from the traffic area.	Educate client about securing cables and cords, appropriately.
Flooring, carpet or rugs damaged or worn-out	→	Replace damaged or worn-out flooring, carpet or rugs.	
Throw-rugs without non-skid backing	→	Install non-skid backing underneath throw-rugs.	
Hazardous chemicals (e.g., strong cleaners and pesticides) not stored in appropriate and controlled locations.	→	Educate client about appropriate and controlled storage of cleaning supplies, pesticides, and other harmful chemicals.	
Hot water supply temperature >120ºF	→	Set water heater thermostats to 120 ºF.	Educate client about lowering water temperature to prevent scalding.
Hazards for elderly and disabled			
Door thresholds raised or deteriorated	→	Replace raised or deteriorated door thresholds with low or beveled type door thresholds.	
Bathroom wall fittings loose	→	Fix bathroom wall fittings.	
Grab bars by the bathtub and toilet not present	→	Install grab bars by the bathtub and toilet.	
Non-skid mat or strips on tub bottom not present	→	Provide non-skid mat or strips on tub bottom.	
Night lamps in hallway and stair not present or burned out	→	Install missing or burned out lamps in hallway and stairs.	
Lighting level in hallway and stair inadequate	→	Provide more lighting in hallways and stairs.	
Light switches in hallway and stair improperly located (e.g., not present at the top and bottom of stairs)	→	Relocate light switches to appropriate locations. Install light switches at the top and bottom of stairs, if not present.	
Child safety hazards			
Window guards missing	→	Install missing window guards.	
Window blinds with looped cords present	→	Replace looped cords of window blinds.	
Infant sleep environment unsafe	→	Educate client about safe infant sleep environment.	
Necessary safety gates missing at the top of stairs	→	Provide safety gates at the top of stairs.	
Flammable products or igniters within children's reach	→	Educate client about appropriate and controlled storage of flammable products and igniters out of reach of children.	
Medicines and vitamins within children's reach	→	Educate client about appropriate and controlled storage of medicines and vitamins out of reach of children.	
Cleaning supplies within children's reach	→	Educate client about appropriate and controlled storage of cleaning supplies out of reach of children.	

Figure 3.23. General Safety: Program Logic for the Audit Recommendations form.

		Inform client in writing of observed structural safety hazards and associated risks, and get the notification signed.
Roof *(if not a multifamily intermediate unit)*		
Sagging or damaged	→	Repair sagging or damaged roof.
Walls		
Bulging, buckling or sagging	→	Repair bulging, buckling or sagging walls.
Surface finish damaged or missing	→	Repair damaged or missing wall surface finish.
Windows		
Window pane broken or missing	→	Replace broken or missing window pane.
Window sill damaged	→	Repair damaged window sill.
Window frame loose or damaged	→	Repair loose or damaged window frame.
Hardware or lock loose, damaged, or jammed (window inoperable or not lockable)	→	Replace loose, damaged, or jammed window hardware and lock.
Security bars prevent egress (for windows designed for fire exist)	→	Remove security bars in windows designed for fire exist to allow egress.
Doors		
Door panel damaged or missing	→	Repair damaged or missing door panel.
Threshold or frame loose or damaged	→	Repair loose or damaged door threshold or frame.
Hardware or lock loose, damaged, or jammed (door inoperable or not lockable)	→	Replace loose, damaged, or jammed door hardware and lock.
Necessary security door damaged or missing	→	Repair damaged or missing security doors.
Stairs		
Supports or frame damaged	→	Repair damaged supports and frame for stairs.
Banister or handrail loose, damaged or missing	→	Repair loose, damaged or missing banister and handrail on stairs.
Steps non-intact, damaged or missing	→	Repair non-intact, damaged or missing steps in stairs.
Ceiling		
Bulging, buckling or sagging	→	Repair bulging, buckling or sagging ceiling.
Tiles or panels damaged or missing,	→	Repair damaged or missing ceiling tiles and ceiling panels.
Floor		
Bulging, buckling or sagging	→	Repair bulging, buckling or sagging floor.
Subfloor damaged or cracked	→	Repair damaged or cracked subfloor .
Floor covering or tiles damaged or missing	→	Repair damaged or missing floor covering and floor tiles.
Porch, patio or balcony		
Baluster or side rail loose, damaged or missing	→	Repair loose, damaged or missing baluster and side rail of porch, patio or balcony.

Figure 3.24. Structural Safety: Program Logic for the Audit Recommendations form.

		Inform client in writing of observed fire safety hazards and associated risks, and get the notification signed..	
Smoke alarms			
Not installed on all floors and in vicinity of all bedroom doors	→	Install new smoke alarms and/or replace broken alarms so that an operating alarm is located on all floors and in the vicinity of all bedroom doors.	Provide client with verbal or written information on use of smoke alarms.
Not working -- broken	→		
Not working -- dead battery	→	Replace dead batteries in existing smoke alarms, preferably with 10-year lithium batteries.	
CO alarms			
Not installed on all floors and in vicinity of all bedroom doors	→	Install new CO alarms and/or replace broken alarms so that an operating alarm is located on all floors and in the vicinity of all bedroom doors, preferably with alarms that have digital display, provide peak level readings, and can detect and store peak CO levels of less than 30 ppm.	Provide client with verbal or written information on use of CO alarms.
Not working -- broken	→		
Not working -- dead battery	→	Replace dead batteries in existing CO alarms, preferably with 10-year lithium batteries.	
Fire extinguisher			
Fire extinguisher inaccessible or improperly located	→	Relocate existing fire extinguisher(s) in appropriate location(s).	
Fire extinguisher not present or not working	→	Install new fire extinguisher(s) to an appropriate location(s).	Provide client with verbal or written information on use of fire extinguishers.
Fire extinguisher operation unfamiliar to occupants	→	---	
Fire hazards			
Flammable products improperly stored or stored near ignition sources	→	Store flammable products properly and away from ignition sources.	Provide client with verbal or written information on the proper storage of flammable products.
Insufficient clearance around heating systems	→	Provide sufficient clearance around heating systems.	Provide client with verbal or written information on the need to maintain proper clearance around heating systems.
Any other fire hazard/code-compliance issue present	→	Mitigate other fire hazard/code-compliance issue present.	

Figure 3.25. Fire Safety: Program Logic for the Audit Recommendations form.

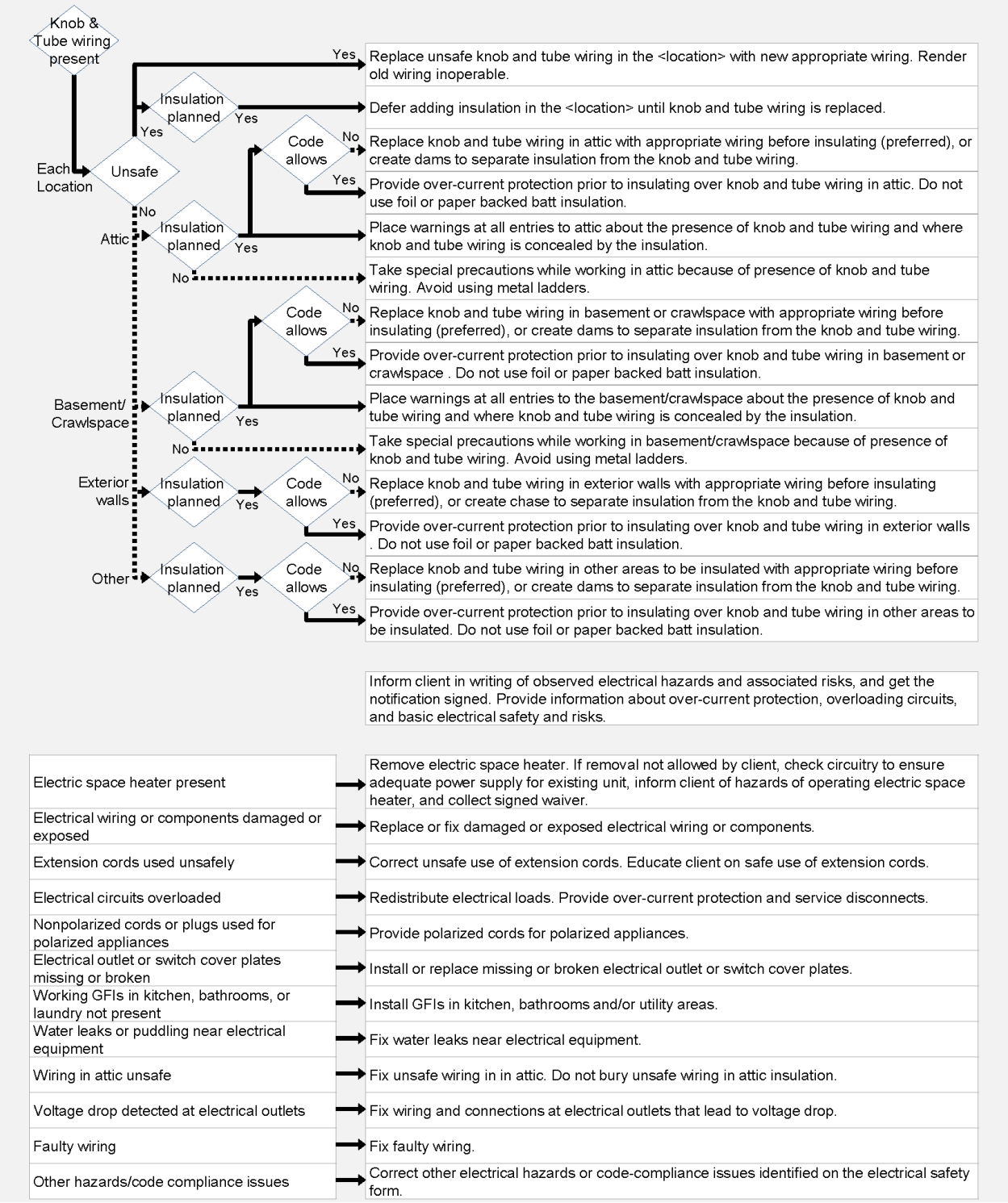


Figure 3.26. Electrical Safety: Program Logic for the Audit Recommendations form.

3.9 VENTILATION

Weatherization Program Notice 11-6 (DOE 2011a) requires that American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.2-2010 (ASHRAE 2010) (or most current) be met to the fullest extent possible when performing weatherization activities, unless acceptable indoor air quality already exists as defined by ASHRAE Standard 62.2. EPA (2011) provides ventilation assessment protocols and actions under multiple categories and points to ASHRAE Standard 62.2-2010. In the Health and Safety Audit, compliance with both ASHRAE Standard 62.2-2010 and ASHRAE Standard 62.2-2013 (ASHRAE 2013) can be assessed.

DOE issued Weatherization Program Notice 17-7: Weatherization Health and Safety Guidance (DOE 2017) on August 9, 2017, which clarifies, updates, and provides additional information related to the implementation and installation of health and safety measures as part of the Weatherization Assistance Program. Weatherization Program Notice 17-7 supersedes Notice 11-6 and other notices related to health and safety. One of the updates specified in Weatherization Program Notice 17-7 is the use of ventilation guidance per ASHRAE Standard 62.2-2016 (ASHRAE 2016) rather than previous versions; therefore, the Health and Safety Audit will be updated in the near future to add the ASHRAE Standard 62.2-2016 calculations to reflect this updated guidance applicable to the DOE Weatherization Assistance Program.

Figure 3.27 shows the content of the Ventilation form. Like the Safety form, completion of the Ventilation form is always recommended. All other Detailed Survey forms use information entered on the General Survey forms to determine if completion of the respective Detailed Survey form is recommended, optional, or not applicable.

Figure 3.28 shows the program logic used for calculating the required mechanical ventilation rate and generating audit recommendations for ventilation issues. With the audit recommendation, the audit provides notes specifically applicable to the DOE Weatherization Assistance Program.

Note that the energy impact of providing mechanical ventilation is not calculated by the Health and Safety Audit.

General Information

[ ] Exception to ASHRAE Standard 62.2 whole-building mechanical system requirement applies[1]

[1] If the authority having jurisdiction determines that window operation is a locally permissible method of providing ventilation at least one of the following conditions is met:

a) the building has no mechanical cooling and is in zone 1 or 2 of the climate zone map shown in Appendix B or
b) the building is thermally conditioned for human occupancy for less than 876 h per year,

ASHRAE Standard 62.2 version to be used for compliance (select one): [ ] 2010 [ ] 2013

Fields pertinent to the ventilation calculations that are entered on the audit form:

Conditioned Floor Area [sq.ft.]: _____

Average ceiling height [ft.]: _____

Number of floors: _____

Number of bathrooms: _____

Number of bedrooms: _____

Number of occupants: _____

Clothes Dryer Exhaust Information

[ ] Clothes dryer present
[ ] Clothes dryer does not vent to outdoors (i.e., vents into crawlspace, attic, or within a wall) (condensing dryers are exempt)
[ ] Clothes dryer vent has restrictions and/or lint build up

Kitchen and Bath Exhaust Information

Observations and Measurements								
Space	Present	Operable Window[1]	Exhaust Fan			Compliance Option (select one)[4]		Comments
			Present	Vented to Outdoors[2]	Flow Rate [cfm][3]	Replace	Include in Ventilation Requirement	
Bathroom 1	[ ]	[ ]	[ ]	[ ]		O	O	
Bathroom 2	[ ]	[ ]	[ ]	[ ]		O	O	
Bathroom 3	[ ]	[ ]	[ ]	[ ]		O	O	
Bathroom 4	[ ]	[ ]	[ ]	[ ]		O	O	
Bathroom 5	[ ]	[ ]	[ ]	[ ]		O	O	
Kitchen 1	[ ]	[ ]	[ ]	[ ]		O	O	
Kitchen 2	[ ]	[ ]	[ ]	[ ]		O	O	

[1] Check only if the authority having jurisdiction determines that window operation is a locally permissible method of providing local exhaust.
[2] Not vented into crawlspace, attic, or within a wall.
[3] Measured using a flow hood, flow grid, or other airflow measuring device. Alternatively, if the duct sizing meets the criteria specified in ASHRAE 62.2, (a) the air flow rating of the fan at a pressure of 0.25 in. w.c. (62.5 Pa), or (b) 75% of the air flow rating of the fan at a pressure of 0.1 in. w.c. (25 Pa).
[4] Select "Replace" if a new fan compliant with ASHRAE 62.2 will be installed if the audit finds the existing fan to be deficient (preferred method). Select "Include in Ventilation Requirement" if the whole-building ventilation requirement should be increased if the audit finds the existing fan to be deficient.

