

# Indoor airPLUS

Better Environments Inside and Out



Tuesday, June 5, 2012

1 p.m. – 2 p.m. EST

Laurel Elam, *RESNET*

Mert Oktem, *The Cadmus Group, Inc.*

Steve Saunders, *U.S. Eco Logic*

Ross Britton, *U.S. Eco Logic*

# Agenda



- Welcome
- The RESNET and EPA Partnership
- An Overview of Indoor airPLUS
- Indoor airPLUS – A Rater’s Perspective
- Question and Answer Session



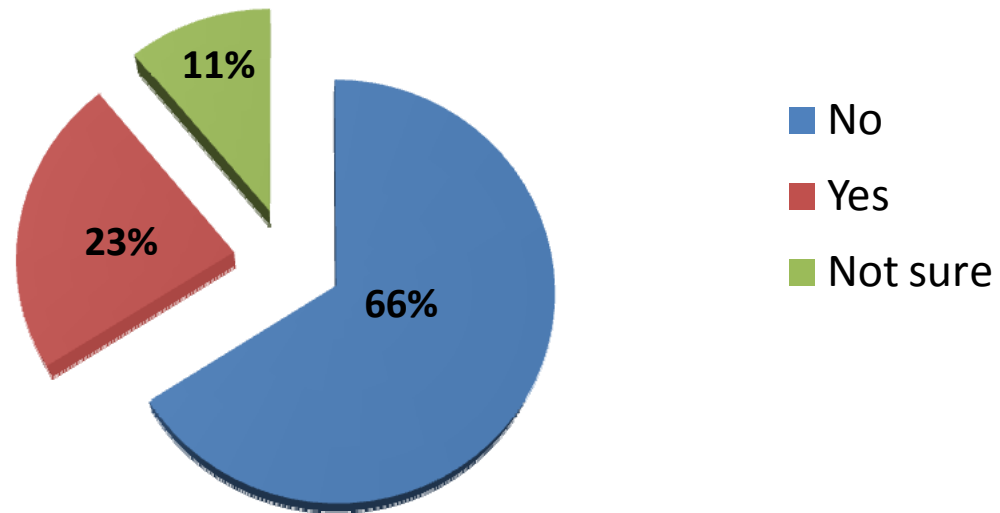
# An Overview of Indoor airPLUS

Mert Oktem

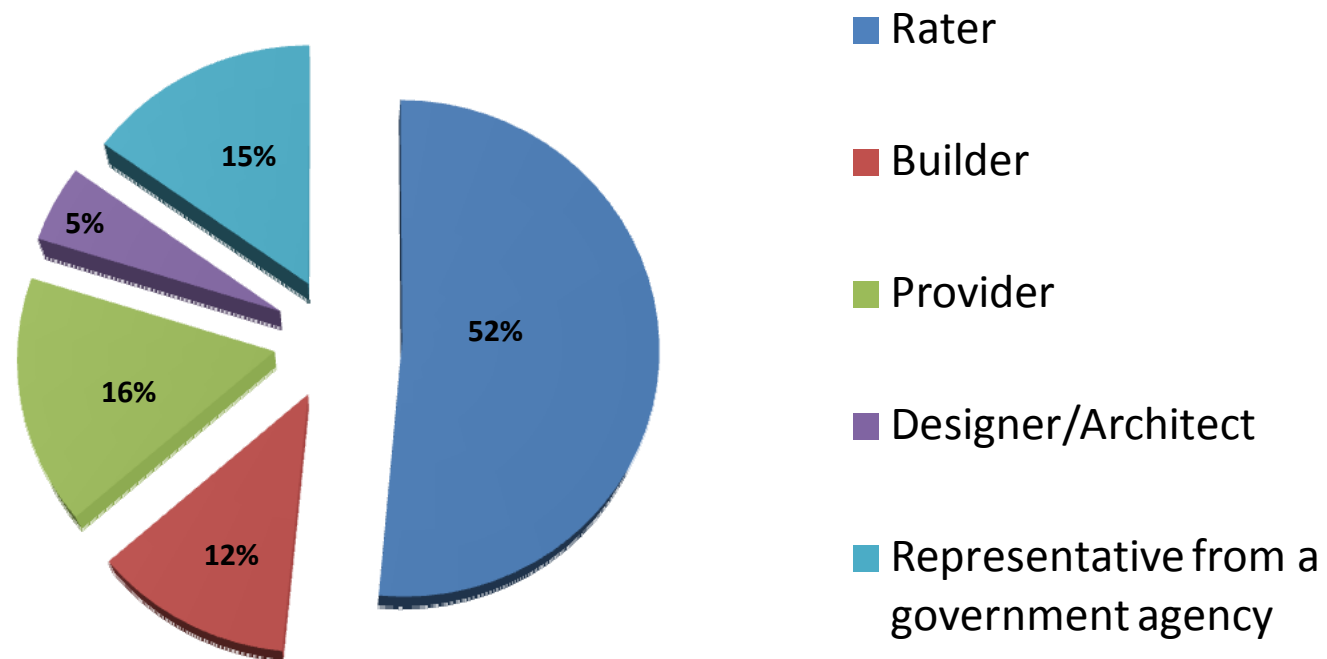
*The Cadmus Group, Inc.*



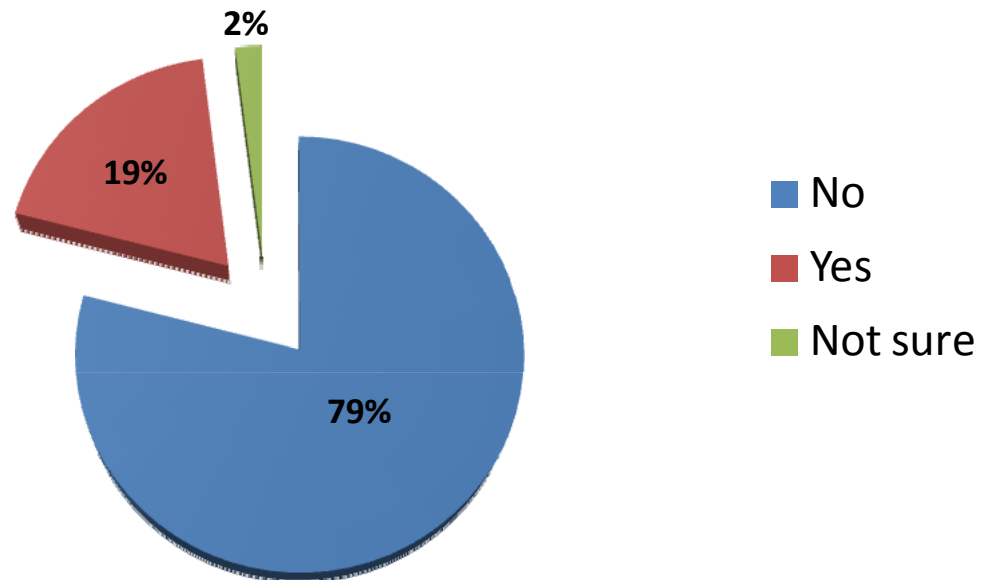
## Question 1: Are you currently an Indoor airPLUS partner?



## Question 2: Which of these best describes you?



## Question 3: Have you ever rated, built or designed an Indoor airPLUS home?



## Did You Know That...



- We spend about 90% or more of our time indoors.
- Indoor pollutant levels may be 2 to 5 times higher than outdoors.
- A tighter, more energy efficient home can lead to indoor air quality issues:
  - Tighter building envelope can increase pollutant build-up, mold and moisture issues.
- Nearly 25 million people have asthma and 1 in 5 cases may be linked to exposures to dampness and mold in homes.
- An average of 1 out of every 10 school-aged children has asthma.
- EPA estimates that about 20,000 lung cancer deaths each year in the U.S. are radon-related.



