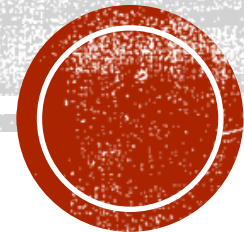
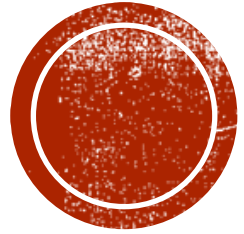


**LOWER THE
GUARDRAILS AND
LEAN INTO IT**

Nick Hurst and the
RaterFest 100

2023 RaterFest





GUARDRAILS?



Fri. 6/9/13

NH Hey Steve,
Hope you're doing well! I wanted to check in with you about some themes for my session at RaterFest this fall. I'm sure I'll talk about IAP V2, of course, but I also want to build a presentation (and more of a conversation) that will meet the audience in an engaging way and generate the type of dialogue and inspiration that you all intend for RaterFest. Happy to think outside the box a bit . . . and also get your recommended "guardrails"! 😊

Mon. 6/12/13

SB

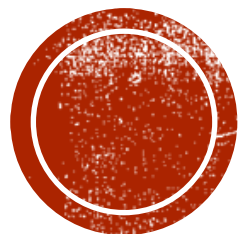
Hi Nick,
We generally don't believe in guardrails for RaterFest! 😊
That said, what I think is interesting is V2 leading into a discussion about where next. I'm also interested in how programs evolve without just making things more and more stringent and also avoiding complexity and bureaucracy.
Perhaps some discussion about outcome based strategies and data around success of the program thus far and what you'd like to see. What are the big challenges for the program and how we can help.

Emphasis added (NH)

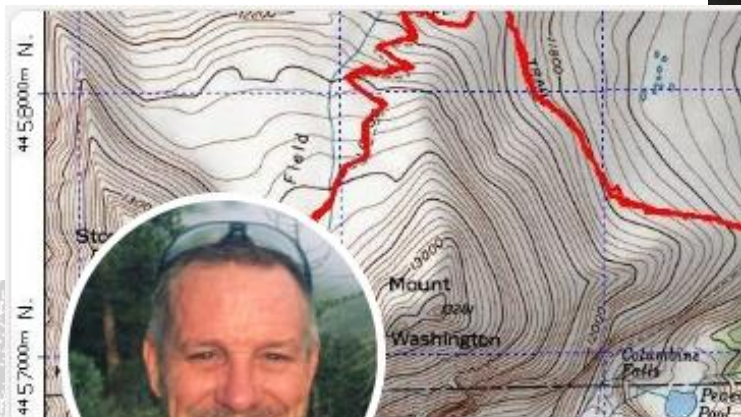
FORMATIVE DISCUSSIONS



ROADS?



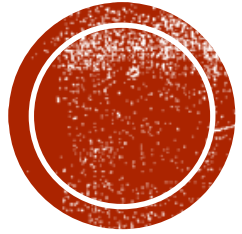
GUARDRAILS?



Steve Byers (He/Him) · 1st
CEO of EnergyLogic | Managing Director at EPX

Roads?

Where we're going, we don't need roads.



LEAN INTO IT



LEAN INTO IT



LEAN INTO IT



WHERE WE'VE BEEN



ENERGY STAR Qualified Homes Thermal Bypass Inspection Checklist

The Thermal Bypass Inspection Checklist must be completed for homes to earn the ENERGY STAR label. The Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete. State, local, and regional codes, as well as regional ENERGY STAR program requirements, supersede the items specified in this Checklist.

Guidance on Completing the Thermal Bypass Inspection Checklist:

- Accredited HERS Providers and certified home energy raters shall use their experience and discretion in verifying that each Inspection Checklist item is installed per the inspection guidelines (e.g., identifying minor defects that the Provider or rater deems acceptable versus identifying major defects that undermine the intent of the Checklist item).
- Alternative methods of meeting the Checklist requirements may be used in completing the Checklist, if the Provider deems them to be equivalent, or more stringent, than the Inspection Checklist guidelines.
- In the event an item on the Checklist cannot be verified by the rater, the home cannot be qualified as ENERGY STAR, unless the builder assumes responsibility for verifying that the item has met the requirements of the Checklist. This option is available at the discretion of the Provider or rater but may not be used to verify more than six (6) items on the Inspection Checklist. This responsibility will be formally acknowledged by the builder signing-off on the Checklist for the item(s) that they verified. The column titled "N/A" should be used when the checklist item is not present in the home or when local code requirements take precedent.
- The Checklist may be completed for a batch of homes using a RESNET-approved sampling protocol when qualifying homes as ENERGY STAR. For example, if the approved sampling protocol requires rating one in seven homes, then the Checklist will be completed for the one home which was rated.
- In the event that a Provider or rater finds an item that is inconsistent with the Checklist Inspection guidelines, the home cannot be qualified as ENERGY STAR until the item is corrected in a manner that meets the ENERGY STAR requirements. If correction of the item is not possible, the home cannot earn the ENERGY STAR label.
- The Provider or rater is required to keep a hard copy record of the completed and signed Checklist. The signature of a builder employee is also required if the builder verified compliance with any item on the Checklist.
- For purposes of this Checklist, an air barrier is defined as any solid material that blocks air flow between a conditioned space and an unconditioned space, including necessary sealing to block excessive air flow at edges and seams. Additional information on proper air sealing of thermal bypasses can be found on the Building America Web site (www.eere.energy.gov/buildings/building_america) and in the EEBA Builder's Guides (www.eeba.org). These references include guidance on identifying and sealing air barriers, as well as details on many of the items included in the Checklist.



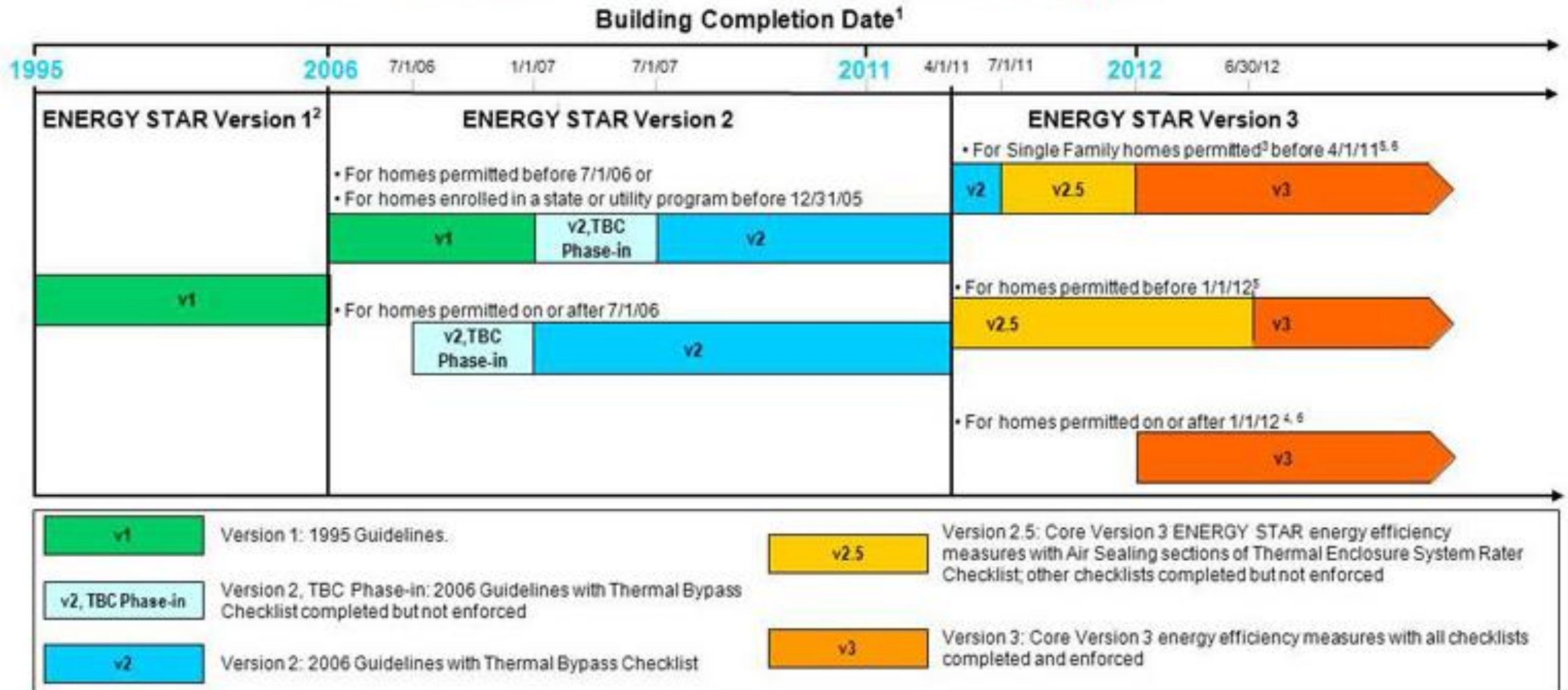
ENERGY STAR Qualified Homes Thermal Bypass Inspection Checklist

Home Address: _____ City: _____ State: _____		Corrections Needed	Builder Verified	Rater Verified	N/A
1. Overall Air Barrier and Thermal Barrier Alignment	Requirements: Insulation shall be installed in full contact with sealed interior and exterior air barrier except for alternate to interior air barrier under item no. 2 (Walls Adjoining Exterior Walls or Unconditioned Spaces)				
	All Climate Zones:				
	1.1 Overall Alignment Throughout Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.2 Garage Band Joist Air Barrier (at bays adjoining conditioned space)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.3 Attic Eave Baffles Where Vents/Leakage Exist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Only at Climate Zones 4 and Higher:				
	1.4 Slab-edge Insulation (A maximum of 25% of the slab edge may be uninsulated in Climate Zones 4 and 5.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Best Practices Encouraged, Not Req'd.:				
	1.5 Air Barrier At All Band Joists (Climate Zones 4 and higher)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.6 Minimize Thermal Bridging (e.g., OVE framing, GIPs, ICFs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Walls Adjoining Exterior Walls or Unconditioned Spaces	Requirements: • Fully insulated wall aligned with air barrier at both interior and exterior, OR • Alternate for Climate Zones 1 thru 3, sealed exterior air barrier aligned with RESNET Grade 1 Insulation fully supported • Continuous top and bottom plates or sealed blocking				
	2.1 Wall Behind Shower/Tub	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.2 Wall Behind Fireplace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.3 Insulated Attic Slopes/Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.4 Attic Knee Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.5 Skylight Shaft Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.6 Wall Adjoining Porch Roof	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.7 Staircase Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.8 Double Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Floors between Conditioned and Exterior Spaces	Requirements: • Air barrier is installed at any exposed fibrous insulation edges • Insulation is installed to maintain permanent contact with sub-floor above including necessary supports (e.g., staves for blankets, netting for blow-in) • Blanket insulation is verified to have no gaps, voids or compression. • Blow-in insulation is verified to have proper density with firm packing			
3.1 Insulated Floor Above Garage		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Cantilevered Floor		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Shafts	Requirements: Openings to unconditioned space are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam (provide fire-rated collars and caulking where required)				
	4.1 Duct Shaft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4.2 Piping Shaft/Penetrations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4.3 Flue Shaft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Attic/Ceiling Interface	Requirements: • All attic penetrations and dropped ceilings include a full interior air barrier aligned with insulation with any gaps fully sealed with caulk, foam or tape • Movable insulation fits snugly in opening and air barrier is fully gasketed				
	5.1 Attic Access Panel (fully gasketed and insulated)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.2 Attic Drop-down Stair (fully gasketed and insulated)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.3 Dropped Ceiling/Gofft (full air barrier aligned with insulation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.4 Recessed Lighting Fixtures (ICAT labeled and sealed to drywall)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.5 Whole-house Fan (insulated cover gasketed to the opening)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Common Walls Between Dwelling Units	Requirements: Gap between drywall shaft wall (i.e., common wall) and the structural framing between units is fully sealed at all exterior boundary conditions				
	6.1 Common Wall Between Dwelling Units	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Home Energy Rating Provider: _____ Rater Inspection Date: _____ Builder Inspection Date: _____					
Home Energy Rater Company Name: _____ Builder Company Name: _____					
Home Energy Rater Signature: _____ Builder Employee Signature: _____					



WHERE WE'VE BEEN

The ENERGY STAR Certified Homes Program



WHERE WE'VE BEEN

Transition to ENERGY STAR Version 3 (or 2.5)



March 25, 2011

Dear Partners,

This document provides information on the requirements for qualifying a home under ENERGY STAR for New Homes Version 2.5. Version 2.5 is same as Version 3 except for several changes that will help partners successfully transition from the Version 2 to 3 guidelines. *Therefore, EPA has not created separate program documents specifically for Version 2.5. Instead, this letter serves to identify those parts of the Version 3 guidelines that will not be fully implemented under 2.5.*

Version 2.5 adopts the three key features of Version 3, including a variable HERS index threshold, a Size Adjustment Factor, and new inspection checklists. The new Version 3 checklists, in particular, will require increased planning and coordination with builder clients and trades in order to successfully implement. For this reason, the new inspection checklists must be completed under Version 2.5, but an allowance is provided for deficiencies during this transitional period as described below. This will allow partners to identify what parts of the full Version 3 guidelines require further preparation and assistance before the requirements are fully phased in.

While raters will be required to complete Version 3 training provided by RESNET accredited training providers by January 1, 2012 to certify homes under Version 3, it is recommended, but not required, that raters participate in this training prior to completing the inspection checklists under Version 2.5. Similarly, while builders will be required to complete training provided by EPA and HVAC contractors will be required to complete training provided through industry associations by January 1, 2012, it is recommended, but not required, that these parties also participate in this training prior to completing their respective inspection checklists.

See below for the specific requirements of Version 2.5, organized by program document. These are represented graphically in Exhibit 1. Exhibit 2 illustrates the timeline for implementing both the Version 2.5 and Version 3 guidelines. Note that homes can be qualified under the Version 2.5 guidelines in advance of the phase-in dates in Exhibit 2, at the discretion of builders and their raters. However, homes shall not be qualified as Version 3 until January 1, 2012 except as part of a limited Version 3 pilot administered by an ENERGY STAR for Homes Sponsor or where required by a code jurisdiction.