Infiltration Information

Blower Door Measurements	Pre-Weatherization	Target[1]	Post-Weatherization
Air Leakage Rate [cfm]			
House Pressure Difference [Pa]			

[1] Estimated or anticipated values if performing the audit before the building is weatherized.

Blower door measurements to use in calculating the required whole-building mechanical ventilation rate (select one):
[ ] Pre-weatherization
[ ] Target
[ ] Post-weatherization

Comments

Figure 3.27. Ventilation: Detailed Survey form.

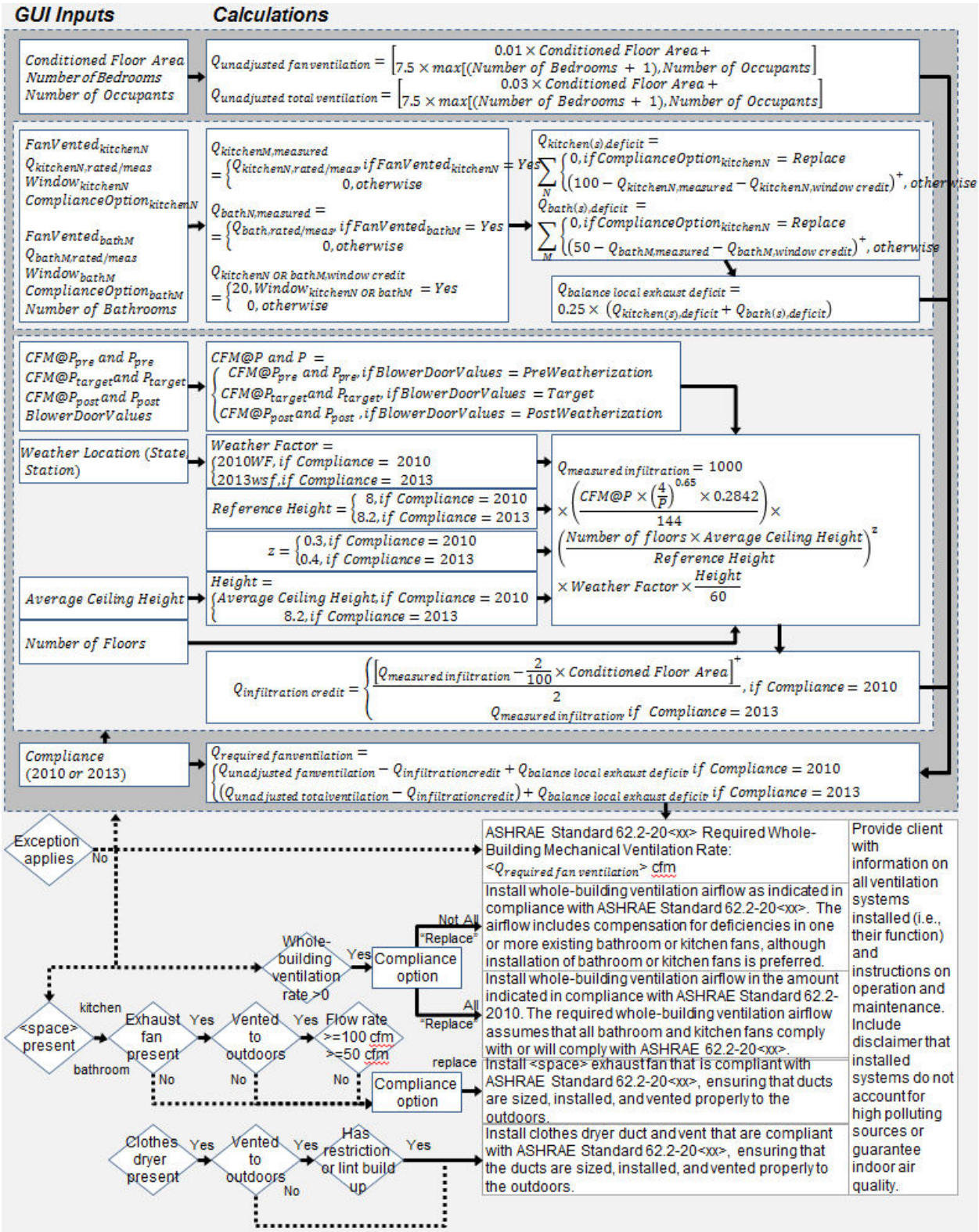


Figure 3.28. Ventilation: Program Logic for the Audit Recommendations form.

REFERENCES

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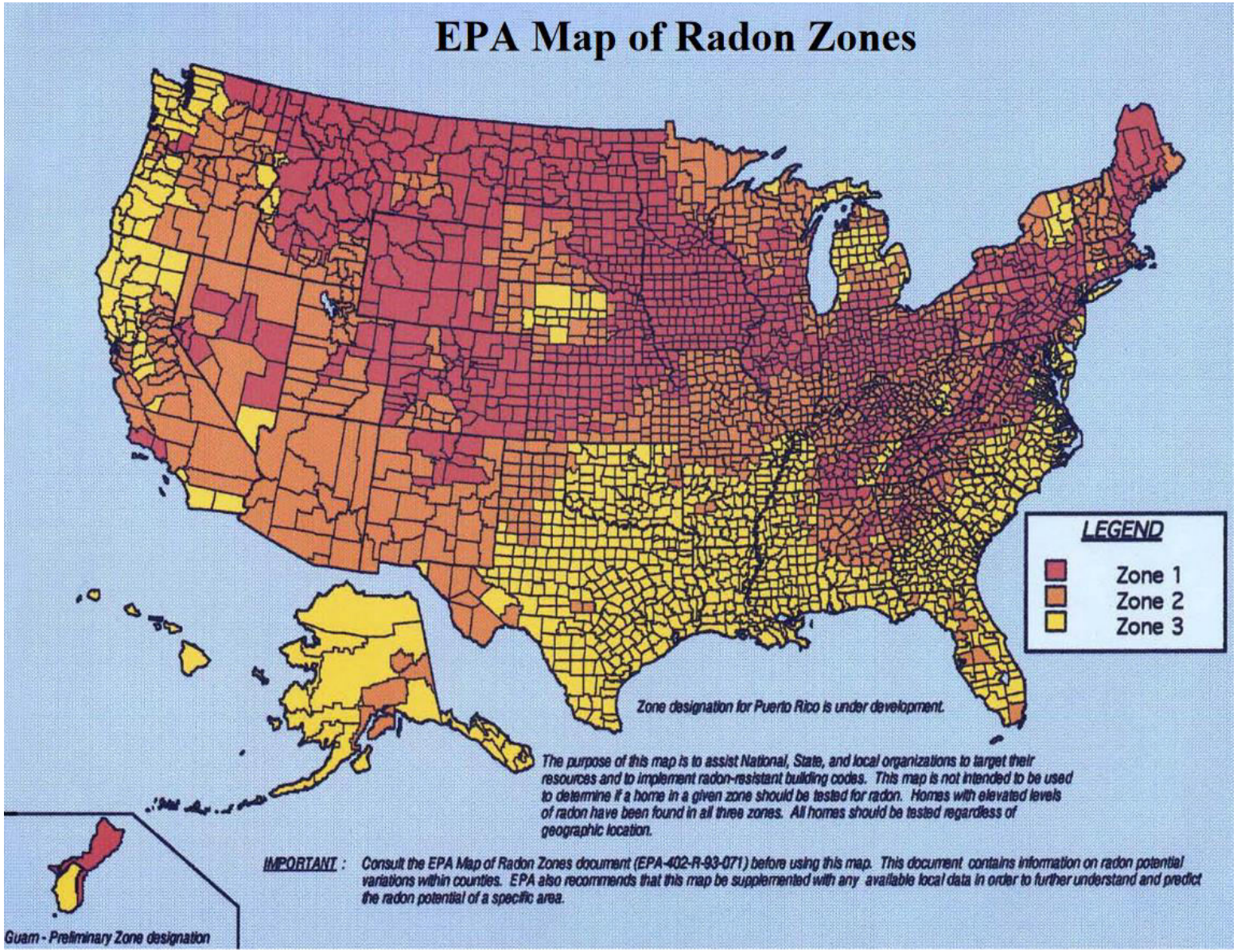
EPA. 2017. EPA Map of Radon Zones. US Environmental Protection Agency. [Online] April 19, 2017. https://www.epa.gov/radon/epa-map-radon-zones.

APPENDIX A. EPA RADON ZONES



(Source: EPA 2017)

Table of EPA Radon Zones by County
(Source: EPA 2017)

County Name	State	Radon Zone
Fairbanks-North Star	AK	2
Kenai Peninsula	AK	2
Ketchikan Gateway	AK	2
Matanuska-Susitna	AK	2
Southeast Fairbanks	AK	2
Aleutians East	AK	3
Aleutians West	AK	3
Anchorage Municipality	AK	3
Bethel	AK	3
Bristol Bay	AK	3
Denali	AK	3
Dillingham	AK	3
Haines	AK	3
Juneau	AK	3
Kodiak Island	AK	3
Lake and Peninsula	AK	3
Nome	AK	3
North Slope	AK	3
Northwest Artic	AK	3
Prince Of Wales-Outer Ketchikan	AK	3
Sitka	AK	3
Skagway-Yakutat-Angoon	AK	3
Valdez-Cordova	AK	3
Wade Hampton	AK	3
Wrangell-Petersburg	AK	3
Yakutat City and Borough	AK	3
Yukon-Koyukuk	AK	3
Calhoun	AL	1
Clay	AL	1
Cleburne	AL	1
Colbert	AL	1
Coosa	AL	1
Franklin	AL	1
Jackson	AL	1
Lauderdale	AL	1
Lawrence	AL	1
Limestone	AL	1
Madison	AL	1
Morgan	AL	1
Talladega	AL	1
Autauga	AL	2
Barbour	AL	2
Bibb	AL	2
Blount	AL	2
Bullock	AL	2
Cherokee	AL	2
Chilton	AL	2
Cullman	AL	2
Dallas	AL	2
De Kalb	AL	2
Elmore	AL	2
Etowah	AL	2
Fayette	AL	2
Greene	AL	2
Hale	AL	2
Jefferson	AL	2
Lamar	AL	2
Lee	AL	2
Lowndes	AL	2
Macon	AL	2
Marion	AL	2
Marshall	AL	2
Montgomery	AL	2
Perry	AL	2
Pickens	AL	2
Randolph	AL	2
Russell	AL	2
Shelby	AL	2
St. Clair	AL	2
Sumter	AL	2
Tuscaloosa	AL	2
Walker	AL	2
Winston	AL	2
Baldwin	AL	3
Butler	AL	3
Chambers	AL	3
Choctaw	AL	3
Clarke	AL	3
Coffee	AL	3
Conecuh	AL	3
Covington	AL	3
Crenshaw	AL	3
Dale	AL	3
Escambia	AL	3
Geneva	AL	3
Henry	AL	3
Houston	AL	3
Marengo	AL	3
Mobile	AL	3
Monroe	AL	3
Pike	AL	3
Tallapoosa	AL	3
Washington	AL	3
Wilcox	AL	3
Baxter	AR	2
Benton	AR	2
Boone	AR	2
Carroll	AR	2
Fulton	AR	2
Garland	AR	2
Independence	AR	2
Izard	AR	2
Marion	AR	2
Montgomery	AR	2
Randolph	AR	2
Searcy	AR	2
Sharp	AR	2
Stone	AR	2
an Buren	AR	3
Arkansas	AR	3
Ashley	AR	3
Bradley	AR	3
Calhoun	AR	3
Chicot	AR	3
Clark	AR	3
Clay	AR	3
Cleburne	AR	3
Cleveland	AR	3
Columbia	AR	3
Conway	AR	3
Craighead	AR	3
Crawford	AR	3
Crittenden	AR	3
Cross	AR	3
Dallas	AR	3
Desha	AR	3
Drew	AR	3
Faulkner	AR	3
Franklin	AR	3
Grant	AR	3
Greene	AR	3
Hempstead	AR	3
Hot Spring	AR	3
Howard	AR	3
Jackson	AR	3
Jefferson	AR	3
Johnson	AR	3
Lafayette	AR	3
Lawrence	AR	3
Lee	AR	3
Lincoln	AR	3
Little River	AR	3
Logan	AR	3
Lonoke	AR	3
Madison	AR	3
Miller	AR	3
Mississippi	AR	3
Monroe	AR	3
Nevada	AR	3
Newton	AR	3
Ouachita	AR	3
Perry	AR	3
Phillips	AR	3
Pike	AR	3
Poinsett	AR	3
Polk	AR	3
Pope	AR	3
Prairie	AR	3
Pulaski	AR	3
Saline	AR	3
Scott	AR	3
Sebastian	AR	3
Sevier	AR	3
St. Francis	AR	3
Union	AR	3
Washington	AR	3
White	AR	3
Woodruff	AR	3
Yell	AR	3
Apache	AZ	2
Cochise	AZ	2
Coconino	AZ	2
Gila	AZ	2
Graham	AZ	2
Greenlee	AZ	2
La Paz	AZ	2
Maricopa	AZ	2
Mohave	AZ	2
Navajo	AZ	2
Pima	AZ	2
Pinal	AZ	2
Santa Cruz	AZ	2
Yavapai	AZ	2
Yuma	AZ	2
Ventura	CA	1
Santa Barbara	CA	1
Alameda	CA	2
Alpine	CA	2
Amador	CA	2
Calaveras	CA	2
Contra Costa	CA	2
El Dorado	CA	2
Fresno	CA	2
Inyo	CA	2
Kern	CA	2
Los Angeles	CA	2
Madera	CA	2
Mariposa	CA	2
Mono	CA	2
Monterey	CA	2
Nevada	CA	2
Placer	CA	2
Plumas	CA	2
Riverside	CA	2
San Benito	CA	2
San Bernardino	CA	2
San Francisco	CA	2
San Luis Obispo	CA	2
San Mateo	CA	2
Santa Clara	CA	2
Santa Cruz	CA	2
Sierra	CA	2
Tulare	CA	2
Tuolumne	CA	2
Yuba	CA	2
Butte	CA	3
Colusa	CA	3
Del Norte	CA	3
Glenn	CA	3
Humboldt	CA	3
Imperial	CA	3
Kings	CA	3
Lake	CA	3
Lassen	CA	3
Marin	CA	3
Mendocino	CA	3
Merced	CA	3
Modoc	CA	3
Napa	CA	3
Orange	CA	3
Sacramento	CA	3
San Diego	CA	3
San Joaquin	CA	3
Shasta	CA	3
Siskiyou	CA	3
Solano	CA	3
Sonoma	CA	3
Stanislaus	CA	3
Sutter	CA	3
Tehama	CA	3
Trinity	CA	3
Yolo	CA	3
Adams	CO	1
Arapahoe	CO	1
Baca	CO	1
Bent	CO	1
Boulder	CO	1
Broomfield	CO	1
Chaffee	CO	1
Cheyenne	CO	1
Clear Creek	CO	1
Crowley	CO	1
Custer	CO	1