# Indoor airPLUS



**Indoor airPLUS is a rapidly expanding program with over 1000 partners who have built or rated homes with features that reduce or prevent pollutants that can affect health.**

- 'Gold Standard' for indoor air quality.
- Nationally recognized label.
- Best construction practices paired with up-to-date technologies.
- Quality assurance to a healthier indoor environment for consumers.
- Quality assurance using a third party verifier for builders.







# Indoor airPLUS Areas of Focus



Materials

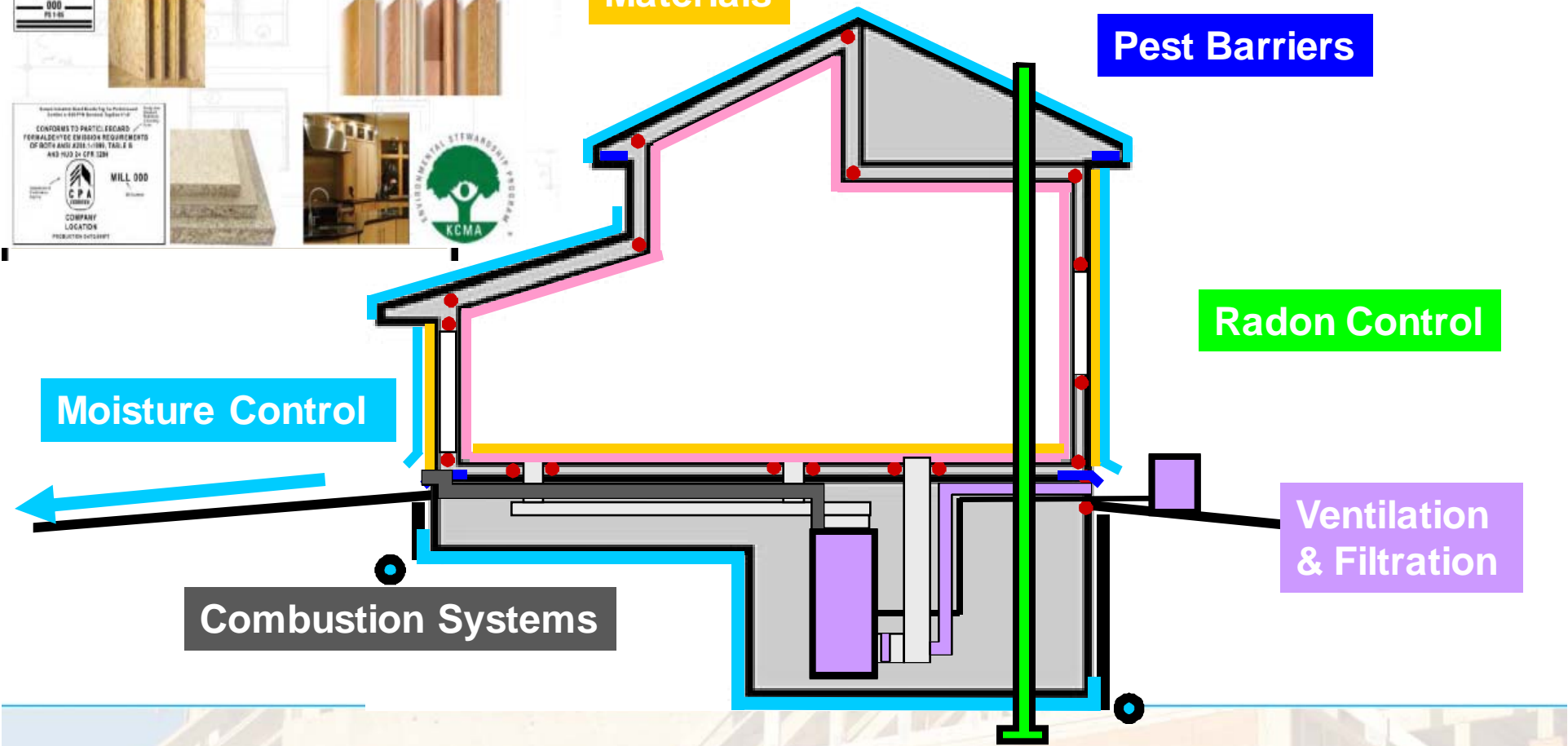
Pest Barriers

Radon Control

Ventilation & Filtration

Moisture Control

Combustion Systems



# Indoor airPLUS Verification Checklist



## Indoor airPLUS Verification Checklist



Address or Div/Lot #: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_ Date: \_\_\_\_\_ Verified by: \_\_\_\_\_

