3 Pillars of Boosting Sales with Indoor airPLUS™

EnergyLogic

Presented by EnergyLogic & EEBA

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Former custom home builder in Colorado's Vail Valley. A curiosity in energy-efficient building methods led me to become certified from RESNET®, BPI, and CSU's School of the Built Environment.

Currently, Director of Business Development at EnergyLogic, an applied building science company that partners with building professionals to create homes that are efficient, healthy, and resilient.

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About EnergyLogic

Berthoud, Colorado-based EnergyLogic is a software and building consulting company that has provided expert resources, education and support to new home builders and energy raters involved in the construction of high-performance homes since 2006.

Aaron Smith

CEO

Aaron Smith is the CEO of the Energy and Environmental Building Alliance (EEBA) which represents a community of over 50,000 builders and their stakeholders across North America that are truly the early adopters and innovators in driving sustainable transformation of the homebuilding industry.

Aaron has over 25 years experience in home construction, building products, sustainability and non-profit board leadership. He has worked for companies including Kohler, Uponor and ASSA ABLOY as well as startups in Silicon Valley and his own building and remodeling company.

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About EEBA

For over 35 years, EEBA has provided the most trusted resources for building science information and education in the construction industry.

EEBA delivers turn-key educational resources and events designed to transform residential construction practices through high performance design, marketing, materials, and technologies.

Through our educational events, annual Summit and various publications and resources, EEBA reaches thousands of key decision makers and other important industry players each year.

EEBA™

Who is Today's Audience?

Quick Poll!

Who Has Joined Us Today?

- ❑ Builders
- ❑ Raters
- ❑ Building Inspectors
- ❑ Architects
- ❑ Mechanical Contractors
- ❑ Other

Pillar #1

Basic Information on the Indoor airPLUS™ Program and Qualification.

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What is Indoor airPLUS™?

- Indoor airPLUS is a voluntary partnership and labeling program for new home builders.
- Requires construction practices and product specifications that minimize exposure to airborne pollutants and contaminants.
- Created by the EPA to help builders meet the growing consumer demand for homes with improved air quality.
- Requires and builds on the foundation of the EPA's ENERGY STAR® for Homes program.

But Specifically, What Is Indoor airPLUS™?

A qualification program that:

Verifies the construction specifications and materials installed in a house will provide better indoor air quality than a "code only" house.

Provides builders a third-party respected label to demonstrate that their home is better.

Differentiates builders from their competitors.

How Does a New Home Become Qualified?

- All Indoor airPLUS™ homes must also be certified under the ENERGY STAR® for Homes program.
- The builder must join the Indoor airPLUS program by completing the free partnership agreement.
- Work with an Indoor airPLUS partnered energy rater for third-party verification of some, or all, of the requirements.
- Ensure that the homes construction specifications and materials meet the IAP requirements through the Verification Checklist.

Note: The verification checklist is a joint responsibility between the builder and the rater!

What is Required Under Indoor airPLUS™?

Moisture Control Systems

- Ensure point source moisture is mitigated

Heating, Ventilation & Air-Conditioning Systems

- Humidity control, clean ducts, outdoor venting, and improved air filtration

Combustion-Venting Systems

- Separation from garage and minimum emission standards on fuel burning appliances