County Name	State	Radon Zone
Delta	CO	1
Denver	CO	1
Dolores	CO	1
Douglas	CO	1
El Paso	CO	1
Elbert	CO	1
Fremont	CO	1
Garfield	CO	1
Gilpin	CO	1
Grand	CO	1
Gunnison	CO	1
Huerfano	CO	1
Jackson	CO	1
Jefferson	CO	1
Kiowa	CO	1
Kit Carson	CO	1
Lake	CO	1
La Plata	CO	1
Larimer	CO	1
Las Animas	CO	1
Lincoln	CO	1
Logan	CO	1
Mesa	CO	1
Moffat	CO	1
Montezuma	CO	1
Montrose	CO	1
Morgan	CO	1
Otero	CO	1
Ouray	CO	1
Park	CO	1
Phillips	CO	1
Pitkin	CO	1
Prowers	CO	1
Pueblo	CO	1
Rio Blanco	CO	1
San Miguel	CO	1
Summit	CO	1
Teller	CO	1
Washington	CO	1
Weld	CO	1
Yuma	CO	1
Alamosa	CO	2
Archuleta	CO	2
Conejos	CO	2
Costilla	CO	2
Eagle	CO	2
Hinsdale	CO	2
La Plata	CO	2
Mineral	CO	2
Rio Grande	CO	2
Routt	CO	2
Saguache	CO	2
San Juan	CO	2
Fairfield	CT	1
Middlesex	CT	1
New Haven	CT	1
New London	CT	1
Litchfield	CT	2
Tolland	CT	2
Windham	CT	2
Hartford	CT	3
District of Columbia	DC	3
New Castle	DE	2
Kent	DE	3
Sussex	DE	3
Alachua	FL	2
Citrus	FL	2
Columbia	FL	2

County Name	State	Radon Zone
Dade	FL	2
Hillsborough	FL	2
Leon	FL	2
Marion	FL	2
Polk	FL	2
Union	FL	2
Baker	FL	3
Bay	FL	3
Bradford	FL	3
Brevard	FL	3
Broward	FL	3
Calhoun	FL	3
Charlotte	FL	3
Clay	FL	3
Collier	FL	3
De Soto	FL	3
Dixie	FL	3
Duval	FL	3
Escambia	FL	3
Flagler	FL	3
Franklin	FL	3
Gadsden	FL	3
Gilchrist	FL	3
Glades	FL	3
Gulf	FL	3
Hamilton	FL	3
Hardee	FL	3
Hendry	FL	3
Hernando	FL	3
Highlands	FL	3
Holmes	FL	3
Indian River	FL	3
Jackson	FL	3
Jefferson	FL	3
Lafayette	FL	3
Lake	FL	3
Lee	FL	3
Levy	FL	3
Liberty	FL	3
Madison	FL	3
Manatee	FL	3
Martin	FL	3
Monroe	FL	3
Nassau	FL	3
Okaloosa	FL	3
Okeechobee	FL	3
Orange	FL	3
Osceola	FL	3
Palm Beach	FL	3
Pasco	FL	3
Pinellas	FL	3
Putnam	FL	3
Santa Rosa	FL	3
Sarasota	FL	3
Seminole	FL	3
St. Johns	FL	3
St. Lucie	FL	3
Sumter	FL	3
Suwannee	FL	3
Taylor	FL	3
Volusia	FL	3
Wakulla	FL	3
Walton	FL	3
Washington	FL	3
Cobb	GA	1
De Kalb	GA	1
Fulton	GA	1
Gwinnett	GA	1

County Name	State	Radon Zone
Banks	GA	2
Barrow	GA	2
Bartow	GA	2
Butts	GA	2
Carroll	GA	2
Catoosa	GA	2
Cherokee	GA	2
Clarke	GA	2
Clayton	GA	2
Coweta	GA	2
Dawson	GA	2
Douglas	GA	2
Elbert	GA	2
Fannin	GA	2
Fayette	GA	2
Floyd	GA	2
Forsyth	GA	2
Franklin	GA	2
Gilmer	GA	2
Greene	GA	2
Habersham	GA	2
Hall	GA	2
Haralson	GA	2
Harris	GA	2
Hart	GA	2
Heard	GA	2
Henry	GA	2
Jackson	GA	2
Jasper	GA	2
Lamar	GA	2
Lumpkin	GA	2
Madison	GA	2
Meriwether	GA	2
Monroe	GA	2
Morgan	GA	2
Newton	GA	2
Oconee	GA	2
Oglethorpe	GA	2
Paulding	GA	2
Pickens	GA	2
Pike	GA	2
Rabun	GA	2
Richmond	GA	2
Rockdale	GA	2
Spalding	GA	2
Stephens	GA	2
Talbot	GA	2
Towns	GA	2
Troup	GA	2
Union	GA	2
Upson	GA	2
Walker	GA	2
Walton	GA	2
White	GA	2
Whitfield	GA	2
Atkinson	GA	3
Bacon	GA	3
Baker	GA	3
Baldwin	GA	3
Ben Hill	GA	3
Berrien	GA	3
Bibb	GA	3
Bleckley	GA	3
Brantley	GA	3
Brooks	GA	3
Bryan	GA	3
Bulloch	GA	3
Burke	GA	3

County Name	State	Radon Zone
Calhoun	GA	3
Camden	GA	3
Candler	GA	3
Charlton	GA	3
Chatham	GA	3
Chattahoochee	GA	3
Chattooga	GA	3
Clay	GA	3
Clinch	GA	3
Coffee	GA	3
Colquitt	GA	3
Columbia	GA	3
Cook	GA	3
Crawford	GA	3
Crisp	GA	3
Dade	GA	3
Decatur	GA	3
Dodge	GA	3
Dooly	GA	3
Dougherty	GA	3
Early	GA	3
Echols	GA	3
Effingham	GA	3
Emanuel	GA	3
Evans	GA	3
Glascock	GA	3
Glynn	GA	3
Gordon	GA	3
Grady	GA	3
Hancock	GA	3
Houston	GA	3
Irwin	GA	3
Jeff Davis	GA	3
Jefferson	GA	3
Jenkins	GA	3
Johnson	GA	3
Jones	GA	3
Lanier	GA	3
Laurens	GA	3
Lee	GA	3
Liberty	GA	3
Lincoln	GA	3
Long	GA	3
Lowndes	GA	3
Macon	GA	3
Marion	GA	3
McDuffie	GA	3
McIntosh	GA	3
Miller	GA	3
Mitchell	GA	3
Montgomery	GA	3
Murray	GA	3
Muscogee	GA	3
Peach	GA	3
Pierce	GA	3
Polk	GA	3
Pulaski	GA	3
Putnam	GA	3
Quitman	GA	3
Randolph	GA	3
Schley	GA	3
Screven	GA	3
Seminole	GA	3
Stewart	GA	3
Sumter	GA	3
Taliaferro	GA	3
Tattnall	GA	3
Taylor	GA	3

County Name	State	Radon Zone
Telfair	GA	3
Terrell	GA	3
Thomas	GA	3
Tift	GA	3
Toombs	GA	3
Treutlen	GA	3
Turner	GA	3
Twiggs	GA	3
Ware	GA	3
Warren	GA	3
Washington	GA	3
Wayne	GA	3
Webster	GA	3
Wheeler	GA	3
Wilcox	GA	3
Wilkes	GA	3
Wilkinson	GA	3
Worth	GA	3
Hawaii	HI	3
Honolulu	HI	3
Kalawao	HI	3
Kauai	HI	3
Maui	HI	3
Adair	IA	1
Adams	IA	1
Allamakee	IA	1
Appanoose	IA	1
Audubon	IA	1
Benton	IA	1
Black Hawk	IA	1
Boone	IA	1
Bremer	IA	1
Buchanan	IA	1
Buena Vista	IA	1
Butler	IA	1
Calhoun	IA	1
Carroll	IA	1
Cass	IA	1
Cedar	IA	1
Cerro Gordo	IA	1
Cherokee	IA	1
Chickasaw	IA	1
Clarke	IA	1
Clay	IA	1
Clayton	IA	1
Clinton	IA	1
Crawford	IA	1
Dallas	IA	1
Davis	IA	1
Decatur	IA	1
Delaware	IA	1
Des Moines	IA	1
Dickinson	IA	1
Dubuque	IA	1
Emmet	IA	1
Fayette	IA	1
Floyd	IA	1
Franklin	IA	1
Fremont	IA	1
Greene	IA	1
Grundy	IA	1
Guthrie	IA	1
Hamilton	IA	1
Hancock	IA	1
Hardin	IA	1
Harrison	IA	1
Henry	IA	1
Howard	IA	1

County Name	State	Radon Zone
Humboldt	IA	1
Ida	IA	1
Iowa	IA	1
Jackson	IA	1
Jasper	IA	1
Jefferson	IA	1
Johnson	IA	1
Jones	IA	1
Keokuk	IA	1
Kossuth	IA	1
Lee	IA	1
Linn	IA	1
Louisa	IA	1
Lucas	IA	1
Lyon	IA	1
Madison	IA	1
Mahaska	IA	1
Marion	IA	1
Marshall	IA	1
Mills	IA	1
Mitchell	IA	1
Monona	IA	1
Monroe	IA	1
Montgomery	IA	1
Muscatine	IA	1
O'Brien	IA	1
Osceola	IA	1
Page	IA	1
Palo Alto	IA	1
Plymouth	IA	1
Pocahontas	IA	1
Polk	IA	1
Pottawattamie	IA	1
Poweshiek	IA	1
Ringgold	IA	1
Sac	IA	1
Scott	IA	1
Shelby	IA	1
Sioux	IA	1
Story	IA	1
Tama	IA	1
Taylor	IA	1
Union	IA	1
Van Buren	IA	1
Wapello	IA	1
Warren	IA	1
Washington	IA	1
Wayne	IA	1
Webster	IA	1
Winnebago	IA	1
Winneshiek	IA	1
Woodbury	IA	1
Worth	IA	1
Wright	IA	1
Benewah	ID	1
Blaine	ID	1
Boise	ID	1
Bonner	ID	1
Boundary	ID	1
Butte	ID	1
Camas	ID	1
Clark	ID	1
Clearwater	ID	1
Custer	ID	1
Elmore	ID	1
Fremont	ID	1
Gooding	ID	1
Idaho	ID	1