Section	Requirements (see Indoor airPLUS Construction Specification)	Section	Requirements (see Indoor airPLUS Construction Specifications for details)	N/A	Builder	Rater
Moisture Control	<b>Water-Managed Site and Foundation</b>	Moisture Control	<b>Water-Managed Site and Foundation</b>			
	1.1 Site & foundation drainage: sloped grade, protected drain tile, & foundation floor drains		1.1 Site & foundation drainage: sloped grade, protected drain tile, & foundation floor drains		<input type="checkbox"/>	<input type="checkbox"/>
	1.2 Capillary break below concrete slabs & in crawlspaces (Exception - see specification)		1.2 Capillary break below concrete slabs & in crawlspaces (Exception - see specification)		<input type="checkbox"/>	<input type="checkbox"/>
	1.3 Foundation wall damp-proofed or water-proofed (Except for homes without below-grade walls)		1.3 Foundation wall damp-proofed or water-proofed (Except for homes without below-grade walls)		<input type="checkbox"/>	<input type="checkbox"/>
	1.4 Basements/crawlspaces insulated & conditioned (Exceptions - see specification)		1.4 Basements/crawlspaces insulated & conditioned (Exceptions - see specification)		<input type="checkbox"/>	<input type="checkbox"/>
	<b>Water-Managed Wall Assemblies</b>		<b>Water-Managed Wall Assemblies</b>			
	1.5 Continuous drainage plane behind exterior cladding, properly flashed to foundation		1.5 Continuous drainage plane behind exterior cladding, properly flashed to foundation		<input type="checkbox"/>	<input type="checkbox"/>
	1.6 Window & door openings fully flashed		1.6 Window & door openings fully flashed		<input type="checkbox"/>	<input type="checkbox"/>
	<b>Water-Managed Roof Assemblies</b>		<b>Water-Managed Roof Assemblies</b>			
	1.7 Gutters/downspouts direct water a minimum of 5' from foundation (Except in dry climates)		1.7 Gutters/downspouts direct water a minimum of 5' from foundation (Except in dry climates)		<input type="checkbox"/>	<input type="checkbox"/>
Radon	1.8 Fully flashed roof/wall intersections (step & kick-out flashing) & roof penetrations	Radon	1.8 Fully flashed roof/wall intersections (step & kick-out flashing) & roof penetrations		<input type="checkbox"/>	<input type="checkbox"/>
	1.9 Bituminous membrane installed at valleys & penetrations (Except in dry climates)		1.9 Bituminous membrane installed at valleys & penetrations (Except in dry climates)		<input type="checkbox"/>	<input type="checkbox"/>
	1.10 Ice flashing installed at eaves (Except in Climate Zones 1 - 4)		1.10 Ice flashing installed at eaves (Except in Climate Zones 1 - 4)		<input type="checkbox"/>	<input type="checkbox"/>
	<b>Interior Water Management</b>		<b>Interior Water Management</b>			
	1.11 Moisture-resistant materials/protective systems installed (i.e., flooring, tub/shower backing, & piping)		1.11 Moisture-resistant materials/protective systems installed (i.e., flooring, tub/shower backing, & piping)			<input type="checkbox"/>
	1.12 No vapor barriers installed on interior side of exterior walls with high condensation potential		1.12 No vapor barriers installed on interior side of exterior walls with high condensation potential		<input type="checkbox"/>	<input type="checkbox"/>
	1.13 No wet or water-damaged materials enclosed in building assemblies		1.13 No wet or water-damaged materials enclosed in building assemblies		<input type="checkbox"/>	<input type="checkbox"/>
	2.1 Approved radon-resistant features installed (Exception - see specification)		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 (Advice)		2.2 Two radon test kits & instructions/guidance for follow-up actions provided for buyer (Advice)			
	2.3 Foundation joints & penetrations sealed, including air-tight sump covers		2.3 Foundation joints & penetrations sealed, including air-tight sump covers			
Pests	3.2 Corrosion-proof rodent/bird screws installed at all openings that cannot be fully sealed (e)	Pests	3.2 Corrosion-proof rodent/bird screws installed at all openings that cannot be fully sealed (e)			
	4.1 HVAC room loads calculated, documented; system design documented; coils matched		4.1 HVAC room loads calculated, documented; system design documented; coils matched			
	4.2 Duct system design documented & properly installed OR duct system tested (ch)		4.2 Duct system design documented & properly installed OR duct system tested (ch)			