Radon Resistant Construction

- Radon resistant construction in Radon Zone 1

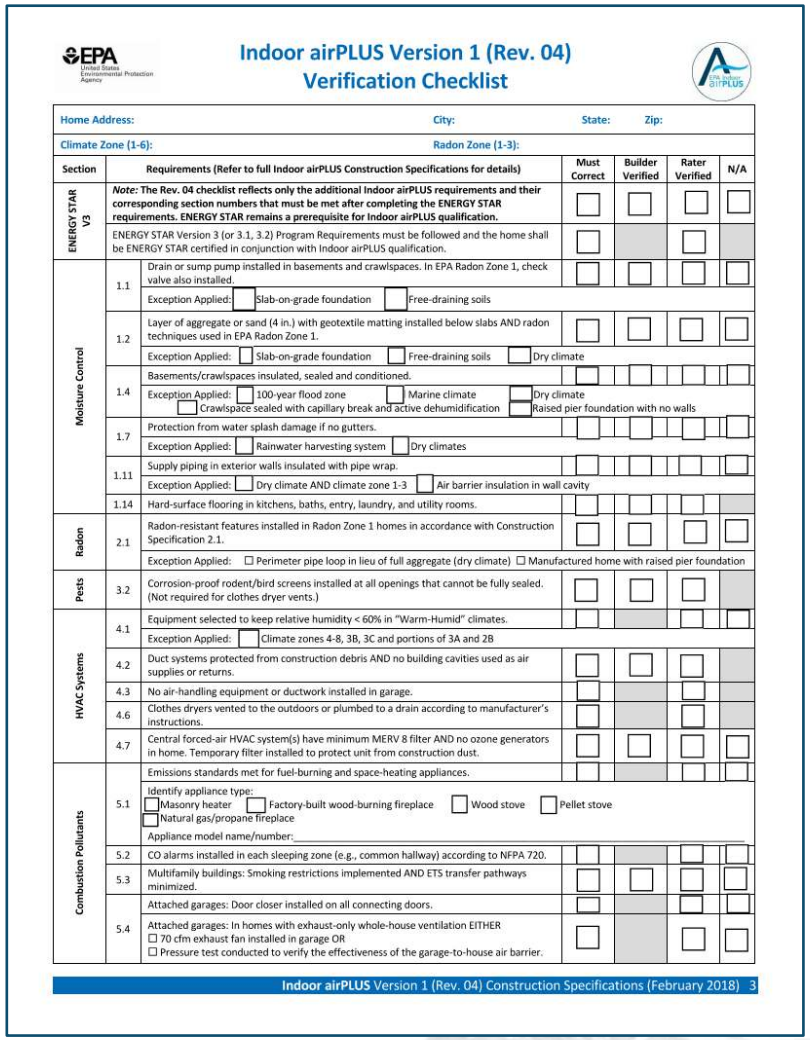
Low-Emitting Building Materials

- Carpet, paints, and composite wood products are certified low-emission

Final

Ventilate home and ensure HVAC system is clean prior to delivery

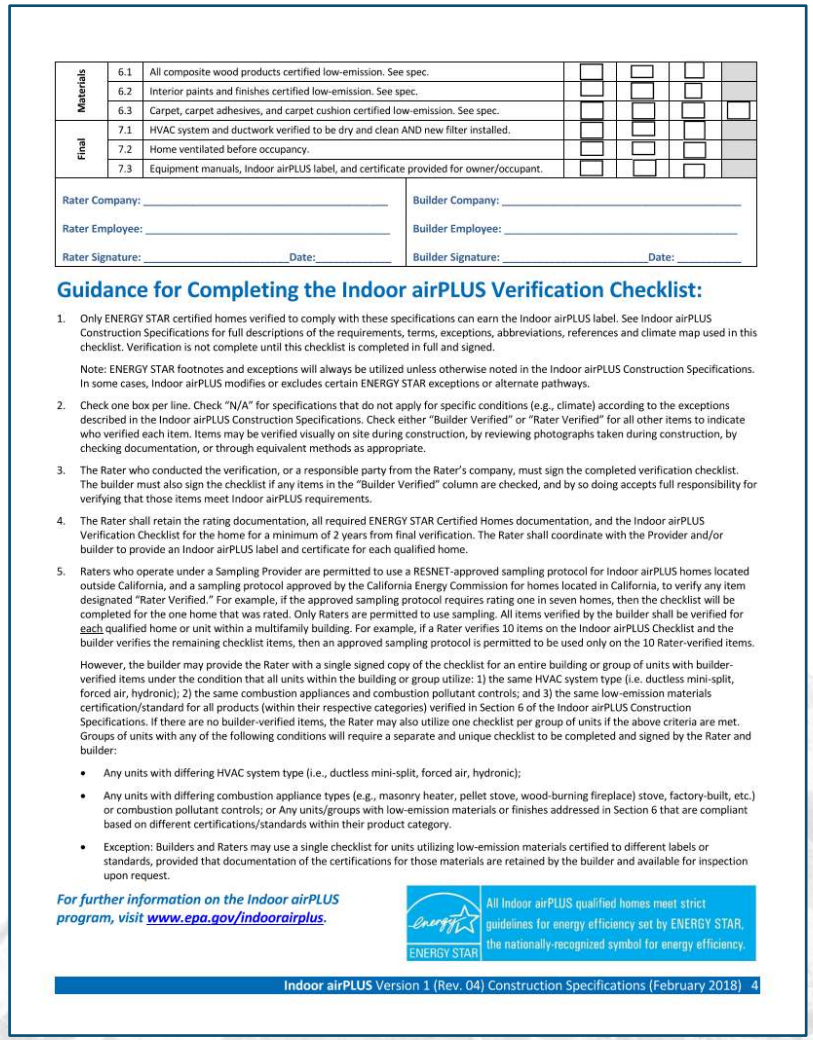
Indoor airPLUS™ Verification Checklist



Indoor airPLUS Version 1 (Rev. 04) Verification Checklist

Home Address:		**City:**		**State:**	**Zip:**	
Climate Zone (1-6):		**Radon Zone (1-3):**				

Section		Requirements (Refer to full Indoor airPLUS Construction Specifications for details)	Must Correct	Builder Verified	Rater Verified	N/A
ENERGY STAR V3		***Note:* The Rev. 04 checklist reflects only the additional Indoor airPLUS requirements and their corresponding section numbers that must be met after completing the ENERGY STAR requirements. ENERGY STAR remains a prerequisite for Indoor airPLUS qualification.**	☐	☐	☐	☐
		ENERGY STAR Version 3 (or 3.1, 3.2) Program Requirements must be followed and the home shall be ENERGY STAR certified in conjunction with Indoor airPLUS qualification.	☐		☐	
Moisture Control	1.1	Drain or sump pump installed in basements and crawlspaces. In EPA Radon Zone 1, check valve also installed.	☐	☐	☐	☐
		Exception Applied: ☐ Slab-on-grade foundation ☐ Free-draining soils				
	1.2	Layer of aggregate or sand (4 in.) with geotextile matting installed below slabs AND radon techniques used in EPA Radon Zone 1.	☐	☐	☐	☐
		Exception Applied: ☐ Slab-on-grade foundation ☐ Free-draining soils ☐ Dry climate				
	1.4	Basements/crawlspaces insulated, sealed and conditioned.	☐	☐	☐	☐
		Exception Applied: ☐ 100-year flood zone ☐ Marine climate ☐ Dry climate ☐ Crawlspace sealed with capillary break and active dehumidification ☐ Raised pier foundation with no walls				
	1.7	Protection from water splash damage if no gutters.	☐	☐	☐	☐
		Exception Applied: ☐ Rainwater harvesting system ☐ Dry climates				
	1.11	Supply piping in exterior walls insulated with pipe wrap.	☐	☐	☐	☐