Requirements for Version 2.5:

National Program Requirements

- Partners shall meet v3 of the National Program Requirements including the new ENERGY STAR Reference Design for the Prescriptive Path and the new ENERGY STAR HERS Index Target for the Performance Path. Any and all exceptions relate to the inspection checklists; those exceptions are listed below, organized by checklist.

Inspection Checklist – Thermal Enclosure System

- All items on this inspection checklist shall be completed (i.e., the rater must indicate whether each item must be corrected, whether the item is builder or rater approved, or whether the item is not applicable to the home).
- Homes shall pass all requirements of 'Section 3: Fully-Aligned Air Barriers' and 'Section 5: Air Sealing' to qualify. Noncompliance with items in other sections of this checklist shall not prevent homes from earning the label.
- Although the builder may assume responsibility for verifying a maximum of eight (8) items on this checklist under v3, this limit has been reduced to six (6) items for the two sections being enforced under v2.5, Sections 3 and 5.
- The v2 slab edge insulation exemption remains only for Version 2.5; therefore, up to 25% of the slab edge may be uninsulated in 2009 IECC Climate Zones 4 and 5.

Inspection Checklist – HVAC System Quality Installation for Contractors

- All items on this inspection checklist shall be completed. However, noncompliance with items will not prevent homes from earning the label.

Inspection Checklist – HVAC System Quality Installation for Raters

- All items on this inspection checklist shall be completed. However, noncompliance with items will not prevent homes from earning the label.
- Duct leakage to outdoors is maintained at the v2 levels and shall not exceed the following limits:
 - 4 CFM / 100 sq ft of conditioned floor area for the prescriptive path
 - 6 CFM / 100 sq ft of conditioned floor area for the performance path
- No limit on total duct leakage is imposed.

Inspection Checklist – Water Management System

- All items on this inspection checklist shall be completed. However, noncompliance with items will not prevent homes from earning the label.

Exhibit 1: Transition to ENERGY STAR Version 3

	Version 2	Version 2.5	Version 3
Performance Path	Fixed HERS Index	Variable HERS Index	
Prescriptive Path	Builder Option Package (BOP)	ENERGY STAR Reference Design	
House Size	No Impact on Requirements	Size Adjustment Factor	
Duct Leakage to Outside	<ul style="list-style-type: none"> ≤ 4 CFM₂₅ per 100ft² CFA for Prescriptive Path ≤ 6 CFM₂₅ per 100ft² CFA for Performance Path 		<ul style="list-style-type: none"> ≤ 4 CFM₂₅ per 100ft² CFA for both Prescriptive and Performance Paths ≤ 6 CFM₂₅ per 100ft² CFA
Total Duct Leakage	No Maximum Leakage		
ENERGY STAR Labeled Products - Prescriptive Path	≥ 5 ENERGY STAR qualified products	<ul style="list-style-type: none"> Where refrigerators, dishwashers, ceiling fans and exhaust fans are installed, products shall be ENERGY STAR qualified. ENERGY STAR qualified CFLs or pin-based lighting in 80% of fixtures in RESNET-defined Qualifying Light Fixture Locations shall be installed. (Alternate: ENERGY STAR Advanced Lighting Package) 	
ENERGY STAR Labeled Products - Performance Path	≥ 1 ENERGY STAR qualified product category	<ul style="list-style-type: none"> No requirements, though the Expanded ENERGY STAR Reference Design Definition is configured with an ENERGY STAR qualified refrigerator and dishwasher, qualified ceiling and exhaust fans, and fluorescent lighting in 80% of lighting fixtures in RESNET-defined Qualifying Light Fixture Locations. Therefore, the ENERGY STAR HERS Index Target must be met by either including efficient appliances and lighting or by offsetting their performance with other efficiency features. 	
HERS Scoring Limitations	<ul style="list-style-type: none"> Up to 20% of screw-in light bulb sockets may use CFLs to achieve HERS Index. On-site power may not be used to achieve HERS index. 	<ul style="list-style-type: none"> No limit on CFLs that may be used to achieve HERS index. On-site power may be used if the home is larger than the Benchmark Home, but it can only contribute to incremental change in the HERS Index caused by the Size Adjustment Factor. 	
Inspection Checklists	<ul style="list-style-type: none"> Thermal Bypass Checklist completed & enforced. Builder may verify up to six (6) items. 	<ul style="list-style-type: none"> Sections 3 & 5 of Thermal Enclosure System Rater Checklist enforced. Builder may verify up to six (6) items. 	<ul style="list-style-type: none"> All sections of all v3 inspection checklists completed. All sections of all v3 inspection checklists enforced. Builder may verify up to eight (8) items of the Thermal Enclosure System checklist.
	25% of slab edge in CZ 4 & 5 may be uninsulated under v2 and v2.5		No slab edge insulation exemption

Exhibit 2: ENERGY STAR for New Homes Version 3 Implementation Schedule

Permit Date ²	Date of Final Inspection ¹	
	4/1/2011	1/1/2012
Before 4/1/2011 ^{3,4}	v2	v3
Between 4/1/2011 and 12/31/2011 ⁴	v2.5	v3
On or After 1/1/2012 ⁵		v3

Version 2	Version 2: 2006 Guidelines
Version 2.5	Version 2.5: Core Version 3 energy efficiency measures with Air Barriers and Air Sealing sections of Thermal Enclosure System Rater Checklist. Other checklists completed but not enforced
Version 3	Version 3: Core Version 3 energy efficiency measures with all checklists completed and enforced

1. The date of the final inspection for the home (i.e., the date at which all of the field inspections are complete for the home, not necessarily the date when the label is issued).

2. The rater may define the permit date as either the date that the permit was issued or the date of the contract on the home.

3. All low-income projects financed through low-income housing agencies may earn the ENERGY STAR under the last iteration of the guidelines, Version 2, until January 1, 2012 as long as the application for funding for those homes was received by the low-income housing agency before April 1, 2011 and the housing project includes, at least one unit reserved for low-income tenants. If the application for funding is received between April 1, 2011 and December 31, 2011, then the homes must earn the ENERGY STAR under the Version 2.5 guidelines if completed before January 1, 2012 and under the Version 3 guidelines if completed after January 1, 2012. If the application for funding is received on or after January 1, 2012 then the homes must earn the ENERGY STAR under the Version 3 guidelines.

4. Homes can be qualified under the Version 2.5 guidelines in advance of the dates above at the discretion of builders and their raters. However, homes may not be qualified as Version 3 until January 1, 2012.

5. Where a utility or code sponsor is mandating or incentivizing early adoption of Version 3 in their area, EPA will allow the labeling of ENERGY STAR Version 3 prior to January 1, 2012 on a pilot-program basis, provided that the sponsor meets certain requirements.



WHERE WE'VE BEEN

Transition to ENERGY STAR Version 3 (or 2.5)



March 25, 2011

Dear Partners,

This document provides information on the requirements for qualifying a home under ENERGY STAR for New Homes Version 2.5. Version 2.5 is same as Version 3 except for several changes that will help partners successfully transition from the Version 2 to 3 guidelines. Therefore, EPA has not created separate program documents specifically for Version 2.5. Instead, this letter serves to identify those parts of the Version 3 guidelines that will not be fully implemented under 2.5.

Version 2.5 adopts the three key features of Version 3, including a variable HERS index threshold, a Size Adjustment Factor, and new inspection checklists. The new Version 3 checklists, in particular, will require increased planning and coordination with builder clients and trades in order to successfully implement. For this reason, the new inspection checklists must be completed under Version 2.5, but an allowance is provided for deficiencies during this transitional period as described below. This will allow partners to identify what parts of the full Version 3 guidelines require further preparation and assistance before the requirements are fully phased in.

While raters will be required to complete Version 3 training provided by RESNET accredited training providers by January 1, 2012 to certify homes under Version 3, it is recommended, but not required, that raters participate in this training prior to completing the inspection checklists under Version 2.5. Similarly, while builders will be required to complete training provided by EPA and HVAC contractors will be required to complete training provided through industry associations by January 1, 2012, it is recommended, but not required, that these parties also participate in this training prior to completing their respective inspection checklists.

WHERE WE'VE BEEN

Transition to ENERGY STAR Version 3 (or 2.5)



Dear Partners,

This document provides information on the transition to ENERGY STAR Version 2.5. Version 2.5 is the Version 2 to 3 guideline. Instead, this letter serves to

Version 2.5 adopts the three new inspection checklists with builder clients and tracking completed under Version 2. This will allow partners to identify the requirements are fully prepared.

While raters will be required to complete the inspection checklist by EPA and HVAC contractors in 2012, it is recommended, respectively inspection checklists.

Exhibit 1: Transition to ENERGY STAR Version 3

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Performance Path	Fixed HERS Index	Variable HERS Index	
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House Size	No Impact on Requirements	Size Adjustment Factor	
Duct Leakage to Outside	<ul style="list-style-type: none"> ≤ 4 CFM₂₅ per 100ft² CFA for Prescriptive Path ≤ 6 CFM₂₅ per 100ft² CFA for Performance Path 	≤ 4 CFM ₂₅ per 100ft ² CFA for both Prescriptive and Performance Paths	
Total Duct Leakage	No Maximum Leakage	≤ 6 CFM ₂₅ per 100ft ² CFA	
ENERGY STAR Labeled Products - Prescriptive Path	≥ 5 ENERGY STAR qualified products	<ul style="list-style-type: none"> Where refrigerators, dishwashers, ceiling fans and exhaust fans are installed, products shall be ENERGY STAR qualified. ENERGY STAR qualified CFLs or pin-based lighting in 80% of fixtures in RESNET-defined Qualifying Light Fixture Locations shall be installed. (Alternate: ENERGY STAR Advanced Lighting Package) 	
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HERS Scoring Limitations	Up to 20% of screw-in light bulb sockets may use CFLs to achieve HERS Index.	No limit on CFLs that may be used to achieve HERS index.	
	On-site power may not be used to achieve HERS index.	On-site power may be used if the home is larger than the Benchmark Home, but it can only contribute to incremental change in the HERS Index caused by the Size Adjustment Factor.	
Inspection Checklists	Thermal Bypass Checklist completed & enforced. Builder may verify up to six (6) items.	All sections of all v3 inspection checklists completed.	
		Sections 3 & 5 of Thermal Enclosure System Rater Checklist enforced. Builder may verify up to six (6) items.	All sections of all v3 inspection checklists enforced. Builder may verify up to eight (8) items of the Thermal Enclosure System checklist.
	25% of slab edge in CZ 4 & 5 may be uninsulated under v2 and v2.5	No slab edge insulation exemption	

WHERE WE'VE BEEN

Transition to ENERGY STAR Version 3 (or 2.5)

Requirements for Version 2.5:

National Program Requirements

- Partners shall meet v3 of the National Program Requirements including the new ENERGY STAR Reference Design for the Prescriptive Path and the new ENERGY STAR HERS Index Target for the Performance Path. Any and all exceptions relate to the inspection checklists; those exceptions are listed below, organized by checklist.

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- All items on this inspection checklist shall be completed (i.e., the rater must indicate whether each item must be corrected, whether the item is builder or rater approved, or whether the item is not applicable to the home).
- Homes shall pass all requirements of 'Section 3: Fully-Aligned Air Barriers' and 'Section 5: Air Sealing' to qualify. Noncompliance with items in other sections of this checklist shall not prevent homes from earning the label.
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- The v2 slab edge insulation exemption remains only for Version 2.5; therefore, up to 25% of the slab edge may be uninsulated in 2009 IECC Climate Zones 4 and 5.

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- No limit on total duct leakage is imposed.

Inspection Checklist – Water Management System

- All items on this inspection checklist shall be completed. However, noncompliance with items will not prevent homes from earning the label.



WHERE WE ARE



ENERGY STAR Multifamily New Construction National HVAC Functional Testing Checklist ¹, Version 1 / 1.1 / 1.2 (Rev.03)

HVAC Functional Testing Agent Responsibilities:

- The entity verifying Functional Testing, the Functional Testing Agent ("FT Agent"), must be a contractor credentialed by an HVAC

Regional Program Requirements

[MFNC Oregon and Washington Program Requirements Version 1.2 \(PDF, 318 KB\)](#)

[MFNC California Program Requirements Version 1.3 \(PDF, 75 KB\)](#)

[MFNC California Program Requirements Version 1.4 \(PDF, 242 KB\)](#)

[European Program Requirements, \(PDF, 100 KB\)](#)

Current Policy Record

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Archive ENERGY STAR Single-Family New Homes Policy Rec...

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Current ENERGY STAR

How to Use This Document

EPA regularly receives partner questions and comments regarding various aspects of the program documents. This document is a record of the issues that have been received since the release of the last revision to the program documents. These issues have been resolved, sometimes resulting in modifications that will be incorporated into the next revision of the program documents. The primary purpose of this document is to allow all partners to have equal access to the latest policy issues and resolutions.

EPA intends to formally incorporate policy modifications into the program documents. Those edits are enforced for homes permitted after a specified transition period, typically 60 days from the release of the revised program requirements. Partners may, at their discretion, use the determinations immediately at the time of their release, in advance of the formal implementation dates. If they do so, they should be sure to document the permit dates of the affected homes and to include a copy of the policy record in the files retained by the Home Energy Rater. Should the need arise, this will allow partners to demonstrate that they acted with the best information available.

Definitions

Each issue listed here is classified as a Change, Clarification, Refinement, or Comment. These are defined as follows:

- **Change** – The addition, deletion, or modification of a program requirement. A change will typically result from a partner question or feedback indicating that EPA's original intent is not being met or due to changes in relevant standards (e.g., ENERGY STAR labeled product requirements, NAECA standards, IECC codes). A change is the most significant type of edit for partners because it is likely to change the way that partners comply with the program.

