EPA United States Environmental Protection Agency

VERSION 1 (REV. 01)

Indoor airPLUS

February 25, 2013

look for EPA Indoor airPLUS QUALIFIED HOMES

Indoor Air Quality (IAQ)

Contents

- Indoor airPLUS Basics
- How to Build Indoor airPLUS Homes
- Selling the VALUE of Indoor airPLUS

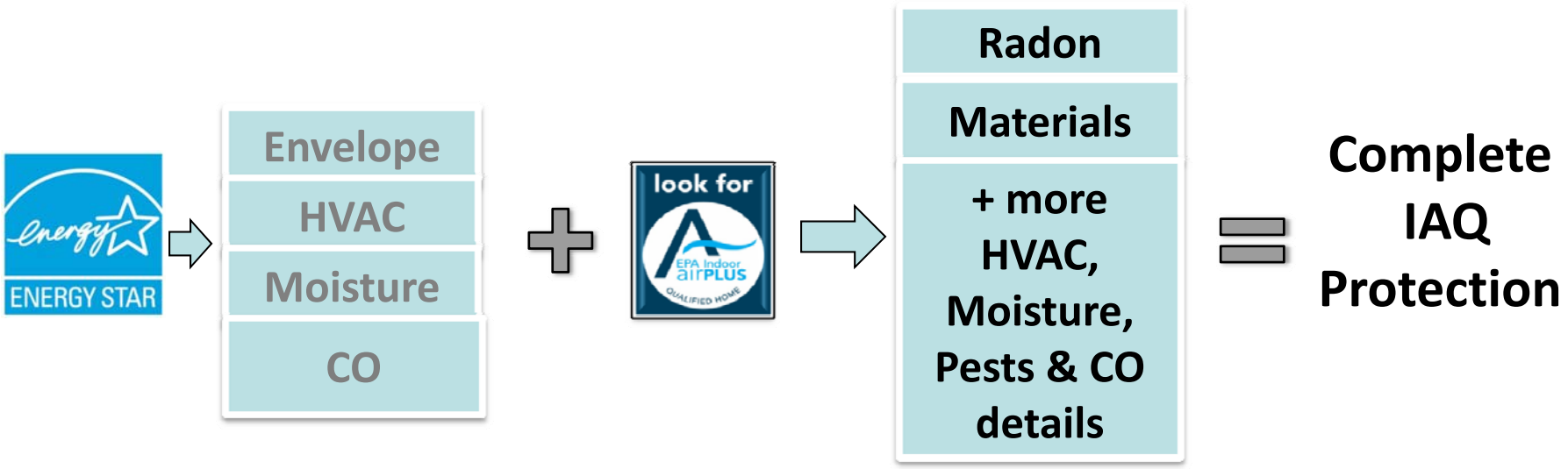
Indoor airPLUS Basics

Indoor airPLUS…

is a companion program to ENERGY STAR that adds a comprehensive approach to improving indoor air quality.

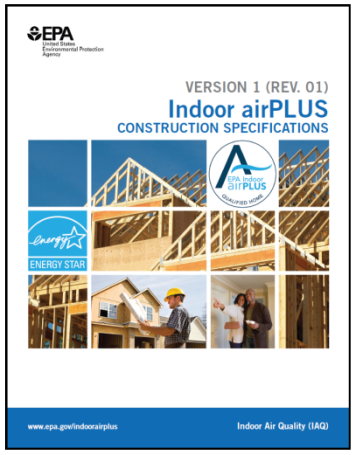
ENERGY STAR + Indoor airPLUS

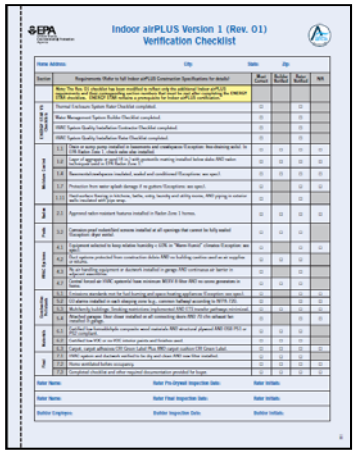
- Voluntary home labeling programs run by EPA.
- Indoor airPLUS uses ENERGY STAR as a foundation and adds comprehensive indoor air quality protections.



ENERGY STAR + Indoor airPLUS

- Both programs are reported simultaneously.
- Verification can be completed during the ENERGY STAR inspection process.
- Raters who operate under a Sampling Provider are permitted to use a RESNET-approved sampling protocol for Indoor airPLUS homes.





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Indoor Air Quality (IAQ)

Revision 1 is here!

- Available for use immediately.
- Original Indoor airPLUS requirements can be used until June 30, 2013.
- Homes permitted on or after July 1, 2013 must use Revision 1.

look for EPA Indoor airPLUS QUALIFIED HOMES

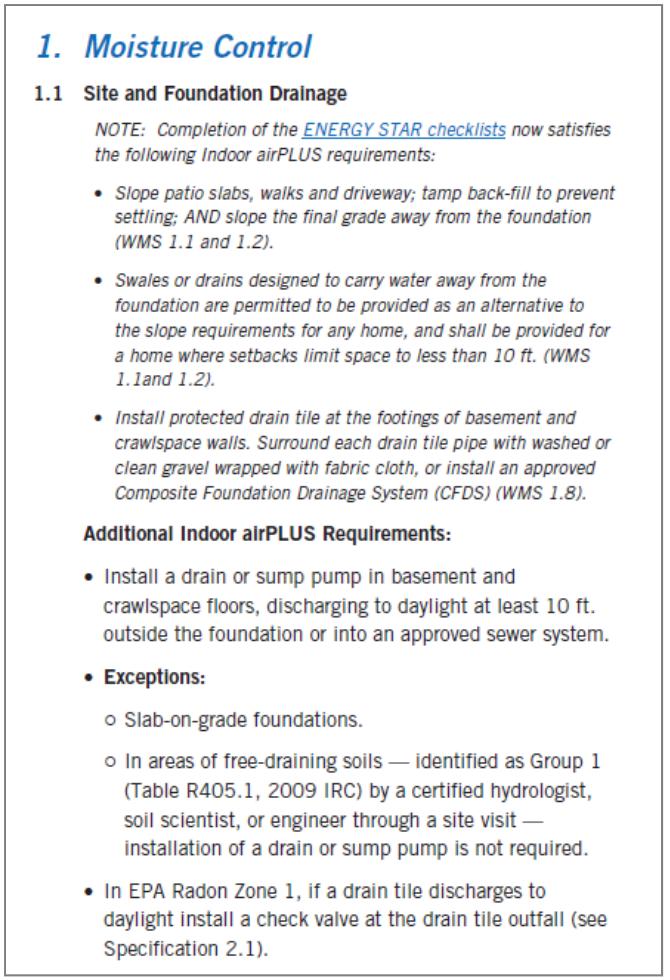
Indoor Air Quality (IAQ)

What's New with Revision 1?

- Greater alignment with ENERGY STAR Version 3.
- Simplified, clearer specifications.
- More flexibility and climate specific exemptions.

What's New with Revision 1?

- **Summary of ENERGY STAR language and references to ENERGY STAR checklist Items.**
- **Additional Indoor airPLUS requirements are listed separately. These include:**
  - **Items that go beyond ENERGY STAR.**
  - **Requirements that exclude an ENERGY STAR exception.**



1. Moisture Control

1.1 Site and Foundation Drainage

NOTE: Completion of the ENERGY STAR checklists now satisfies the following Indoor airPLUS requirements:

- *Slope patio slabs, walks and driveway; tamp back-fill to prevent settling; AND slope the final grade away from the foundation (WMS 1.1 and 1.2).*
- *Swales or drains designed to carry water away from the foundation are permitted to be provided as an alternative to the slope requirements for any home, and shall be provided for a home where setbacks limit space to less than 10 ft. (WMS 1.1and 1.2).*
- *Install protected drain tile at the footings of basement and crawlspace walls. Surround each drain tile pipe with washed or clean gravel wrapped with fabric cloth, or install an approved Composite Foundation Drainage System (CFDS) (WMS 1.8).*

Additional Indoor airPLUS Requirements:

- Install a drain or sump pump in basement and crawlspace floors, discharging to daylight at least 10 ft. outside the foundation or into an approved sewer system.
- **Exceptions:**
  - Slab-on-grade foundations.
  - In areas of free-draining soils — identified as Group 1 (Table R405.1, 2009 IRC) by a certified hydrologist, soil scientist, or engineer through a site visit — installation of a drain or sump pump is not required.
- In EPA Radon Zone 1, if a drain tile discharges to daylight install a check valve at the drain tile outfall (see Specification 2.1).

EPA United States Environmental Protection Agency

Indoor airPLUS Version 1 (Rev. 01) Verification Checklist

Home Address:		City:	State:	Zip:			
Section		**Requirements (Refer to full Indoor airPLUS Construction Specifications for details)**	**Must Correct**	**Builder Verified**	**Rater Verified**	**N/A**
		Note: **The Rev. 01 checklist has been modified to reflect only the additional Indoor airPLUS requirements and their corresponding section numbers that must be met after completing the ENERGY STAR checklists. ENERGY STAR remains a prerequisite for Indoor airPLUS certification.**				
ENERGY STAR V3 Checklists		Thermal Enclosure System Rater Checklist completed.	☐		☐	
		Water Management System Builder Checklist completed.	☐		☐	
		HVAC System Quality Installation Contractor Checklist completed.	☐		☐	
		HVAC System Quality Installation Rater Checklist completed.	☐		☐	
Moisture Control	1.1	Drain or sump pump installed in basements and crawlspaces (Exception: free-draining soils). In EPA Radon Zone 1, check valve also installed.	☐	☐	☐	☐
	1.2	Layer of aggregate or sand (4 in.) with geotextile matting installed below slabs AND radon techniques used in EPA Radon Zone 1.	☐	☐	☐	☐
	1.4	Basements/crawlspaces insulated, sealed and conditioned (Exceptions: see spec).	☐	☐	☐	☐
	1.7	Protection from water splash damage if no gutters (Exceptions: see spec).	☐		☐	☐
	1.11	Hard-surface flooring in kitchens, baths, entry, laundry and utility rooms, AND piping in exterior walls insulated with pipe wrap.	☐		☐	
Radon	2.1	Approved radon-resistant features installed in Radon Zone 1 homes.	☐	☐	☐	☐

look for EPA Indoor airPLUS

Indoor Air Quality (IAQ)

What About Multi-Family Dwellings?

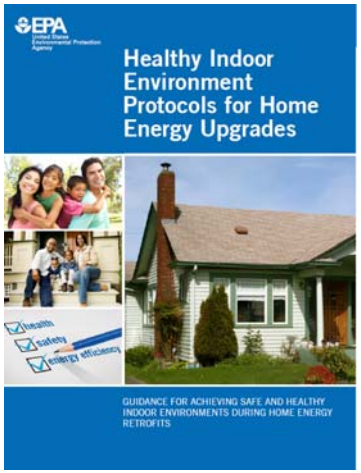
- **Multi-family dwellings that meet the ENERGY STAR Qualified Homes Version 3 National Program Requirements for Qualifying Homes can pursue Indoor airPLUS.**

- **Multi-family requirements are the same as single-family, PLUS:**
  - **Compartmentalization**
  - **Non-smoking policies**

What About Existing Homes?