		Exception Applied: ☐ Dry climate AND climate zone 1-3 ☐ Air barrier insulation in wall cavity				
	1.14	Hard-surface flooring in kitchens, baths, entry, laundry, and utility rooms.	☐	☐	☐	
Radon	2.1	Radon-resistant features installed in Radon Zone 1 homes in accordance with Construction Specification 2.1.	☐	☐	☐	☐
		Exception Applied: ☐ Perimeter pipe loop in lieu of full aggregate (dry climate) ☐ Manufactured home with raised pier foundation				
Pests	3.2	Corrosion-proof rodent/bird screens installed at all openings that cannot be fully sealed. (Not required for clothes dryer vents.)	☐	☐	☐	
HVAC Systems	4.1	Equipment selected to keep relative humidity < 60% in "Warm-Humid" climates.	☐		☐	☐
		Exception Applied: ☐ Climate zones 4-8, 3B, 3C and portions of 3A and 2B				
	4.2	Duct systems protected from construction debris AND no building cavities used as air supplies or returns.	☐	☐	☐	
	4.3	No air-handling equipment or ductwork installed in garage.	☐		☐	
	4.6	Clothes dryers vented to the outdoors or plumbed to a drain according to manufacturer's instructions.	☐		☐	
	4.7	Central forced-air HVAC system(s) have minimum MERV 8 filter AND no ozone generators in home. Temporary filter installed to protect unit from construction dust.	☐	☐	☐	☐
Combustion Pollutants	5.1	Emissions standards met for fuel-burning and space-heating appliances.	☐		☐	☐
		Identify appliance type: ☐ Masonry heater ☐ Factory-built wood-burning fireplace ☐ Wood stove ☐ Pellet stove ☐ Natural gas/propane fireplace Appliance model name/number:_____				
	5.2	CO alarms installed in each sleeping zone (e.g., common hallway) according to NFPA 720.	☐		☐	☐
	5.3	Multifamily buildings: Smoking restrictions implemented AND ETS transfer pathways minimized.	☐	☐	☐	☐
	5.4	Attached garages: Door closer installed on all connecting doors.	☐		☐	☐
		Attached garages: In homes with exhaust-only whole-house ventilation EITHER ☐ 70 cfm exhaust fan installed in garage OR ☐ Pressure test conducted to verify the effectiveness of the garage-to-house air barrier.	☐		☐	☐