Archive ENERGY STAR Single-Family New Homes Policy Record

How to Use This Document

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Each issue listed here is classified as a Change, Clarification, Refinement, or Comment. These are defined as follows:

- **Change** – The addition, deletion, or modification of a program requirement. A change will typically result from a partner question or feedback indicating that EPA's original intent is not being met or due to changes in relevant standards (e.g., ENERGY STAR labeled product requirements, NAECA standards, IECC codes). A change is the most significant type of edit for partners because it is likely to change the way that partners comply with the program.
- **Clarification** – The clarification of a program requirement, typically resulting from a partner question indicating confusion or ambiguity. Clarifications are not



WHERE WE'RE GOING



ENERGY STAR NextGen National Rater Field Checklist, Version 1.0

Home/Building Address: _____ City: _____ State: _____ Permit Date: _____

1. ENERGY STAR Certification Basis

1.1 Home or building certified under one of the following:

Single Family

SFNH National

California Projects Only: SFNH California

2. Dwelling Unit Space Heating

2.1 ENERGY STAR certified two-speed geothermal heat pump(s), installed and operating

2.1.1 In CZ 5-8, installed air-source heat pump(s)

2.2 Each air-source heat pump meets ENERGY STAR requirements for thermostat



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The Section 45L [Tax Credit for Energy Efficient New Homes](#) has been updated and extended through 2032. For homes and units **acquired** on or after **January 1, 2023**, the base-level tax credit is specifically tied to meeting ENERGY STAR program requirements for single-family (\$2,500), manufactured (\$2,500), and multifamily homes (\$500; or \$2,500 when prevailing wage requirements are met). **X**














WHERE WE'VE BEEN

~8 pages



EPA 402/K-08/003 | October 2008 | www.epa.gov/iaq

EPA Indoor airPLUS CONSTRUCTION SPECIFICATIONS

Indoor Air Quality (IAQ)

EPA Indoor airPLUS Verification Checklist



Address or Div/Lot#: _____

City/State/Zip: _____ Date: _____ Verified by _____

Section	Requirements (see IAP Construction Specifications for details)	Tested		Verified by		
		Builder	Rater	Builder	Rater	
Moisture Control	Water-Managed Site and Foundation:					
	1.1	Site and foundation drainage: sloped grade, protected drain tile, & foundation floor drains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.2	Capillary break below concrete slabs & in crawlspaces (Exceptions - see spec)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.3	Foundation wall dampproofing (Except without below grade walls)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.4	Basements/crawlspaces Insulated & conditioned (Exceptions - see spec)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Water-Managed Wall Assemblies:					
	1.5	Continuous drainage plane behind exterior cladding, properly flashed to foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.6	Fully flash window and door openings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Water-Managed Roof Assemblies:					
	1.7	Gutters/downspouting directing water minimum 5' from foundation (Except Dry climates)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.8	Fully flash roof-wall intersections (step & kickout flashing) and all roof penetrations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.9	Bituminous membrane at valleys & penetrations (Except Dry climates)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Ice flashing at eaves (Except climates 1-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Interior Water Management:						
	1.11	Moisture-resistant materials/protective systems (i.e., flooring, tub/shower backing, & pipe insulation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.12	No vapor barriers on interior side of exterior walls with high condensation potential	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.13	Do not enclose wet or water-damaged materials in building assemblies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Radon	2.1	Radon-resistant features per ASTM E1465, IRC Appendix F, or equivalent (EPA Zone 1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2.2	Provide homebuyer 2 radon test kits & instructions (EPA Zones 1 & 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pests	3.1	Seal foundation joints & penetrations, including air-tight sump covers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3.2	Corrosion-proof rodent/bird screens at all intentional openings (e.g., soffit vents)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HVAC	4.1	HVAC load calculations & equipment design documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4.2	Duct system design documentation & installation OR performance tested	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4.3	No air handler or ducts in garage; continuous air barrier required in adjacent assemblies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4.4	Rooms pressure balanced (individual room returns or jump/transfer grills) OR tested	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4.5	Whole house ventilation system per ASHRAE Std 62.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6	Local exhaust ventilation to outdoors (i.e., baths, kitchen, clothes dryers, central vac, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.7	Air cleaning & Filtration: no ozone generators, minimum MERV 8 filter, no filter bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.8	Additional dehumidification or independent RH control (Warm-Humid climates only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Combustion Pollutants	Combustion Source Controls:					
	5.1	Gas heat direct-vented; oil heat & water heaters power-vented or direct-vented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.2	Fireplaces/heating stoves vented outdoors & meet emissions/efficiency standards/restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.3	Certified CO alarms in each sleeping zone (e.g., common hallway)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5.4	No smoking in common areas & outside smoking minimum 25' from openings (Multi-family only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attached Garage Isolation: (Except no attached garage)						
5.5	Air seal common walls/ceilings between house & garage; house doors gasketed with closer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.6	Continuously rated exhaust fan (minimum 70 cfm) in attached garages (controls optional)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Material	6.1	Pressed wood materials (plywood, OSB, MDF, cabinetry) certified low-formaldehyde	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6.2	Interior paints & finishes certified low-VOC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6.3	Carpet, adhesives, & cushion qualified for CRI Green Label Plus or Green Label	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Final	7.1	HVAC & ductwork commissioned: dry/clean, charge test, coil airflow test, & register airflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7.2	Ventilate home before occupancy OR advise buyer (document)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7.3	Provide home buyer with completed checklist, house plans/specs, and equipment documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rater/Provider: _____ Builder: _____

Company: _____ Company: _____

Signature: _____ Signature: _____



WHERE WE'VE BEEN

~8 pages



EPA 402/K-08/003 | October 2008 | www.epa.gov/iaq

EPA Indoor airPLUS Construction Specifications

1. Moisture Control

Note: **ENERGY STAR Thermal Bypass Checklist (TBC)** requirements are an integral part of the moisture control strategy described in EPA Indoor airPLUS. TBC requirements improve control of air and thermal flows through building assemblies, both critical in effective control of water vapor migration and condensation. Since TBC compliance and verification are required for ENERGY STAR qualification, TBC requirements are not re-stated in these specifications.

Water-Managed Site and Foundation

1.1 Site and foundation drainage shall be provided as follows:

- Patio slabs, walks and driveways shall be sloped a minimum of ¼ in. per ft. away from house; AND backfill shall be tamped to prevent settling; AND final grade shall be sloped away from the foundation at a rate of ½ in. per ft. over a minimum distance of 10 ft. Where setbacks limit space to less than 10 ft., provide swales or drains designed to carry water from foundation. Backfill tamping is not required if proper drainage can be achieved using non-settling compact soils, as determined by a certified hydrologist, soil scientist, or engineer.
- Install protected drain tile at footings of basement and crawlspace walls, level or sloped to discharge to outside grade (daylight) or to a sump pump. Top of drain tile pipe must always be below bottom of concrete slab or crawl space floor. Pipe shall be fully wrapped with filter fabric and surrounded with at least 6 in. of ½ to ¾ in. washed or clean gravel. If drain tile discharges to daylight and radon-resistant features are required (see 2.1), install check valve(s) at drain tile outfall(s).
- Install drain (or sump) in basement and crawl space floors, discharging to daylight at least 10 ft. outside foundation or into an approved sewer system. Floor drain not required for slab-on-grade foundations.

Crawlspace floors:

- Cover crawlspace floor with a concrete slab over 6 mil (or thicker) polyethylene sheeting, overlapped 6 to 12 in. at seams (i.e., a "rat slab"); OR
- Cover crawlspace floor with 6 mil polyethylene (10 mil recommended) sheeting, overlapped 6 to 12 in. and sealed or taped at seams and penetrations. Sheeting shall be attached to walls and piers with adhesive and furring strips.

Exceptions:

- In areas with free-draining soils, identified as Group 1 by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel layer or geotextile matting is not required under concrete slabs.
- Polyethylene sheeting is not required in Dry (B) climates as defined by IECC, Figure 301.1, unless required for radon resistance (see 2.1).

1.3 Exterior surfaces of below grade foundation walls shall be dampproofed or waterproofed as follows:

- Poured concrete, concrete masonry, and insulated concrete forms (ICFs) shall be finished with dampproofing coating; AND
- Wood framed walls shall be finished with trowel-mastic and polyethylene, or other waterproofing demonstrated to be equivalent.

1.4 Basements and crawl spaces shall be insulated and conditioned as follows:

- Insulate crawl space and basement perimeter walls per IRC Table N1102.1 or IECC Table 402.1.1 (also see 1.12); AND
- Seal crawl space and basement perimeter walls to prevent outside air infiltration; AND
- Provide conditioned air at a rate not less than 1 cfm per

EPA Indoor airPLUS Verification Checklist



Address or Div/Lot#:		Date:		Verified by		
City/State/Zip:		Tested	N/A	Builder	Rater	
Moisture Control	Water-Managed Site and Foundation:					
	1.1	Site and 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 (Exceptions - see spec)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.3	Foundation wall dampproofing (Except without below grade walls)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.4	Basements/crawlspaces insulated & conditioned (Exceptions - see spec)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Water-Managed Wall Assemblies:					
	1.5	Continuous drainage plane behind exterior cladding, properly flashed to foundation			<input type="checkbox"/>	<input type="checkbox"/>
	1.6	Fully flash window and door openings			<input type="checkbox"/>	<input type="checkbox"/>
	Water-Managed Roof Assemblies:					
	1.7	Gutters/downspouting directing water minimum 5' from foundation (Except Dry climates)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.8	Fully flash roof-wall intersections (step & kickout flashing) and all roof penetrations			<input type="checkbox"/>	<input type="checkbox"/>

Guidance for Completing the EPA Indoor airPLUS Verification Checklist:

1. Only ENERGY STAR Qualified Homes verified to comply with these specifications can earn the "EPA Indoor airPLUS" label. See EPA Indoor airPLUS Construction Specifications for full description of 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.
2. Check one box per line: "N/A", "Builder Verified", or "Rater Verified". "N/A" applies to specifications that do not apply for specific conditions (e.g., climate) according to Exceptions described in the IAP Construction Specifications. Check either "Builder Verified" or "Rater Verified" for all other items. Builder must sign the verification checklist if any items are checked in the "Builder Verified" column, and by so doing accepts full responsibility for verifying that those items have met IAP requirements.
3. When using Performance Alternatives (see 4.2 & 4.4), check tested box and include testing documentation in HERS/BOP file.
4. Builder provides one copy of the completed/signed checklist to homebuyer. Provider or Rater files a copy with HERS/BOP and ENERGY STAR documentation (i.e., Thermal Bypass Checklist) for the home.
5. The Checklist may be completed for a batch of homes using a RESNET-approved sampling protocol when qualifying homes as ENERGY STAR. 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.

Note: The EPA Indoor airPLUS Construction Specifications are designed to contribute to improved indoor air quality (IAQ) in new homes compared with code-built homes. However these measures alone cannot prevent all IAQ problems. Rather, EPA Indoor airPLUS is a way to reduce the likelihood of experiencing IAQ problems. Occupant behavior is also important for IAQ. For example, products used in the home after occupancy and smoking inside may both negatively impact the home's IAQ and the performance of the specified EPA Indoor airPLUS measures.

7.3	Provide home buyer with completed checklist, house plans/specs, and equipment documentation			<input type="checkbox"/>	<input type="checkbox"/>
Rater/Provider:		Builder:			
Company:		Company:			
Signature:		Signature:			



WHERE WE'VE BEEN

1st Revision
2013



VERSION 1 (REV. 01) Indoor airPLUS CONSTRUCTION SPECIFICATIONS



www.epa.gov/indoorairplus

Indoor Air Quality (IAQ)



VERSION 1 (REV. 01) Indoor airPLUS CONSTRUCTION SPECIFICATIONS

Summary of Changes

This document summarizes the changes made to the Indoor airPLUS Construction Specifications Version 1 (Rev. 01). These revisions improve alignment with ENERGY STAR and provide a simpler and clearer path for builders to achieve Indoor airPLUS certification.

Construction Specification sections now reference ENERGY STAR requirements by providing a summary of ENERGY STAR checklist language and specific checklist item numbers. All implementation options and exceptions included in the ENERGY STAR checklist Item number apply. Additional Indoor airPLUS requirements are then listed below the ENERGY STAR summaries. These include: 1) Items that are above and beyond ENERGY STAR, and 2) Requirements that may specifically exclude the ability to use an ENERGY STAR exception.

The Indoor airPLUS Construction Specifications (Rev. 01) may be used by builders and Raters immediately. Builders and Raters may also continue to use the original Indoor airPLUS Construction Specifications and Verification Checklist in homes permitted through June 30, 2013. Homes permitted on or after July 1, 2013 must use the Version 1 (Rev. 01) Construction Specifications and Verification Checklist.

Changes to the Introduction

Clerification added: Raters who operate under a Sampling Provider can use a RESNET-approved sampling protocol and homes located in California can use a CEC-approved sampling protocol.

Due to the greater alignment between the Indoor airPLUS and ENERGY STAR programs, the Indoor airPLUS Verification Checklist is no longer an alternative to the ENERGY STAR Water Management System Builder Checklist.

1. Moisture Control

1.1 Water Managed Site and Foundation

- Exception added: Drain or sump pump not required in areas of free draining soils.

1.7 Gutters, Downspouts and Site Drainage

- Compliance option added: Homes that meet the ENERGY STAR exceptions for gutter and downspouts must also provide protection for water splash damage (exemption for dry climates and homes with rainwater harvesting systems).

2. Radon

2.1 Radon-Resistant Construction

- References removed: Appendix F; CABO.
- Advisories added: Including a radon vent fan and installing radon resistant features in EPA Radon Zones 2 and 3 are recommended.
- Advisories added: Radon testing recommended.

2.2 Radon Test Kits

- Requirement removed: Radon test kits are no longer required to be provided to homebuyers.

3. Pest Barriers

3.1 Minimize Pathways for Pest Entry

- Advisory added: Copper or stainless steel wool recommended when sealing larger gaps.

4. HVAC Systems

4.1 HVAC Sizing and Design

- Original Indoor airPLUS Specification numbers 4.1 and 4.8 now combined under the new 4.1.

4.2 Duct System Design and Installation

- Formatting revised to clarify that building cavities cannot be used as part of the forced air supply or return systems.

5. Combustion Pollutant Control

5.4 Attached Garages

- Compliance option added: Garage fan can be wired for continuous operation or installed with automatic controls to activate when garage is occupied and for 10 minutes after occupancy.
- Compliance option added: Garage fan can be ducted (not through the wall) if it is tested and verified to meet minimum capacity of 70 cfm.
- Advisory added: Exhaust fans wired for continuous operation are recommended.

