



# **National Center for Healthy Housing**

## **Healthy Homes Specialist Credential**

### **Study Guide**

Prepared by the National Center for Healthy Housing

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[www.healthyhomestraining.org/credential](http://www.healthyhomestraining.org/credential)

*Building a healthy home environment for all children*

10320 LITTLE PATUXENT PARKWAY, SUITE 500, COLUMBIA, MARYLAND 21044 ♦ 410.992.0712 ♦ FAX 443.539.4150  
[www.centerforhealthyhousing.org](http://www.centerforhealthyhousing.org)

# Health Homes Specialist Credential Study Guide

This Study Guide is designed to prepare a health or a housing professional to become a Healthy Homes Specialist. While it will help prepare the professional to pass the Healthy Homes Specialist Credential examination, it covers more topics than may be on the exam. Where not otherwise noted, the material comes from the *HUD/CDC Healthy Homes Reference Manual* and the *Essentials for Healthy Homes Practitioners* training course. For more information on the credential and the references, go to [www.healthyhomestraining.org/credential](http://www.healthyhomestraining.org/credential). For more information on the study guide, contact Tom Neltner at 443-539-4160 or [tneltner@nchh.org](mailto:tneltner@nchh.org).

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## I. Institute of Medicine Reports

The 2000 and 2004 Institute of Medicine (IOM) Reports are the most authoritative source for the connection between health and housing. These documents are the foundation for healthy homes.

### A. IOM Clearing the Air Report in 2000

Asthma is a critical health problem closely connected with hazards in the home. A Healthy Homes Specialist needs to know what biological and chemical agents have sufficient evidence of an association or causal relationship to the development or exacerbation of asthma. While it is helpful to know the strength of the evidence, it is most important to distinguish it from the agents for which there is only limited or suggestive evidence of an association. The IOM Clearing the Air Report is the most authoritative statement on the connection. Please note that this report is more than eight years old. More recent research has found associations for certain agents but the IOM has not updated its report.

Write the agents determined by the IOM to have sufficient evidence of an association or causal relationship to asthma into the appropriate column in the table below. Use the agents listed below as a reminder. Agents may be repeated in both columns. No need to write in the agents with only limited or suggestive evidence of an association. Where an agent is limited to certain conditions, note those limitations. Go to [www.healthyhomestraining.org/Practitioner/Essentials\\_Ref\\_Connect\\_Full\\_7-7-08.pdf](http://www.healthyhomestraining.org/Practitioner/Essentials_Ref_Connect_Full_7-7-08.pdf) for the answers.

**Agents:**

- Birds (Domestic)
- Cat
- Cockroaches
- Dog
- Environmental Tobacco Smoke
- Formaldehyde
- Fragrances
- Fungi or Molds
- House Dust Mite
- Houseplants
- Insects Other than Cockroaches
- Mice
- Nitrogen Oxides
- Rats
- Pesticides
- Volatile Organic Compounds.

**Limitations:**

- In Preschool Aged Children
- High-Level Exposures

<b>Association Between Biological and Chemical Exposures in the Home and</b>	
<b>Development of Asthma in Sensitive Individuals</b>	<b>Exacerbation of Asthma in Sensitive Individuals</b>
<b>Biological Agents / Chemical Agents</b>	<b>Biological Agents / Chemical Agents</b>
<b><i>Sufficient Evidence of a Either an Association or a Causal Relationship</i></b>	
<b><i>Only Limited or Suggestive Evidence of an Association</i></b>	

What is the difference between exacerbation and development of asthma? Which is more significant?

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**B. IOM Damp Indoor Spaces and Health Report in 2004**

*A damp indoor environment is a common problem in housing. Dampness comes from a wide variety of sources and can result in many problems including mold, cockroaches and rodents. A Healthy Homes Specialist needs to know which health outcomes have sufficient evidence of an association or causal relationship to damp indoor environmental when mold is or is not present. While it is helpful to know the strength of the evidence, a Specialist must be able to distinguish health outcomes with sufficient evidence from those with only limited or suggestive evidence of an association. The IOM Damp Indoor Spaces and Health Report is the most authoritative statement on the connection. Please note that this report is more than four years old. More recent research may have found additional or stronger associations for certain health outcomes but the IOM has not updated its report.*

Write the health outcomes determined by the IOM to have sufficient evidence of an association or causal relationship to damp indoor environments into the appropriate column in the table below. Use the health outcomes listed below as a reminder. Health outcomes may be repeated in both columns. No need to write in the health outcomes with only limited or suggestive evidence of an association. Go to [www.healthyhomestraining.org/Practitioner/Essentials Ref Connect Full 7-7-08.pdf](http://www.healthyhomestraining.org/Practitioner/Essentials_Ref_Connect_Full_7-7-08.pdf) for the answers.