	4.3 No air handling equipment or ductwork installed in garage; continuous air barrier required in a		4.3 No air handling equipment or ductwork installed in garage; continuous air barrier required in a			
	4.4 Rooms pressure balanced (using transfer grills or jump ducts) as required OR tested (ch)		4.4 Rooms pressure balanced (using transfer grills or jump ducts) as required OR tested (ch)			
	4.5 Whole house ventilation system installed to meet ASHRAE 62.2 requirements		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.		4.6 Local exhaust ventilation to outdoors installed for baths, kitchen, clothes dryers, central vacuum system, etc.			<input type="checkbox"/>
	4.7 Central forced-air HVAC system(s) have minimum MERV 8 filter, no filter bypass, & no ozone generators		4.7 Central forced-air HVAC system(s) have minimum MERV 8 filter, no filter bypass, & no ozone generators			<input type="checkbox"/>
	4.8 Additional dehumidification system(s) or central HVAC dehumidification controls installed (in warm-humid climates only)		4.8 Additional dehumidification system(s) or central HVAC dehumidification controls installed (in warm-humid climates only)			<input type="checkbox"/>
	Combustion Pollutants		<b>Combustion Source Controls</b>	Combustion Pollutants	<b>Combustion Source Controls</b>	
5.1 Gas heat direct vented, oil heat & water heaters power vented or direct vented (Exceptions - see specifications)		5.1 Gas heat direct vented, oil heat & water heaters power vented or direct vented (Exceptions - see specifications)			<input type="checkbox"/>	<input type="checkbox"/>
5.2 Fireplaces/heating stoves vented outdoors & meet emissions/efficiency standards/restrictions		5.2 Fireplaces/heating stoves vented outdoors & meet emissions/efficiency standards/restrictions			<input type="checkbox"/>	<input type="checkbox"/>
5.3 Certified CO alarms installed in each sleeping zone (e.g., common hallway) according to NFPA 720		5.3 Certified CO alarms installed in each sleeping zone (e.g., common hallway) according to NFPA 720			<input type="checkbox"/>	<input type="checkbox"/>
5.4 Smoking prohibited in common areas; outside smoking at least 25' from building openings (Multi-Family Homes only)		5.4 Smoking prohibited in common areas; outside smoking at least 25' from building openings (Multi-Family Homes only)			<input type="checkbox"/>	<input type="checkbox"/>
Attached Garage Isolation	<b>Attached Garage Isolation</b>	Attached Garage Isolation	<b>Attached Garage Isolation</b>			
	5.5 Common wall/ceilings (house & garage) air-sealed before installation installed; house doors gasketed & closed installed		5.5 Common wall/ceilings (house & garage) air-sealed before installation installed; house doors gasketed & closed installed		<input type="checkbox"/>	<input type="checkbox"/>
	5.6 Exhaust fan (minimum 70 cfm, rated for continuous use) installed in garage & vented to outdoors (controls optional)		5.6 Exhaust fan (minimum 70 cfm, rated for continuous use) installed in garage & vented to outdoors (controls optional)		<input type="checkbox"/>	<input type="checkbox"/>
Materials	6.1 Certified low-formaldehyde pressed wood materials used (i.e., plywood, OSB, MDF, cabinetry)	Materials	6.1 Certified low-formaldehyde pressed wood materials used (i.e., plywood, OSB, MDF, cabinetry)		<input type="checkbox"/>	<input type="checkbox"/>
	6.2 Certified low-VOC or no-VOC interior paints & finishes used		6.2 Certified low-VOC or no-VOC interior paints & finishes used		<input type="checkbox"/>	<input type="checkbox"/>
	6.3 Carpet, adhesives, & cushion qualify for CRI Green Label Plus or Green Label testing program		6.3 Carpet, adhesives, & cushion qualify for CRI Green Label Plus or Green Label testing program		<input type="checkbox"/>	<input type="checkbox"/>
Final	7.1 HVAC system & ductwork verified dry, clean, & properly installed	Final	7.1 HVAC system & ductwork verified dry, clean, & properly installed		<input type="checkbox"/>	<input type="checkbox"/>
	7.2 Home ventilated before occupancy OR initial ventilation instructions provided for buyer		7.2 Home ventilated before occupancy OR initial ventilation instructions provided for buyer		<input type="checkbox"/>	<input type="checkbox"/>
	7.3 Completed checklist & other required documentation provided for buyer		7.3 Completed checklist & other required documentation provided for buyer		<input type="checkbox"/>	<input type="checkbox"/>
Rater/Provider:	Builder:					
Company:	Company:					
Signature:	Signature:					