6. Low-Emission Materials

6.2 Interior Paints and Finishes

- Compliance option added: Master Painters Institute (MPI) X-Green.

6.3 Carpets and Carpet Adhesives

- Exception added: 90% or more of finished surface area covered by carpet and carpet adhesives must comply with requirements.
- Carpet must meet CRI Green Label Plus.

Indoor airPLUS Version 1 (Rev. 01) Construction Specifications (February 2013)



WHERE WE'VE BEEN

VERSION 1 (REV. 01) **Indoor airPLUS** CONSTRUCTION SPECIFICATIONS

Summary of Changes

This document summarizes the changes made to the Indoor airPLUS Construction Specifications Version 1 (Rev. 01). These revisions improve alignment with ENERGY STAR and **provide a simpler and clearer path for builders to achieve Indoor airPLUS certification.**

Construction Specification sections now reference ENERGY STAR requirements by providing a summary of ENERGY STAR checklist language and specific checklist Item numbers. All implementation options and exceptions included in the ENERGY STAR checklist Item number apply. Additional Indoor airPLUS requirements are then listed below the ENERGY STAR summaries. These include: 1) Items that are above and beyond ENERGY STAR, and 2) Requirements that may specifically exclude the ability to use an ENERGY STAR exception.

The Indoor airPLUS Construction Specifications (Rev. 01) may be used by builders and Raters immediately. Builders and Raters may also continue to use the original Indoor airPLUS Construction Specifications and Verification Checklist in homes permitted through June 30, 2013. Homes permitted on or after July 1, 2013 must use the Version 1 (Rev. 01) Construction Specifications and Verification Checklist.



WHERE WE'VE BEEN



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
<p>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.</p>					
ENERGY STAR V3 Checklists	Thermal Enclosure System Rater Checklist completed.	<input type="checkbox"/>		<input type="checkbox"/>	
	Water Management System Builder Checklist completed.	<input type="checkbox"/>		<input type="checkbox"/>	
	HVAC System Quality Installation Contractor Checklist completed.	<input type="checkbox"/>		<input type="checkbox"/>	
	HVAC System Quality Installation Rater Checklist completed.	<input type="checkbox"/>		<input type="checkbox"/>	
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.2 Layer of aggregate or sand (4 in.) with geotextile matting installed below slabs AND radon techniques used in EPA Radon Zone 1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.4 Basements/crawlspaces insulated, sealed and conditioned (Exceptions: see spec).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.7 Protection from water splash damage if no gutters (Exceptions: see spec).	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	1.11 Hard-surface flooring in kitchens, baths, entry, laundry and utility rooms, AND piping in exterior walls insulated with pipe wrap.	<input type="checkbox"/>		<input type="checkbox"/>	

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WHERE WE'VE BEEN



Indoor airPLUS Version 1 (Rev. 01) Verification Checklist

Home Address:		City:	State:	
Section	Requirements (Refer to full Indoor airPLUS Construction Specifications for details)	Must Correct		
<p>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.</p>				
ENERGY STAR V3 Checklists	Thermal Enclosure System Rater Checklist completed.	<input type="checkbox"/>		
	Water Management System Builder Checklist completed.	<input type="checkbox"/>		
	HVAC System Quality Installation Contractor Checklist completed.	<input type="checkbox"/>		
	HVAC System Quality Installation Rater Checklist completed.	<input type="checkbox"/>		
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.	<input type="checkbox"/>		
	1.2 Layer of aggregate or sand (4 in.) with geotextile matting installed below slabs AND radon techniques used in EPA Radon Zone 1.	<input type="checkbox"/>		
	1.4 Basements/crawlspaces insulated, sealed and conditioned (Exceptions: see spec).	<input type="checkbox"/>		
	1.7 Protection from water splash damage if no gutters (Exceptions: see spec).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.11 Hard-surface flooring in kitchens, baths, entry, laundry and utility rooms, AND piping in exterior walls insulated with pipe wrap.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Moisture Control

1.1 Water Managed Site and Foundation

- Exception added: Drain or sump pump not required in areas of free draining soils.

1.7 Gutters, Downspouts and Site Drainage

- Compliance option added: Homes that meet the ENERGY STAR exceptions for gutter and downspouts must also provide protection for water splash damage (exemption for dry climates and homes with rainwater harvesting systems).

2. Radon

2.1 Radon-Resistant Construction

- References removed: Appendix F; CABO.
- Advisories added: Including a radon vent fan and installing radon resistant features in EPA Radon Zones 2 and 3 are recommended.
- Advisories added: Radon testing recommended.

2.2 Radon Test Kits

- Requirement removed: Radon test kits are no longer required to be provided to homebuyers.

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WHERE WE ARE



VERSION 1 (REV. 04) Indoor airPLUS CONSTRUCTION SPECIFICATIONS



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: <input type="checkbox"/> Slab-on-grade foundation <input type="checkbox"/> Free-draining soils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		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: <input type="checkbox"/> Slab-on-grade foundation <input type="checkbox"/> Free-draining soils <input type="checkbox"/> Dry climate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			1.4	Basements/crawlspaces insulated, sealed and conditioned. Exception Applied: <input type="checkbox"/> 100-year flood zone <input type="checkbox"/> Marine climate <input type="checkbox"/> Dry climate <input type="checkbox"/> Crawlspace sealed with capillary break and active dehumidification <input type="checkbox"/> Raised pier foundation with no walls	<input type="checkbox"/>	<input type="checkbox"/>
		1.7	Protection from water splash damage if no gutters. Exception Applied: <input type="checkbox"/> Rainwater harvesting system <input type="checkbox"/> Dry climates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1.11	Supply piping in exterior walls insulated with pipe wrap. Exception Applied: <input type="checkbox"/> Dry climate AND climate zone 1-3 <input type="checkbox"/> Air barrier insulation in wall cavity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Radon	1.14	Hard-surface flooring in kitchens, baths, entry, laundry, and utility rooms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		2.1	Radon-resistant features installed in Radon Zone 1 homes in accordance with Construction Specification 2.1. Exception Applied: <input type="checkbox"/> Perimeter pipe loop in lieu of full aggregate (dry climate) <input type="checkbox"/> Manufactured home with raised pier foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	HVAC Systems	3.2	Corrosion-proof rodent/bird screens installed at all openings that cannot be fully sealed. (Not required for clothes dryer vents.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		4.1	Equipment selected to keep relative humidity < 60% in "Warm-Humid" climates. Exception Applied: <input type="checkbox"/> Climate zones 4-8, 3B, 3C and portions of 3A and 2B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2		Duct systems protected from construction debris AND no building cavities used as air supplies or returns.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.3		No air-handling equipment or ductwork installed in garage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Combustion Pollutants	4.6	Clothes dryers vented to the outdoors or plumbed to a drain according to manufacturer's instructions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5.1	Identify appliance type: <input type="checkbox"/> Masonry heater <input type="checkbox"/> Factory-built wood-burning fireplace <input type="checkbox"/> Wood stove <input type="checkbox"/> Pellet stove <input type="checkbox"/> Natural gas/propane fireplace Appliance model name/number: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5.2	CO alarms installed in each sleeping zone (e.g., common hallway) according to NFPA 720.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5.3	Multifamily buildings: Smoking restrictions implemented AND ETS transfer pathways minimized.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.4	Attached garages: Door closer installed on all connecting doors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Attached garages: In homes with exhaust-only whole-house ventilation EITHER <input type="checkbox"/> 70 cfm exhaust fan installed in garage OR <input type="checkbox"/> Pressure test conducted to verify the effectiveness of the garage-to-house air barrier.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Indoor airPLUS Version 1 (Rev. 04) Construction Specifications (February 2018) 3

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certified low-emission. See spec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
certified low-emission. See spec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
certified low-emission. See spec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
certified to be dry and clean AND new filter installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLUS label, and certificate provided for owner/occupant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Builder Company: _____
 Builder Employee: _____
 Builder Signature: _____ Date: _____

Sign the Indoor airPLUS Verification Checklist:

To comply with these specifications can earn the Indoor airPLUS label. See Indoor airPLUS for the requirements, terms, exceptions, abbreviations, references and climate map used in this checklist is completed in full and signed.

This checklist will always be utilized unless otherwise noted in the Indoor airPLUS Construction Specifications. Includes certain ENERGY STAR exceptions or alternate pathways.

Exceptions that do not apply for specific conditions (e.g., climate) according to the exceptions in the Construction Specifications. Check either "Builder Verified" or "Rater Verified" for all other items to indicate if visually on site during construction, by reviewing photographs taken during construction, by other methods as appropriate.

The responsible party from the Rater's company, must sign the completed verification checklist. Items in the "Builder Verified" column are checked, and by so doing accepts full responsibility for the requirements.

For all required ENERGY STAR Certified Homes documentation, and the Indoor airPLUS minimum of 2 years from final verification. The Rater shall coordinate with the Provider and/or Rater to obtain a certificate for each qualified home.

Raters are permitted to use a RESNET-approved sampling protocol for Indoor airPLUS homes located approved by the California Energy Commission for homes located in California, to verify any item on the approved sampling protocol requires rating one in seven homes, then the checklist will be signed by Only Raters are permitted to use sampling. All items verified by the builder shall be verified for the building. For example, if a Rater verifies 10 items on the Indoor airPLUS Checklist and the Rater then an approved sampling protocol is permitted to be used only on the 10 Rater-verified items.

With a single signed copy of the checklist for an entire building or group of units with buildings within the building or group utilize: 1) the same HVAC system type (i.e. ductless mini-split, split system, etc.) and appliances and combustion pollutant controls; and 3) the same low-emission materials (by their respective categories) verified in Section 6 of the Indoor airPLUS Construction Specifications. If items, the Rater may also utilize one checklist per group of units if the above criteria are met. Raters will require a separate and unique checklist to be completed and signed by the Rater and the Builder.

For a single checklist for units utilizing low-emission materials certified to different labels or brands, the certifications for those materials are retained by the builder and available for inspection.

Indoor airPLUS

For more information on the 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.

WHERE WE ARE



VERSION 1 (REV. 04) Indoor airPLUS CONSTRUCTION SPECIFICATIONS



Indoor airPLUS Version 1 (Rev. 04) Verification Checklist



Home Address: _____ City: _____ State: _____ Zip: _____

Rev. 4 (2018) ~12 pages

4. HVAC Systems

4.1 HVAC Sizing and Design

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

- ✓ Calculate room-by-room heating and cooling design loads using Unabridged ACCA Manual J, 2013 ASHRAE Fundamentals, or other methodology per the Authority Having Jurisdiction (HVAC-D 3).
- ✓ Select all heating and cooling equipment to accommodate the calculated heating and cooling design loads using ACCA Manual S and ENERGY STAR allowances, inclusive of the pressure drop from all specified filters (HVAC-D 4).

Additional Indoor airPLUS Requirements:

- In "Warm-Humid" climates as defined by Section 301 of the 2015 IECC (i.e., Climate Zone 1 and portions of Zones 2 and 3A below the white line), equipment shall be installed with sufficient latent capacity to maintain indoor relative humidity (RH) at or below 60 percent. This requirement shall be met by

- Outdoor air inlets are located a minimum of 10 ft. from contaminant sources (Rater-F 7.7.2).

Exception: Climate Zones 4-8, 3B, 3C and the portions of 3A and 2B above the white line as shown by 2015 IECC Figure 301.1.

Advisory: Although not required to meet this specification, independent dehumidification is recommended in Climate Zones 4A and 3A above the white line as shown in 2015 IECC Figure 301.1.

- 70 cfm exhaust fan installed in garage OR
- Pressure test conducted to verify the effectiveness of the garage-to-house air barrier.

Indoor airPLUS Version 1 (Rev. 04) Construction Specifications (February 2018)

- ✓ Minimize room pressure differentials for any bedroom (as defined by RESNET's Mortgage Industry National Home Energy Rating Systems Standards (the RESNET Standard) that does not have a dedicated return (Rater-F 6.2).

No additional Indoor airPLUS Requirements

4.5 Mechanical Whole-Dwelling Ventilation

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

- ✓ Provide mechanical whole-dwelling ventilation meeting all requirements of ASHRAE 62.2-2010 or later (HVAC-D 2).
- ✓ Test airflows to ensure they meet ASHRAE 62.2-2010 or later minimum requirements (Rater-F 7.1).
- ✓ Visually verify the following requirements:
 - Transfer air is not used to meet ventilation requirements (Rater-F 7.7.1).
 - Outdoor air inlets are located a minimum of 10 ft. from contaminant sources (Rater-F 7.7.2).

(e.g., most manufacturers recommend a minimum of 60 degrees Fahrenheit air flow across furnace heat exchangers). EPA also recommends filtering air inlets with a filter rated at MERV 13 or higher to minimize outdoor particles entering the home.

4.6 Local Exhaust for Known Pollutant Sources

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

This is a single checklist for units utilizing low-emission materials certified to different labels or where the certifications for those materials are retained by the builder and available for inspection.

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.

WHERE WE'RE GOING



Indoor airPLUS Certified Homes

National Program Requirements, Version 2

Eligibility Requirements

Dwelling units of the building types listed below, including newly constructed buildings or those undergoing a gut rehabilitation, are eligible to earn the Indoor airPLUS label after verification of the program specifications. EPA recognizes that some prescriptive program requirements present unique challenges for homes and buildings undergoing a gut rehabilitation. To help mitigate these challenges, EPA has developed alternative compliance options that have been incorporated directly into the program specifications. EPA acknowledges that increased flexibility and alternative assessment protocols for existing buildings are important to promote adoption of broader IAQ protections through professional inspection of newly installed features, along with the performance outcomes of existing assemblies and systems. EPA is committed to including alternatives that demonstrate and promote sustained indoor air quality improvements, consistent with the intent of the respective certification.

The following building¹ types (either new construction or undergoing a gut rehabilitation) are eligible to participate in the Indoor airPLUS certification program:

- Site built or modular² dwellings³ (e.g., single-family homes, duplexes);
- Townhouses⁴;
- Multifamily or mixed-use buildings with dwelling or sleeping units⁵;

Partnership, Training, and Credentialing Requirements

The following requirements must be met prior to certifying buildings:

- The Builder or Developer for the building is required to sign an Indoor airPLUS Partnership Agreement, which can be found at <https://www.epa.gov/indoorairplus/indoor-airplus-partnership-terms-and-commitments-homebuilders> and complete the online "Builder / Developer Orientation" (pending EPA release, est. 2024).
- Verification Companies are required to sign an Indoor airPLUS Partnership Agreement, which can be found at <https://www.epa.gov/indoorairplus/indoor-airplus-partnership-terms-and-commitments-rating-companies>, and operate under a Home Certification Organization (HCO).⁶ Learn more about HCO requirements in the [Indoor airPLUS Certification System](#).
- Verifiers⁷ are required to complete EPA-recognized training, (pending EPA release, est. 2024).