**Health Outcomes:**

- Asthma development
- Asthma symptoms in sensitized persons
- Cancer
- Cough
- Dyspnea / Shortness of breath
- Fatigue
- Hypersensitivity pneumonitis in susceptible persons
- Lower respiratory illness in otherwise healthy children
- Neuropsychiatric symptoms
- Reproductive effects
- Skin symptoms
- Upper respiratory tract symptoms
- Wheeze

<b>Summary of Findings Regarding Association Between Health Outcomes and</b>	
<b>Exposure to Damp Indoor Environments</b>	<b>Presence of Mold or Other Agents in Damp Indoor Environments</b>
<b><i>Sufficient Evidence of a Causal Relationship or Association</i></b>	
<b><i>Only Limited or Suggestive Evidence of an Association</i></b>	

What is a damp indoor environment?

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## II. American Housing Survey

*A Healthy Homes Specialist must know the basic characteristics of housing including common problems, and be able to identify important relationships between those characteristics. The American Housing Survey (AHS) is the most authoritative and comprehensive collection of that information. The AHS is funded by the U.S. Department of Housing and Urban Development (HUD) and administered by the U.S. Census Bureau to take a snapshot at the housing conditions in a community. The Census Bureau conducts a national survey every two years and large metropolitan statistical areas (MSAs) periodically. NCHH identified the housing characteristics most relevant to healthy housing and summarized them in various reports at a table at [www.healthyhomestraining.org/ahs](http://www.healthyhomestraining.org/ahs)*

Write the number for each characteristic listed in the left-hand column on the line for closest number or percentage in the right-hand column. See example for rats. Some numbers or percentages are used more than once. See [www.healthyhomestraining.org/AHS/AHS\\_National\\_2007\\_Full\\_12-30-08.pdf](http://www.healthyhomestraining.org/AHS/AHS_National_2007_Full_12-30-08.pdf) for answers.

1. # of homes with severe physical problems	_____ About 1,800 homes
2. # of homes with moderate physical problems	_____ About 4,000 homes
3. # of homes with either severe or moderate problems	_____ About 6,000 homes
4. % of homes with exterior physical problems	_____ About 10,000 homes
5. % of homes with exterior water leakage in past 12 months	_____ About 1,800,000 homes
6. % of homes with interior water leakage in past 12 months	_____ About 4,000,000 homes
7. % of homes with signs of rats in past 3 months	_____ About 6,000,000 homes
8. % of homes with signs of mice in past 3 months	_____ About 10,000,000 homes
9. % of rental homes built before 1980	_____ About 0.5-1.5% homes
10. % of homes with a septic tank, cesspool or chemical toilet	_____ About 5-6% of homes
11. % of homes with fuel-burning room heaters without a flue as main heating equipment	_____ About 7.5-12.5% of homes
12. % of homes with gas-fired warm-air furnaces	_____ About 17-25% of homes
13. % of homes with piped gas for water heating	_____ About 30-35% of homes
14. % of homes with piped gas for clothes dryer	_____ About 50-55% of homes
15. % of homes with residents with severe problems rating home 8, 9, or 10 with 10 as best	_____ About 60-70% of homes
16. % of homes with severe problems caused by plumbing	_____ About 80-85% of homes
	_____ About 90-92% of homes
	_____ About 95-97% of homes
	_____ About 99-100% of homes

Checkmark the most common cause of each type of problem.