County Name	State	Radon Zone
Kootenai	ID	1
Latah	ID	1
Lemhi	ID	1
Shoshone	ID	1
Valley	ID	1
Ada	ID	2
Bannock	ID	2
Bear Lake	ID	2
Bingham	ID	2
Bonneville	ID	2
Canyon	ID	2
Caribou	ID	2
Cassia	ID	2
Franklin	ID	2
Jefferson	ID	2
Jerome	ID	2
Lincoln	ID	2
Madison	ID	2
Minidoka	ID	2
Oneida	ID	2
Owyhee	ID	2
Payette	ID	2
Power	ID	2
Teton	ID	2
Twin Falls	ID	2
Adams	ID	3
Gem	ID	3
Lewis	ID	3
Nez Perce	ID	3
Washington	ID	3
Adams	IL	1
Boone	IL	1
Brown	IL	1
Bureau	IL	1
Calhoun	IL	1
Carroll	IL	1
Cass	IL	1
Champaign	IL	1
Coles	IL	1
De Kalb	IL	1
De Witt	IL	1
Douglas	IL	1
Edgar	IL	1
Ford	IL	1
Fulton	IL	1
Greene	IL	1
Grundy	IL	1
Hancock	IL	1
Henderson	IL	1
Henry	IL	1
Iroquois	IL	1
Jersey	IL	1
Jo Daviess	IL	1
Kane	IL	1
Kendall	IL	1
Knox	IL	1
La Salle	IL	1
Lee	IL	1
Livingston	IL	1
Logan	IL	1
Macon	IL	1
Marshall	IL	1
Mason	IL	1
McDonough	IL	1
McLean	IL	1
Menard	IL	1
Mercer	IL	1
Morgan	IL	1

County Name	State	Radon Zone
Moultrie	IL	1
Ogle	IL	1
Peoria	IL	1
Piatt	IL	1
Pike	IL	1
Putnam	IL	1
Rock Island	IL	1
Sangamon	IL	1
Schuyler	IL	1
Scott	IL	1
Stark	IL	1
Stephenson	IL	1
Tazewell	IL	1
Vermilion	IL	1
Warren	IL	1
Whiteside	IL	1
Winnebago	IL	1
Woodford	IL	1
Bond	IL	2
Christian	IL	2
Clark	IL	2
Clay	IL	2
Clinton	IL	2
Cook	IL	2
Crawford	IL	2
Cumberland	IL	2
Du Page	IL	2
Edwards	IL	2
Effingham	IL	2
Fayette	IL	2
Franklin	IL	2
Gallatin	IL	2
Hamilton	IL	2
Hardin	IL	2
Jackson	IL	2
Jasper	IL	2
Jefferson	IL	2
Johnson	IL	2
Kankakee	IL	2
Lake	IL	2
Lawrence	IL	2
Macoupin	IL	2
Madison	IL	2
Marion	IL	2
McHenry	IL	2
Monroe	IL	2
Montgomery	IL	2
Perry	IL	2
Pope	IL	2
Randolph	IL	2
Richland	IL	2
Saline	IL	2
Shelby	IL	2
St. Clair	IL	2
Union	IL	2
Wabash	IL	2
Washington	IL	2
Wayne	IL	2
White	IL	2
Will	IL	2
Williamson	IL	2
Alexander	IL	3
Massac	IL	3
Pulaski	IL	3
Adams	IN	1
Allen	IN	1
Bartholomew	IN	1
Benton	IN	1

County Name	State	Radon Zone
Blackford	IN	1
Boone	IN	1
Carroll	IN	1
Cass	IN	1
Clark	IN	1
Clinton	IN	1
De Kalb	IN	1
Decatur	IN	1
Delaware	IN	1
Elkhart	IN	1
Fayette	IN	1
Fountain	IN	1
Fulton	IN	1
Grant	IN	1
Hamilton	IN	1
Hancock	IN	1
Harrison	IN	1
Hendricks	IN	1
Henry	IN	1
Howard	IN	1
Huntington	IN	1
Jay	IN	1
Jennings	IN	1
Johnson	IN	1
Kosciusko	IN	1
Lagrange	IN	1
Lawrence	IN	1
Madison	IN	1
Marion	IN	1
Marshall	IN	1
Miami	IN	1
Monroe	IN	1
Montgomery	IN	1
Noble	IN	1
Orange	IN	1
Putnam	IN	1
Randolph	IN	1
Rush	IN	1
Scott	IN	1
Shelby	IN	1
Steuben	IN	1
St. Joseph	IN	1
Tippecanoe	IN	1
Tipton	IN	1
Union	IN	1
Vermillion	IN	1
Wabash	IN	1
Warren	IN	1
Washington	IN	1
Wayne	IN	1
Wells	IN	1
White	IN	1
Whitley	IN	1
Brown	IN	2
Clay	IN	2
Crawford	IN	2
Daviess	IN	2
Dearborn	IN	2
Dubois	IN	2
Floyd	IN	2
Franklin	IN	2
Gibson	IN	2
Greene	IN	2
Jackson	IN	2
Jasper	IN	2
Jefferson	IN	2
Knox	IN	2
La Porte	IN	2

County Name	State	Radon Zone
Lake	IN	2
Martin	IN	2
Morgan	IN	2
Newton	IN	2
Ohio	IN	2
Owen	IN	2
Parke	IN	2
Perry	IN	2
Pike	IN	2
Porter	IN	2
Posey	IN	2
Pulaski	IN	2
Ripley	IN	2
Spencer	IN	2
Starke	IN	2
Sullivan	IN	2
Switzerland	IN	2
Vanderburgh	IN	2
Vigo	IN	2
Warrick	IN	2
Atchison	KS	1
Barton	KS	1
Brown	KS	1
Cheyenne	KS	1
Clay	KS	1
Cloud	KS	1
Decatur	KS	1
Dickinson	KS	1
Douglas	KS	1
Ellis	KS	1
Ellsworth	KS	1
Finney	KS	1
Ford	KS	1
Geary	KS	1
Gove	KS	1
Graham	KS	1
Grant	KS	1
Gray	KS	1
Greeley	KS	1
Hamilton	KS	1
Haskell	KS	1
Hodgeman	KS	1
Jackson	KS	1
Jewell	KS	1
Johnson	KS	1
Kearny	KS	1
Kingman	KS	1
Kiowa	KS	1
Lane	KS	1
Leavenworth	KS	1
Lincoln	KS	1
Logan	KS	1
Marion	KS	1
Marshall	KS	1
McPherson	KS	1
Meade	KS	1
Mitchell	KS	1
Nemaha	KS	1
Ness	KS	1
Norton	KS	1
Osborne	KS	1
Ottawa	KS	1
Pawnee	KS	1
Phillips	KS	1
Pottawatomie	KS	1
Pratt	KS	1
Rawlins	KS	1
Republic	KS	1

County Name	State	Radon Zone
Rice	KS	1
Riley	KS	1
Rooks	KS	1
Rush	KS	1
Russell	KS	1
Saline	KS	1
Scott	KS	1
Sheridan	KS	1
Sherman	KS	1
Smith	KS	1
Stanton	KS	1
Thomas	KS	1
Trego	KS	1
Wallace	KS	1
Washington	KS	1
Wichita	KS	1
Wyandotte	KS	1
Allen	KS	2
Anderson	KS	2
Barber	KS	2
Bourbon	KS	2
Butler	KS	2
Chase	KS	2
Chautauqua	KS	2
Cherokee	KS	2
Clark	KS	2
Coffey	KS	2
Comanche	KS	2
Cowley	KS	2
Crawford	KS	2
Doniphan	KS	2
Edwards	KS	2
Elk	KS	2
Franklin	KS	2
Greenwood	KS	2
Harper	KS	2
Harvey	KS	2
Jefferson	KS	2
Labette	KS	2
Linn	KS	2
Lyon	KS	2
Miami	KS	2
Montgomery	KS	2
Morris	KS	2
Morton	KS	2
Neosho	KS	2
Osage	KS	2
Reno	KS	2
Sedgwick	KS	2
Seward	KS	2
Shawnee	KS	2
Stafford	KS	2
Stevens	KS	2
Sumner	KS	2
Wabaunsee	KS	2
Wilson	KS	2
Woodson	KS	2
Adair	KY	1
Allen	KY	1
Barren	KY	1
Bourbon	KY	1
Boyle	KY	1
Bullitt	KY	1
Casey	KY	1
Clark	KY	1
Cumberland	KY	1
Fayette	KY	1
Franklin	KY	1

County Name	State	Radon Zone
Green	KY	1
Harrison	KY	1
Hart	KY	1
Jefferson	KY	1
Jessamine	KY	1
Lincoln	KY	1
Marion	KY	1
Mercer	KY	1
Metcalfe	KY	1
Monroe	KY	1
Nelson	KY	1
Pendleton	KY	1
Pulaski	KY	1
Robertson	KY	1
Russell	KY	1
Scott	KY	1
Taylor	KY	1
Warren	KY	1
Woodford	KY	1
Anderson	KY	2
Bath	KY	2
Bell	KY	2
Boone	KY	2
Boyd	KY	2
Bracken	KY	2
Breathitt	KY	2
Breckinridge	KY	2
Butler	KY	2
Caldwell	KY	2
Campbell	KY	2
Carroll	KY	2
Carter	KY	2
Christian	KY	2
Clay	KY	2
Clinton	KY	2
Crittenden	KY	2
Daviess	KY	2
Edmonson	KY	2
Elliott	KY	2
Estill	KY	2
Fleming	KY	2
Floyd	KY	2
Gallatin	KY	2
Garrard	KY	2
Grant	KY	2
Grayson	KY	2
Greenup	KY	2
Hancock	KY	2
Hardin	KY	2
Harlan	KY	2
Henderson	KY	2
Henry	KY	2
Hopkins	KY	2
Jackson	KY	2
Johnson	KY	2
Kenton	KY	2
Knott	KY	2
Knox	KY	2
Larue	KY	2
Laurel	KY	2
Lawrence	KY	2
Lee	KY	2
Leslie	KY	2
Letcher	KY	2
Lewis	KY	2
Livingston	KY	2
Logan	KY	2
Lyon	KY	2

County Name	State	Radon Zone
Madison	KY	2
Magoffin	KY	2
Martin	KY	2
Mason	KY	2
McCreary	KY	2
McLean	KY	2
Meade	KY	2
Menifee	KY	2
Montgomery	KY	2
Morgan	KY	2
Muhlenberg	KY	2
Nicholas	KY	2
Ohio	KY	2
Oldham	KY	2
Owen	KY	2
Owsley	KY	2
Perry	KY	2
Pike	KY	2
Powell	KY	2
Rockcastle	KY	2
Rowan	KY	2
Shelby	KY	2
Simpson	KY	2
Spencer	KY	2
Todd	KY	2
Trigg	KY	2
Trimble	KY	2
Union	KY	2
Washington	KY	2
Wayne	KY	2
Webster	KY	2
Whitley	KY	2
Wolfe	KY	2
Ballard	KY	3
Calloway	KY	3
Carlisle	KY	3
Fulton	KY	3
Graves	KY	3
Hickman	KY	3
Marshall	KY	3
McCracken	KY	3
Acadia	LA	3
Allen	LA	3
Ascension	LA	3
Assumption	LA	3
Avoyelles	LA	3
Beauregard	LA	3
Bienville	LA	3
Bossier	LA	3
Caddo	LA	3
Calcasieu	LA	3
Caldwell	LA	3
Cameron	LA	3
Catahoula	LA	3
Claiborne	LA	3
Concordia	LA	3
De Soto	LA	3
East Baton Rouge	LA	3
East Carroll	LA	3
East Feliciana	LA	3
Evangeline	LA	3
Franklin	LA	3
Grant	LA	3
Iberia	LA	3
Iberville	LA	3
Jackson	LA	3
Jefferson	LA	3
Jefferson Davis	LA	3

County Name	State	Radon Zone
La Salle	LA	3
Lafayette	LA	3
Lafourche	LA	3
Lincoln	LA	3
Livingston	LA	3
Madison	LA	3
Morehouse	LA	3
Natchitoches	LA	3
Orleans	LA	3
Ouachita	LA	3
Plaquemines	LA	3
Pointe Coupee	LA	3
Rapides	LA	3
Red River	LA	3
Richland	LA	3
Sabine	LA	3
St. Bernard	LA	3
St. Charles	LA	3
St. Helena	LA	3
St. James	LA	3
St. John the Baptist	LA	3
St. Landry	LA	3
St. Martin	LA	3
St. Mary	LA	3
St. Tammany	LA	3
Tangipahoa	LA	3
Tensas	LA	3
Terrebonne	LA	3
Union	LA	3
Vermilion	LA	3
Vernon	LA	3
Washington	LA	3
Webster	LA	3
West Baton Rouge	LA	3
West Carroll	LA	3
West Feliciana	LA	3
Winn	LA	3
Essex	MA	1
Middlesex	MA	1
Worcester	MA	1
Barnstable	MA	2
Berkshire	MA	2
Bristol	MA	2
Dukes	MA	2
Franklin	MA	2
Hampden	MA	2
Hampshire	MA	2
Nantucket	MA	2
Norfolk	MA	2
Plymouth	MA	2
Suffolk	MA	3
Baltimore	MD	1
Calvert	MD	1
Carroll	MD	1
Frederick	MD	1
Harford	MD	1
Howard	MD	1
Montgomery	MD	1
Washington	MD	1
Allegany	MD	2
Anne Arundel	MD	2
Baltimore City	MD	2
Cecil	MD	2
Charles	MD	2
Garrett	MD	2
Prince George's	MD	2
St. Mary's	MD	2
Caroline	MD	3