Indoor airPLUS Certification Process

1. The Indoor airPLUS Version 2 certification process offers two tiers to earn the Indoor airPLUS label. Regardless of the building type or tier selected, buildings must be certified through an HCO. The Verifier must be under HCO oversight prior to the first inspection.

DRAFT – February 2023

Indoor airPLUS Certification System
for Homes and Apartments

Effective: <DATE TBD>



Last Revised: February 2023



WHERE WE'RE GOING

A Tiered System – What is that?

Indoor airPLUS “Certified”

- A “base” certification tier for IAQ in new homes, MF buildings, and gut-rehabs
- Site-built or modular buildings of all heights
- No other certification pre-requisites



Indoor airPLUS “Gold”

- A more advanced certification tier for IAQ and EE
- Eligible to homes/buildings earning the ENERGY STAR (SFNH or MFNC)



WHERE WE'RE GOING



DRAFT ONLY – February 2023

VERSION 2

Indoor airPLUS Certified

Verification Requirements for Homes and Apartments



February 2023 – DRAFT ONLY
www.epa.gov/indoorairplus

Indoor Air Quality (IAQ)



Indoor airPLUS Certified Homes

National Program Requirements, Version 2

Eligibility Requirements

Dwelling units of the building types listed below, including newly constructed units, must meet the requirements to earn the Indoor airPLUS label after verification of the program. The program presents unique challenges for homes and buildings and EPA has developed alternative compliance options that have been incorporated to increase flexibility and alternative assessment protocols for existing buildings through professional inspection of newly installed features and systems. EPA is committed to including alternatives that demonstrate effective certification.

Building types (either new construction or undergoing renovation)

DRAFT – February 2023

Indoor airPLUS Certification System

for Homes and Apartments

2023

VERSION 2

Indoor airPLUS Gold

Certification Requirements for Homes and Apartments



February 2023 – DRAFT ONLY
www.epa.gov/indoorairplus

Indoor Air Quality (IAQ)



Indoor airPLUS Certified Homes and Apartments Quality Assurance Checklists, Version 2

An Indoor airPLUS Quality Assurance Checklist shall be completed during each quality assurance file review and field review (QA review) of buildings being certified through the Indoor airPLUS program in accordance with the policies and procedures of the Home Certification Organization (HCO) ¹. This QA checklist is mandatory for buildings certified under Version 2. Review complete instructions on page 4.

Indoor airPLUS Certified Quality Assurance Checklist

QA Review		Review Type: <input type="checkbox"/> File <input type="checkbox"/> Field	QA Reviewer: _____	Date of Review: _____
		Verifier Name: _____	Status of building: <input type="checkbox"/> Pre-drywall <input type="checkbox"/> Final construction or completed	
		For Multifamily: Unit Number: _____	Common Spaces: _____	
Original Verification		Verifier Company Name: _____		
Pre-Drywall Inspection:		Verifier Name: _____	ID #: _____	Date: _____
Final Inspection:		Verifier Name: _____	ID #: _____	Date: _____
Building Address: _____		City: _____	State: _____	Zip Code: _____
Building Name (Multifamily only): _____		Number of Units: _____		
Building Classification				Classified Correctly
<input type="checkbox"/> New Construction ²	Climate Zone (0-8): _____	Moisture Zone (A-C): _____	Radon Zone (1-3): _____	Yes <input type="checkbox"/> No <input type="checkbox"/>
<input type="checkbox"/> Gut Rehabilitation ²	Termite Probability: <input type="checkbox"/> Very Heavy <input type="checkbox"/> Moderate to Heavy <input type="checkbox"/> N/A			<input type="checkbox"/>
Action Items / Summary of QA				Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
If any items are marked "No" or "Not Verified," an action/explanation summary document shall be attached.				<input type="checkbox"/> - <input type="checkbox"/>
Documentation Collection – Collect these items from the Verifier as part of the QA data file				Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Documentation that builder had an Indoor airPLUS partnership agreement at the time of certification. If documentation of active partnership cannot be verified, contact indoor_airplus@epa.gov.				<input type="checkbox"/> <input type="checkbox"/> -
Documentation collected that home/building achieved ENERGY STAR certification.				<input type="checkbox"/> <input type="checkbox"/> -
Verification Checklist collected, with no items left blank or marked Must Correct.				<input type="checkbox"/> <input type="checkbox"/> -
Verifier name, inspection dates and verifier initials are recorded.				<input type="checkbox"/> <input type="checkbox"/> -
List of any exemptions or alternatives used by the Verifier.				<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Per 2.1.1 and 2.1.2, radon test results collected, demonstrating radon levels <4 pCi/L. ³				<input type="checkbox"/> <input type="checkbox"/> -
Per 3.3.1, for multifamily buildings, a plan or contract for integrated pest management collected.				<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Per 3.3.2, for multifamily buildings, resident manual collected, which includes guidance on housekeeping, refuse				<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

WHERE WE'RE GOING



Indoor airPLUS Version 2 Certification Specifications Verification Checklist

September 2022



Home/Building Address: _____ City: _____ State: _____ Zip: _____

Climate Zone (1-7): _____ Moisture Zone (A-C): _____ Radon Zone (1-3): _____

Termite Probability: _____

Requirements (Refer to full Indoor airPLUS Certification Specifications for details)

Section 1 – Moisture Control

1.1	1.1.1	Impermeable surfaces sloped ≥ 0.25 in. per ft. away from the building.
1.1	1.1.2	Exterior drains are free of debris.
1.1	1.1.3	Newly installed back-fill tamped and final grade sloped ≥ 0.5 in. per ft. Exception: <input type="checkbox"/> Swales/drains <input type="checkbox"/> Professional verified soils <input type="checkbox"/> Graded after settling
1.2	1.2.1	Newly constructed foundations, drain tile or CFDs is installed to discharge outside. Exception: <input type="checkbox"/> Professional verified Group I Soils
1.2	1.2.2	Foundation walls/slabs verified to be free from moisture or otherwise mitigated. Sump cover is mechanically attached and drain discharges ≥ 5 ft. from foundation. Exception: <input type="checkbox"/> Discharge professionally designed or verified Group I Soils
1.3	1.3.1	In lowest area of basement, install floor drain with trap seal or moisture monitoring system audible alarm.
1.4	1.4.1	Under newly installed slabs in Moist (A) Zones, aggregate OR sand with geotextile matting is used. Exception: <input type="checkbox"/> Slab-on-grade <input type="checkbox"/> Professional verified Group I Soils
1.4	1.4.2	Under newly installed slabs in Moist (A) Zones, Class I vapor retarder in contact with slab abutment.
1.4	1.4.3	Crawlspaces without slabs in Moist (A) Zones, Class I vapor retarder installed with penetrations/seams/edges overlapped and sealed.
1.4	1.4.4	Existing slabs in Moist (A) Zones, where Items 1.4.1 and 1.4.2 cannot be verified, a continuous Class I or Class II vapor retarder installed on top of slab. For occupiable spaces, vapor retarder durable floor surface or covered by one.
1.5	1.5.1	Newly installed below-grade concrete and/or masonry walls damp-proofed.
1.5	1.5.2	Newly installed below-grade, wood framed walls waterproofed.
1.5	1.5.3	Existing below-grade walls verified for no active moisture intrusion.
1.6	1.6.1	Crawlspaces and basements not vented, and perimeter walls sealed.
1.6	1.6.2	In Moist (A) & Marine (C) Zones active dehumidification in basements or crawlspaces by HAC supplemental system.
1.7	1.7.1	Continuous water-resistant barrier installed behind cladding and a bond-break drainage plan structural masonry assemblies.
1.7	1.7.2	Flashing/drainage system at all horizontal interruptions and bottom of exterior walls.
1.7	1.7.3	Weep holes for masonry veneer and/or weep screed for stucco cladding.
1.8	1.8.1	Newly installed windows and doors fully flashed.
1.8	1.8.2	Windows and doors fully close/latch; no visible moisture intrusion.
1.8	1.8.3	Window and door assemblies free of rot, decay, or water staining.
1.9	1.9.1	Gutter system discharges ≥ 5 ft from foundation, into underground catchment, or sewer/rain management system. Exception: <input type="checkbox"/> Slab-on-grade <input type="checkbox"/> Dry (B) Climates <input type="checkbox"/> Professional verified soils <input type="checkbox"/> Rock bed <input type="checkbox"/> Rainwater harvesting systems <input type="checkbox"/> Continuous rubber membrane
1.9	1.9.2	If utilizing Item 1.9.1 exception, extra protection for splash damage included.
1.9	1.9.3	Gutters and downspouts firmly secured and clear of debris.
1.10	1.10.1	Newly installed roof-to-wall intersections and roof penetrations fully flashed.
1.10	1.10.2	Newly installed roofing includes kickout flashing installed at low end of roof-to-wall intersect roof deck flashing integrated with drainage plane.
1.11	1.11.1	Newly installed roofing includes self-sealing bituminous membrane at valleys and roof penetrations. Exception: <input type="checkbox"/> Dry (B) Climates <input type="checkbox"/> 2021 IRC Section R905.2.2 or R905.13
1.11	1.11.2	Newly installed low sloped or flat roofs are sloped ≥ ¼" per ft. to drains or scuppers and drain insulated through roof assembly; roof assembly air control layers fully connected to wall air layers and water control layers overlap.
1.12	1.12.1	Newly installed roofing, CZ 4 and up, include ice flashing over sheathing at eaves and extend of roof line ≥ 2 ft. up.
1.12	1.12.2	Existing vented attics installed to minimum R-49.
1.12	1.12.3	Between existing vented attics and living space, gaps and penetrations are sealed where applicable.
1.13	1.13.1	No active leaks or water intrusion in attics and roof assemblies.
1.14	1.14.1	Moisture-resistant backing material behind tub and shower enclosures with tile or panel assembly.
1.15	1.15.1	Drain pan connected to a drain for condensate-producing HVAC equipment and secondary drain meets 2021 IMC 307.2.3.

Indoor airPLUS Certification Specifications, Version 2 DRAFT (September 2022)

1.15.2	For tank type hot water heater/storage where leakage could cause damage, include OR detection system with shutoff.
1.15.3	Non-vented clothes dryers plumbed to a drain.
1.16.1	Exposed water pipes free from condensation or insulated.
1.16.2	Supply water pipes in exterior building cavities insulated with ≥ R4 pipe wrap. Exception: <input type="checkbox"/> CZ 1-3 in Dry (B) Zone <input type="checkbox"/> Cavity insulation qualifies as air barrier
1.17	1.17.1 Water-resistant flooring installed where moisture or splash damage could occur.
1.18	1.18.1 No Class I vapor retarders on interior side of vapor permeable insulation in below-grade exterior exterior walls.
1.18	1.18.2 In Warm Humid countries, no Class I vapor retarders on the interior side of vapor permeable insulation in above-grade exterior walls.
1.19	1.19.1.1 Building materials with visible signs of water damage or mold are not installed
1.19	1.19.1.2 Framing members and insulation products having high moisture content are not installed
1.19	1.19.1.3 Interior surfaces verified to be mold and moisture free.
1.19	1.19.2 Exterior wall surfaces verified to be free from degradation or potential moisture intrusion

Section 2 – Radon Testing

2.1.1	Upon construction/renovation completion, radon levels tested: <input type="checkbox"/> Short-term passive sampler <input type="checkbox"/> CRM Initial tested level (record max result for multifamily) _____ pCi/L Exception: no ground contact locations
2.1.2	Where initial short-term levels tested ≥ 4 pCi/L limit: <input type="checkbox"/> Long-term test ≥ 4 pCi/L <input type="checkbox"/> Active system installed Retested Level (record max result for multifamily) _____ pCi/L
2.1.3	Test results documented. If installed, system manual and maintenance guides provided. If radon mitigation is installed, system is: <input type="checkbox"/> Active <input type="checkbox"/> Passive <input type="checkbox"/> N/A (not installed) Exception: no ground contact locations

Section 3 – Pests

3.1	3.1.1 Exterior penetrations and joints sealed.
3.1	3.1.2 No signs of active termite infestation or structural damage.
3.1	3.1.3 Corrosion-proof pest screens installed at openings that cannot be fully sealed.
3.2	3.2.1 Corrosion-proof screen, louver, or grille for all ventilation termination fittings.
3.2	3.2.2 Dryer ducts include weather-resistant termination or louver.
3.3	3.3.1 Multifamily buildings include a plan or contract for integrated pest management.
3.3	3.3.2 Multifamily buildings include resident guidance on housekeeping, refuse removal and problems in owner/tenant manual.
3.4	3.4.1 No evidence of pest-contaminated materials within building envelope.