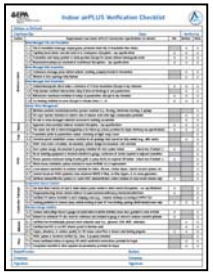
- **Indoor airPLUS can be used for gut rehabs.**
- **For other types of renovations and energy upgrade work, see EPA's Healthy Indoor Environment Protocols for Home Energy Upgrades.**

http://www.epa.gov/iaq/homes/retrofits.html



How to Build Indoor airPLUS Homes

Indoor airPLUS



+ Pest Barriers

+ Moisture Control

+ Radon Control

+ Materials

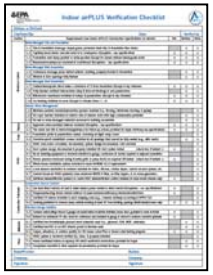
+ Ventilation & Filtration

+ Combustion Systems

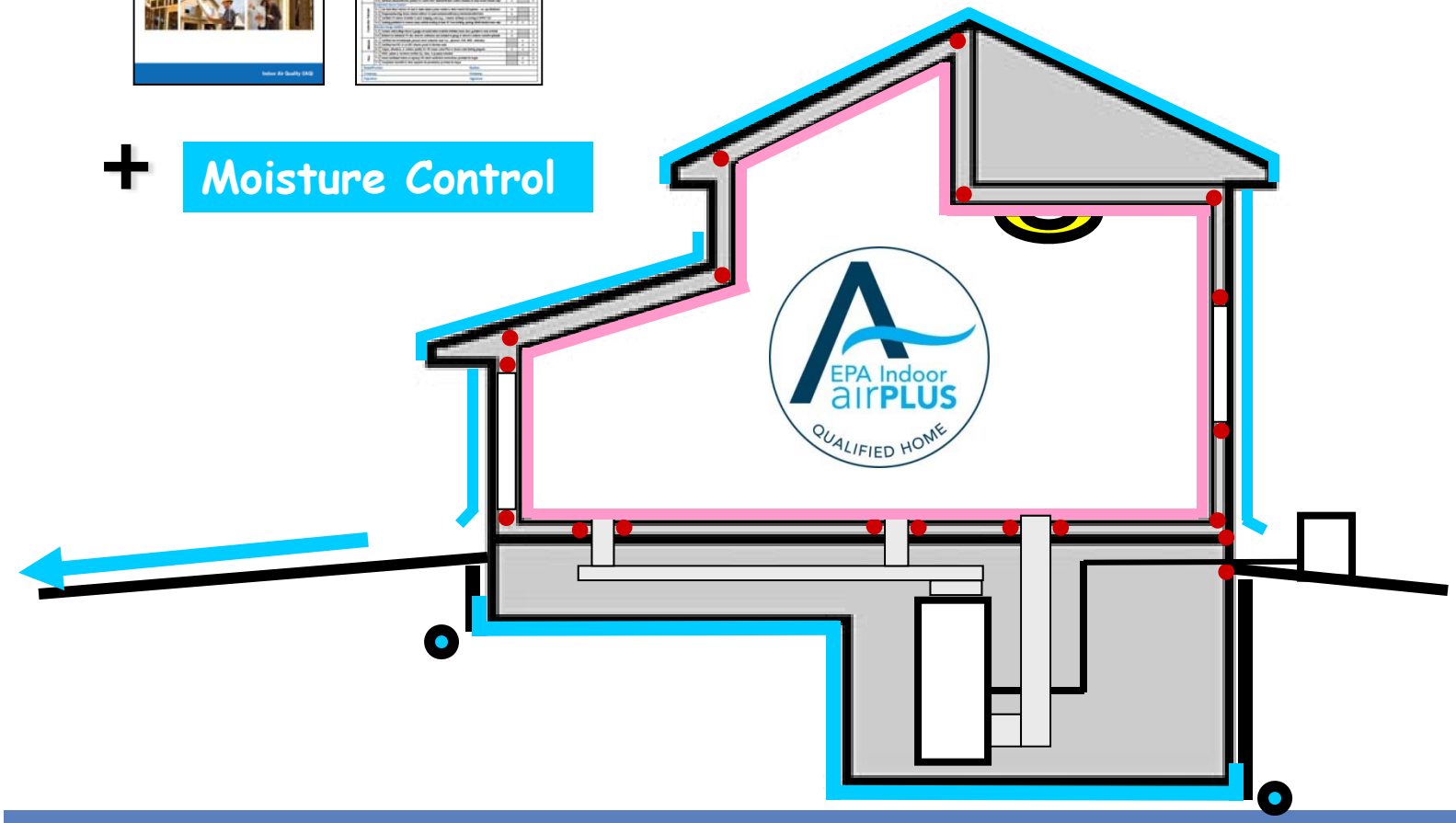
look for EPA Indoor airPLUS QUALIFIED HOMES

Indoor Air Quality (IAQ)

1. Moisture Control / Water Management



\+ Moisture Control



look for EPA Indoor airPLUS QUALIFIED HOME

Indoor Air Quality (IAQ)

1. Moisture Control / Water Management

- Moisture is a leading cause of health, comfort and durability concerns in homes.

- 19% of U.S. Households have at least one person with Asthma.
- There is a 20-50% increased risk of asthma in damp houses.
- The annual economic cost of asthma amounts to more than $56 billion annually.

- Mold grows where there is moisture.
- Molds produce allergens, irritants, and in some cases, potentially toxic substances.

1.1 Water –Managed Site and Foundation

- *Slope hard surfaces and final grade away from the foundation.*
- *Install drain tile at the footings of basement and crawlspace walls.*

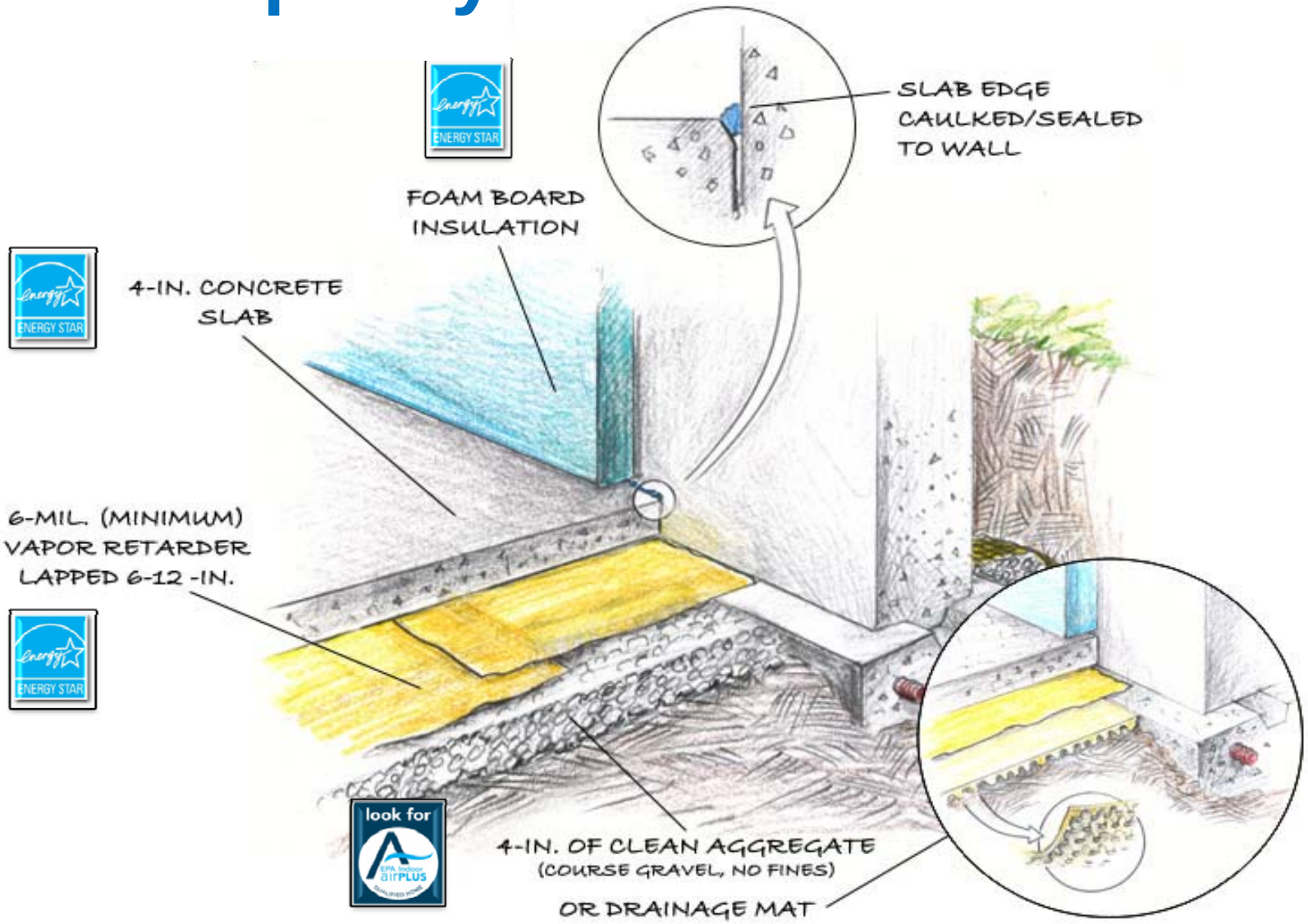
- **Install a drain or sump in basement and crawlspace floors.**

1.2 Capillary Break Installation

- *Install polyethylene sheeting or extruded polystyrene beneath concrete slabs.*
- *Install a capillary break at all crawlspace floors using polyethylene sheeting.*

- **Under the polyethylene sheeting or extruded polystyrene (XPS) insulation:**
  - **Install a 4 in. layer of aggregate; OR**
  - **A uniform layer of sand, overlain with either a layer of geotextile drainage matting.**

1.2 Capillary Break Installation



BASEMENT SLAB W/ CAPILLARY BREAK - GRAVEL AND GEOTEXTILE MAT (INSET)

1.3+1.4 Below-grade Foundation Walls

- *Waterproof crawlspace and basement perimeter walls.*
- *All floors above unconditioned spaces shall be insulated.*

- **Insulate crawlspace and basement perimeter walls.**
- **Seal crawlspace and basement perimeter walls.**
- **Provide conditioned air.**

1.5 – 1.7 Wall Drainage System

- *Install a drainage plane behind exterior wall cladding.*
- *Install flashing at the bottom of exterior walls.*
- *Fully flash all window and door openings.*
- *Direct roof water away from the house using gutters or an underground catchment system.*

For homes that meet ENERGY STAR exceptions for gutters and downspouts, provide protection for water splash damage by one of the following:

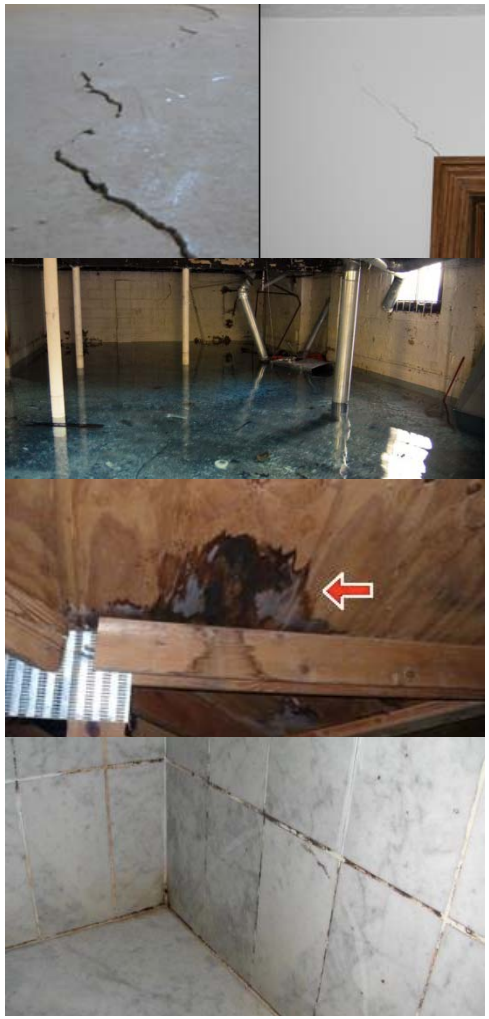
- **Extend the foundation walls 16 in. above grade.**
- **Provide a drip line that is 16 in. from the foundation.**
- **Install a drainage plane that extends at least 16 in. above grade.**

1.11 Moisture Resistant Materials

- *Install moisture-resistant backing material behind tub and shower enclosures.*
- *Install a corrosion-resistant drain pan.*

- **Install only water-resistant hard-surface flooring in kitchens, bathrooms, entryways, laundry areas, and utility rooms.**
- **Insulate water supply pipes in exterior walls with pipe wrap.**

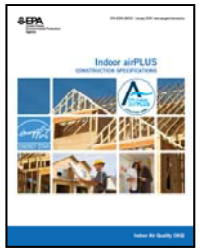
1. Moisture Control / Water Management

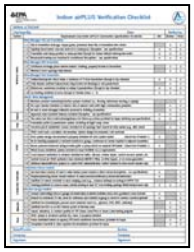


Benefits

- Structural durability.
- Flood mitigation.
- Fewer maintenance issues from peeling paint and moldy grout.
- Moisture and water damage reduction.
- Prevents mold growth – even in places you can't see.