Exterior water leakage	Interior water leakage	Severe Physical Prob.	Moderate Physical Prob,
<input type="checkbox"/> Walls or window problems	<input type="checkbox"/> Leaking pipes	<input type="checkbox"/> Plumbing	<input type="checkbox"/> Plumbing
<input type="checkbox"/> Basement problems	<input type="checkbox"/> Broken fixtures	<input type="checkbox"/> Heating	<input type="checkbox"/> Heating
<input type="checkbox"/> Roof problems	<input type="checkbox"/> Broken water heater	<input type="checkbox"/> Electric	<input type="checkbox"/> Upkeep
<input type="checkbox"/> Other / Unknown	<input type="checkbox"/> Other / Unknown	<input type="checkbox"/> Upkeep	<input type="checkbox"/> Kitchen

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## III. Healthy People 2010 Goals

*A Healthy Homes Specialist needs to know the top priorities for healthy homes. The U.S. Department of Health and Human Services (HHS) established the United States' top priorities in its Healthy People 2010 program. The program established measureable objectives for the United States to achieve by the year 2010. Seven objectives directly relate to housing improvements that will benefit health. HHS is planning to update these objectives in its Healthy People 2020 program. For more information, see [www.healthypeople.gov/](http://www.healthypeople.gov/).*

Checkmark the seven housing-related health objectives set by the Healthy People 2010 program. Go to [www.healthyhomestraining.org/Practitioner/Essentials\\_Ref\\_Connect\\_Full\\_7-7-08.pdf](http://www.healthyhomestraining.org/Practitioner/Essentials_Ref_Connect_Full_7-7-08.pdf) for the answers.

- \_\_\_ Eliminate elevated blood lead levels in children.
- \_\_\_ Reduce pesticide exposures that result in visits to a health care facility.
- \_\_\_ Reduce cockroaches from low-income multi-family housing.
- \_\_\_ Reduce indoor allergen levels.
- \_\_\_ Increase the proportion of persons who live in homes tested for radon concentrations.
- \_\_\_ Reduce the number of homes with more than 4 picocuries per liter of radon in their air.
- \_\_\_ Increase the number of new homes constructed to be radon resistant.
- \_\_\_ Eliminate the use of asbestos in building materials that can become friable.
- \_\_\_ Increase the proportion of persons living in pre-1950s housing that has been tested for the presence of lead-based paint.
- \_\_\_ Reduce the number of homes with interior or exterior water leakage.
- \_\_\_ Reduce the proportion of occupied housing units that have moderate or severe physical problems.
- \_\_\_ Reduce the number of homes with deteriorated lead-based paint.

## IV. Seven Principles for Healthy Homes

*The National Center for Healthy Housing has established seven principles for healthy homes. These seven principles provide a structure to understand the approaches to prevent and correct conditions in housing that can make a home unsafe or unhealthy. A Healthy Homes Specialist needs to know these principles*

Write down the seven principles. Go to [www.healthyhomestraining.org/what\\_HH.htm](http://www.healthyhomestraining.org/what_HH.htm) for the answers.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

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## V. Keep It Contaminant-Free

### A. Hazards Posed by Common Household Contaminants

*A Healthy Homes Specialist needs to understand the nature of the hazards posed by common contaminants in the home. The following was developed from the HUD/CDC Healthy Homes Reference Manual and associated resources. Go to [www.healthyhomestraining.org/Credential/Contaminant\\_Guide\\_DRAFT\\_3-9-09.pdf](http://www.healthyhomestraining.org/Credential/Contaminant_Guide_DRAFT_3-9-09.pdf) in Table 1 for information.*

Fill in each of the four columns for each of the contaminants in the left column. Consider typical exposures that a resident would encounter in a home. Primary route of exposure would be: inhalation, ingestion, skin contact, or injection (such as splinters). For the last column, identify which of the seven principles (i.e. Keep It Dry, Clean, Ventilated, Pest-Free, Safe, Contaminant-Free, and Maintained) that will have a significant benefit reducing the hazards posed by the contaminant

Contaminant	Hazards Posed by Common Household Contaminants			
	Primary Health Impact	Common Sources in Home	Primary Routes of Exposure	Relevant "Keep Its"
Asbestos				
Arsenic				
Carbon Monoxide				
Cockroaches				
Formaldehyde				
Lead				
Mercury				
Mold				

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Hazards Posed by Common Household Contaminants				
Contaminant	Primary Health Impact	Common Sources in Home	Primary Routes of Exposure	Relevant "Keep Its"
Nitrogen Oxides				
Pesticides				
Radon				
Rodents				
Sewer Gas				
Volatile Organics (VOCs)				