Section 4 – HVAC Systems

4.1.1.1	Newly installed dwelling-unit HAC systems meet design/documentation requirements
4.1.1.2	Newly installed common space HAC systems meet design/documentation requirements
4.1.2.1	Newly installed HAC documentation (i.e., start-up, testing) provided to Verify
4.1.2.2	Existing HAC systems assessed/serviced in accordance with ANSI/ACCA Standards
4.2.1	Humidity monitoring provided in the main living area of the dwelling unit is: <input type="checkbox"/> Integrated with HAC controls <input type="checkbox"/> A standalone hygrometer Exception: <input type="checkbox"/> RH monitoring by building management platform
4.2.2	Moist (A) CZ 1-3: Equipment installed to maintain RH at or below 60% is: <input type="checkbox"/> Ventilating or whole-home dehumidifier <input type="checkbox"/> RH sensor is integrated w/ cooling Exception for CZ 4a: <input type="checkbox"/> Humidity data recording, modeling & dehumidification read
4.3.1	Newly installed dwelling-unit duct systems sized according to: <input type="checkbox"/> ACCA Manual D <input type="checkbox"/> Other (applicable to MF only)
4.3.2	Newly installed common space duct systems sized according to ASHRAE Handbook
4.3.3	No building cavities used as air supplies or returns. Exception: <input type="checkbox"/> Returns where the HAC filter is installed at the air handler
4.3.4	Interior of ducts inspected to be free from debris and contaminants.
4.3.5	Ducts inspected to be dry, with no evidence of mold and without tears/disconnections.
4.3.6	Newly installed dwelling-unit ducts sealed at joints, seams, penetrations with compatible sealant.
4.3.7	Newly installed ducts serving multiple units or common areas sealed at joints, seams, penetrations with compatible sealant.
4.3.8	Dwelling unit ducts tested to meet total duct leakage requirements.
4.3.9	Dwelling unit ducts tested to meet leakage to outdoors requirements. Exceptions: <input type="checkbox"/> DUTO testing not required where all ducts are within pressure boundary <input type="checkbox"/> Total duct leakage ≤ 4 CFM25 per 100 sf of CFA or ≤ 40 CFM25
4.4	4.4.1 Air-handling equipment and/or ductwork is not located in garages. Exception for MF: <input type="checkbox"/> Systems providing independent garage heating and/or ventilation
4.5	4.5.1 Bedrooms with ducted HAC systems are pressure-balanced. <input type="checkbox"/> Moist (A) climate zones 1-3 verified ≥ 3 Pa <input type="checkbox"/> All other climate zones ≥ 5 Pa
	Dwelling Unit Mechanical Ventilation
4.6.1	Mechanical ventilation is installed for each dwelling unit.

Indoor airPLUS Certification Specifications, Version 2 DRAFT (September 2022)

4.6.2	Ventilation on/off control is labeled. For one- and two-family buildings and townhouses, on/off control is also readily accessible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6.3	Air inlets verified to pull air directly from outdoors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6.4	Outdoor air inlets ≥ 2 ft. above grade or roof deck; ≥ 3 ft. from dryer exhausts and contamination sources exiting the roof; ≥ 10 ft. from all other contamination source exits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6.5	Ventilation is measured in accordance with ANSI/RESNET/ICC Std. 300 and meets Section 4 of A 2019.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

September 2022

4.6.6.1	For supply or balanced ventilation, outdoor air passes through a ≥ MERV 10 filter prior to distribution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6.6.2	Outdoor air filters are readily-accessible for maintenance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6.7	Ventilation fans rated ≤ 3 zones if intermittent and ≤ 1 zone if continuous. Exception: <input type="checkbox"/> HAC air handler <input type="checkbox"/> Remote-mounted fan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7.1	Bathroom ventilation exhausts directly to outdoors meeting ASHRAE 62.2-2019 Section 5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7.2	Bath fans rated ≤ 3 zones if intermittent and ≤ 1 zone if continuous. Exception: <input type="checkbox"/> Remote-mounted fan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7.3	Bath fans integrated with dwelling-unit ventilation have on/off controls labeled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7.4	Demand-controlled bath fans include timer or occupancy/humidity sensor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8.1	Demand-controlled kitchen exhaust is located at the cooktop, vented to outdoors, and Verifier measured to meet ASHRAE 62.2-2019 Section 5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8.2	If continuous exhaust is present in the kitchen, grille meets cooktop separation distance and has 3 or washable filter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8.3	Continuous kitchen exhaust rated ≤ 1 zone at airflow ≥ 25 cfm. Exception: <input type="checkbox"/> Fans exceeding 400 cfm or remote-mounted fan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9.1	Common space ventilation air provided directly from outdoors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9.2	Common space ventilation and exhaust measured to meet or exceed ASHRAE 62.1-2019.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9.3.1	Common space ventilation outdoor air passes through MERV 11 or higher filter prior to distribution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9.3.2	Outdoor air intake, filter, fan unit are accessible for maintenance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.10.1	Central vacuum systems exhaust to outdoors and ≥ 10 ft. from ventilation air inlets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.10.2	Washing machine exhaust to outdoors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11.1	Filters rated MERV 11 or higher installed prior to final inspection. Exception for existing HAC systems in dwelling units: <input type="checkbox"/> MERV 8 plus portable air cleaner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11.2	HAC return air filters are accessible for cleaning and/or replacement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11.3	HAC filter access panels are gasketed and/or sealed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11.4	All return air and mechanically supplied outdoor air pass through the filter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11.5	Electronic air cleaners do not exceed ozone emission limits of 0.005 ppm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.11.6	Ozone generators or devices intentionally using ozone not installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.12	4.12.1 No requirement. See Advisories for supplemental air cleaning for non-ducted HAC systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.13	4.13.1 Where gas-phase air cleaning devices are installed, intentional use of ozone is prohibited.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.14	4.14.1 Where provided, UVGI or other electronic air cleaners (e.g., plasma generators, PCOs, etc.) must exceed ozone emissions of 0.005ppm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 5 – Pollutant Control

5.1.1	Combustion furnaces, boilers, water heaters mechanically drafted or direct-vented. Exception: <input type="checkbox"/> Naturally drafted appliances meet max depressurization and exhaust reqs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1.2	Fireplaces mechanically drafted or direct-vented.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1.2.1	Liquid or gas-burning fireplaces have tempered glass front or gasketed door.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1.3	No unvented combustion appliances other than cooktops/ovens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1.4	Existing chimneys and flues pass professional Level II inspection per NFPA 211.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1.5	Solid fuel-burning appliances meet the following requirements (check where applicable): <input type="checkbox"/> site-built masonry fireplaces sealed to prevent use or retrofitted <input type="checkbox"/> factory-built wood burning fireplaces have dedicated outdoor air & meet UL 127 <input type="checkbox"/> wood stoves/inserts meet UL 1482 Section 3.8 and EPA Performance Standards <input type="checkbox"/> pellet stoves meet ASTM E1509 and EPA Performance Standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1.6	PM _{2.5} and CO ₂ monitoring device located in the same room as any solid fuel burning appliance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2.1	CO alarms installed in all dwelling units and located as follows: 5.2.1.1 Where fuel burning appliances permanently installed; and 5.2.1.2 On every habitable level; and 5.2.1.3 Within 21' of a sleeping room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2.2	CO alarms and detectors listed and labeled in accordance with required standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2.3	Where installed in new construction, CO alarms are hardwired with battery backup.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2.4	CO alarm sounds when the test button is pushed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2.5	CO alarms are protected from dust, paint, and contaminants during construction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3	5.3.1 Occupant provided with EPA's brochure or resource guide on secondhand smoke.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indoor airPLUS Certification Specifications, Version 2 DRAFT (September 2022)

4.4.1	Air-handling equipment and/or ductwork is not located in garages. Exception for MF: <input type="checkbox"/> Systems providing independent garage heating and/or ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.5.1	Bedrooms with ducted HAC systems are pressure-balanced. <input type="checkbox"/> Moist (A) climate zones 1-3 verified ≥ 3 Pa <input type="checkbox"/> All other climate zones ≥ 5 Pa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dwelling Unit Mechanical Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6.1	Mechanical ventilation is installed for each dwelling unit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indoor airPLUS Certification Specifications, Version 2 DRAFT (September 2022)

5.3.2	For multifamily buildings, smoking/vaping prohibition is posted in common areas and communicated in lease agreement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3.3	For multifamily buildings, where provided, designated outdoor smoking/vaping areas located a minimum of 25 ft from entries, outdoor air intakes, and operable windows.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4	5.4.1 Airtightness testing in accordance with ANSI/RESNET/ICC Std. 380 is met: <input type="checkbox"/> Detached homes > 1,000 ft ² , ≤ 7 ACH50 <input type="checkbox"/> All other homes/units ≤ 0.30 CFM50/ft ² end.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.5	5.5.1 Walls/ceilings between garages and occupied spaces are air-sealed and doors are gasketed/weather-stripped.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.5	5.5.2 Detached one- and two-family homes and townhouses with attached garages: <input type="checkbox"/> Pressure test conducted to verify effectiveness of garage-to-house air barrier; OR <input type="checkbox"/> Exhaust fan installed in garage and verifier-measured airflow ≥ 100 cfm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.6	5.6.1 No combustible liquid or gas fuels stored within the building's thermal/pressure boundary. 5.6.2 Supplemental portable combustion equipment not operated or stored within the building's thermal/pressure boundary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Section 6 – Building Materials (newly installed)				
6.1	6.1.1 Paints, finishes, and coatings meet VOC emission limits in CDPH Standard Method V1.2-2017.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.1	6.1.2 Paints, finishes, and coatings meet SCAQMD Rule 1113 OR CARB VOC content limits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2	6.2.1 Carpet and carpet cushions meet VOC emission limits in CDPH Standard Method V1.2-2017.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3	6.3.1 Adhesives and sealants meet VOC emission limits in CDPH Standard Method V1.2-2017.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3	6.3.2 Adhesives and sealants meet SCAQMD Rule 1168 VOC content limits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.4	6.4.1 Hard surface flooring and underlayment meet VOC emission limits in CDPH Standard Method V1.2-2017.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.5	6.5.1 Interior gypsum board and joint compound meet VOC emission limits in CDPH Standard Method V1.2-2017.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.6	6.6.1 Insulation materials meet VOC emission limits in CDPH Standard Method V1.2-2017.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.7	6.7.1 Gut rehabs: Visual inspection for Asbestos Containing Material (ACM) documented: <input type="checkbox"/> ACM not found <input type="checkbox"/> ACM inspected and removed/encapsulated by qualified Asbestos Inspector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.8	6.8.1 Buildings built prior to 1978 assessed for lead-based paint. 6.8.2 If lead-based paint identified, risk assessment conducted by certified professional and mitigated as required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 7 – Operation and Maintenance

7.1	7.1.1 Instruction manuals provided for all specified appliances and systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.1	7.1.2 Owner-occupied units: OBM recommendations and filter change schedule provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indoor airPLUS Certification Specifications, Version 2 DRAFT (September 2022)

WHERE WE'RE GOING

February 2023



Indoor airPLUS Version 2 Certification Specifications Verification Checklist



Home/Building Address: _____		City: _____	State: _____	Zip Code: _____	
Project Name (Multifamily only): _____			Number of Units: _____		
<input type="checkbox"/> New Construction	Climate Zone (0-7): _____		Moisture Zone (A-C): _____	Radon Zone (1-3): _____	
<input type="checkbox"/> Gut Rehabilitation	Termite Probability: <input type="checkbox"/> Very Heavy <input type="checkbox"/> Moderate to Heavy <input type="checkbox"/> N/A				
Requirements (Refer to full Indoor airPLUS Certification Specifications for details)			Must Correct	Verified	N/A
Section 1 – Moisture Control					
<i>Water Managed Site and Foundation</i>					
1.1	1.1.1	Impermeable surfaces sloped ≥ 0.25 in. per ft. away from the building.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.1.2	Exterior drains are free of debris.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.1.3	<u>Newly installed</u> backfill tamped and final grade sloped ≥ 0.5 in. per ft. Exception: <input type="checkbox"/> Swales/drains <input type="checkbox"/> Professional verified soils <input type="checkbox"/> Graded after settling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	1.2.1	<u>Newly constructed</u> foundations, drain tile or CFDS is installed to discharge outside. Exceptions: <input type="checkbox"/> Professional verified Group I Soils <input type="checkbox"/> Gut rehab moisture inspection	<input type="checkbox"/>	<input type="checkbox"/>	-
	1.2.2	Sump cover is mechanically attached and drain discharges ≥ 5 ft. from foundation. Exception: <input type="checkbox"/> Discharge professionally designed or verified Group I Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	1.3.1	In lowest area of basement, install floor drain with trap seal or moisture monitoring system with audible alarm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4	1.4.1	Under <u>newly installed</u> slabs in <u>Moist (A) Zones</u> , aggregate OR sand with geotextile matting is installed. Exceptions: <input type="checkbox"/> Slab-on-grade <input type="checkbox"/> Professional verified Group I Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.4.2	Under <u>newly installed</u> slabs in <u>Moist (A) Zones</u> , Class I vapor retarder in contact with slab above.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.4.3	Crawlspaces without slabs in <u>Moist (A) Zones</u> , Class I vapor retarder installed with penetrations/seams/edges overlapped and sealed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



WHERE WE'RE GOING

February 2023

February 2023



Guidance for Completing the Indoor airPLUS Verification Checklist

1. Only homes or apartments verified to comply with these specifications can earn the Indoor airPLUS Certified label. See the Indoor airPLUS National Program Requirements for full descriptions of the certification process; program eligibility; and partnership, training, and credentialing requirements. Indoor airPLUS requirements are not intended to supersede where local jurisdictions may have more stringent requirements (e.g., duct leakage allowances). Verification is not complete until this checklist is completed in full and signed.
2. Check one box per line. Check "N/A" for specifications that do not apply for specific conditions (e.g., climate, building type) according to the exceptions described in the Indoor airPLUS requirements. **Items may be verified visually by the Verifier on-site during construction/rehabilitation, by reviewing photographs taken during construction/rehabilitation, by reviewing material or equipment documentation, or through equivalent methods as appropriate.** Requirements that refer to existing building elements only apply to features that exist as part of a gut rehabilitation.
3. The Verifier who conducted the verification, or a responsible party from the Verifier's company, must sign the completed checklist. If a quality assurance review indicates that items have not been successfully completed, the Verifier will be responsible for facilitating corrective action.

State: Zip Code:

Number of Units:

Phone (1-3):

	Must Correct	Verified	N/A
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	-
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Exception: Discharge professionally designed or verified Group I Soils

1.3.1 In lowest area of basement, install floor drain with trap seal or moisture monitoring system with audible alarm.

1.4.1 Under newly installed slabs in Moist (A) Zones, aggregate **OR** sand with geotextile matting is installed.
Exceptions: Slab-on-grade Professional verified Group I Soils

1.4.2 Under newly installed slabs in Moist (A) Zones, Class I vapor retarder in contact with slab above.

1.4.3 Crawlspace without slabs in Moist (A) Zones, Class I vapor retarder installed with penetrations/seams/edges overlapped and sealed.