# How to Build an Indoor airPLUS Home



## Step 1

### Review Tools and Materials



**EPA Step up to Indoor airPLUS**

ask about 

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

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



## Step 2

### Sign the Partnership Agreement

#### 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:

Check those boxes that apply:  
 Check this box if your organization participated in the original Indoor Air Package pilot.  
 Check this box if your organization will be participating with Indoor airPLUS in conjunction with a green building program and enter the green building program here:

Partnership Agreements & Terms for:  
[Home Builders](#) (click to expand)  
[Home Energy Rating/Providers](#) (click to expand)  
[Other Program Allies](#) (click to expand)

As an authorized representative of the partner organization, the contact listed above has the authority to bind this organization, has read the terms of the agreement and recognizes that by clicking the box that they are binding their organization to the terms of the agreement.

[epa.gov/indoorairplus](http://epa.gov/indoorairplus)

## Step 3

### Build, Verify and Label Homes



# Value of Being an Indoor airPLUS Partner



- Understand consumer needs.
- Differentiate yourself from the competition.
- Gain public recognition.
- Take a step towards green certifications (LEED, ENERGY STARv3)
- Demonstrate a concern for improved consumer health and safety.
- Reduced call-backs & potential liability for builders.
- Be a leader in your community.



# Join the Movement



Over **1000** Indoor airPLUS Homes Built to Date



### Examples of Current Partners

- Meritage Homes
- Ryan Homes – Locust Chapel Community
- Habitat for Humanity
- E3 Energy, LLC
- Palo Duro Homes, Inc
- Foxwood Builders, Inc.





The screenshot shows the EPA Indoor airPLUS website interface. At the top, there is the EPA logo and navigation links for 'LEARN THE ISSUES', 'SCIENCE & TECHNOLOGY', 'LAWS & REGULATIONS', and 'ABOUT EPA'. A search bar and 'A-Z Index' are also present. The main content area is titled 'Indoor airPLUS Program' and features a large image of a woman reading in a modern home. Below this, there are sections for 'Better Environments Inside and Out', 'Frequent Questions', 'Stay Connected', 'Conferences/Events', and 'Featured: Technical Corner'. The 'Stay Connected' section includes social media icons for Facebook, Twitter, YouTube, and RSS. The 'Conferences/Events' section lists an event from June 27-28, 2012, at the PCBC 2012. The 'Featured: Technical Corner' section discusses pest prevention under the Indoor airPLUS label.