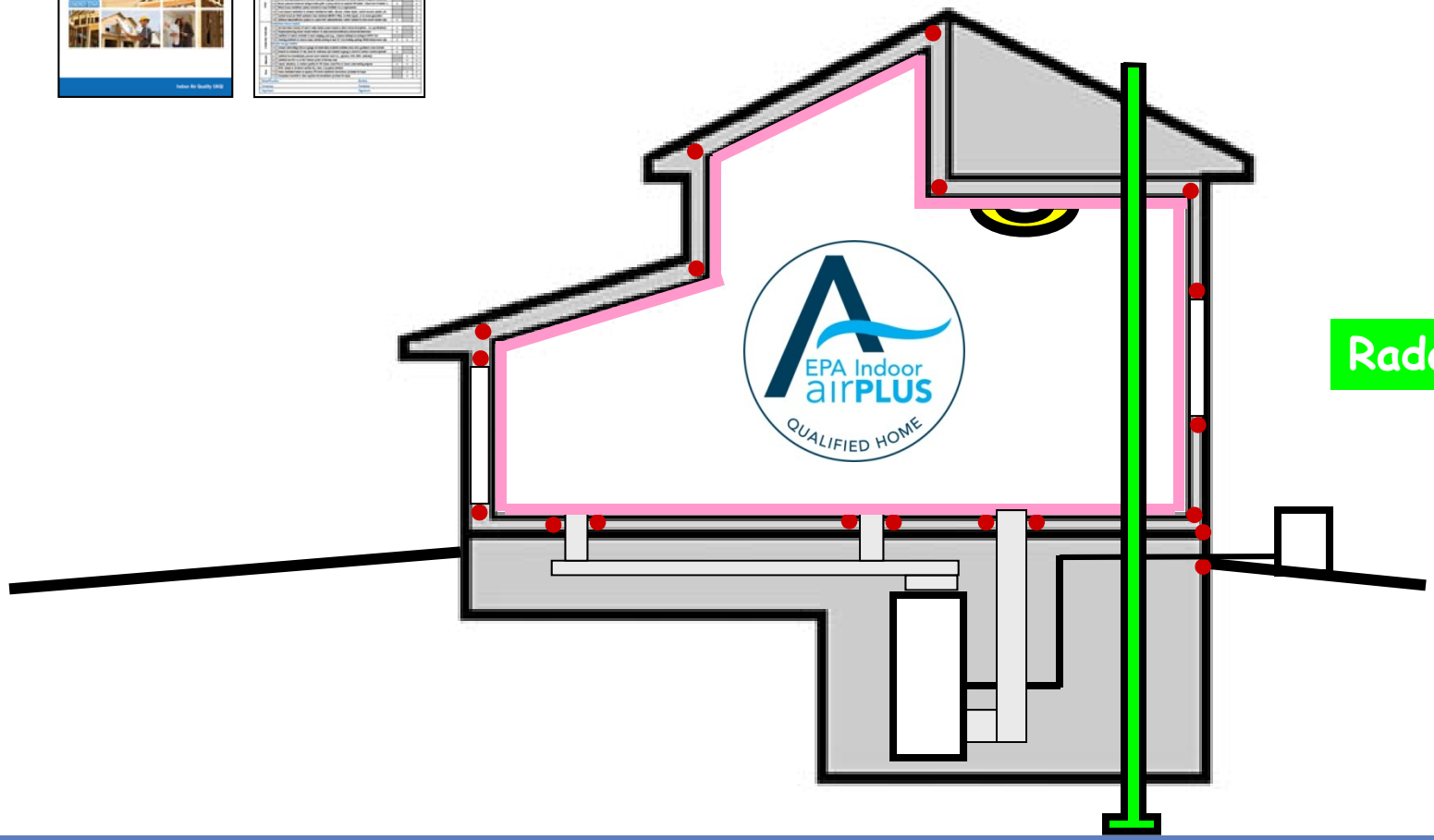
2. Radon





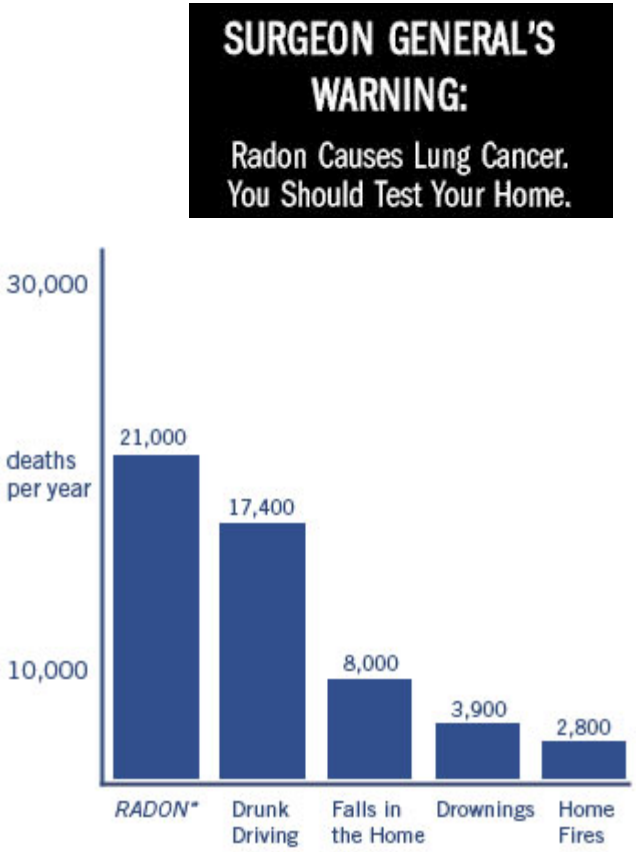
SURGEON GENERAL'S WARNING:

Radon Causes Lung Cancer.
You Should Test Your Home.



Radon Control

2. Radon



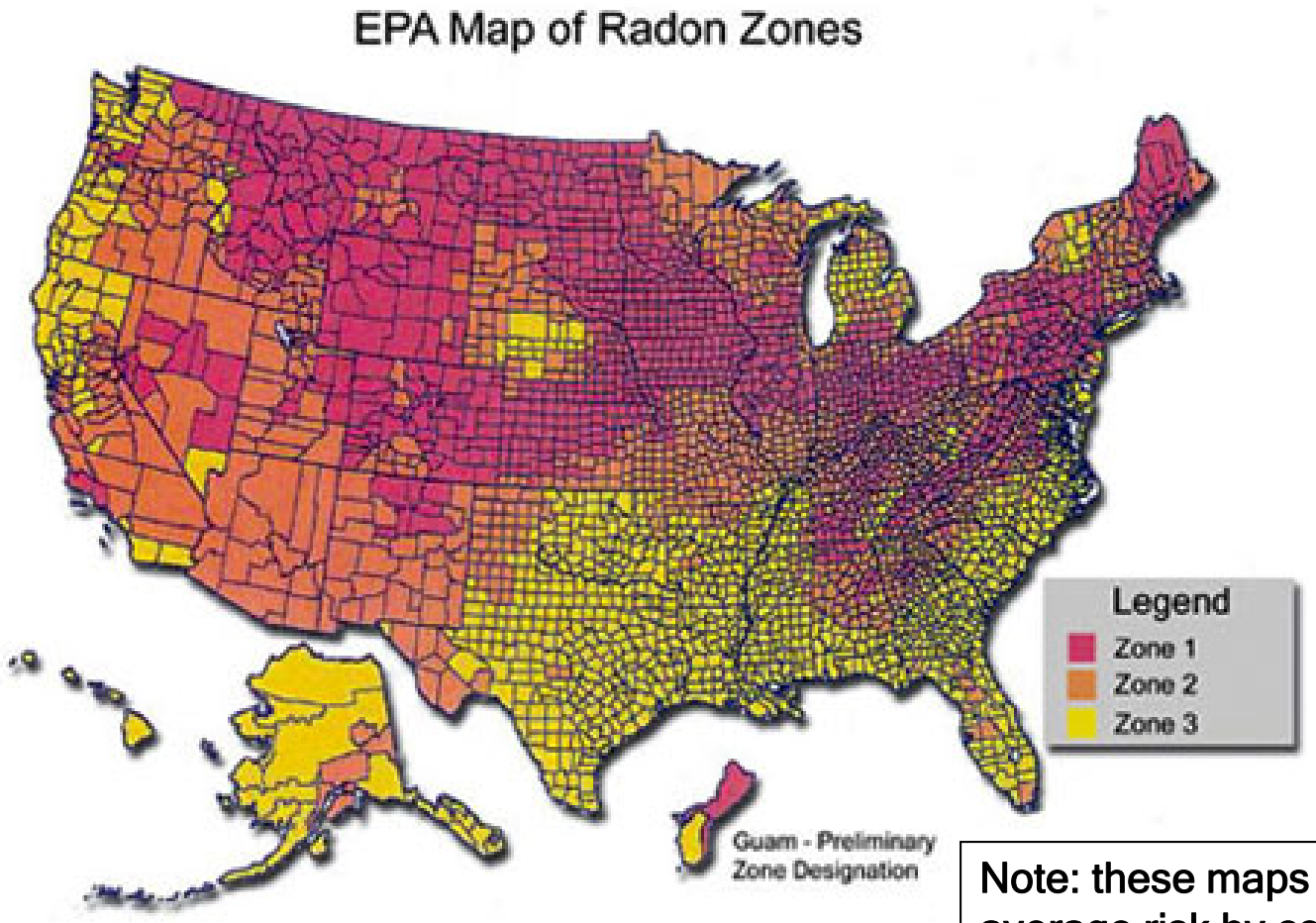
- Radon is a cancer-causing, radioactive gas created by the natural breakdown of uranium in soil.
- Radon can be found all over the US.
- 1 in 15 homes have Radon above 4 pCi/L.
- You are most likely to get your greatest exposure to Radon at home.
- Radon is the second leading cause of lung cancer after smoking.