WHERE WE MAY NOT BE GOING

- Expiration of Certification
- Optional Recertification After Expiration
- Sampling in Single Family and Townhomes

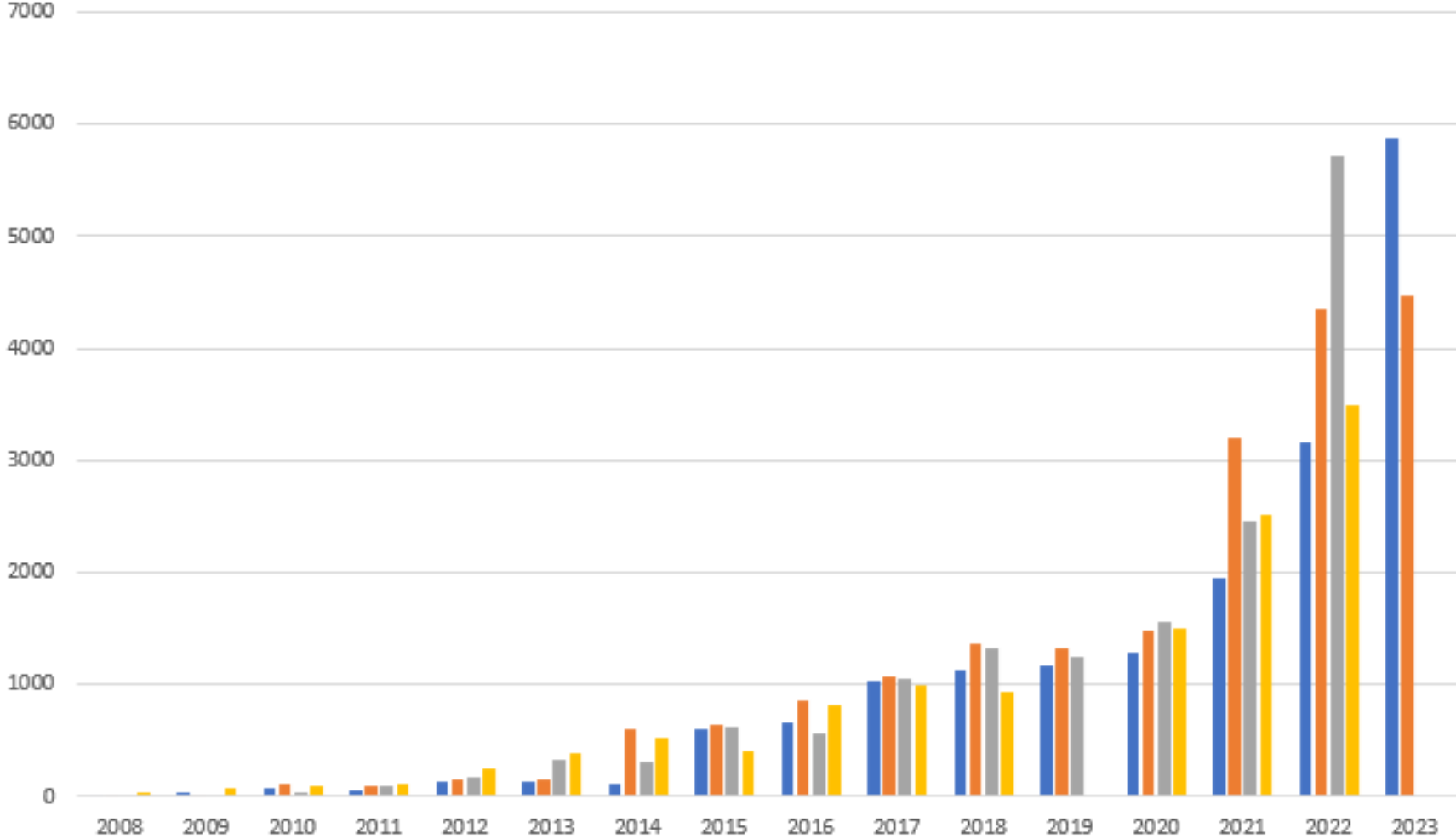
Questions we're still considering:

1. How to improve long-term durability?
2. How to address occupant usage and maintenance?
3. How to promote sustained IAQ outcomes?



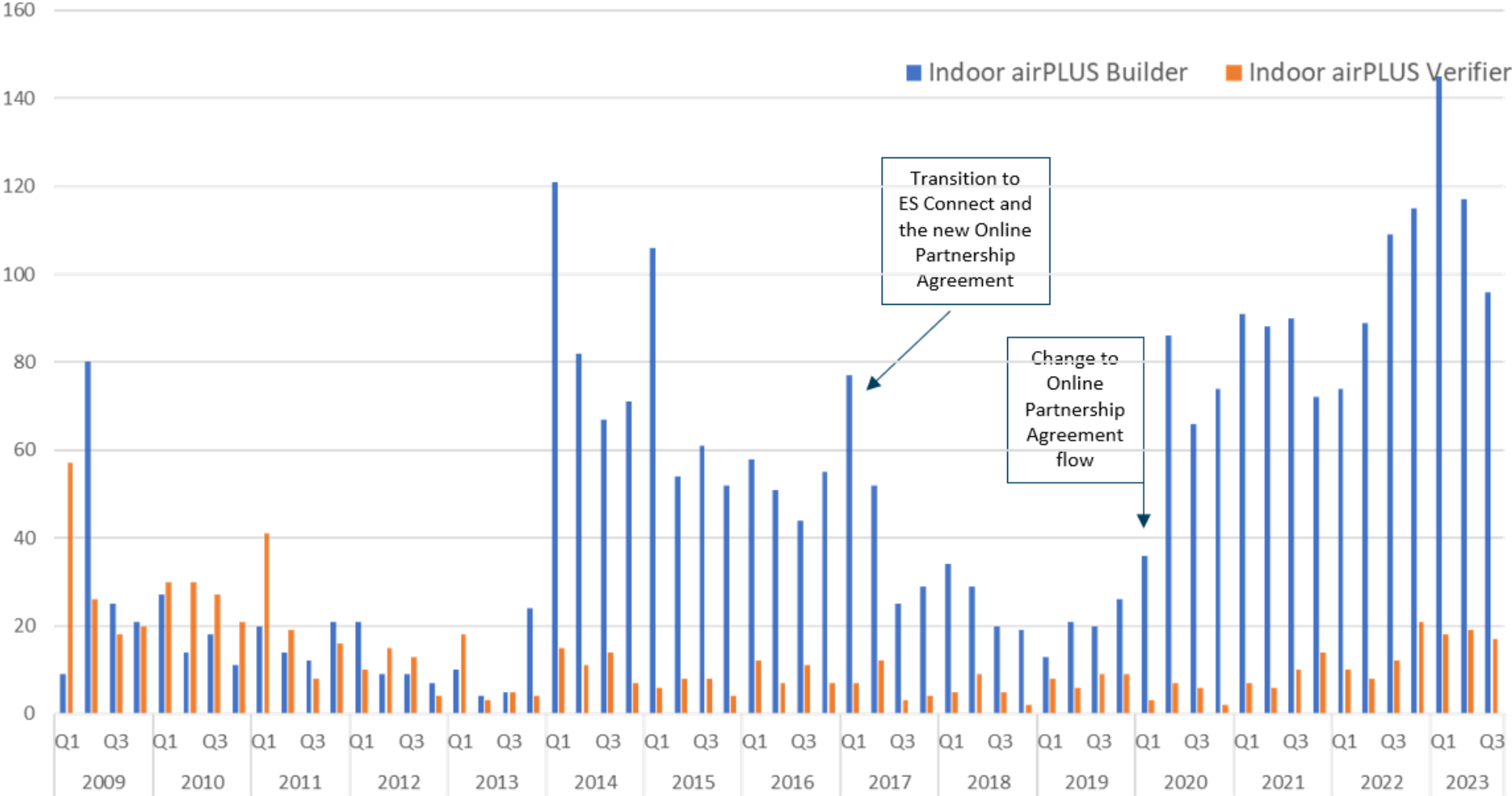
SUCCESS THUS FAR

Indoor airPLUS
Labeled Homes
Reported to EPA



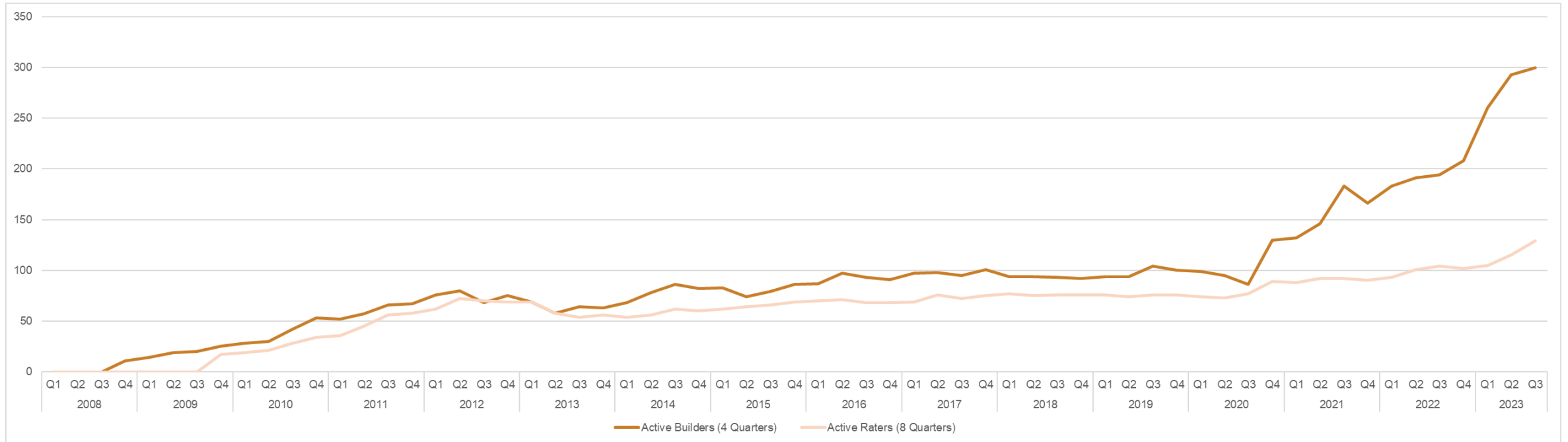
SUCCESS THUS FAR

New IAP Partners by Quarter



SUCCESS THUS FAR

Actively Participating IAP Partners



***Actively Participating Indoor airPLUS Partners refers to:**

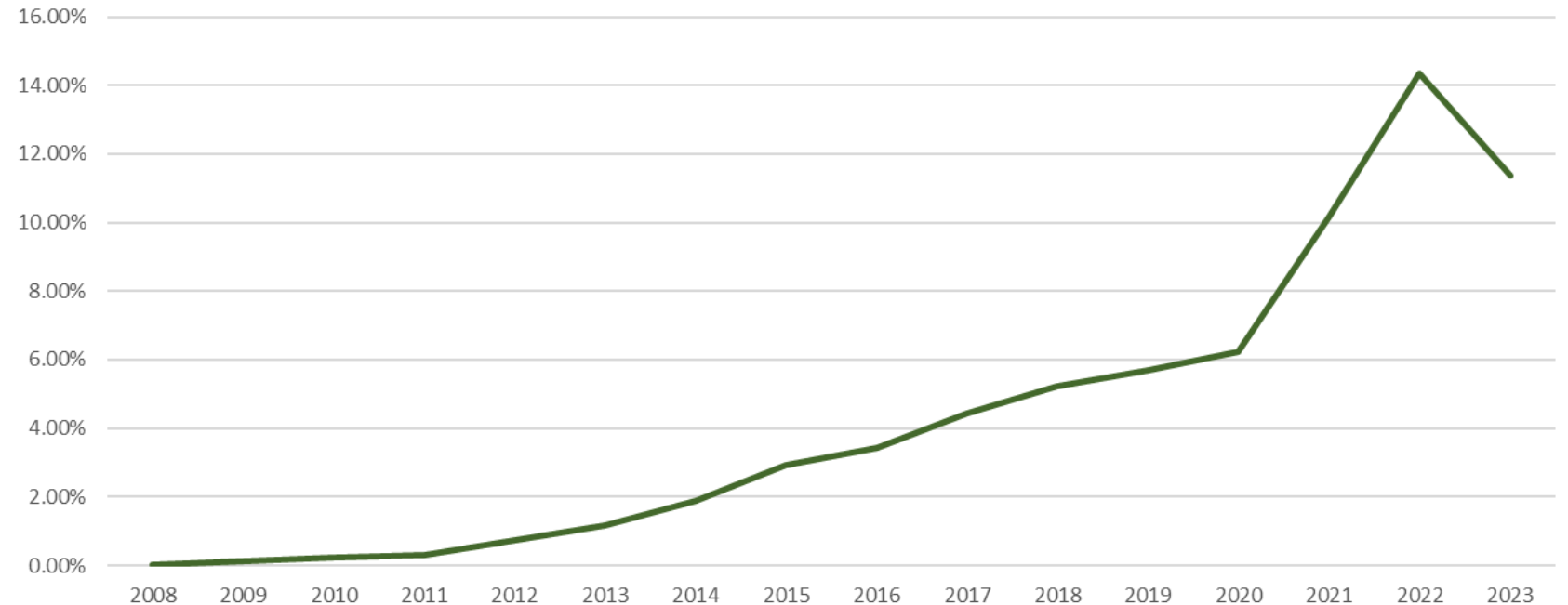
- Indoor airPLUS Builder Partners that have completed at least one or more Indoor airPLUS labeled homes in the past 4 quarters (1 year); or
- Indoor airPLUS Verifier Partners that have verified at least one or more Indoor airPLUS labeled homes in the past 8 quarters (2 years).