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**B. Federal Requirements for Homes Regarding Common Household Contaminants**

*A Healthy Homes Specialist needs to understand the regulatory programs to protect residents from the hazards posed by common contaminants in the home. The following was developed from the HUD/CDC Healthy Homes Reference Manual and associated resources. Go to*

*[www.healthyhomestraining.org/Credential/Contaminant\\_Guide\\_DRAFT\\_3-9-09.pdf](http://www.healthyhomestraining.org/Credential/Contaminant_Guide_DRAFT_3-9-09.pdf) in Table 2 for information.*

Fill in each of the five columns for each of the contaminants in the left column. Describe requirements that apply to homes. Identify nature and extent of state requirements and whether they are part of an EPA program.

Contaminant	Federal Requirements for Homes Regarding Common Household Contaminants				State Requirements
	Sale or Use	In-Home Hazard Level	Disclosure to Resident	Renovation Work Practices	
Asbestos					
Arsenic					
Carbon Monoxide					
Cockroaches					
Formaldehyde					
Lead					
Mercury					
Mold					
Nitrogen Oxides					

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Contaminant	Federal Requirements for Homes Regarding Common Household Contaminants				State Requirements
	Sale or Use	In-Home Hazard Level	Disclosure to Resident	Renovation Work Practices	
Pesticides					
Radon					
Rodents					
Sewer Gas					
Volatile Organic (VOCs)					

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**C. Renovation Work Practice Requirements for Asbestos and Lead-Based Paint**

Only lead-based paint and asbestos have federal requirements for specific work practices in housing. A Healthy Homes Specialist needs to know the key elements of the federal requirements for these contaminants. Go to [www.healthyhomestraining.org/Credential/Contaminant\\_Guide\\_DRAFT\\_3-9-09.pdf](http://www.healthyhomestraining.org/Credential/Contaminant_Guide_DRAFT_3-9-09.pdf) in Table 2 for information.

Fill in each of the four columns for each of the contaminants in the left column. Describe requirements that apply to homes.

<b>Lead-Based Paint Renovation Work Practices</b>			
Agency Rule	Professional Licensing	Trigger for Requirements	Clearance Testing
EPA LPB Activities – 40 CFR 745 Subpart L - 8/29/1996			
HUD Lead-Safe Housing – 24 CFR Part 35 - 9/6/1996			
EPA Renovation, Repair & Painting – 40 CFR 745.80 to 745.91 - 4/22/2010			
<b>Asbestos Renovation Work Practices</b>			
EPA NESHAP – 40 CFR 61.145 - 1990			

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## **D. Control Methods for Specific Contaminants**

*A Healthy Homes Specialist needs to know some basic information about the specific contaminants.*

Provide short answers to the following questions:

1. Where is lead based paint most likely to be found in homes?
2. Why are children at greater risk of lead hazards?
3. If you find something that may contain asbestos in good condition, what should you do?
4. Vermiculite contains what chemical that could cause harm to human health?
5. Who can measure radon and how can it be measured?
6. What methods are used to control radon in homes?
7. What is the difference between an active and passive radon control system?
8. How much do radon control systems cost?
9. Where should CO alarms be placed in a home?
10. Is it possible to know that there is a CO problem without the use of an alarm or detector?
11. If you find mold, the first step is to?
12. What should be done with a couch that has extensive mold contamination?

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## VI. Keep It Pest-Free

### A. Pest Characteristics

*A Healthy Homes Specialist needs to know the significant household pests and how to control them.*

Checkmark the characteristics that describe the five most significant pests. A characteristic may apply to more than one or none of the pests. Check all that apply.

Characteristic of the pests	Rat	Mouse	Cockroach	Bedbug	Flies
Which prefers to come out at night?					
Which prefers to live in walls?					
Which will come in from outside on its own?					
Which is/are likely to be carried into a home?					
Which can get in through a ¼" hole?					
Which draws human blood?					
Which relies on blood to survive?					
Which is/are likely to trigger an asthma attack?					
Which carry diseases that humans can get?					
Which can be eliminated from multi-family housing?					
Which adult is the smallest?					
Which likes pet food?					
Which likes water damage in a wall?					
Sealing holes in exterior walls and windows best control which pests?					
Sanitation best controls which pests?					
Which should be tolerated in a home?					