2.1 Radon Control

- *Air seal all sump covers.*

- **Construct homes built in EPA Radon Zone 1 with radon-resistant features.**
- **Advisory:**
  - **Passive Systems in Zones 2&3.**
  - **Educate homeowners.**

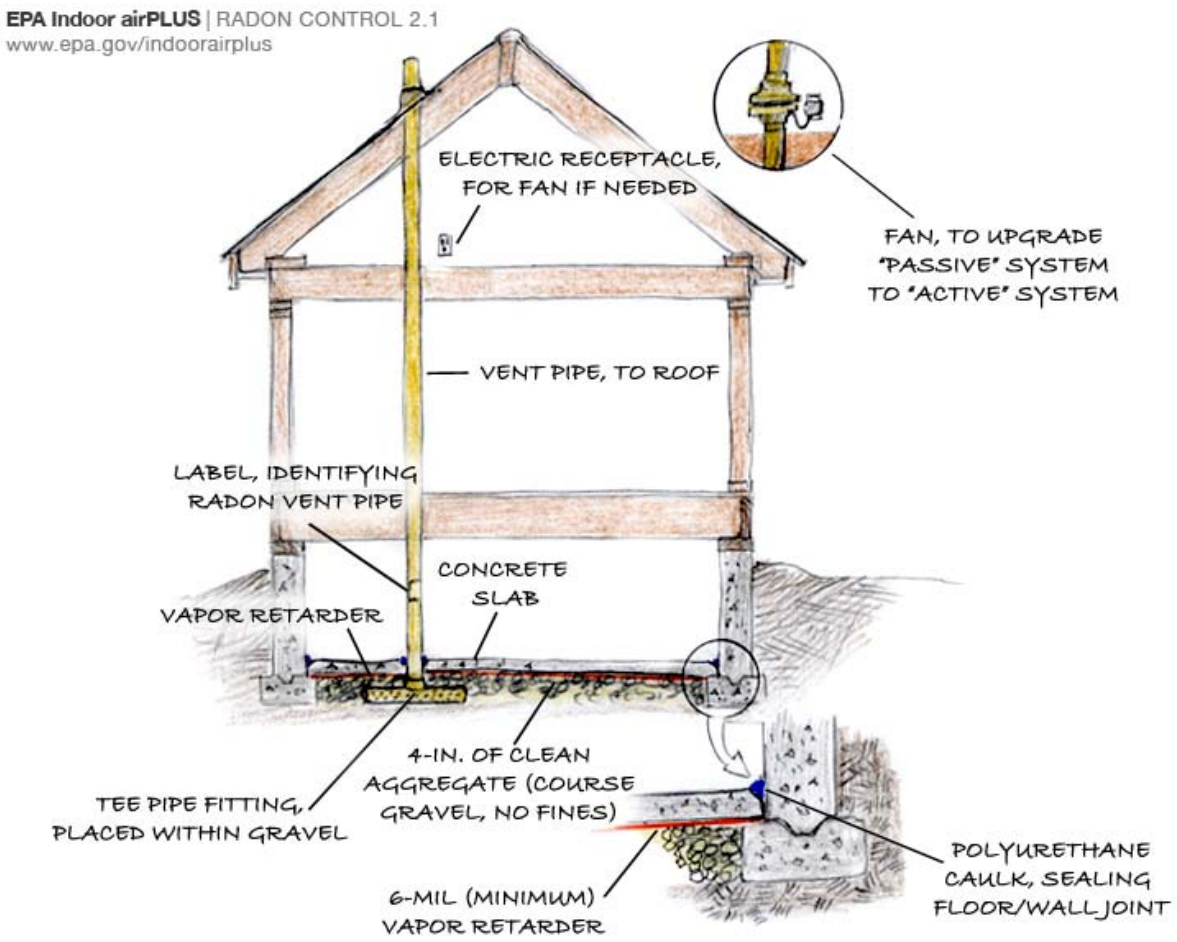
2.1 Radon Control



Surgeon General's Warning:
Radon Causes Lung Cancer

Note: these maps indicate average risk by county. However, High levels of Radon can be found in any home.

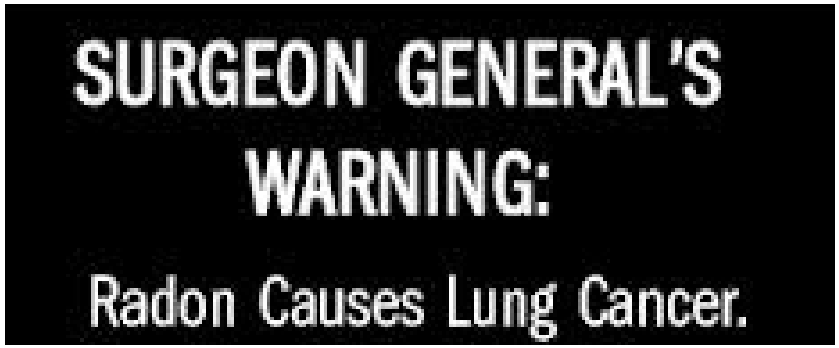
2.1 Radon Control



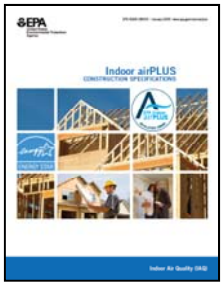
2.1 Radon Control

Homeowner Benefits

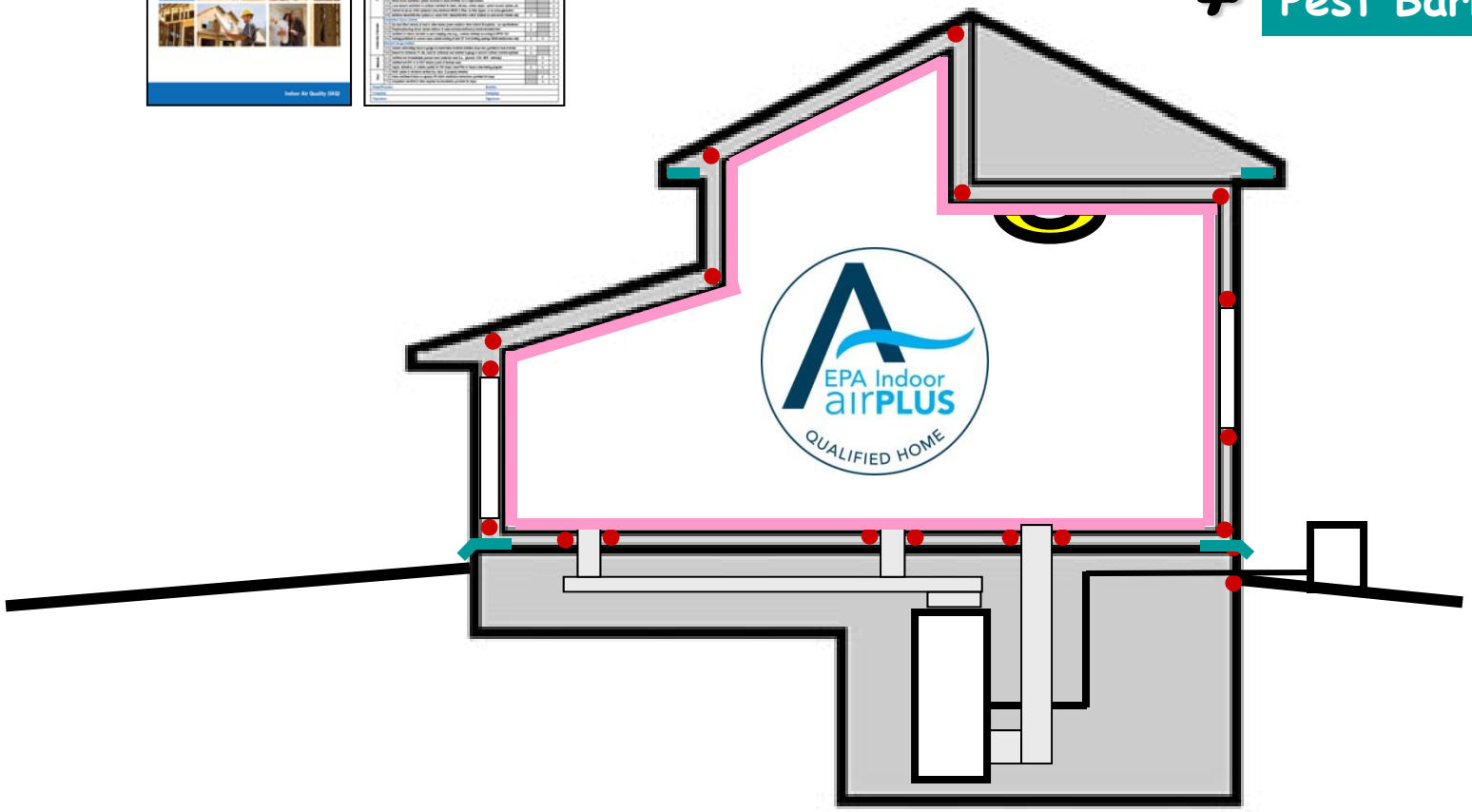
Protection against radon, the second leading cause of lung cancer in the U.S.



3. Pest Barriers



+ Pest Barriers



3. Pest Barriers

3.1 Minimize Pathways for Pest Entry

- *Seal all penetrations and joints between the foundation and exterior wall assemblies.*
- *Air seal all sump covers.*

Advisories:

- **When sealing large gaps use copper or stainless steel wool.**
- **Additional precautions should be taken in areas classified as “Moderate to Heavy” termite infestation.**

3.2 Rodent/Bird Screens

- **Provide corrosion-proof rodent/bird screens for all building openings that cannot be fully sealed and caulked.**

3.2 Rodent/Bird Screens

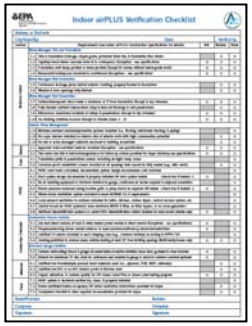
Homeowner Benefits

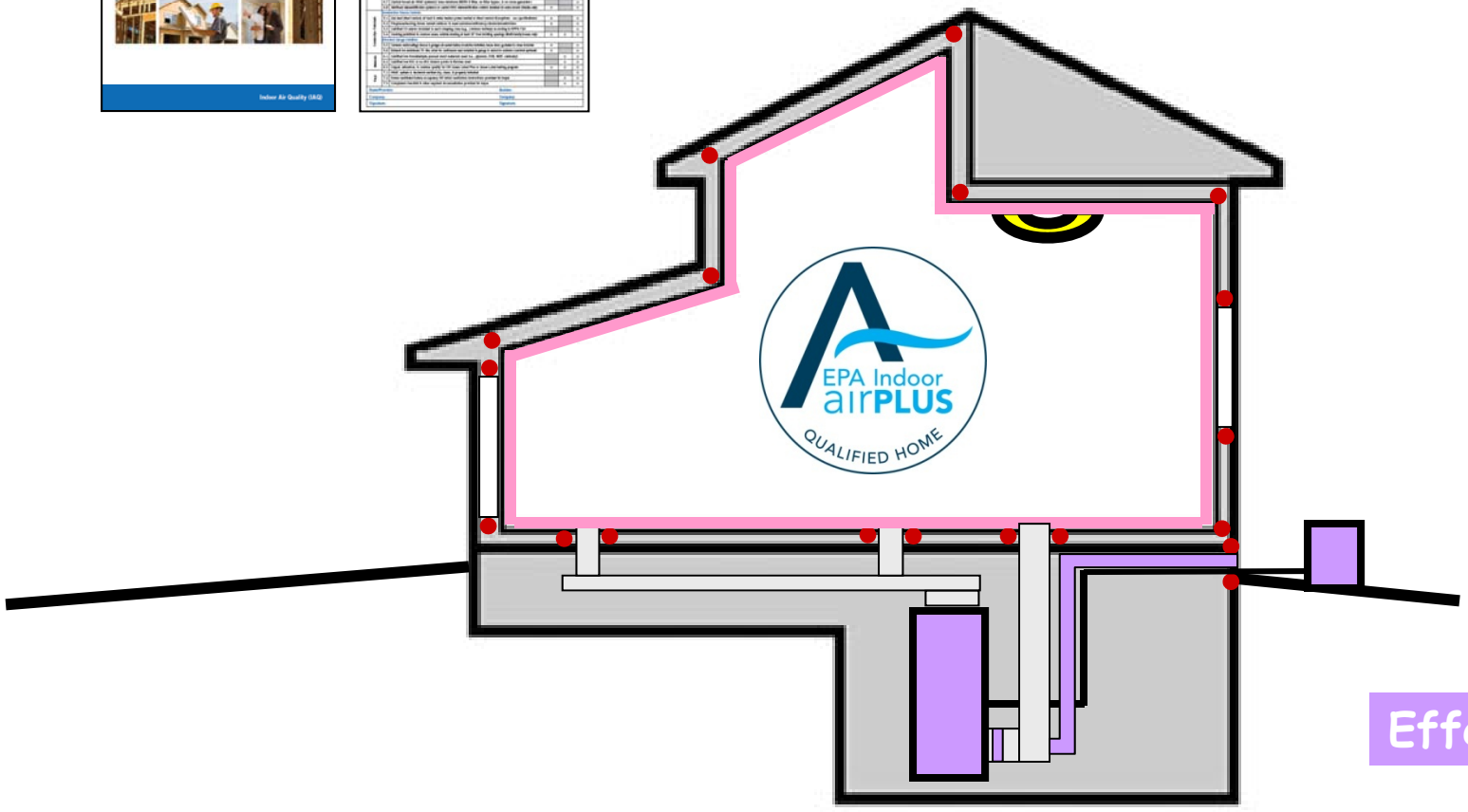
Prevention of potential damage from pests to the home.