Materials	6.1	All composite wood products certified low-emission. See spec.	☐	☐	☐	
	6.2	Interior paints and finishes certified low-emission. See spec.	☐	☐	☐	
	6.3	Carpet, carpet adhesives, and carpet cushion certified low-emission. See spec.	☐	☐	☐	☐
Final	7.1	HVAC system and ductwork verified to be dry and clean AND new filter installed.	☐	☐	☐	
	7.2	Home ventilated before occupancy.	☐	☐	☐	
	7.3	Equipment manuals, Indoor airPLUS label, and certificate provided for owner/occupant.	☐	☐	☐	

Rater Company: _____	**Builder Company:** _____
Rater Employee: _____	**Builder Employee:** _____
Rater Signature: _____ **Date:** _____	**Builder Signature:** _____ **Date:** _____

Guidance for Completing the Indoor airPLUS Verification Checklist:

1. Only ENERGY STAR certified homes verified to comply with these specifications can earn the Indoor airPLUS label. See Indoor airPLUS Construction Specifications for full descriptions of the requirements, terms, exceptions, abbreviations, references and climate map used in this checklist. Verification is not complete until this checklist is completed in full and signed.

   Note: ENERGY STAR footnotes and exceptions will always be utilized unless otherwise noted in the Indoor airPLUS Construction Specifications. In some cases, Indoor airPLUS modifies or excludes certain ENERGY STAR exceptions or alternate pathways.

2. Check one box per line. Check "N/A" for specifications that do not apply for specific conditions (e.g., climate) according to the exceptions described in the Indoor airPLUS Construction Specifications. Check either "Builder Verified" or "Rater Verified" for all other items to indicate who verified each item. Items may be verified visually on site during construction, by reviewing photographs taken during construction, by checking documentation, or through equivalent methods as appropriate.

3. The Rater who conducted the verification, or a responsible party from the Rater's company, must sign the completed verification checklist. The builder must also sign the checklist if any items in the "Builder Verified" column are checked, and by so doing accepts full responsibility for verifying that those items meet Indoor airPLUS requirements.

4. The Rater shall retain the rating documentation, all required ENERGY STAR Certified Homes documentation, and the Indoor airPLUS Verification Checklist for the home for a minimum of 2 years from final verification. The Rater shall coordinate with the Provider and/or builder to provide an Indoor airPLUS label and certificate for each qualified home.