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**B. Pest Control Options**

*A Healthy Homes Specialist needs to know when and how to apply common pesticides to recognize when there are problems.*

Checkmark the characteristics that describe the four most common pesticides and application methods for cockroaches. Check all that apply.

Pest control options	Broadcast Spray	Fogger	Boric Acid	Bait Station
Which best controls cockroaches?				
Which can chase cockroaches away but they may return?				
Which shouldn't be used with baits?				
What are people likely to come into contact with after use?				
Which is especially useful at unit turnover?				
Which must not be used around food?				
Which are less effective around food?				
Which works best with good housekeeping?				
Which should not be used to control cockroaches?				

**C. Additional Pest Control Questions**

*A Healthy Homes Specialist needs to understand some additional pests and pesticide issues.*

Provide brief answers to each of the following questions.

1. What are key signs of a termite problem?
2. After cockroach problems have been eliminated what should be done to remove cockroach allergens?
3. What is the most effective way to control mosquitoes?
4. When building a home what type of construction practice can help minimize termite infestations?
5. To eliminate a rat nesting area, firewood should be stored how high off the ground?
6. When is it appropriate to use a rodenticide?

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## D. HUD IPM Guidance

*Beyond knowing the pests and the control options, a Healthy Homes Specialist needs to understand how to put the pieces together into what is known as an “integrated pest management” or “IPM” program. While only voluntary, HUD’s “Guidance on Integrated Pest Management” is the most authoritative statement on the issue. HUD first published the guidance in February 2006 and made revisions to it in May 2007 and renewed it in May 2008. For the May 2007 version, go to [www.healthyhomestraining.org/IPM/HUD\\_IPM\\_5-24-07\\_pih2007-12.pdf](http://www.healthyhomestraining.org/IPM/HUD_IPM_5-24-07_pih2007-12.pdf). The HUD Guidance sets a goal for an IPM program and identifies the ten essential elements of an effective IPM program.*

Mark the statement that best describes the goal of an IPM program as defined by EPA and HUD:

- Protect public health by eliminating pests without the use of pesticides.
- Manage pest damage by the most economical means with the least possible hazard to people, property, and the environment.
- Controlling pests using pesticides as the last resort.
- Using the least toxic pesticide with the lowest exposure to public health and the environment.

Which of the following activities would be consistent with the ten elements of an effective IPM program? Check all that apply.

- Setting a zero tolerance goal for pests such as cockroaches, bedbugs, rats and mice.
- Sealing holes and cracks around doors and windows.
- Requiring residents to get permission to use pesticides, especially sprays and foggers.
- Enforcing lease provisions prohibiting housekeeping and sanitation problems.
- Removing shrubs and ground cover that are close to the building.
- Requiring pest management professionals to notify residents before using pesticides.
- Prohibiting the use of all pesticides.
- Monitoring for cockroaches with glue traps around interior trash and food handling areas.
- Using gels and bait stations for cockroaches and ants.
- Educating resident leaders so they can educate their peers and report problems.
- Tracking pest complaints.
- Prohibiting the routine use of pesticide sprays.

Provide brief answers to each of the following questions:

1. Does HUD’s IPM Guidance prohibit the use of specific pesticides?
2. According to HUD’s IPM Guidance a successful IPM program will result in what outcome?
3. What are the three resident responsibilities that HUD’s IPM Guidance requires in leases?

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## VII. Keep It Dry

*In addition to the materials covered in the previous section, the Healthy Homes Specialist needs to understand how to keep a home dry, especially the materials used to accomplish that goal and how to prevent moisture problems.*

### A. Materials of Construction

Provide brief answers to each of the following questions:

1. Why is drywall now used more commonly than plaster and lath?
2. What is the primary function of brick on the outside of a home?
3. Can moisture penetrate a concrete wall? If yes why?
4. What does a crack in the basement wall that runs to the edge or corner indicate?
5. Why are finished basements susceptible to moisture problems?
6. What material is used to make a footer or footing? Why?