Less vacuuming and dusting.

Reduced pest-related allergens and triggers for asthma attacks.

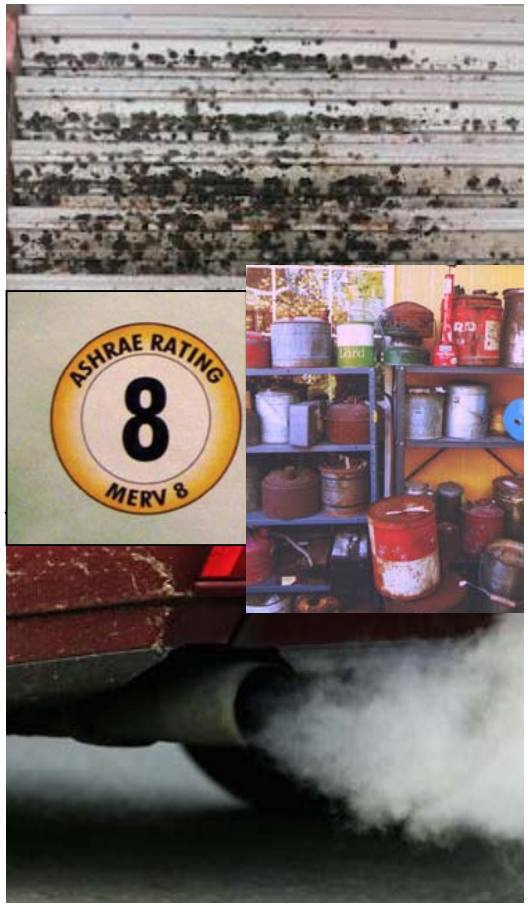
4. HVAC Systems





Effective HVAC

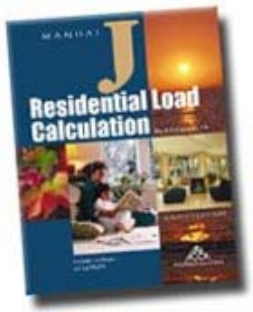
4. HVAC Systems



- Indoor relative humidity greater than 60% can encourage mold growth and attract organisms such as dust mites or other pests.
- HVAC components in wall cavities and garages can expose occupants to mold, carbon monoxide, hydrocarbons, nitrogen oxides, radon, pesticides and other contaminants.
- Ordinary residential panel filters collect less than 20 percent of the particles between 3 and 10 microns. A MERV 8 filter collects more than 70% of the particles in this range.

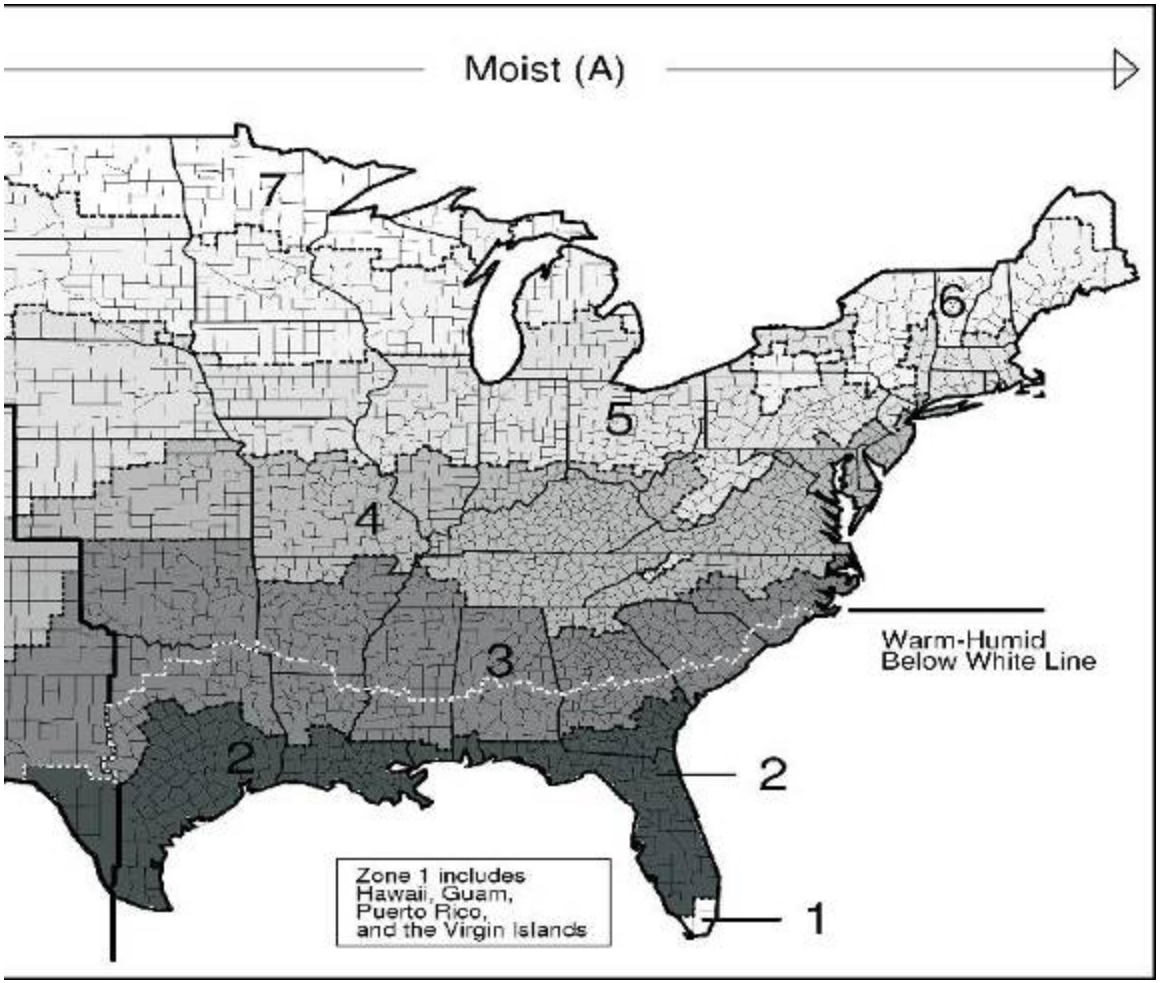
4.1 HVAC Sizing and Design

- *Properly size all heating and cooling equipment using ACCA Manual J, ASHRAE Handbooks, or equivalent software.*



- **"Warm-Humid" climates: equipment shall be installed with sufficient latent capacity to maintain indoor relative humidity (RH) at or below 60 percent.**

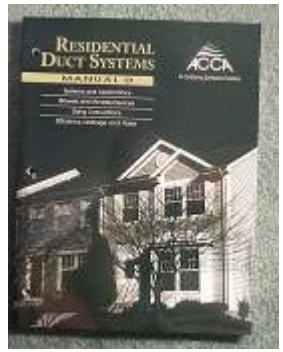
4.1 HVAC Sizing and Design



Controlled to
≤ 60% RH

4.2 Duct System Design and Installation

- *Design all duct systems according to ACCA Manual D, ASHRAE Handbooks, or equivalent software.*
- *Ensure that all duct systems are airtight and properly balanced.*



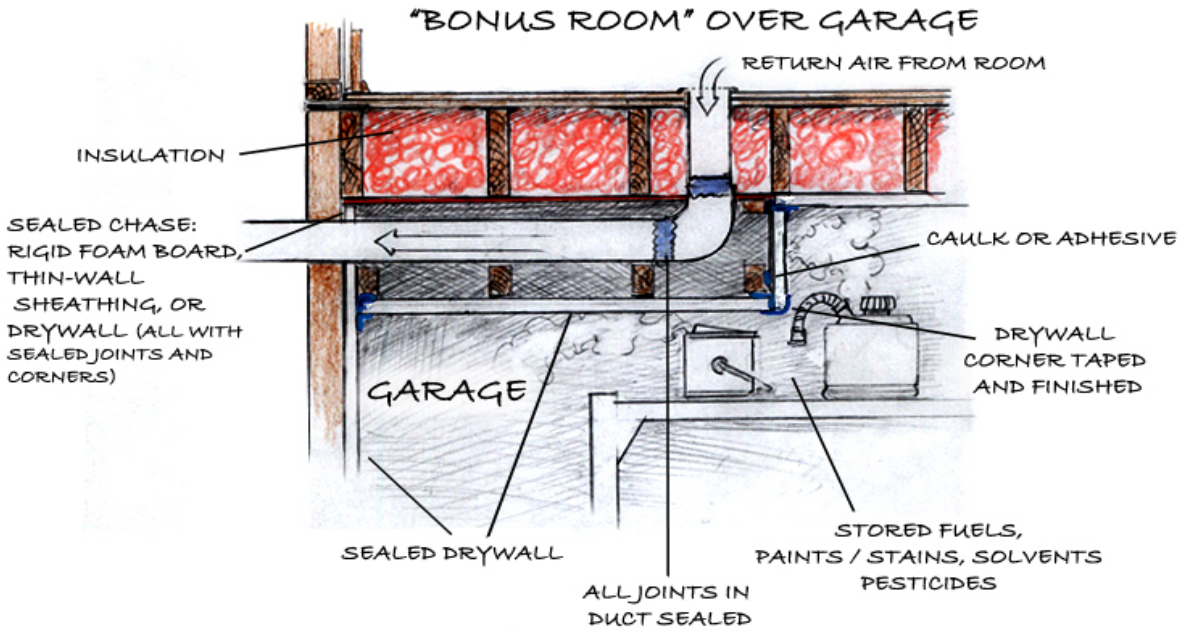
- **Do not use building cavities as part of the forced air supply or return systems.**
- **Cover duct openings throughout construction or vacuum out ducts prior to installing registers.**

4.2 Duct System Design and Installation

SEALING WITH MASTIC

4.3 Location of Air Handler and Ducts

- **Do not locate air-handling equipment or ductwork in garages.**
- **Note: Ducts may be located in building cavities adjacent to the garage if they are separated with a continuous air barrier.**



4.5 Mechanical Whole-House Ventilation

- *Provide mechanical whole-house ventilation meeting ASHRAE 62.2-2010.*
- *Test airflows to ensure they meet ASHRAE 62.2-2010.*

- **Advisory: Outdoor air ducts connected to the return side of an air handler should be used as supply ventilation only if the manufacturers' requirements for return air temperature are met.**