County Name	State	Radon Zone
Dorchester	MD	3
Kent	MD	3
Queen Anne's	MD	3
Somerset	MD	3
Talbot	MD	3
Wicomico	MD	3
Worcester	MD	3
Androscoggin	ME	1
Aroostook	ME	1
Cumberland	ME	1
Franklin	ME	1
Hancock	ME	1
Kennebec	ME	1
Lincoln	ME	1
Oxford	ME	1
Penobscot	ME	1
Piscataquis	ME	1
Somerset	ME	1
York	ME	1
Knox	ME	2
Sagadahoc	ME	2
Waldo	ME	2
Washington	ME	2
Branch	MI	1
Calhoun	MI	1
Cass	MI	1
Hillsdale	MI	1
Jackson	MI	1
Kalamazoo	MI	1
Lenawee	MI	1
St. Joseph	MI	1
Washtenaw	MI	1
Alcona	MI	2
Alger	MI	2
Alpena	MI	2
Antrim	MI	2
Baraga	MI	2
Barry	MI	2
Charlevoix	MI	2
Clinton	MI	2
Dickinson	MI	2
Eaton	MI	2
Emmet	MI	2
Genesee	MI	2
Gogebic	MI	2
Houghton	MI	2
Ingham	MI	2
Ionia	MI	2
Iron	MI	2
Kent	MI	2
Keweenaw	MI	2
Lapeer	MI	2
Leelanau	MI	2
Livingston	MI	2
Marquette	MI	2
Menominee	MI	2
Monroe	MI	2
Montcalm	MI	2
Montmorency	MI	2
Oakland	MI	2
Otsego	MI	2
Presque Isle	MI	2
Sanilac	MI	2
Shiawassee	MI	2
Allegan	MI	3
Arenac	MI	3
Bay	MI	3
Benzie	MI	3

County Name	State	Radon Zone
Berrien	MI	3
Cheboygan	MI	3
Chippewa	MI	3
Clare	MI	3
Crawford	MI	3
Delta	MI	3
Gladwin	MI	3
Grand Traverse	MI	3
Gratiot	MI	3
Huron	MI	3
Iosco	MI	3
Isabella	MI	3
Kalkaska	MI	3
Lake	MI	3
Luce	MI	3
Mackinac	MI	3
Macomb	MI	3
Manistee	MI	3
Mason	MI	3
Mecosta	MI	3
Midland	MI	3
Missaukee	MI	3
Muskegon	MI	3
Newaygo	MI	3
Oceana	MI	3
Ogemaw	MI	3
Ontonagon	MI	3
Osceola	MI	3
Oscoda	MI	3
Ottawa	MI	3
Roscommon	MI	3
Saginaw	MI	3
Schoolcraft	MI	3
St. Clair	MI	3
Tuscola	MI	3
Van Buren	MI	3
Wayne	MI	3
Wexford	MI	3
Becker	MN	1
Big Stone	MN	1
Blue Earth	MN	1
Brown	MN	1
Carver	MN	1
Chippewa	MN	1
Clay	MN	1
Cottonwood	MN	1
Dakota	MN	1
Dodge	MN	1
Douglas	MN	1
Faribault	MN	1
Fillmore	MN	1
Freeborn	MN	1
Goodhue	MN	1
Grant	MN	1
Hennepin	MN	1
Houston	MN	1
Hubbard	MN	1
Jackson	MN	1
Kanabec	MN	1
Kandiyohi	MN	1
Kittson	MN	1
Lac Qui Parle	MN	1
Le Sueur	MN	1
Lincoln	MN	1
Lyon	MN	1
Mahnomen	MN	1
Marshall	MN	1
Martin	MN	1

County Name	State	Radon Zone
McLeod	MN	1
Meeker	MN	1
Mower	MN	1
Murray	MN	1
Nicollet	MN	1
Nobles	MN	1
Norman	MN	1
Olmsted	MN	1
Otter Tail	MN	1
Pennington	MN	1
Pipestone	MN	1
Polk	MN	1
Pope	MN	1
Ramsey	MN	1
Red Lake	MN	1
Redwood	MN	1
Renville	MN	1
Rice	MN	1
Rock	MN	1
Roseau	MN	1
Scott	MN	1
Sherburne	MN	1
Sibley	MN	1
Stearns	MN	1
Steele	MN	1
Stevens	MN	1
Swift	MN	1
Todd	MN	1
Traverse	MN	1
Wabasha	MN	1
Wadena	MN	1
Waseca	MN	1
Washington	MN	1
Watonwan	MN	1
Wilkin	MN	1
Winona	MN	1
Wright	MN	1
Yellow Medicine	MN	1
Aitkin	MN	2
Anoka	MN	2
Beltrami	MN	2
Benton	MN	2
Carlton	MN	2
Cass	MN	2
Chisago	MN	2
Clearwater	MN	2
Cook	MN	2
Crow Wing	MN	2
Isanti	MN	2
Itasca	MN	2
Koochiching	MN	2
Lake	MN	2
Lake of the Woods	MN	2
Mille Lacs	MN	2
Morrison	MN	2
Pine	MN	2
St. Louis	MN	2
Andrew	MO	1
Atchison	MO	1
Buchanan	MO	1
Cass	MO	1
Clay	MO	1
Clinton	MO	1
Holt	MO	1
Iron	MO	1
Jackson	MO	1
Nodaway	MO	1
Platte	MO	1

County Name	State	Radon Zone
Adair	MO	2
Audrain	MO	2
Barry	MO	2
Barton	MO	2
Bates	MO	2
Benton	MO	2
Bollinger	MO	2
Boone	MO	2
Caldwell	MO	2
Callaway	MO	2
Camden	MO	2
Cape Girardeau	MO	2
Carroll	MO	2
Carter	MO	2
Cedar	MO	2
Chariton	MO	2
Christian	MO	2
Clark	MO	2
Cole	MO	2
Cooper	MO	2
Crawford	MO	2
Dade	MO	2
Dallas	MO	2
Daviess	MO	2
De Kalb	MO	2
Dent	MO	2
Douglas	MO	2
Franklin	MO	2
Gasconade	MO	2
Gentry	MO	2
Greene	MO	2
Grundy	MO	2
Harrison	MO	2
Henry	MO	2
Hickory	MO	2
Howard	MO	2
Howell	MO	2
Jasper	MO	2
Jefferson	MO	2
Johnson	MO	2
Knox	MO	2
Laclede	MO	2
Lafayette	MO	2
Lawrence	MO	2
Lewis	MO	2
Lincoln	MO	2
Linn	MO	2
Livingston	MO	2
Macon	MO	2
Madison	MO	2
Maries	MO	2
Marion	MO	2
McDonald	MO	2
Mercer	MO	2
Miller	MO	2
Moniteau	MO	2
Monroe	MO	2
Montgomery	MO	2
Morgan	MO	2
Newton	MO	2
Oregon	MO	2
Osage	MO	2
Ozark	MO	2
Perry	MO	2
Pettis	MO	2
Phelps	MO	2
Pike	MO	2
Polk	MO	2

County Name	State	Radon Zone
Pulaski	MO	2
Putnam	MO	2
Ralls	MO	2
Randolph	MO	2
Ray	MO	2
Reynolds	MO	2
Ripley	MO	2
Saline	MO	2
Schuyler	MO	2
Scotland	MO	2
Shannon	MO	2
Shelby	MO	2
Ste. Genevieve	MO	2
Stone	MO	2
St. Charles	MO	2
St. Clair	MO	2
St. Francois	MO	2
St. Louis	MO	2
St. Louis City	MO	2
Sullivan	MO	2
Taney	MO	2
Texas	MO	2
Vernon	MO	2
Warren	MO	2
Washington	MO	2
Wayne	MO	2
Webster	MO	2
Worth	MO	2
Wright	MO	2
Butler	MO	3
Dunklin	MO	3
Mississippi	MO	3
New Madrid	MO	3
Pemiscot	MO	3
Scott	MO	3
Stoddard	MO	3
Alcorn	MS	2
Chickasaw	MS	2
Clay	MS	2
Lee	MS	2
Lowndes	MS	2
Noxubee	MS	2
Pontotoc	MS	2
Union	MS	2
Adams	MS	3
Amite	MS	3
Attala	MS	3
Benton	MS	3
Bolivar	MS	3
Calhoun	MS	3
Carroll	MS	3
Choctaw	MS	3
Claiborne	MS	3
Clarke	MS	3
Coahoma	MS	3
Copiah	MS	3
Covington	MS	3
De Soto	MS	3
Forrest	MS	3
Franklin	MS	3
George	MS	3
Greene	MS	3
Grenada	MS	3
Hancock	MS	3
Harrison	MS	3
Hinds	MS	3
Holmes	MS	3
Humphreys	MS	3

County Name	State	Radon Zone
Issaquena	MS	3
Itawamba	MS	3
Jackson	MS	3
Jasper	MS	3
Jefferson	MS	3
Jefferson Davis	MS	3
Jones	MS	3
Kemper	MS	3
Lafayette	MS	3
Lamar	MS	3
Lauderdale	MS	3
Lawrence	MS	3
Leake	MS	3
Leflore	MS	3
Lincoln	MS	3
Madison	MS	3
Marion	MS	3
Marshall	MS	3
Monroe	MS	3
Montgomery	MS	3
Neshoba	MS	3
Newton	MS	3
Oktibbeha	MS	3
Panola	MS	3
Pearl River	MS	3
Perry	MS	3
Pike	MS	3
Prentiss	MS	3
Quitman	MS	3
Rankin	MS	3
Scott	MS	3
Sharkey	MS	3
Simpson	MS	3
Smith	MS	3
Stone	MS	3
Sunflower	MS	3
Tallahatchie	MS	3
Tate	MS	3
Tippah	MS	3
Tishomingo	MS	3
Tunica	MS	3
Walthall	MS	3
Warren	MS	3
Washington	MS	3
Wayne	MS	3
Webster	MS	3
Wilkinson	MS	3
Winston	MS	3
Yalobusha	MS	3
Yazoo	MS	3
Beaverhead	MT	1
Big Horn	MT	1
Blaine	MT	1
Broadwater	MT	1
Carbon	MT	1
Carter	MT	1
Cascade	MT	1
Chouteau	MT	1
Custer	MT	1
Daniels	MT	1
Dawson	MT	1
Deer Lodge	MT	1
Fallon	MT	1
Fergus	MT	1
Flathead	MT	1
Gallatin	MT	1
Garfield	MT	1
Glacier	MT	1

County Name	State	Radon Zone
Granite	MT	1
Hill	MT	1
Jefferson	MT	1
Judith Basin	MT	1
Lake	MT	1
Lewis and Clark	MT	1
Liberty	MT	1
Lincoln	MT	1
Madison	MT	1
McCone	MT	1
Meagher	MT	1
Mineral	MT	1
Missoula	MT	1
Park	MT	1
Phillips	MT	1
Pondera	MT	1
Powder River	MT	1
Powell	MT	1
Prairie	MT	1
Ravalli	MT	1
Richland	MT	1
Roosevelt	MT	1
Rosebud	MT	1
Sanders	MT	1
Sheridan	MT	1
Silver Bow	MT	1
Stillwater	MT	1
Teton	MT	1
Toole	MT	1
Valley	MT	1
Wibaux	MT	1
Yellowstone National Park	MT	1
Golden Valley	MT	2
Musselshell	MT	2
Petroleum	MT	2
Sweet Grass	MT	2
Treasure	MT	2
Wheatland	MT	2
Yellowstone	MT	2
Alleghany	NC	1
Buncombe	NC	1
Cherokee	NC	1
Henderson	NC	1
Mitchell	NC	1
Rockingham	NC	1
Transylvania	NC	1
Watauga	NC	1
Alexander	NC	2
Vance	NC	2
Ashe	NC	2
Avery	NC	2
Burke	NC	2
Caldwell	NC	2
Caswell	NC	2
Catawba	NC	2
Clay	NC	2
Cleveland	NC	2
Forsyth	NC	2
Franklin	NC	2
Gaston	NC	2
Graham	NC	2
Haywood	NC	2
Iredell	NC	2
Jackson	NC	2
Lincoln	NC	2
Macon	NC	2
Madison	NC	2

County Name	State	Radon Zone
McDowell	NC	2
Polk	NC	2
Rutherford	NC	2
Stokes	NC	2
Surry	NC	2
Swain	NC	2
Wake	NC	2
Warren	NC	2
Wilkes	NC	2
Yadkin	NC	2
Yancey	NC	2
Alamance	NC	3
Anson	NC	3
Beaufort	NC	3
Bertie	NC	3
Bladen	NC	3
Brunswick	NC	3
Cabarrus	NC	3
Camden	NC	3
Carteret	NC	3
Chatham	NC	3
Chowan	NC	3
Columbus	NC	3
Craven	NC	3
Cumberland	NC	3
Currituck	NC	3
Dare	NC	3
Davidson	NC	3
Davie	NC	3
Duplin	NC	3
Durham	NC	3
Edgecombe	NC	3
Gates	NC	3
Granville	NC	3
Greene	NC	3
Guilford	NC	3
Halifax	NC	3
Harnett	NC	3
Hertford	NC	3
Hoke	NC	3
Hyde	NC	3
Johnston	NC	3
Jones	NC	3
Lee	NC	3
Lenoir	NC	3
Martin	NC	3
Mecklenburg	NC	3
Montgomery	NC	3
Moore	NC	3
Nash	NC	3
New Hanover	NC	3
Northampton	NC	3
Onslow	NC	3
Orange	NC	3
Pamlico	NC	3
Pasquotank	NC	3
Pender	NC	3
Perquimans	NC	3
Person	NC	3
Pitt	NC	3
Randolph	NC	3
Richmond	NC	3
Robeson	NC	3
Rowan	NC	3
Sampson	NC	3
Scotland	NC	3
Stanly	NC	3
Tyrrell	NC	3