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## **B. Preventing Moisture Problems**

Provide brief answers to each of the following questions:

1. What are useful strategies to prevent moisture in the ground from entering a crawl space?
2. Should the temperature in an unfinished attic be closer to the outside temperature or inside?
3. What is flashing on roofs and roof penetrations like chimneys and skylights designed to do?
4. How are typical roofs designed to allow them to breathe?
5. How does water vapor enter a home?
6. What is ice-damming on a roof and how can it be prevented?

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## VIII. Keep It Ventilated

*In addition to the materials covered in the previous sections, the Healthy Homes Specialist needs to understand how to keep a home ventilated including controlling humidity.*

### A. Humidity & Relative Humidity

For each question below, check the appropriate limit.

	Relative Humidity				
	0%	30%	50%	70%	100%
What is the minimum and maximum humidity that most people are comfortable at?					
What humidity causes water to condense on surfaces that are the same temperature as the air?					
What humidity are people likely to experience chapped lips and irritated sinuses?					
What humidity is virtually impossible to achieve?					
Above what humidity level encourages the growth of dust mites?					

Provide brief answers to each of the following questions:

1. If the temperature drops, what happens to the relative humidity?
  
2. Does air conditioning reduce the amount of water in the air? If so, how?

### B. Air Movement and Filtration

Provide brief answers to each of the following questions:

1. What is the stack effect and how does it work in a two-story home?
  
2. What is the most common system for rating furnace filters and what is the minimum rating recommended for filtering air in heating/cooling systems?
  
3. What is the national standard by the American Society of Heating, Refrigeration, and Air Conditioning Engineer for ventilation in buildings of less than 4 stories?

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## C. Sources of Contaminants and Ventilation

Checkmark all that apply.

	Gas Stove / Oven	Electric Stove / Oven	Bathroom Shower	Gas Water Heater	Gas Dryer	Gas Space Heater
Which can generate dangerous levels of these contaminants?						
Carbon monoxide						
Nitrogen dioxide / oxides						
Humidity						
According to the International Property Maintenance Code:						
Which must be exhausted outside?						
Which may be exhausted into an attic?						
Which needs no exhaust if a nearby window can be opened?						

Provide brief answers to each of the following questions:

1. What color should the flame be of a properly functioning gas appliance?
  
2. What is the significance of a yellow flame?
  
3. What are the common problems that you should watch out for in exhaust ductwork from a gas-fired clothes dryer?
  
4. What is sealed combustion for a warm-air furnace? Why is it better than traditional combustion?
  
5. How does a gas furnace keep dangerous gas from combustion out of the air being recirculated in a home?
  
6. When spot or point source exhaust such as a kitchen or bathroom fan is used, how does air get into the home to replace the amount exhausted?

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## IX. Keep it Safe

*In addition to the materials covered in the previous sections, the Healthy Homes Specialist needs to understand how to keep a home safe.*

Provide brief answers to each of the following questions:

1. What is the top cause of unintentional deaths in homes?
2. Handrails are required if there are more than how many steps?
3. If an overhead garage door is hard to open, what should you do? .
4. What does a GFCI stand for and where should it be used?
5. On a cleaning chemical label, what is the difference between a “corrosive” and an “irritant”?
6. While labels should always be followed, which label must be followed by a user – even a consumer – on penalty of law?

# Health Homes Specialist Credential Study Guide

## X. Keep It Clean

*In addition to the materials covered in the previous sections, the Healthy Homes Specialist needs to understand how to keep a home ventilated including controlling humidity.*

Provide brief answers to each of the following questions:

1. What does HEPA stand for?
2. What are the merits of each of the following cleaning strategies?
  - Smooth, hard, and nonabsorbent surfaces
  - Taking off shoes when entering home
  - Vacuum
3. What features would you look for in a vacuum?

For the contaminants listed below, checkmark which of the following can have the hazards they pose effectively controlled through cleaning.