4.5 Mechanical Whole-House Ventilation

FRESH AIR DAMPER

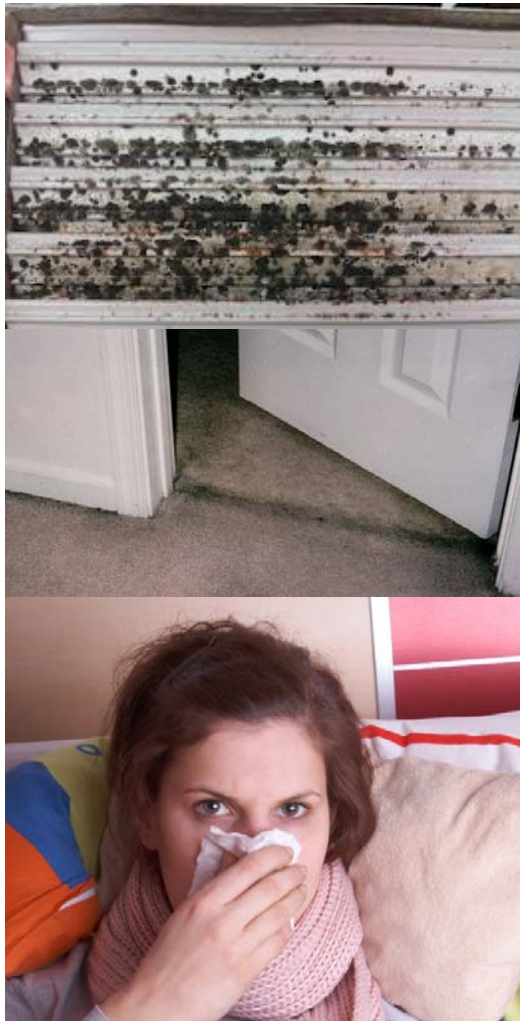
DUCTED FRESH AIR SUPPLY

4.7 Filtration

- *Equip all filter access panels with gasket material or comparable sealing mechanism to prevent bypass air.*

- **Install only HVAC filters that are rated MERV 8 or higher.**
- **Do not install any air-cleaning equipment designed to produce ozone.**

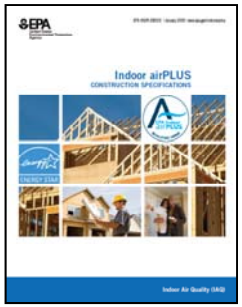
4.1 HVAC Systems

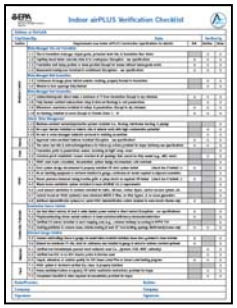


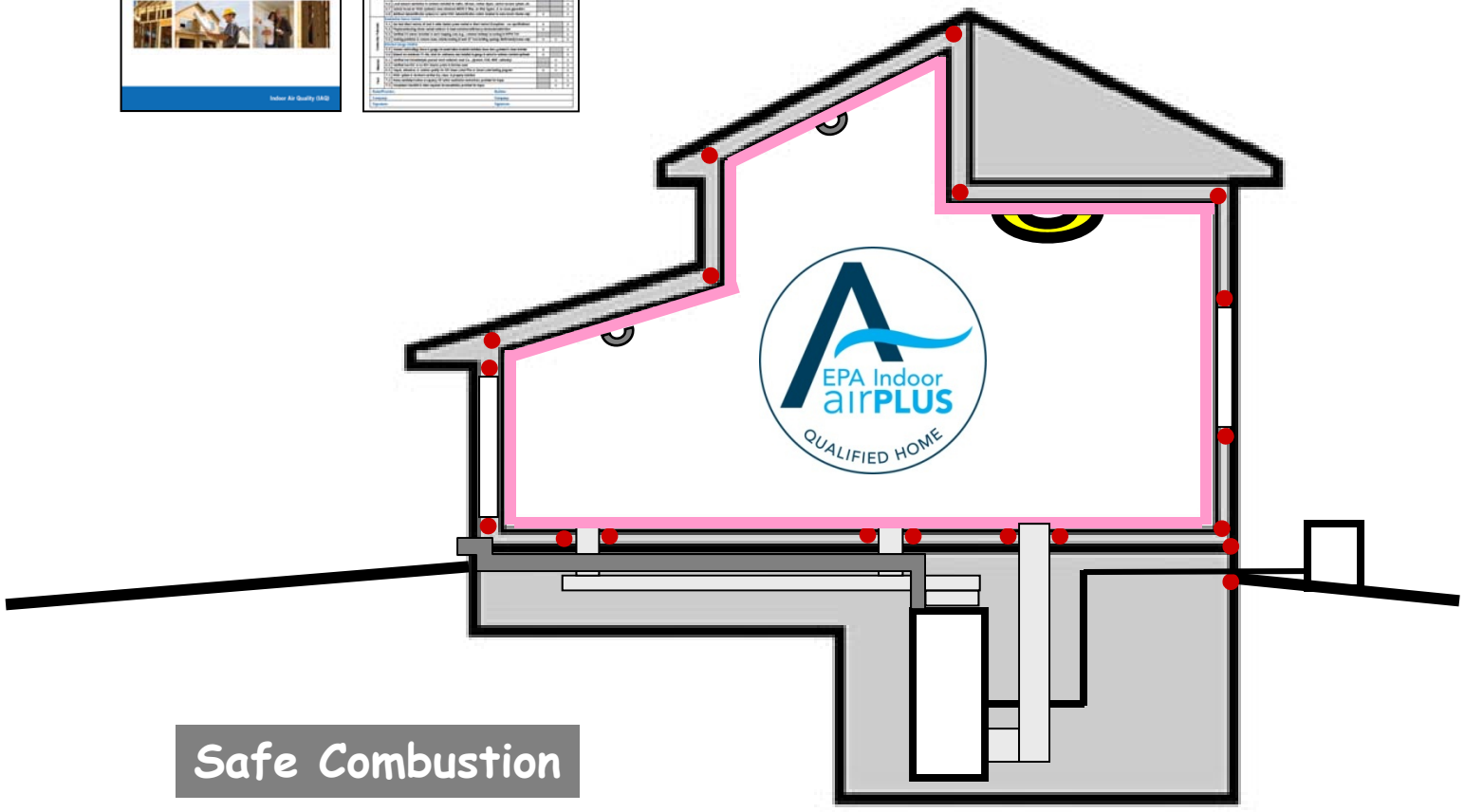
Homeowner Benefits

- Reduced exposure to the harmful effects of mold and mildew growth.
- A more comfortable humidity level in the home, year round.
- Improved lifespan of building materials and a more durable home.
- Helps remove allergens, toxins, irritants and asthma triggers from the home.
- House stays cleaner.

5. Combustion Pollutants







Safe Combustion

5. Combustion Pollutants

- Carbon monoxide (CO) poisoning kills an average of 439 persons annually.
- Carbon monoxide, an odorless, colorless gas, which can cause sudden illness and death, is produced any time a fossil fuel is burned.

5.1 Combustion Equipment

- *Mechanically draft or direct vent all gas- and oil-fired furnaces, boilers and water heaters.*
- *Fireplaces that are not mechanically drafted must meet exhaust flow or pressure differential.*

- **Do not install any unvented combustion space-heating appliances.**
- **Ensure naturally drafted fuel-burning appliances compliance with ASHRAE 62.2 or conduct a Worst Case Depressurization Combustion Air Zone (CAZ) Test.**
- **Ensure that all fireplaces and other fuel-burning appliances are vented to the outdoors and supplied with ventilation air.**
- **Meet emissions standards and restrictions for all fuel-burning appliances located in conditioned spaces.**

5.1 Combustion Equipment

POWER VENTED WATER HEATER

DIRECT VENTED FURNACE

5.2 Carbon Monoxide Alarms

- **All homes with combustion appliance(s) or an attached garage shall have a carbon monoxide (CO) alarm installed in a central location in the immediate vicinity of each separate sleeping zone.**

CO ALARM

COMBINED CO & SMOKE ALARM

5.3 Multi-family ETS Protections

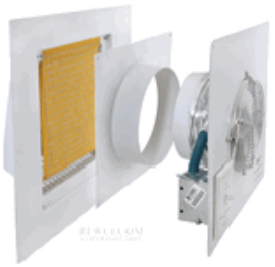
- **Reduce exposure to environmental tobacco smoke (ETS) in multi-family buildings by:**
  - **Prohibiting smoking in indoor common areas.**
  - **Locating designated outdoor smoking areas.**
  - **Minimizing uncontrolled pathways for ETS transfer between individual dwelling units by sealing walls, ceilings, and floors of dwelling units.**

5.4 Attached Garages

- *Isolate attached garages from conditioned spaces:*
  - *Air-seal common walls and ceilings.*
  - *Use weather stripping on all doors between living spaces and attached garages.*

- **Install an automatic door closer on all doors between living spaces and attached garages.**
- **Equip each attached garage with an exhaust fan with a minimum installed capacity of 70 cfm.**
  - **Wire each exhaust fan for continuous operation or with automatic fan controls.**



5.2 Combustion Pollutants

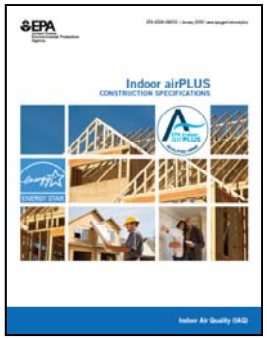
Benefits

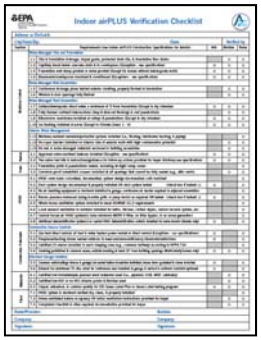
Reduced exposure to carbon monoxide.

Prevention of toxins leaking from the garage into the home.

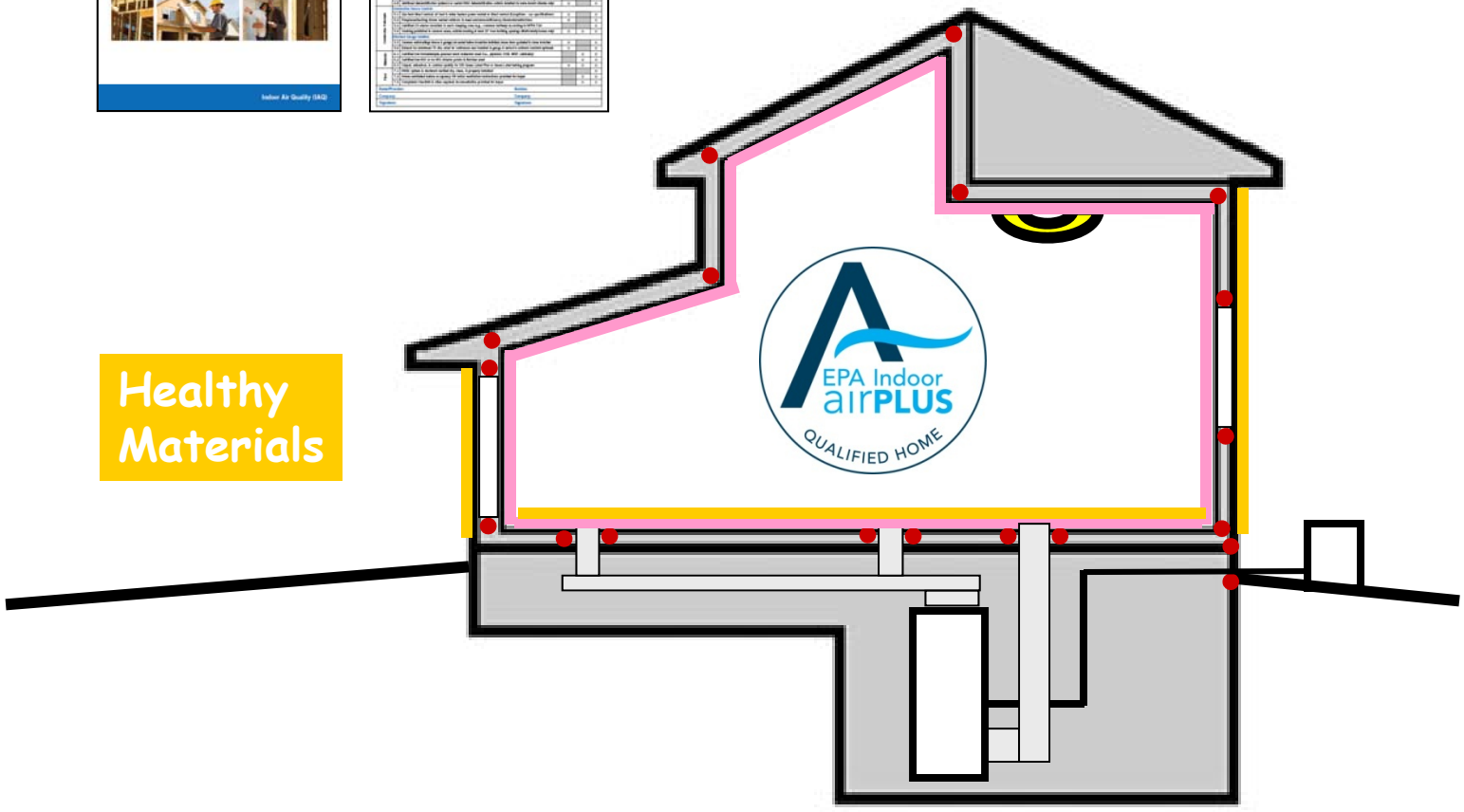
Round the clock peace of mind.