County Name	State	Radon Zone
Union	NC	3
Washington	NC	3
Wayne	NC	3
Wilson	NC	3
Adams	ND	1
Barnes	ND	1
Benson	ND	1
Billings	ND	1
Bottineau	ND	1
Bowman	ND	1
Burke	ND	1
Burleigh	ND	1
Cass	ND	1
Cavalier	ND	1
Dickey	ND	1
Divide	ND	1
Dunn	ND	1
Eddy	ND	1
Emmons	ND	1
Foster	ND	1
Golden Valley	ND	1
Grand Forks	ND	1
Grant	ND	1
Griggs	ND	1
Hettinger	ND	1
Kidder	ND	1
La Moure	ND	1
Logan	ND	1
McHenry	ND	1
McIntosh	ND	1
McKenzie	ND	1
McLean	ND	1
Mercer	ND	1
Morton	ND	1
Mountrail	ND	1
Nelson	ND	1
Oliver	ND	1
Pembina	ND	1
Pierce	ND	1
Ramsey	ND	1
Ransom	ND	1
Renville	ND	1
Richland	ND	1
Rolette	ND	1
Sargent	ND	1
Sheridan	ND	1
Sioux	ND	1
Slope	ND	1
Stark	ND	1
Steele	ND	1
Stutsman	ND	1
Towner	ND	1
Traill	ND	1
Walsh	ND	1
Ward	ND	1
Wells	ND	1
Williams	ND	1
Adams	NE	1
Boone	NE	1
Boyd	NE	1
Burt	NE	1
Butler	NE	1
Cass	NE	1
Cedar	NE	1
Clay	NE	1
Colfax	NE	1
Cuming	NE	1
Dakota	NE	1

County Name	State	Radon Zone
Dixon	NE	1
Dodge	NE	1
Douglas	NE	1
Fillmore	NE	1
Franklin	NE	1
Frontier	NE	1
Furnas	NE	1
Gage	NE	1
Gosper	NE	1
Greeley	NE	1
Hamilton	NE	1
Harlan	NE	1
Hayes	NE	1
Hitchcock	NE	1
hurston	NE	1
Jefferson	NE	1
Johnson	NE	1
Kearney	NE	1
Knox	NE	1
Lancaster	NE	1
Madison	NE	1
Nance	NE	1
Nemaha	NE	1
Nuckolls	NE	1
Otoe	NE	1
Pawnee	NE	1
Phelps	NE	1
Pierce	NE	1
Platte	NE	1
Polk	NE	1
Red Willow	NE	1
Richardson	NE	1
Saline	NE	1
Sarpy	NE	1
Saunders	NE	1
Seward	NE	1
Stanton	NE	1
Thayer	NE	1
Washington	NE	1
Wayne	NE	1
Webster	NE	1
York	NE	1
Antelope	NE	2
Banner	NE	2
Box Butte	NE	2
Buffalo	NE	2
Chase	NE	2
Cheyenne	NE	2
Custer	NE	2
Dawes	NE	2
Dawson	NE	2
Deuel	NE	2
Dundy	NE	2
Hall	NE	2
Howard	NE	2
Keith	NE	2
Keya Paha	NE	2
Kimball	NE	2
Merrick	NE	2
Morrill	NE	2
Perkins	NE	2
Scotts Bluff	NE	2
Sheridan	NE	2
Sherman	NE	2
Sioux	NE	2
Valley	NE	2
Arthur	NE	3
Blaine	NE	3

County Name	State	Radon Zone
Brown	NE	3
Cherry	NE	3
Garden	NE	3
Garfield	NE	3
Grant	NE	3
Holt	NE	3
Hooker	NE	3
Lincoln	NE	3
Logan	NE	3
Loup	NE	3
McPherson	NE	3
Rock	NE	3
Thomas	NE	3
Wheeler	NE	3
Carroll	NH	1
Belknap	NH	2
Cheshire	NH	2
Coos	NH	2
Grafton	NH	2
Hillsborough	NH	2
Merrimack	NH	2
Rockingham	NH	2
Strafford	NH	2
Sullivan	NH	2
Hunterdon	NJ	1
Mercer	NJ	1
Monmouth	NJ	1
Morris	NJ	1
Somerset	NJ	1
Sussex	NJ	1
Warren	NJ	1
Bergen	NJ	2
Burlington	NJ	2
Camden	NJ	2
Cumberland	NJ	2
Essex	NJ	2
Gloucester	NJ	2
Hudson	NJ	2
Middlesex	NJ	2
Passaic	NJ	2
Salem	NJ	2
Union	NJ	2
Atlantic	NJ	3
Cape May	NJ	3
Ocean	NJ	3
Grant	NM	
Bernalillo	NM	1
Colfax	NM	1
Mora	NM	1
Rio Arriba	NM	1
San Miguel	NM	1
Santa Fe	NM	1
Taos	NM	1
Catron	NM	2
Chaves	NM	2
Cibola	NM	2
Curry	NM	2
De Baca	NM	2
Dona Ana	NM	2
Eddy	NM	2
Guadalupe	NM	2
Harding	NM	2
Hidalgo	NM	2
Lea	NM	2
Lincoln	NM	2
Los Alamos	NM	2
Luna	NM	2
McKinley	NM	2

County Name	State	Radon Zone
Otero	NM	2
Quay	NM	2
Roosevelt	NM	2
San Juan	NM	2
Sandoval	NM	2
Sierra	NM	2
Socorro	NM	2
Torrance	NM	2
Union	NM	2
Valencia	NM	2
Carson City	NV	1
Douglas	NV	1
Eureka	NV	1
Lander	NV	1
Lincoln	NV	1
Lyon	NV	1
Mineral	NV	1
Pershing	NV	1
White Pine	NV	1
Churchill	NV	2
Elko	NV	2
Esmeralda	NV	2
Humboldt	NV	2
Nye	NV	2
Storey	NV	2
Washoe	NV	2
Clark	NV	3
Albany	NY	1
Allegany	NY	1
Broome	NY	1
Cattaraugus	NY	1
Cayuga	NY	1
Chautauqua	NY	1
Chemung	NY	1
Chenango	NY	1
Columbia	NY	1
Cortland	NY	1
Delaware	NY	1
Dutchess	NY	1
Erie	NY	1
Genesee	NY	1
Greene	NY	1
Livingston	NY	1
Madison	NY	1
Onondaga	NY	1
Ontario	NY	1
Orange	NY	1
Otsego	NY	1
Putnam	NY	1
Rensselaer	NY	1
Schoharie	NY	1
Schuyler	NY	1
Seneca	NY	1
Steuben	NY	1
Sullivan	NY	1
Tioga	NY	1
Tompkins	NY	1
Ulster	NY	1
Washington	NY	1
Wyoming	NY	1
Yates	NY	1
Clinton	NY	2
Jefferson	NY	2
Lewis	NY	2
Monroe	NY	2
Montgomery	NY	2
Niagara	NY	2
Oneida	NY	2

County Name	State	Radon Zone
Orleans	NY	2
Oswego	NY	2
Saratoga	NY	2
Schenectady	NY	2
St. Lawrence	NY	2
Wayne	NY	2
Bronx	NY	3
Essex	NY	3
Franklin	NY	3
Fulton	NY	3
Hamilton	NY	3
Herkimer	NY	3
Kings	NY	3
Nassau	NY	3
New York	NY	3
Queens	NY	3
Richmond	NY	3
Rockland	NY	3
Suffolk	NY	3
Warren	NY	3
Westchester	NY	3
Adams	OH	1
Allen	OH	1
Ashland	OH	1
Auglaize	OH	1
Belmont	OH	1
Butler	OH	1
Carroll	OH	1
Champaign	OH	1
Clark	OH	1
Clinton	OH	1
Columbiana	OH	1
Coshocton	OH	1
Crawford	OH	1
Darke	OH	1
Delaware	OH	1
Fairfield	OH	1
Fayette	OH	1
Franklin	OH	1
Greene	OH	1
Guernsey	OH	1
Hamilton	OH	1
Hancock	OH	1
Hardin	OH	1
Harrison	OH	1
Holmes	OH	1
Huron	OH	1
Jefferson	OH	1
Knox	OH	1
Licking	OH	1
Logan	OH	1
Madison	OH	1
Marion	OH	1
Mercer	OH	1
Miami	OH	1
Montgomery	OH	1
Morrow	OH	1
Muskingum	OH	1
Perry	OH	1
Pickaway	OH	1
Pike	OH	1
Preble	OH	1
Richland	OH	1
Ross	OH	1
Seneca	OH	1
Shelby	OH	1
Stark	OH	1
Summit	OH	1

County Name	State	Radon Zone
Tuscarawas	OH	1
Union	OH	1
Van Wert	OH	1
Warren	OH	1
Wayne	OH	1
Wyandot	OH	1
Ashtabula	OH	2
Athens	OH	2
Brown	OH	2
Clermont	OH	2
Cuyahoga	OH	2
Defiance	OH	2
Erie	OH	2
Fulton	OH	2
Gallia	OH	2
Geauga	OH	2
Henry	OH	2
Highland	OH	2
Hocking	OH	2
Jackson	OH	2
Lake	OH	2
Lawrence	OH	2
Lorain	OH	2
Lucas	OH	2
Mahoning	OH	2
Medina	OH	2
Meigs	OH	2
Monroe	OH	2
Morgan	OH	2
Noble	OH	2
Ottawa	OH	2
Paulding	OH	2
Portage	OH	2
Putnam	OH	2
Sandusky	OH	2
Scioto	OH	2
Trumbull	OH	2
Vinton	OH	2
Washington	OH	2
Williams	OH	2
Wood	OH	2
Adair	OK	2
Beaver	OK	2
Cherokee	OK	2
Cimarron	OK	2
Delaware	OK	2
Ellis	OK	2
Mayes	OK	2
Sequoyah	OK	2
Texas	OK	2
Alfalfa	OK	3
Atoka	OK	3
Beckham	OK	3
Blaine	OK	3
Bryan	OK	3
Caddo	OK	3
Canadian	OK	3
Carter	OK	3
Choctaw	OK	3
Cleveland	OK	3
Coal	OK	3
Comanche	OK	3
Cotton	OK	3
Craig	OK	3
Creek	OK	3
Custer	OK	3
Dewey	OK	3
Garfield	OK	3

County Name	State	Radon Zone
Garvin	OK	3
Grady	OK	3
Grant	OK	3
Greer	OK	3
Harmon	OK	3
Harper	OK	3
Haskell	OK	3
Hughes	OK	3
Jackson	OK	3
Jefferson	OK	3
Johnston	OK	3
Kay	OK	3
Kingfisher	OK	3
Kiowa	OK	3
Latimer	OK	3
Le Flore	OK	3
Lincoln	OK	3
Logan	OK	3
Love	OK	3
Major	OK	3
Marshall	OK	3
McClain	OK	3
McCurtain	OK	3
McIntosh	OK	3
Murray	OK	3
Muskogee	OK	3
Noble	OK	3
Nowata	OK	3
Okfuskee	OK	3
Oklahoma	OK	3
Okmulgee	OK	3
Osage	OK	3
Ottawa	OK	3
Pawnee	OK	3
Payne	OK	3
Pittsburg	OK	3
Pontotoc	OK	3
Pottawatomie	OK	3
Pushmataha	OK	3
Roger Mills	OK	3
Rogers	OK	3
Seminole	OK	3
Stephens	OK	3
Tillman	OK	3
Tulsa	OK	3
Wagoner	OK	3
Washington	OK	3
Washita	OK	3
Woods	OK	3
Woodward	OK	3
Baker	OR	2
Clatsop	OR	2
Columbia	OR	2
Crook	OR	2
Gilliam	OR	2
Grant	OR	2
Harney	OR	2
Hood River	OR	2
Jefferson	OR	2
Klamath	OR	2
Lake	OR	2
Malheur	OR	2
Morrow	OR	2
Multnomah	OR	2
Sherman	OR	2
Umatilla	OR	2
Union	OR	2
Wasco	OR	2

County Name	State	Radon Zone
Washington	OR	2
Wheeler	OR	2
Yamhill	OR	2
Benton	OR	3
Clackamas	OR	3
Coos	OR	3
Curry	OR	3
Deschutes	OR	3
Douglas	OR	3
Jackson	OR	3
Josephine	OR	3
Lane	OR	3
Lincoln	OR	3
Linn	OR	3
Marion	OR	3
Polk	OR	3
Tillamook	OR	3
Wallowa	OR	3
Adams	PA	1
Allegheny	PA	1
Armstrong	PA	1
Beaver	PA	1
Bedford	PA	1
Berks	PA	1
Blair	PA	1
Bradford	PA	1
Bucks	PA	1
Butler	PA	1
Cameron	PA	1
Carbon	PA	1
Centre	PA	1
Chester	PA	1
Clarion	PA	1
Clearfield	PA	1
Clinton	PA	1
Columbia	PA	1
Cumberland	PA	1
Dauphin	PA	1
Delaware	PA	1
Franklin	PA	1
Fulton	PA	1
Huntingdon	PA	1
Indiana	PA	1
Juniata	PA	1
Lackawanna	PA	1
Lancaster	PA	1
Lebanon	PA	1
Lehigh	PA	1
Luzerne	PA	1
Lycoming	PA	1
Mifflin	PA	1
Monroe	PA	1
Montgomery	PA	1
Montour	PA	1
Northampton	PA	1
Northumberland	PA	1
Perry	PA	1
Schuylkill	PA	1
Snyder	PA	1
Sullivan	PA	1
Susquehanna	PA	1
Tioga	PA	1
Union	PA	1
Venango	PA	1
Westmoreland	PA	1
Wyoming	PA	1
York	PA	1
Cambria	PA	2