- EPA Indoor airPLUS website offers partner information, construction requirements and technical guidance
- Builder and consumer resources
- Indoor airPLUS is on Facebook & Twitter. Watch videos on YouTube. Listen to Indoor airPLUS podcasts
- Mobile application for iPhone, Android and Blackberry

[www.epa.gov/indoorairplus](http://www.epa.gov/indoorairplus)

@EPAiplus #EPAiplus

[www.epa.gov/indoorairplus/connect.html](http://www.epa.gov/indoorairplus/connect.html)

# A Rater's Perspective

Steve Saunders

Ross Britton

*U.S. Eco Logic*



- U.S. Eco Logic
  - Located in Irving, Texas
  - Indoor airPLUS partner since 2009
  - Qualifying Indoor airPLUS homes in several markets
    - Involved with 85 qualified homes in 2011
  - Recently began relationships with:
    - MHI Homebuilders -Dallas (production builder)
      - Qualified first home a few weeks ago
    - Coventry Homes (build on your lot)





# Selling Indoor airPLUS



- Indoor airPLUS makes sense for builders
  - It's another merit badge on top of LEED or ENERGY STAR
  - You're already doing most of it anyway
  - An extra verification level
  - Moisture control
  
- Green Smart not Green Foolish



# Selling Indoor airPLUS



- Plus customers want it too, they just don't know it.
  
- In a new home, customers want:
  - Moisture control
  - Safety
  - Good indoor air quality
  - Energy efficiency



## Selling Indoor airPLUS



- Average person lives in their home for 7 years.
- During that time, customers can end up spending a lot of money on home maintenance.
- But, with Indoor airPLUS customers get...



# Selling Indoor airPLUS



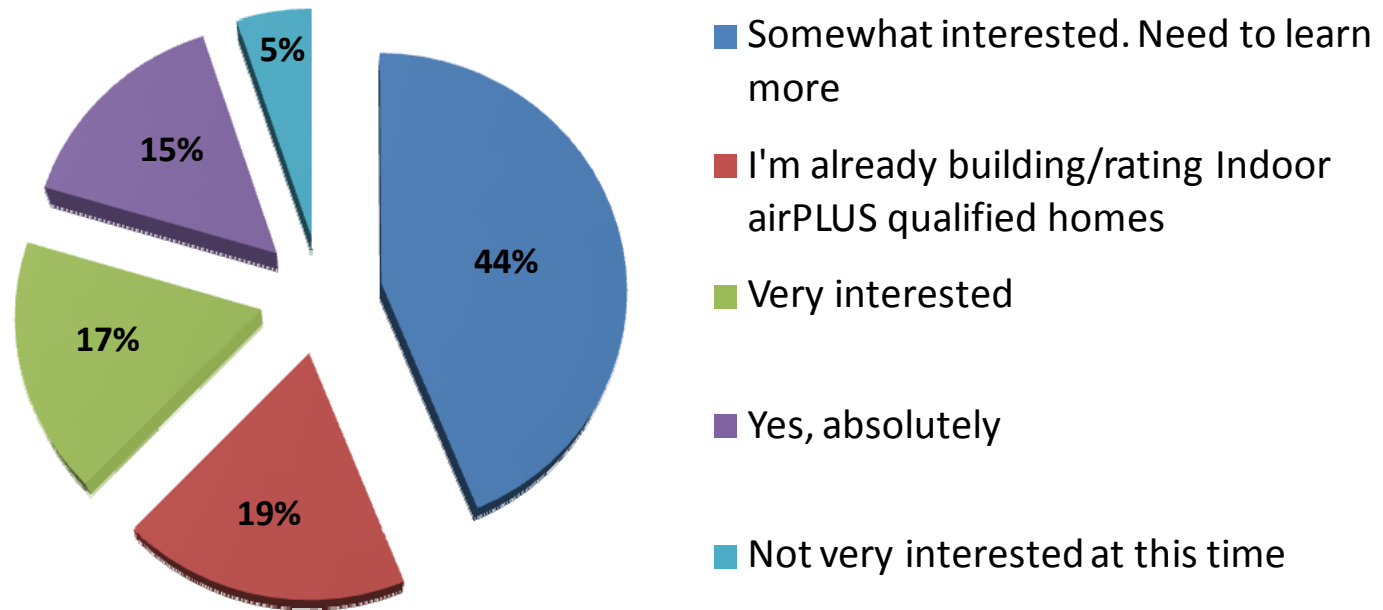
- Fewer pollutants in the home.
- Reduced degradation to the house.
- Paint jobs that last longer/have less peeling.
- Carpets that last longer/need less maintenance and shampooing.
- Home systems that last longer.
- No standing water in the yard to ruin the lawn/landscaping.
- No water in the basement.
- Sick less often.
- Less need to dust/clean/vacuum.
- Less money spent to “stage” the home at resale.
- No pests/no need to pay a pest control person.
- A house that looks better and is more durable.