6. Low Emission Materials





Healthy Materials



6. Low Emission Materials

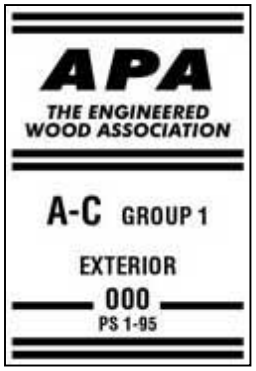
- Indoor levels of many chemical pollutants can be 2-5 times higher than outdoor levels.

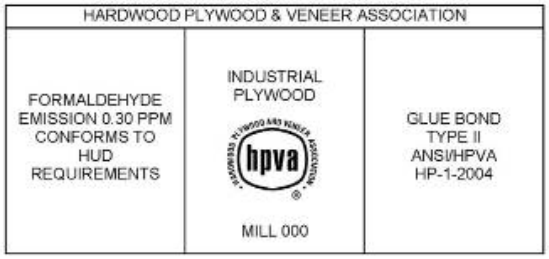
- VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects, including eye, nose, and throat irritation, headaches, loss of coordination, nausea, damage to liver, kidney, and central nervous system.

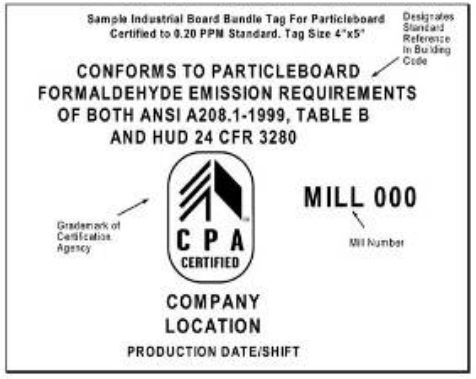
6.1 Composite Wood

- Use plywood and OSB compliant with PS1 or PS2, and made with moisture-resistant adhesives as indicated by the American Plywood Association (APA) trademark.
- Use hardwood plywood products compliant with ANSI/HPVA and U.S. HUD Title 24, OR CA Title 17.
- Use particleboard and MDF products compliant with ANSI A208.1 and A208.2, and U.S. HUD Title 24, OR CPA Grademark certification program, OR CA Title 17.
- Install only cabinetry made with component materials that met all the standards above OR registered products produced in plants certified under KCMA's Environmental Stewardship Certification Program (ESP 05-12).

6.1 Composite Wood







6.2 Interior Paints and Finishes

- Use interior paints and finishes certified as low-VOC or no-VOC
  - Greenseal GS11
  - Greenguard
  - Scientific Certification Systems
  - Master Painters Institute
  - Verified using CA 01350(CDPH Standard Method V1.1-2010),

Or California Section 01350

6.3 Carpets and Carpet Adhesives

- Use carpets and carpet adhesives labeled with the Carpet and Rug Institute (CRI) Green Label Plus testing program criteria.
- For carpet cushion (i.e., padding), use only products certified to meet the CRI Green Label testing program criteria.

6.3 Carpets and Carpet Adhesives

Homeowner Benefits

- Less “chemical” smell
- Lowered exposure to VOCs.
- Reduced potential for occupant health complaints

7. Home Commissioning

7.1 HVAC and Duct Verification

- *Verify that HVAC systems and ductwork are installed according to their design.*

- **Inspect ductwork to verify it is dry and substantially free of dust or debris. If duct openings were not covered during construction, thoroughly vacuum out each opening.**
- **Inspect air-handling equipment and verify that heat exchangers/coils are free of dust AND the filter is new, clean and meets specified MERV rating.**

7.2 Ventilation after Material Installation

- **Verify that the home has been ventilated with outside air:**
  - **During and shortly after installing products that are known sources of contaminants, AND**
  - **During the period between finishing and occupancy.**

7.3 Buyer Information Kit

- **Provide buyers with information and documentation of the home's IAQ protections, including:**
  - **A copy of the Indoor airPLUS Verification Checklist.**
  - **HVAC, duct, and ventilation system design documentation.**
  - **Operations and maintenance instruction manuals for all installed equipment and systems addressed by Indoor airPLUS and ENERGY STAR requirements.**

Selling Indoor airPLUS

ADD VALUE

Homes with green labels can sell for an average of

9% MORE[1]

Tell homebuyers to ask for a Residential Green Appraiser.

1. Nils Kok and Matthew Kahn, The Value of Green Labels in the California Housing Market, July 2012.

Same # of Inspections, Double the Service

Grow Your Market

More than 25 million people, including 7.1 million children, have asthma and there is a 20-50% increased risk of asthma in damp houses.

Differentiate Your Company

Build a Reputation for Quality

"We decided to build a new house after restoring and residing in two 100-year-old homes in a row. ***We didn't even know the health problems attributed to those old drafty houses*** *until we had our son. After running some low-level allergy symptoms for about a year,* ***we moved into our new home which is Indoor airPLUS certified. The health issues cleared up immediately - for all of us.*** *It's amazing what a little clean air can do!"*

-Homeowner in Oklahoma City

Lead the Industry

One third of builders expect to be dedicated to green building by 2016 and in 2011, 60% of builders placed a greater emphasis on indoor air quality as a green home feature.

Reduce Risk

EASY SELL

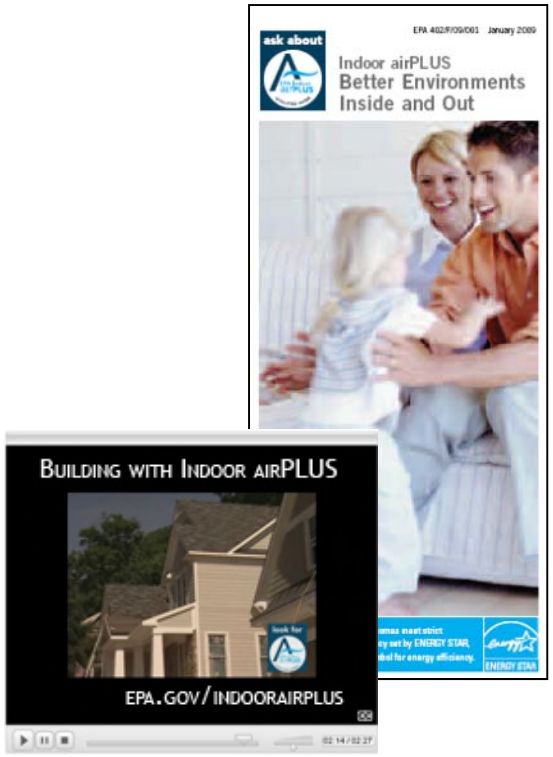
100% of People Choose Being Healthy Over Sick

100% of People Choose Being Healthy Over Sick

Resources and Tools

www.epa.gov/indoorairplus

Marketing and Technical Support for Partners



- Builder and consumer resources.
- Partner locator.
- Website widgets.
- Construction requirements.
- Technical guidance.

Resources and Tools

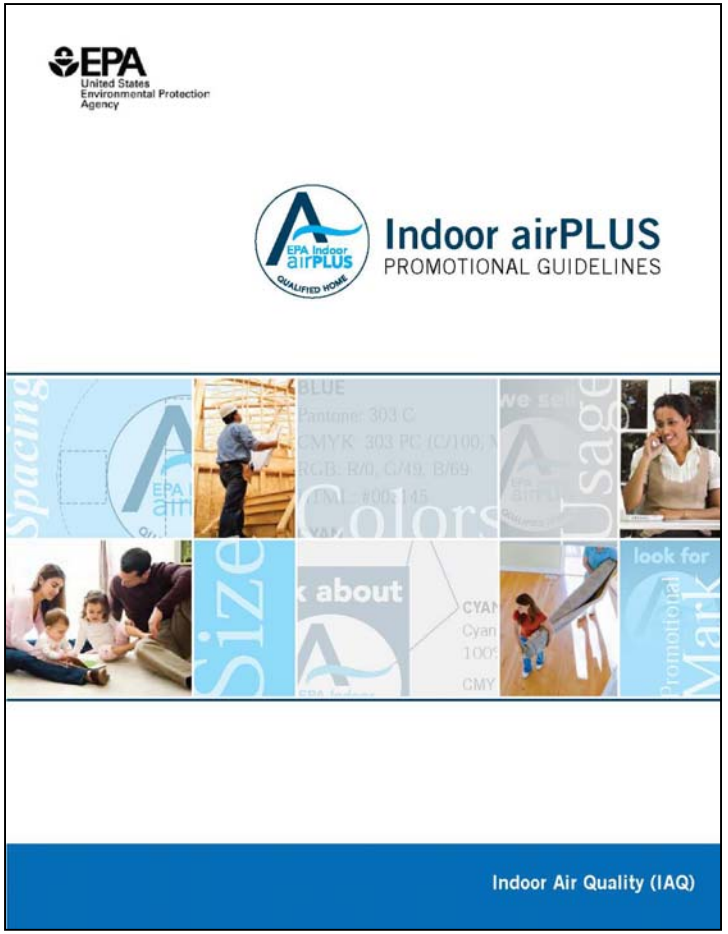
Get the latest information:

- Facebook.
- Twitter.
- YouTube Videos.
- Mobile App.
- Podcasts.

iTunes twitter YouTube facebook

Promotional Guidelines

- Using Indoor airPLUS to maintain and build value.
- Using Indoor airPLUS marks.
- Using Indoor airPLUS with complementary programs.
- Indoor airPLUS general guidelines.
- Indoor airPLUS graphic technical guidelines.
- Incorrect usage.