- |  |   |
|--|---|
| <input type="checkbox"/> Asbestos        | <input type="checkbox"/> Mold                       |
| <input type="checkbox"/> Arsenic         | <input type="checkbox"/> Nitrogen Oxides            |
| <input type="checkbox"/> Carbon Monoxide | <input type="checkbox"/> Pesticides                 |
| <input type="checkbox"/> Cockroach       | <input type="checkbox"/> Radon                      |
| <input type="checkbox"/> Formaldehyde    | <input type="checkbox"/> Rodents                    |
| <input type="checkbox"/> Lead            | <input type="checkbox"/> Sewer Gas                  |
| <input type="checkbox"/> Mercury         | <input type="checkbox"/> Volatile Organic Compounds |

Which of the following principles of healthy housing benefit significantly from “Keeping it Clean”?

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/> Dry        | <input type="checkbox"/> Safe             |
| <input type="checkbox"/> Ventilated | <input type="checkbox"/> Contaminate-Free |
| <input type="checkbox"/> Pest-Free  | <input type="checkbox"/> Maintained       |

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## XI. Keep It Maintained

*In addition to the materials covered in the previous sections, the Healthy Homes Specialist needs to understand how to keep a home maintained.*

Provide brief answers to each of the following questions:

1. Identify three maintenance tasks the NCHH Healthy Homes Maintenance Checklist recommends be performed by professionals?

For the contaminants listed below, checkmark which of the following can have the hazards they pose effectively controlled through a preventive maintenance.

- |  |   |
|--|---|
| <input type="checkbox"/> Asbestos        | <input type="checkbox"/> Mold                       |
| <input type="checkbox"/> Arsenic         | <input type="checkbox"/> Nitrogen Oxides            |
| <input type="checkbox"/> Carbon Monoxide | <input type="checkbox"/> Pesticides                 |
| <input type="checkbox"/> Cockroach       | <input type="checkbox"/> Radon                      |
| <input type="checkbox"/> Formaldehyde    | <input type="checkbox"/> Rodents                    |
| <input type="checkbox"/> Leadt           | <input type="checkbox"/> Sewer Gas                  |
| <input type="checkbox"/> Mercury         | <input type="checkbox"/> Volatile Organic Compounds |

Which of the following principles of healthy housing benefit significantly from “Keeping it Maintained”?

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/> Dry        | <input type="checkbox"/> Safe             |
| <input type="checkbox"/> Ventilated | <input type="checkbox"/> Contaminate-Free |
| <input type="checkbox"/> Pest-Free  | <input type="checkbox"/> Clean            |

# Health Homes Specialist Credential Study Guide

## XII. Water and Wastewater

*In addition to the materials covered in the previous sections, the Healthy Homes Specialist needs to understand how to handle water and wastewater to avoid contaminants.*

Provide brief answers to each of the following questions:

1. What are the sources of sewer gas and how can they be controlled?
2. Where is a P-trap used?
3. What is the purpose of a P-trap?
4. What is the purpose of a septic tank?
5. Why is chlorine used to disinfect drinking water?
6. What conditions can pose risks for water wells?

# Health Homes Specialist Credential Study Guide

## XIII. Laws and Codes

*In addition to the materials covered in the previous section, the Healthy Homes Specialist needs to understand how to know the basics on the International Code Council's model codes for housing. Go to [www.iccsafe.org](http://www.iccsafe.org) or [www.healthyhomestraining.org/codes](http://www.healthyhomestraining.org/codes) for more information.*

Checkmark all of the codes that affirmatively answer the question below.

Question	Model Code				
	IEBC	IBC	IRC	IPMC	IZC
What applies to keep existing homes in good condition?					
What applies to a new ten-story apartment building?					
What applies to new single-family housing?					
What determines what type of building may be built?					
What determines how major renovations in existing homes should be completed?					
What sets minimum standards for the conditions of all homes?					

IEBC International Existing Building Code

IBC International Building Code

IRC International Residential Code

IPMC International Property Maintenance Code

IZC International Zoning Code

# Health Homes Specialist Credential Study Guide

## XIV. Acronyms

AHS \_\_\_\_\_

CDC \_\_\_\_\_

EPA \_\_\_\_\_

GFCI \_\_\_\_\_

HEPA \_\_\_\_\_

HUD \_\_\_\_\_

ICC \_\_\_\_\_

IEBC \_\_\_\_\_

IOM \_\_\_\_\_

IPM \_\_\_\_\_

IPMC \_\_\_\_\_

IRC \_\_\_\_\_

LPB \_\_\_\_\_

NCHH \_\_\_\_\_

VOC \_\_\_\_\_