# Polling Question



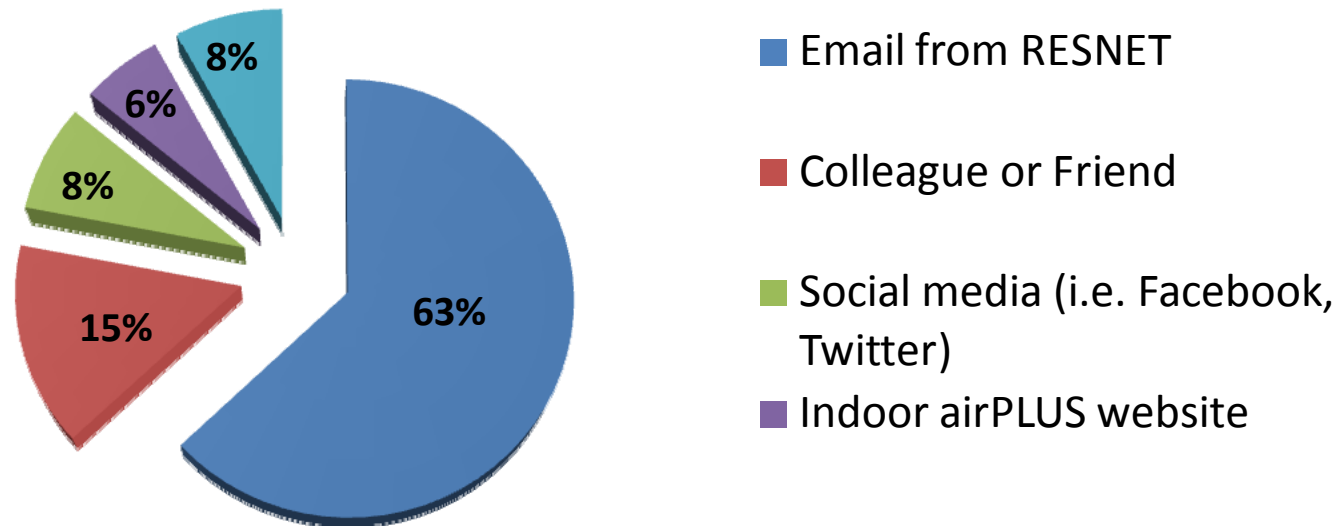
**Question 4:** After hearing about Indoor airPLUS, are you interested in becoming a partner?



# Polling Question



## Question 5: How did you hear about today's webinar?





Thank You!



Take 5 minutes to join!

Go to:

[www.epa.gov/indoorairplus](http://www.epa.gov/indoorairplus)

and become a partner **today.**