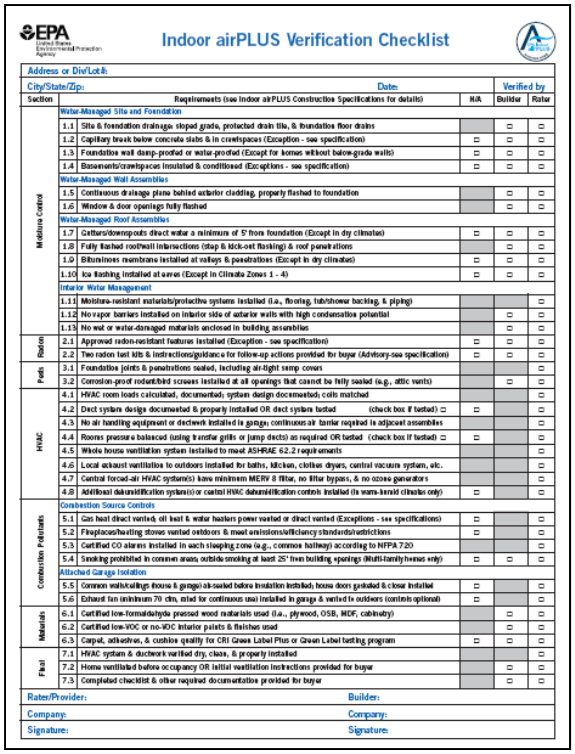


Indoor airPLUS Marks and Messaging

Become a Partner

Step 1: Review Materials

Visit: www.epa.gov/indoorairplus



EPA United States Environmental Protection Agency

Indoor airPLUS Verification Checklist

Address or Div/Lot#:

City/State/Zip: Date: Verified by

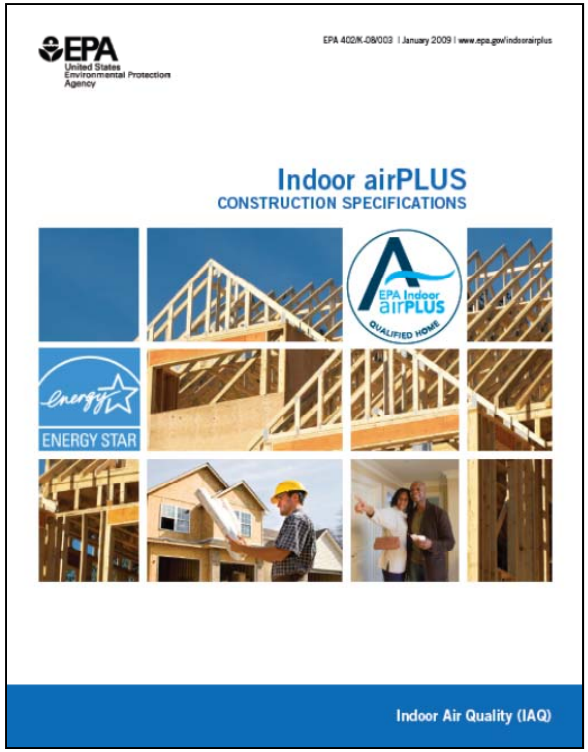
Section		Requirements (see Indoor airPLUS Construction Specifications for details)	N/A	Builder	Rater
Moisture Control		**Water-Managed Site and Foundation**			
	1.1	Site & foundation drainage: sloped grade, protected drain tile, & foundation floor drains		□	□
	1.2	Capillary break below concrete slabs & in crawlspaces (Exception - see specification)	□	□	□
	1.3	Foundation wall damp-proofed or water-proofed (Except for homes without below-grade walls)	□	□	□
	1.4	Basements/crawlspaces insulated & conditioned (Exceptions - see specification)	□	□	□
		Water-Managed Wall Assemblies			
	1.5	Continuous drainage plane behind exterior cladding, properly flashed to foundation		□	□
	1.6	Window & door openings fully flashed		□	□
		Water-Managed Roof Assemblies			
	1.7	Gutters/downspouts direct water a minimum of 5' from foundation (Except in dry climates)	□	□	□
	1.8	Fully flashed roof/wall intersections (step & kick-out flashing) & roof penetrations		□	□
	1.9	Bituminous membrane installed at valleys & penetrations (Except in dry climates)	□	□	□
	1.10	Ice flashing installed at eaves (Except in Climate Zones 1 - 4)	□	□	□
		Interior Water Management			
	1.11	Moisture-resistant materials/protective systems installed (i.e., flooring, tub/shower backing, & piping)			□
	1.12	No vapor barriers installed on interior side of exterior walls with high condensation potential		□	□
	1.13	No wet or water-damaged materials enclosed in building assemblies		□	□
Radon	2.1	Approved radon-resistant features installed (Exception - see specification)	□	□	□
	2.2	Two radon test kits & instructions/guidance for follow-up actions provided for buyer (Advisory-see specification)	□	□	□
Pests	3.1	Foundation joints & penetrations sealed, including air-tight sump cover			□
	3.2	Corrosion-proof rodent/bird screens installed at all openings that cannot be fully sealed (e.g., attic vents)		□	□
HVAC	4.1	HVAC room loads calculated, documented; system design documented; coils matched			□
	4.2	Duct system design documented & properly installed OR duct system tested (check box if tested) □	□		□
	4.3	No air handling equipment or ductwork installed in garage; continuous air barrier required in adjacent assemblies			□
	4.4	Rooms pressure balanced (using transfer grills or jump ducts) as required OR tested (check box if tested) □	□		□
	4.5	Whole house ventilation system installed to meet ASHRAE 62.2 requirements			□
	4.6	Local exhaust ventilation to outdoors installed for baths, kitchen, clothes dryers, central vacuum system, etc.			□
	4.7	Central forced-air HVAC system(s) have minimum MERV 8 filter, no filter bypass, & no ozone generators			□
	4.8	Additional dehumidification system(s) or central HVAC dehumidification controls installed (in warm-humid climates only)	□		□
Combustion Pollutants		**Combustion Source Controls**			
	5.1	Gas heat direct vented, oil heat & water heaters power vented or direct vented (Exceptions - see specifications)	□		□
	5.2	Fireplaces/heating stoves vented outdoors & meet emissions/efficiency standards/restrictions	□		□
	5.3	Certified CO alarms installed in each sleeping zone (e.g., common hallway) according to NFPA 720			□
	5.4	Smoking prohibited in common areas, outside smoking at least 25' from building openings (Multi-family homes only)	□	□	□
		Attached Garage Isolation			
	5.5	Common walls/ceilings (house & garage) air-sealed before insulation installed; house doors gasketed & closer installed	□		□
	5.6	Exhaust fan (minimum 70 cfm, rated for continuous use) installed in garage & vented to outdoors (controls optional)	□		□
Materials	6.1	Certified low-formaldehyde pressed wood materials used (i.e., plywood, OSB, MDF, cabinetry)		□	□
	6.2	Certified low-VOC or no-VOC interior paints & finishes used		□	□
	6.3	Carpet, adhesives, & cushion qualify for CRI Green Label Plus or Green Label testing program	□	□	□
Final	7.1	HVAC system & ductwork verified dry, clean, & properly installed			□
	7.2	Home ventilated before occupancy OR initial ventilation instructions provided for buyer		□	□
	7.3	Completed checklist & other required documentation provided for buyer		□	□

Rater/Provider: Builder:

Company: Company:

Signature: Signature:

Verification Checklist



Construction Specifications

look for EPA Indoor airPLUS QUALIFIED HOME

Indoor Air Quality (IAQ)

Step 2: Sign the Partnership Agreement

Visit: www.epa.gov/indoorairplus

- Click “Join Now”
- Determine partner category:
  - Homebuilder
  - Rater/Provider
  - Ally
- Fill out fields
- Review terms of agreement
- Click “Submit”

Indoor airPLUS Partnership Agreement Form

Organization Name:

Organization Type (check one):

- Home Builder
- Home Verification Organization
- Program Ally

Contact Name: (required)

First

Last

Contact Phone #, E-mail and Web site:

Phone | E-mail (required) | Web site URL (required - including http://)

Street Address:

Address 1 | City | State | Zip

Step 3: Build & Label Homes

Rater Inspects Home Using Verification Checklist

EPA United States Environmental Protection Agency

Indoor airPLUS Verification Checklist

Address or Div/Lot#:

City/State/Zip: Date: Verified by

Section		Requirements (see Indoor airPLUS Construction Specifications for details)	N/A	Builder	Rater
Moisture Control		**Water-Managed Site and Foundation**			
	1.1	Site & foundation drainage: sloped grade, protected drain tile, & foundation floor drains		☐	☐
	1.2	Capillary break below concrete slabs & in crawlspaces (Exception - see specification)	☐	☐	☐
	1.3	Foundation wall damp-proofed or water-proofed (Except for homes without below-grade walls)	☐	☐	☐
	1.4	Basements/crawlspaces insulated & conditioned (Exceptions - see specification)	☐	☐	☐
		Water-Managed Wall Assemblies			
	1.5	Continuous drainage plane behind exterior cladding, properly flashed to foundation		☐	☐
	1.6	Window & door openings fully flashed		☐	☐
		Water-Managed Roof Assemblies			
	1.7	Gutters/downspouts direct water a minimum of 5' from foundation (Except in dry climates)	☐	☐	☐
	1.8	Fully flashed roof/wall intersections (step & kick-out flashing) & roof penetrations		☐	☐
	1.9	Bituminous membrane installed at valleys & penetrations (Except in dry climates)	☐	☐	☐
	1.10	Ice flashing installed at eaves (Except in Climate Zones 1 - 4)	☐	☐	☐
		Interior Water Management			
	1.11	Moisture-resistant materials/protective systems installed (i.e., flooring, tub/shower backing, & piping)			☐
	1.12	No vapor barriers installed on interior side of exterior walls with high condensation potential		☐	☐
	1.13	No wet or water-damaged materials enclosed in building assemblies		☐	☐
Radon	2.1	Approved radon-resistant features installed (Exception - see specification)	☐	☐	☐
	2.2	Two radon test kits & instructions/guidance for follow-up actions provided for buyer (Advisory-see specification)	☐	☐	☐
Pests	3.1	Foundation joints & penetrations sealed, including air-tight sump covers			☐
	3.2	Corrosion-proof rodent/bird screens installed at all openings that cannot be fully sealed (e.g., attic vents)		☐	☐
HVAC	4.1	HVAC room loads calculated, documented; system design documented; coils matched			☐
	4.2	Duct system design documented & properly installed OR duct system tested (check box if tested) ☐	☐		☐
	4.3	No air handling equipment or ductwork installed in garage; continuous air barrier required in adjacent assemblies			☐
	4.4	Rooms pressure balanced (using transfer grills or jump ducts) as required OR tested (check box if tested) ☐	☐		☐
	4.5	Whole house ventilation system installed to meet ASHRAE 62.2 requirements			☐
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	4.7	Central forced-air HVAC system(s) have minimum MERV 8 filter, no filter bypass, & no ozone generators			☐
	4.8	Additional dehumidification system(s) or central HVAC dehumidification controls installed (in warm-humid climates only)	☐		☐
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	5.2	Fireplaces/heating stoves vented outdoors & meet emissions/efficiency standards/restrictions	☐		☐
	5.3	Certified CO alarms installed in each sleeping zone (e.g., common hallway) according to NFPA 720			☐
	5.4	Smoking prohibited in common areas; outside smoking at least 25' from building openings (Multi-family homes only)	☐	☐	☐
		Attached Garage Isolation			
	5.5	Common walls/ceilings (house & garage) air-sealed before insulation installed; house doors gasketed & closer installed	☐		☐
	5.6	Exhaust fan (minimum 70 cfm, rated for continuous use) installed in garage & vented to outdoors (controls optional)	☐		☐
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	7.2	Home ventilated before occupancy OR initial ventilation instructions provided for buyer		☐	☐
	7.3	Completed checklist & other required documentation provided for buyer		☐	☐

Rater/Provider: Builder:

Company: Company:

Signature: Signature:

Place the label adjacent to the ENERGY STAR label

look for EPA Indoor airPLUS QUALIFIED HOMES

Indoor Air Quality (IAQ)

Indoor airPLUS

A new opportunity for leading builders to create better environments inside and out

Learn more at:

www.epa.gov/indoorairplus

OR contact the Indoor airPLUS Team at

indoor_airPLUS@epa.gov

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