5. Raters who operate under a Sampling Provider are permitted to use a RESNET-approved sampling protocol for Indoor airPLUS homes located outside California, and a sampling protocol approved by the California Energy Commission for homes located in California, to verify any item designated "Rater Verified." For example, if the approved sampling protocol requires rating one in seven homes, then the checklist will be completed for the one home that was rated. Only Raters are permitted to use sampling. All items verified by the builder shall be verified for each qualified home or unit within a multifamily building. For example, if a Rater verifies 10 items on the Indoor airPLUS Checklist and the builder verifies the remaining checklist items, then an approved sampling protocol is permitted to be used only on the 10 Rater-verified items.

   However, the builder may provide the Rater with a single signed copy of the checklist for an entire building or group of units with builder-verified items under the condition that all units within the building or group utilize: 1) the same HVAC system type (i.e. ductless mini-split, forced air, hydronic); 2) the same combustion appliances and combustion pollutant controls; and 3) the same low-emission materials certification/standard for all products (within their respective categories) verified in Section 6 of the Indoor airPLUS Construction Specifications. If there are no builder-verified items, the Rater may also utilize one checklist per group of units if the above criteria are met. Groups of units with any of the following conditions will require a separate and unique checklist to be completed and signed by the Rater and builder:

   - Any units with differing HVAC system type (i.e., ductless mini-split, forced air, hydronic);
   - Any units with differing combustion appliance types (e.g., masonry heater, pellet stove, wood-burning fireplace) stove, factory-built, etc.) or combustion pollutant controls; or Any units/groups with low-emission materials or finishes addressed in Section 6 that are compliant based on different certifications/standards within their product category.
   - Exception: Builders and Raters may use a single checklist for units utilizing low-emission materials certified to different labels or standards, provided that documentation of the certifications for those materials are retained by the builder and available for inspection upon request.

For further information on the Indoor airPLUS program, visit www.epa.gov/indoorairplus.

All Indoor airPLUS qualified homes meet strict guidelines for energy efficiency set by ENERGY STAR, the nationally-recognized symbol for energy efficiency.

Pillar #2

Why Pursue the Indoor airPLUS™ Label?

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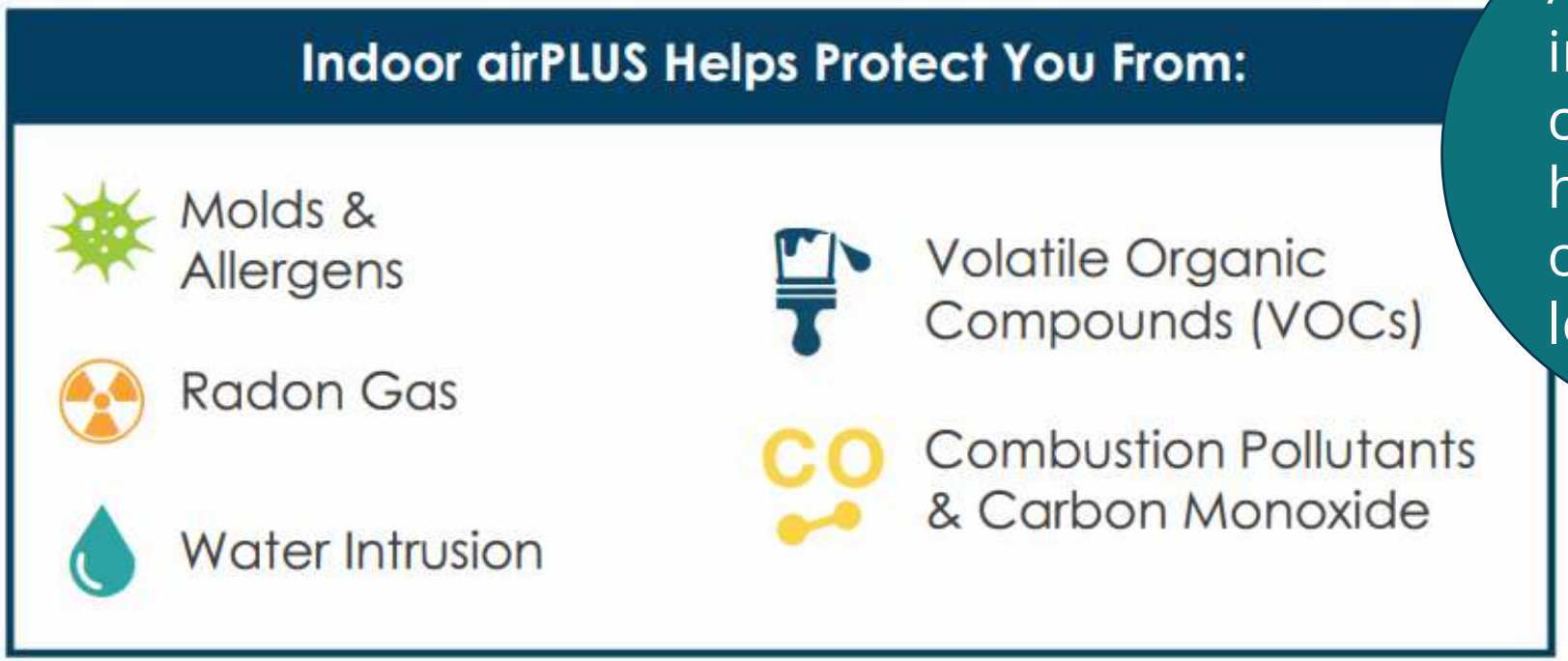
Homebuyers Expect Healthy Indoor Air (Are They Getting It?)