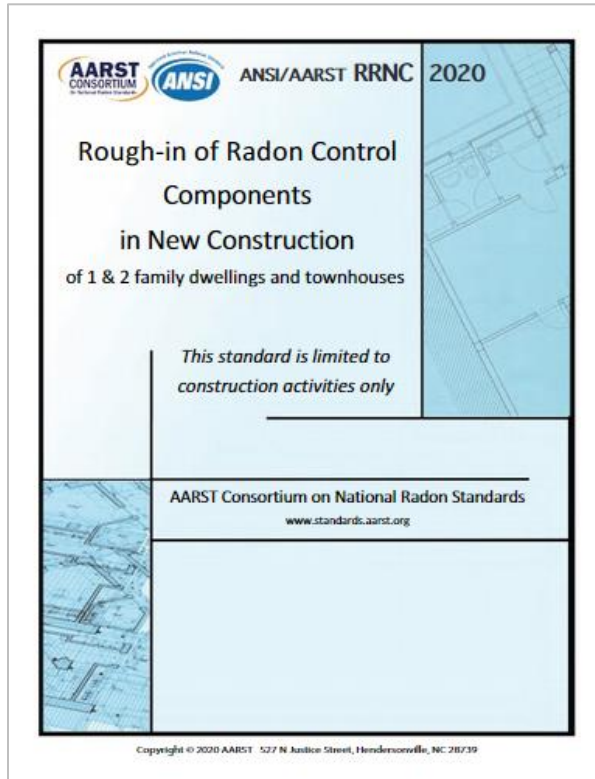
SUCCESS THUS FAR

Homes, Excluding Manufactured Homes			
Year	ENERGY STAR	Indoor airPLUS	ESCH Homes Penetration
2008	109,849	32	0.03%
2009	106,736	123	0.12%
2010	128,279	318	0.25%
2011	122,736	355	0.29%
2012	96,674	694	0.72%
2013	85,271	995	1.17%
2014	81,927	1,533	1.87%
2015	77,524	2,264	2.92%
2016	84,021	2,879	3.43%
2017	93,663	4,151	4.43%
2018	90,764	4,727	5.21%
2019	85,736	4,882	5.69%
2020	93,853	5,838	6.22%
2021	99,288	10,113	10.19%
2022	116,423	16,722	14.36%
2023	91,342	10,398	11.38%
Grand Total	1,564,086	66,024	4.22%

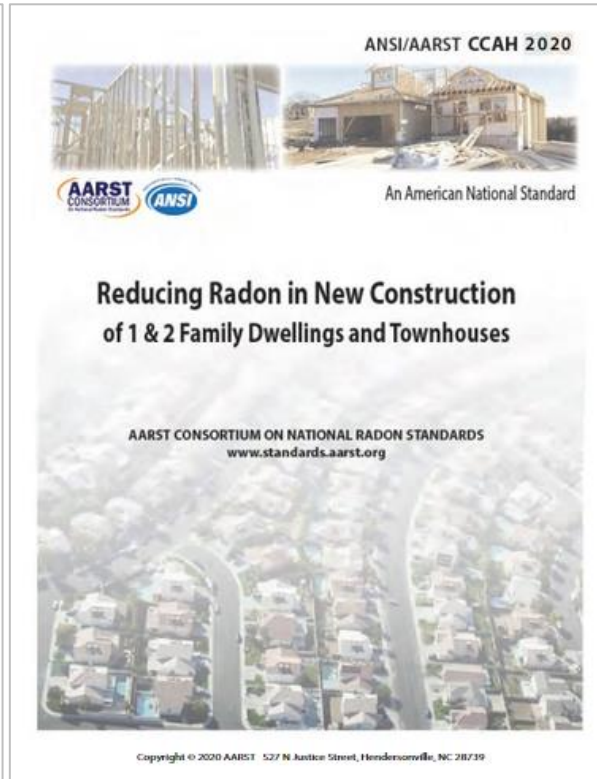
Indoor airPLUS Qualified Homes Penetration into ENERGY STAR Certified Homes, Excluding Manufactured Homes



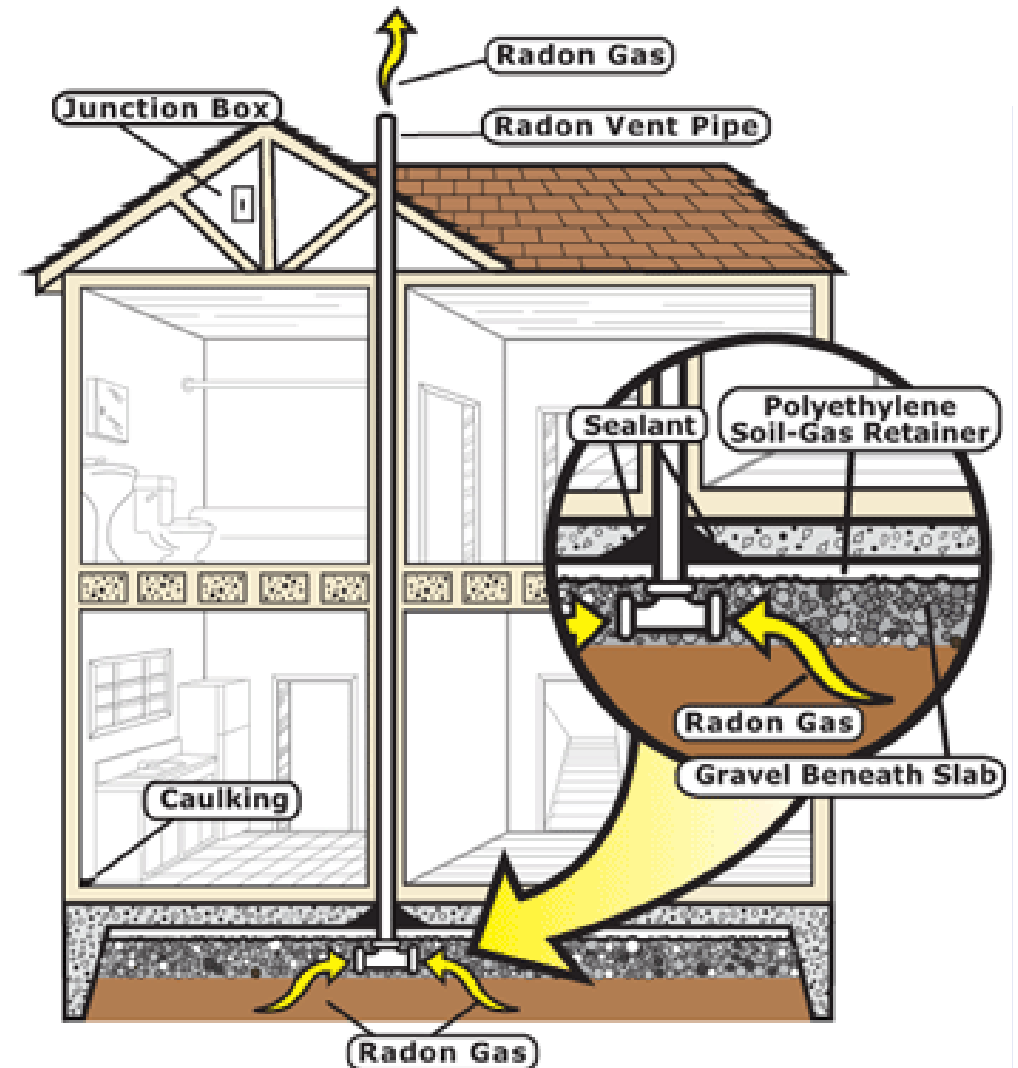
HOW TO ADDRESS RADON?



“RRNC” - Passive Systems



“CAH” - Active Systems



Available for web view - <https://standards.aarst.org/>

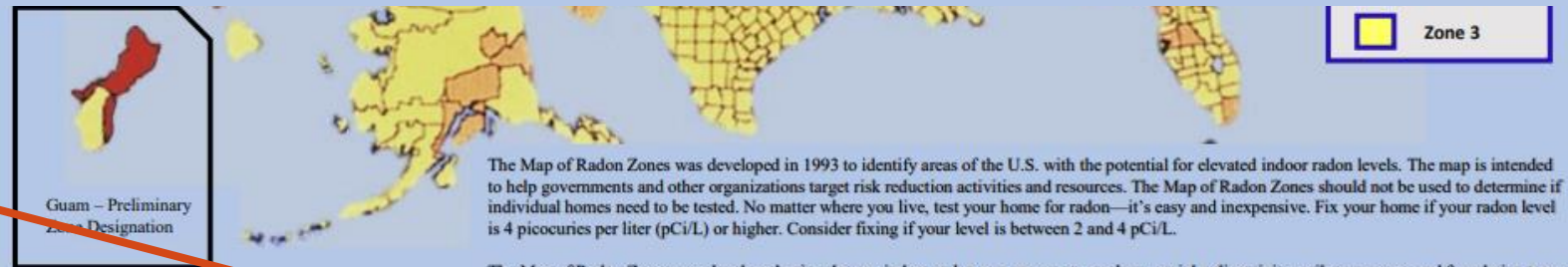


EPA Map of Radon Zones



The Map of Radon Zones was developed in 1993 to identify areas of the U.S. with the potential for elevated indoor radon levels. The map is intended to help governments and other organizations target risk reduction activities and resources. The Map of Radon Zones should not be used to determine if individual homes need to be tested. No matter where you live, test your home for radon—it's easy and inexpensive. Fix your home if your radon level is 4 picocuries per liter (pCi/L) or higher. Consider fixing if your level is between 2 and 4 pCi/L.

The Map of Radon Zones was developed using data on indoor radon measurements, geology, aerial radioactivity, soil parameters, and foundation types. EPA recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential for a specific area.



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The Map of Radon Zones was developed using data on indoor radon measurements, geology, aerial radioactivity, soil parameters, and foundation types. EPA recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential for a specific area.



HOW TO ADDRESS RADON?

IAP Version 1, Rev. 4:

2.1 Radon-Resistant Construction

NOTE: Completion of the [ENERGY STAR requirements](#) satisfies the following Indoor airPLUS requirement:

- ✓ Air seal all sump covers (Builder-W 1.7).

Additional Indoor airPLUS Requirements:

- Construct homes in EPA Radon Zone 1 (see www.epa.gov/radon/zonemap.html) with radon-resistant features (a passive system at minimum). EPA recommends that radon-resistant features are installed according to ANSI/AARST CCAH for 1-2 family dwellings and townhouses (max. total foundation area of 2500 sq. ft.) OR ANSI/AARST CC-1000 for larger foundations.

Visually verify the following requirements:

Visually verify the following requirements:

- Capillary break installed according to Specification 1.2, irrespective of climate zone.

Exception: In dry climates as defined by 2015 IECC Figure 301.1, a “pipe loop” in a trench of clean aggregate along the entire inside perimeter of the foundation (installed according to ANSI/AARST CCAH 403.1.1) can be used in lieu of a uniform layer of aggregate under the entire slab.

- A 3 or 4 in. diameter gas-tight vertical vent pipe, clearly labeled as a component of a radon reduction system. The vent pipe shall be connected to an open T-fitting in the aggregate layer (or connected to geotextile drainage matting according to the manufacturer’s instructions) beneath the polyethylene sheeting, extending up through the conditioned spaces and terminating a minimum of 12 in. above the roof opening. At least 10 ft. of horizontal perforated drain tile is to be attached to the T-fitting beneath the polyethylene sheeting placed over earthen crawlspaces and below concrete slabs. Note: suction points are not permitted on sump lids.



HOW TO ADDRESS RADON?

1. (Prescriptive): Require a passive radon system designed to industry consensus standards, executed with scrupulously sealed seams and penetrations, slab edges and control joints caulked, check valves on foundation drains, and labels applied to radon piping--all of which are 3rd-party inspected in the field and/or photo-documented by the builder and reviewed by the verifier . . . OR
2. (Performance): Require a radon test upon completion of construction, verified by a laboratory or a certified radon professional, documenting that radon levels in the home did not exceed EPA's Action Level . . . OR
3. Other?



SEPARATION DISTANCES FOR OUTSIDE AIR

ASHRAE 62.2 – 2022:

6.6 Air Inlets. Air inlets that are part of the ventilation design shall be located a minimum of 10 ft (3 m) from known sources of contamination such as a stack, vent, exhaust hood, or vehicle exhaust. The intake shall be placed so that entering air is not obstructed by snow, plantings, or other material. Forced air inlets shall be provided with rodent/insect screens (mesh not larger than 0.5 in. [13 mm]).

Exceptions to 6.6:

1. Ventilation openings in the wall may be as close as a stretched-string distance of 3 ft (1 m) from sources of contamination exiting through the roof or dryer exhausts.
2. No minimum separation distance shall be required between windows and local exhaust outlets in kitchens and bathrooms.
3. Vent terminations covered by and meeting the requirements of the *National Fuel Gas Code* (NFPA 54/ANSI Z223.1) or equivalent.
4. Where a combined exhaust/intake termination is used to separate intake air from exhaust air originating in a living space other than kitchens, no minimum separation distance between these two openings is required. For these combined terminations, the exhaust air concentration within the intake airflow shall not exceed 10% as established by the manufacturer.



SEPARATION DISTANCES FOR OUTSIDE AIR

Ventilation

IAP V1:

4.5 Provide mechanical whole-house ventilation meeting all ASHRAE 62.2 requirements. The following requirements shall be visually verified:

- Whole house mechanical ventilation system & controls shall be installed to deliver prescribed outdoor air ventilation rate (ASHRAE 62.2 section 4), including ventilation restrictions in ASHRAE 62.2 section 4.5 (e.g., no greater than 7.5 cfm/100 s.f. for "Warm-Humid" climates as defined by IECC Figure 301.1); AND
- Transfer air (i.e., air from adjacent dwelling units or other spaces such as garages, crawlspaces, or attics) shall not be used to meet ventilation requirements (ASHRAE 62.2 section 6.1); AND
- Air inlets shall be located a minimum of 10 ft. from contaminant sources (ASHRAE 62.2 section 6.8); AND
- Airflow shall be tested to meet rated fan airflow (at 0.25 in. w.c.) OR verify duct(s) sized per requirements of ASHRAE 62.2 Table 7.1 and manufacturer's design criteria (ASHRAE 62.2 section 7.3).

IAP V1, Rev 4:

4.5 Mechanical Whole-Dwelling Ventilation

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

- ✓ Provide mechanical whole-dwelling ventilation meeting all requirements of ASHRAE 62.2-2010 or later (HVAC-D 2).
- ✓ Test airflows to ensure they meet ASHRAE 62.2-2010 or later minimum requirements (Rater-F 7.1).
- ✓ Visually verify the following requirements:
 - Transfer air is not used to meet ventilation requirements (Rater-F 7.7.1).
 - Outdoor air inlets are located a minimum of 10 ft. from contaminant sources (Rater-F 7.7.2).



CONTACT

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www.epa.gov/indoorairplus