County Name	State	Radon Zone
Crawford	PA	2
Elk	PA	2
Erie	PA	2
Fayette	PA	2
Forest	PA	2
Greene	PA	2
Jefferson	PA	2
Lawrence	PA	2
McKean	PA	2
Mercer	PA	2
Pike	PA	2
Potter	PA	2
Somerset	PA	2
Warren	PA	2
Washington	PA	2
Wayne	PA	2
Philadelphia	PA	3
Kent	RI	1
Washington	RI	1
Newport	RI	2
Providence	RI	2
Bristol	RI	3
Greenville	SC	1
Abbeville	SC	2
Anderson	SC	2
Cherokee	SC	2
Laurens	SC	2
Oconee	SC	2
Pickens	SC	2
Spartanburg	SC	2
York	SC	2
Aiken	SC	3
Allendale	SC	3
Bamberg	SC	3
Barnwell	SC	3
Beaufort	SC	3
Berkeley	SC	3
Calhoun	SC	3
Charleston	SC	3
Chester	SC	3
Chesterfield	SC	3
Clarendon	SC	3
Colleton	SC	3
Darlington	SC	3
Dillon	SC	3
Dorchester	SC	3
Edgefield	SC	3
Fairfield	SC	3
Florence	SC	3
Georgetown	SC	3
Greenwood	SC	3
Hampton	SC	3
Horry	SC	3
Jasper	SC	3
Kershaw	SC	3
Lancaster	SC	3
Lee	SC	3
Lexington	SC	3
Marion	SC	3
Marlboro	SC	3
McCormick	SC	3
Newberry	SC	3
Orangeburg	SC	3
Richland	SC	3
Saluda	SC	3
Sumter	SC	3
Union	SC	3
Williamsburg	SC	3

County Name	State	Radon Zone
Aurora	SD	1
Beadle	SD	1
Bon Homme	SD	1
Brookings	SD	1
Brown	SD	1
Brule	SD	1
Buffalo	SD	1
Campbell	SD	1
Charles Mix	SD	1
Clark	SD	1
Clay	SD	1
Codington	SD	1
Corson	SD	1
Davison	SD	1
Day	SD	1
Deuel	SD	1
Douglas	SD	1
Edmunds	SD	1
Faulk	SD	1
Grant	SD	1
Hamlin	SD	1
Hand	SD	1
Hanson	SD	1
Hughes	SD	1
Hutchinson	SD	1
Hyde	SD	1
Jerauld	SD	1
Kingsbury	SD	1
Lake	SD	1
Lincoln	SD	1
Lyman	SD	1
Marshall	SD	1
McCook	SD	1
McPherson	SD	1
Miner	SD	1
Minnehaha	SD	1
Moody	SD	1
Perkins	SD	1
Potter	SD	1
Roberts	SD	1
Sanborn	SD	1
Spink	SD	1
Stanley	SD	1
Sully	SD	1
Turner	SD	1
Union	SD	1
Walworth	SD	1
Yankton	SD	1
Bennett	SD	2
Butte	SD	2
Custer	SD	2
Dewey	SD	2
Fall River	SD	2
Gregory	SD	2
Haakon	SD	2
Harding	SD	2
Jackson	SD	2
Jones	SD	2
Lawrence	SD	2
Meade	SD	2
Mellette	SD	2
Pennington	SD	2
Shannon	SD	2
Todd	SD	2
Tripp	SD	2
Ziebach	SD	2
Anderson	TN	1
Bedford	TN	1

County Name	State	Radon Zone
Blount	TN	1
Bradley	TN	1
Claiborne	TN	1
Davidson	TN	1
Giles	TN	1
Grainger	TN	1
Greene	TN	1
Hamblen	TN	1
Hancock	TN	1
Hawkins	TN	1
Hickman	TN	1
Humphreys	TN	1
Jackson	TN	1
Jefferson	TN	1
Knox	TN	1
Lawrence	TN	1
Lewis	TN	1
Lincoln	TN	1
Loudon	TN	1
Macon	TN	1
Madison	TN	1
Marshall	TN	1
McMinn	TN	1
Meigs	TN	1
Monroe	TN	1
Moore	TN	1
Perry	TN	1
Roane	TN	1
Rutherford	TN	1
Smith	TN	1
Sullivan	TN	1
Trousdale	TN	1
Union	TN	1
Washington	TN	1
Wayne	TN	1
Williamson	TN	1
Wilson	TN	1
Benton	TN	2
Cannon	TN	2
Carter	TN	2
Cheatham	TN	2
Chester	TN	2
Clay	TN	2
Cocke	TN	2
Coffee	TN	2
De Kalb	TN	2
Decatur	TN	2
Dickson	TN	2
Fentress	TN	2
Hamilton	TN	2
Hardin	TN	2
Henderson	TN	2
Houston	TN	2
Johnson	TN	2
Marion	TN	2
McNairy	TN	2
Montgomery	TN	2
Overton	TN	2
Pickett	TN	2
Polk	TN	2
Putnam	TN	2
Robertson	TN	2
Sevier	TN	2
Stewart	TN	2
Sumner	TN	2
Unicoi	TN	2
Van Buren	TN	2
Warren	TN	2

County Name	State	Radon Zone
White	TN	2
Bledsoe	TN	3
Campbell	TN	3
Carroll	TN	3
Crockett	TN	3
Cumberland	TN	3
Dyer	TN	3
Fayette	TN	3
Franklin	TN	3
Gibson	TN	3
Grundy	TN	3
Hardeman	TN	3
Haywood	TN	3
Henry	TN	3
Lake	TN	3
Lauderdale	TN	3
Maury	TN	3
Morgan	TN	3
Obion	TN	3
Rhea	TN	3
Scott	TN	3
Sequatchie	TN	3
Shelby	TN	3
Tipton	TN	3
Weakley	TN	3
Armstrong	TX	2
Bailey	TX	2
Brewster	TX	2
Carson	TX	2
Castro	TX	2
Crosby	TX	2
Culberson	TX	2
Dallam	TX	2
Deaf Smith	TX	2
Donley	TX	2
Floyd	TX	2
Garza	TX	2
Gray	TX	2
Hale	TX	2
Hansford	TX	2
Hartley	TX	2
Hemphill	TX	2
Hockley	TX	2
Hudspeth	TX	2
Hutchinson	TX	2
Jeff Davis	TX	2
Lamb	TX	2
Lipscomb	TX	2
Llano	TX	2
Lubbock	TX	2
Lynn	TX	2
Mason	TX	2
Moore	TX	2
Ochiltree	TX	2
Oldham	TX	2
Parmer	TX	2
Potter	TX	2
Presidio	TX	2
Randall	TX	2
Reeves	TX	2
Roberts	TX	2
Sherman	TX	2
Swisher	TX	2
Terrell	TX	2
Anderson	TX	3
Andrews	TX	3
Angelina	TX	3
Aransas	TX	3

County Name	State	Radon Zone
Archer	TX	3
Atascosa	TX	3
Austin	TX	3
Bandera	TX	3
Bastrop	TX	3
Baylor	TX	3
Bee	TX	3
Bell	TX	3
Bexar	TX	3
Blanco	TX	3
Borden	TX	3
Bosque	TX	3
Bowie	TX	3
Brazoria	TX	3
Brazos	TX	3
Briscoe	TX	3
Brooks	TX	3
Brown	TX	3
Burleson	TX	3
Burnet	TX	3
Caldwell	TX	3
Calhoun	TX	3
Callahan	TX	3
Cameron	TX	3
Camp	TX	3
Cass	TX	3
Chambers	TX	3
Cherokee	TX	3
Childress	TX	3
Clay	TX	3
Cochran	TX	3
Coke	TX	3
Coleman	TX	3
Collin	TX	3
Collingsworth	TX	3
Colorado	TX	3
Comal	TX	3
Comanche	TX	3
Concho	TX	3
Cooke	TX	3
Coryell	TX	3
Cottle	TX	3
Crane	TX	3
Crockett	TX	3
Dallas	TX	3
Dawson	TX	3
De Witt	TX	3
Delta	TX	3
Denton	TX	3
Dickens	TX	3
Dimmit	TX	3
Duval	TX	3
Eastland	TX	3
Ector	TX	3
Edwards	TX	3
El Paso	TX	3
Ellis	TX	3
Erath	TX	3
Falls	TX	3
Fannin	TX	3
Fayette	TX	3
Fisher	TX	3
Foard	TX	3
Fort Bend	TX	3
Franklin	TX	3
Freestone	TX	3
Frio	TX	3
Gaines	TX	3

County Name	State	Radon Zone
Galveston	TX	3
Gillespie	TX	3
Glasscock	TX	3
Goliad	TX	3
Gonzales	TX	3
Grayson	TX	3
Gregg	TX	3
Grimes	TX	3
Guadalupe	TX	3
Hall	TX	3
Hamilton	TX	3
Hardeman	TX	3
Hardin	TX	3
Harris	TX	3
Harrison	TX	3
Haskell	TX	3
Hays	TX	3
Henderson	TX	3
Hidalgo	TX	3
Hill	TX	3
Hood	TX	3
Hopkins	TX	3
Houston	TX	3
Howard	TX	3
Hunt	TX	3
Irion	TX	3
Jack	TX	3
Jackson	TX	3
Jasper	TX	3
Jefferson	TX	3
Jim Hogg	TX	3
Jim Wells	TX	3
Johnson	TX	3
Jones	TX	3
Karnes	TX	3
Kaufman	TX	3
Kendall	TX	3
Kenedy	TX	3
Kent	TX	3
Kerr	TX	3
Kimble	TX	3
King	TX	3
Kinney	TX	3
Kleberg	TX	3
Knox	TX	3
La Salle	TX	3
Lamar	TX	3
Lampasas	TX	3
Lavaca	TX	3
Lee	TX	3
Leon	TX	3
Liberty	TX	3
Limestone	TX	3
Live Oak	TX	3
Loving	TX	3
Madison	TX	3
Marion	TX	3
Martin	TX	3
Matagorda	TX	3
Maverick	TX	3
McCulloch	TX	3
McLennan	TX	3
McMullen	TX	3
Medina	TX	3
Menard	TX	3
Midland	TX	3
Milam	TX	3
Mills	TX	3

County Name	State	Radon Zone
Mitchell	TX	3
Montague	TX	3
Montgomery	TX	3
Morris	TX	3
Motley	TX	3
Nacogdoches	TX	3
Navarro	TX	3
Newton	TX	3
Nolan	TX	3
Nueces	TX	3
Orange	TX	3
Palo Pinto	TX	3
Panola	TX	3
Parker	TX	3
Pecos	TX	3
Polk	TX	3
Rains	TX	3
Reagan	TX	3
Real	TX	3
Red River	TX	3
Refugio	TX	3
Robertson	TX	3
Rockwall	TX	3
Runnels	TX	3
Rusk	TX	3
Sabine	TX	3
San Augustine	TX	3
San Jacinto	TX	3
San Patricio	TX	3
San Saba	TX	3
Schleicher	TX	3
Scurry	TX	3
Shackelford	TX	3
Shelby	TX	3
Smith	TX	3
Somervell	TX	3
Starr	TX	3
Stephens	TX	3
Sterling	TX	3
Stonewall	TX	3
Sutton	TX	3
Tarrant	TX	3
Taylor	TX	3
Terry	TX	3
Throckmorton	TX	3
Titus	TX	3
Tom Green	TX	3
Travis	TX	3
Trinity	TX	3
Tyler	TX	3
Upshur	TX	3
Upton	TX	3
Uvalde	TX	3
Val Verde	TX	3
Van Zandt	TX	3
Victoria	TX	3
Walker	TX	3
Waller	TX	3
Ward	TX	3
Washington	TX	3
Webb	TX	3
Wharton	TX	3
Wheeler	TX	3
Wichita	TX	3
Wilbarger	TX	3
Willacy	TX	3
Williamson	TX	3
Wilson	TX	3

County Name	State	Radon Zone
Winkler	TX	3
Wise	TX	3
Wood	TX	3
Yoakum	TX	3
Young	TX	3
Zapata	TX	3
Zavala	TX	3
Carbon	UT	1
Duchesne	UT	1
Grand	UT	1
Piute	UT	1
Sanpete	UT	1
Sevier	UT	1
Uintah	UT	1
Beaver	UT	2
Box Elder	UT	2
Cache	UT	2
Daggett	UT	2
Davis	UT	2
Emery	UT	2
Garfield	UT	2
Iron	UT	2
Juab	UT	2
Kane	UT	2
Millard	UT	2
Morgan	UT	2
Rich	UT	2
Salt Lake	UT	2
San Juan	UT	2
Summit	UT	2
Tooele	UT	2
Utah	UT	2
Wasatch	UT	2
Washington	UT	2
Wayne	UT	2
Weber	UT	2
Alleghany	VA	1
Amelia	VA	1
Appomattox	VA	1
Augusta	VA	1
Bath	VA	1
Bland	VA	1
Botetourt	VA	1
Bristol	VA	1
Brunswick	VA	1
Buckingham	VA	1
Buena Vista	VA	1
Campbell	VA	1
Chesterfield	VA	1
Clarke	VA	1
Clifton Forge	VA	1
Covington	VA	1
Craig	VA	1
Cumberland	VA	1
Danville	VA	1
Dinwiddie	VA	1
Fairfax	VA	1
Fairfax	VA	1
Falls Church	VA	1
Fluvanna	VA	1
Frederick	VA	1
Fredericksburg	VA	1
Giles	VA	1
Goochland	VA	1
Harrisonburg	VA	1
Henry	VA	1
Highland	VA	1
Lee	VA	1