Air pollutants inside a home can be 2–5x higher than outdoor levels.**

Most people spend 90% of their time indoors. *

*U.S. Environmental Protection Agency. 1989. Report to Congress on indoor air quality: Volume 2. EPA/400/1-89/001C. Washington, DC. ** U.S. Environmental Protection Agency. 1987. The total exposure assessment methodology (TEAM) study: summary and analysis. EPA/600/6-87/002a. Washington, DC.

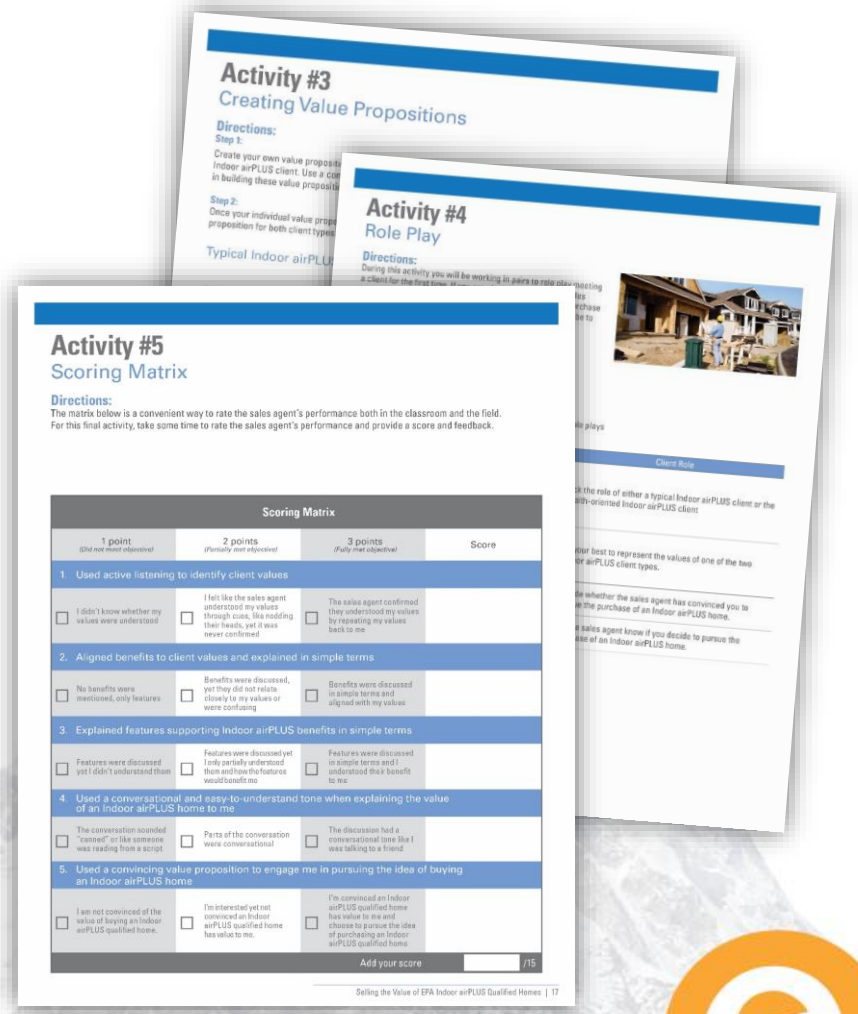
Homebuyers Expect Healthy Indoor Air (Are You Selling It?)

Is your sales team educating potential buyers on what *really* makes up the indoor air of a house?

- Combustion, materials, pets, living…

How is this house mitigating the effects?

The Indoor airPLUS program has available training materials for sales & marketing teams!



Indoor airPLUS' Sales Training Kit Materials

Differentiate From Other Builders

Stand out in the market!

The number of new homes qualifying for the Indoor airPLUS™ label is fairly low compared to the quantity of new homes hitting the market!

Homes labeled under the Indoor airPLUS™ program is a unique differentiator that is not currently common among new homes!

For Quality Builders – the Increased Cost & Procedures Are Minimal

- Tight Building Envelopes
- Radon Mitigation
- Water Management
- HVAC Systems
- Construction Process
- Low-Emitting Materials

These are not new concepts. For many builders, adding the Indoor airPLUS™ qualification will be a small step!

Pillar #3

Market to Buyers

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Incremental Steps to More Valuable Homes

		Average New Home	ENERGY STAR Certified Home	Indoor airPLUS Qualified Home
Meets Minimum Code		✓	✓	✓
Peace of Mind	Improved confidence Customer satisfaction Third party verification		✓	✓
Enduring Quality	High durability Whole-house approach		✓	✓
Wall to Wall Comfort	Enhanced climate control Weather sealed		✓	✓
Proven Value	More energy efficient Higher resale		✓	✓
Healthier Home	Low pollutants Allergen protection			✓
Safer Home	Carbon monoxide detectors Radon control			✓

Indoor airPLUS™ Is a Prerequisite for Other Green Building Programs

ZERO ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY

PHIUS
Passive House Institute US

Both the Department of Energy Zero Energy Ready Home (DOE ZERH) program and the Passive House Institute (PHIUS) require Indoor airPLUS™ as part of their certification.

Who Is the Indoor airPLUS™ Homebuyer?

- One of the key factors that homebuyers are looking at is the overall health of their family. This falls in after cost, convenience, and comfort.
- Care about comfort and peace of mind for their family.
- Driven by health concerns, they want to address health hazards of the home.
- A scientifically based healthy home solution could benefit them and be a factor in their homebuying decision process.

People who want to control the air inside of their home, protect their family and their investment!

Value Proposition of Indoor airPLUS™

When building to Indoor airPLUS specifications, the home meets the ENERGY STAR® requirements for new homes, then builds in added protection:

- ❑ Specifications against moisture damage and mold
- ❑ Using materials certified to be low in formaldehyde and other pollutants
- ❑ Taking extra care with the home's ductwork and installing a more highly rated filter on your heating and cooling equipment to guard against finer dust and particulates
- ❑ Installing carbon monoxide alarms in every sleeping zone

Indoor airPLUS™ Program

Documents & Resources

Indoor airPLUS continues to update many of its program documents based on stakeholder feedback, revised industry standards, and evolving best practices in building science and home performance. Click here to access the latest resources!

EPA Indoor Air Plus Website

Thank You!

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