County Name	State	Radon Zone
Lexington	VA	1
Louisa	VA	1
Martinsville	VA	1
Montgomery	VA	1
Nottoway	VA	1
Orange	VA	1
Page	VA	1
Patrick	VA	1
Pittsylvania	VA	1
Powhatan	VA	1
Pulaski	VA	1
Radford	VA	1
Roanoke	VA	1
Roanoke	VA	1
Rockbridge	VA	1
Rockingham	VA	1
Russell	VA	1
Salem	VA	1
Scott	VA	1
Shenandoah	VA	1
Smyth	VA	1
Spotsylvania	VA	1
Stafford	VA	1
Staunton	VA	1
Tazewell	VA	1
Warren	VA	1
Washington	VA	1
Waynesboro	VA	1
Winchester	VA	1
Wythe	VA	1
Albemarle	VA	2
Amherst	VA	2
Arlington	VA	2
Bedford	VA	2
Bedford	VA	2
Buchanan	VA	2
Carroll	VA	2
Charlotte	VA	2
Charlottesville	VA	2
Culpeper	VA	2
Dickenson	VA	2
Fauquier	VA	2
Floyd	VA	2
Franklin	VA	2
Franklin	VA	2
Galax	VA	2
Grayson	VA	2
Greene	VA	2
Halifax	VA	2
Loudoun	VA	2
Lunenburg	VA	2
Lynchburg	VA	2
Madison	VA	2
Manassas	VA	2
Manassas Park	VA	2
Mecklenburg	VA	2
Nelson	VA	2
Norton	VA	2
Prince Edward	VA	2
Prince William	VA	2
Rappahannock	VA	2
South Boston	VA	2
Wise	VA	2
Accomack	VA	3
Alexandria	VA	3
Caroline	VA	3
Charles City	VA	3
Chesapeake	VA	3

County Name	State	Radon Zone
Colonial Heights	VA	3
Emporia	VA	3
Essex	VA	3
Gloucester	VA	3
Greensville	VA	3
Hampton	VA	3
Hanover	VA	3
Henrico	VA	3
Hopewell	VA	3
Isle Of Wight	VA	3
James City	VA	3
King And Queen	VA	3
King George	VA	3
King William	VA	3
Lancaster	VA	3
Mathews	VA	3
Middlesex	VA	3
New Kent	VA	3
Newport News	VA	3
Norfolk	VA	3
Northampton	VA	3
Northumberland	VA	3
Petersburg	VA	3
Poquoson	VA	3
Portsmouth	VA	3
Prince George	VA	3
Richmond	VA	3
Richmond	VA	3
Southampton	VA	3
Suffolk	VA	3
Surry	VA	3
Sussex	VA	3
Virginia Beach	VA	3
Westmoreland	VA	3
Williamsburg	VA	3
York	VA	3
Addison	VT	2
Bennington	VT	2
Caledonia	VT	2
Essex	VT	2
Franklin	VT	2
Lamoille	VT	2
Orange	VT	2
Orleans	VT	2
Rutland	VT	2
Washington	VT	2
Windham	VT	2
Windsor	VT	2
Chittenden	VT	3
Grand Isle	VT	3
Berkeley	WA	1
Brooke	WA	1
Clark	WA	1
Ferry	WA	1
Grant	WA	1
Greenbrier	WA	1
Hampshire	WA	1
Hancock	WA	1
Hardy	WA	1
Jefferson	WA	1
Marshall	WA	1
Mercer	WA	1
Mineral	WA	1
Monongalia	WA	1
Monroe	WA	1
Morgan	WA	1
Ohio	WA	1
Okanogan	WA	1

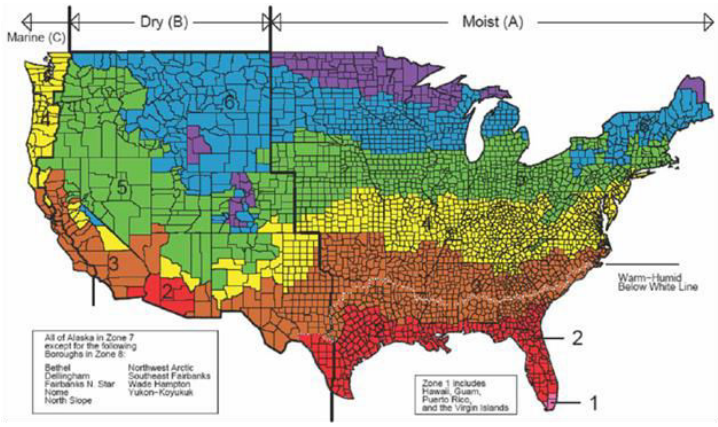
County Name	State	Radon Zone
Pend Oreille	WA	1
Pendleton	WA	1
Pocahontas	WA	1
Preston	WA	1
Skamania	WA	1
Spokane	WA	1
Stevens	WA	1
Summers	WA	1
Wetzel	WA	1
Adams	WA	2
Asotin	WA	2
Barbour	WA	2
Benton	WA	2
Braxton	WA	2
Cabell	WA	2
Calhoun	WA	2
Clay	WA	2
Columbia	WA	2
Doddridge	WA	2
Douglas	WA	2
Fayette	WA	2
Franklin	WA	2
Garfield	WA	2
Gilmer	WA	2
Grant	WA	2
Harrison	WA	2
Jackson	WA	2
Kittitas	WA	2
Klickitat	WA	2
Lewis	WA	2
Lincoln	WA	2
Lincoln	WA	2
Marion	WA	2
Mason	WA	2
Nicholas	WA	2
Pleasants	WA	2
Putnam	WA	2
Raleigh	WA	2
Randolph	WA	2
Ritchie	WA	2
Roane	WA	2
Taylor	WA	2
Tucker	WA	2
Tyler	WA	2
Upshur	WA	2
Walla Walla	WA	2
Wayne	WA	2
Webster	WA	2
Whitman	WA	2
Wirt	WA	2
Wood	WA	2
Yakima	WA	2
Boone	WA	3
Chelan	WA	3
Clallam	WA	3
Cowlitz	WA	3
Grays Harbor	WA	3
Island	WA	3
Jefferson	WA	3
Kanawha	WA	3
King	WA	3
Kitsap	WA	3
Lewis	WA	3
Logan	WA	3
Mason	WA	3
McDowell	WA	3
Mingo	WA	3
Pacific	WA	3

County Name	State	Radon Zone
Pierce	WA	3
San Juan	WA	3
Skagit	WA	3
Snohomish	WA	3
Thurston	WA	3
Wahkiakum	WA	3
Whatcom	WA	3
Wyoming	WA	3
Buffalo	WI	1
Crawford	WI	1
Dane	WI	1
Dodge	WI	1
Door	WI	1
Fond du Lac	WI	1
Grant	WI	1
Green	WI	1
Green Lake	WI	1
Iowa	WI	1
Jefferson	WI	1
Lafayette	WI	1
Langlade	WI	1
Marathon	WI	1
Menominee	WI	1
Pepin	WI	1
Pierce	WI	1
Portage	WI	1
Richland	WI	1
Rock	WI	1
Shawano	WI	1
St. Croix	WI	1
Vernon	WI	1
Walworth	WI	1
Washington	WI	1
Waukesha	WI	1
Waupaca	WI	1
Wood	WI	1
Adams	WI	2
Ashland	WI	2
Barron	WI	2
Bayfield	WI	2
Brown	WI	2
Burnett	WI	2
Calumet	WI	2
Chippewa	WI	2
Clark	WI	2
Columbia	WI	2
Douglas	WI	2
Dunn	WI	2
Eau Claire	WI	2
Florence	WI	2
Forest	WI	2
Iron	WI	2
Jackson	WI	2
Juneau	WI	2
Kenosha	WI	2
Kewaunee	WI	2
La Crosse	WI	2
Lincoln	WI	2
Manitowoc	WI	2
Marinette	WI	2
Marquette	WI	2
Milwaukee	WI	2
Monroe	WI	2
Oconto	WI	2
Oneida	WI	2
Outagamie	WI	2
Ozaukee	WI	2
Polk	WI	2

County Name	State	Radon Zone
Price	WI	2
Racine	WI	2
Rusk	WI	2
Sauk	WI	2
Sawyer	WI	2
Sheboygan	WI	2
Taylor	WI	2
Trempealeau	WI	2
Vilas	WI	2
Washburn	WI	2
Waushara	WI	2
Winnebago	WI	2
Berkeley	WV	1
Brooke	WV	1
Grant	WV	1
Greenbrier	WV	1
Hampshire	WV	1
Hancock	WV	1
Hardy	WV	1
Jefferson	WV	1
Marshall	WV	1
Mercer	WV	1
Mineral	WV	1
Monongalia	WV	1
Monroe	WV	1
Morgan	WV	1
Ohio	WV	1
Pendleton	WV	1
Pocahontas	WV	1
Preston	WV	1
Summers	WV	1
Wetzel	WV	1
Barbour	WV	2
Braxton	WV	2
Cabell	WV	2
Calhoun	WV	2
Clay	WV	2
Doddridge	WV	2
Fayette	WV	2
Gilmer	WV	2
Harrison	WV	2
Jackson	WV	2
Lewis	WV	2
Lincoln	WV	2
Marion	WV	2
Mason	WV	2
Nicholas	WV	2
Pleasants	WV	2
Putnam	WV	2
Raleigh	WV	2
Randolph	WV	2
Ritchie	WV	2
Roane	WV	2
Taylor	WV	2
Tucker	WV	2
Tyler	WV	2
Upshur	WV	2
Wayne	WV	2
Webster	WV	2
Wirt	WV	2
Wood	WV	2
Boone	WV	3
Kanawha	WV	3
Logan	WV	3
McDowell	WV	3
Mingo	WV	3
Wyoming	WV	3
Albany	WY	1

County Name	State	Radon Zone
Big Horn	WY	1
Campbell	WY	1
Carbon	WY	1
Converse	WY	1
Crook	WY	1
Fremont	WY	1
Goshen	WY	1
Hot Springs	WY	1
Johnson	WY	1
Laramie	WY	1
Lincoln	WY	1
Natrona	WY	1
Niobrara	WY	1
Park	WY	1
Sheridan	WY	1
Sublette	WY	1
Sweetwater	WY	1
Teton	WY	1
Uinta	WY	1
Washakie	WY	1
Platte	WY	2
Weston	WY	2

APPENDIX B. US COUNTIES LOCATED IN CLIMATE ZONES 1 AND 2



U.S. Counties Located in Climate Zones 1 and 2

State, County			
Alabama	**Georgia (cont.)**	**Texas**	**Texas (cont.)**
• Baldwin	• Ware	• Anderson	• Jim Wells
• Mobile	• Wayne	• Angelina	• Karnes
Arizona	**Louisiana**	• Aransas	• Kenedy
• La Paz	• Acadia	• Atascosa	• Kinney
• Maricopa	• Allen	• Austin	• Kleberg
• Pima	• Ascension	• Bandera	• La Salle
• Pinal	• Assumption	• Bastrop	• Lavaca
• Yuma	• Avoyelles	• Bee	• Lee
California	• Beauregard	• Bell	• Leon
• Imperial	• Calcasieu	• Bexar	• Liberty
Florida	• Cameron	• Bosque	• Limestone
• All counties	• East Baton Rouge	• Brazoria	• Live Oak
Georgia	• East Feliciana	• Brazos	• Madison
• Appling	• Evangeline	• Brooks	• Matagorda
• Atkinson	• Iberia	• Burleson	• Maverick
• Bacon	• Iberville	• Caldwell	• McLennan
• Baker	• Jefferson	• Calhoun	• McMullen
• Berrien	• Jefferson Davis	• Cameron	• Medina
• Brantley	• Lafayette	• Chambers	• Milam
• Brooks	• Lafourche	• Cherokee	• Montgomery
• Bryan	• Livingston	• Colorado	• Newton
• Camden	• Orleans	• Comal	• Nueces
• Charlton	• Plaquemines	• Coryell	• Orange
• Chatham	• Pointe Coupee	• DeWitt	• Polk
• Clinch	• Rapides	• Dimmit	• Real
• Colquitt	• St. Bernard	• Duval	• Refugio
• Cook	• St. Charles	• Edwards	• Robertson
• Decatur	• St. Helena	• Falls	• San Jacinto
• Echols	• St. James	• Fayette	• San Patricio
• Effingham	• St. John the Baptist	• Fort Bend	• Starr
• Evans	• St. Landry	• Freestone	• Travis
• Glynn	• St. Martin	• Frio	• Trinity
• Grady	• St. Mary	• Galveston	• Tyler
• Jeff Davis	• St. Tammany	• Goliad	• Uvalde
• Lanier	• Tangipahoa	• Gonzales	• Val Verde
• Liberty	• Terrebonne	• Grimes	• Victoria
• Long	• Vermilion	• Guadalupe	• Walker
• Lowndes	• Washington	• Hardin	• Waller
• McIntosh	• West Baton Rouge	• Harris	• Washington
• Miller	• West Feliciana	• Hays	• Webb
• Mitchell	**Mississippi**	• Hidalgo	• Wharton
• Pierce	• Hancock	• Hill	• Willacy
• Seminole	• Harrison	• Houston	• Williamson
• Tattnall	• Jackson	• Jackson	• Wilson
• Thomas	• Pearl River	• Jasper	• Zapata
• Toombs	• Stone	• Jefferson	• Zavala
		• Jim Hogg	

Source: ANSI/ASHRAE Standard 62.2 User's Manual