Differentiate Your Company with EPA's Indoor airPLUS Label for New Homes Webinar Transcript

January 14, 2014; 1:00-1:45 EST

1 - Thanks for joining today's webinar!

Ben Bunker: Alright, everyone, thank you for your patience. We're going to get started now. Hello and welcome to today's "Differentiate Your Company with Indoor airPLUS Label for New Homes" webinar. I'm Benjamin Bunker with ICF International here on behalf of EPA's Indoor airPLUS program. I'm joined today by Bob Axelrad, National Program Manager for the Indoor airPLUS Program, and my colleague, Nick Hurst, who supports the Indoor airPLUS Program. Bob and Nick are going to be the presenters for today's webinar. I do want to run through a couple of logistics before we get started. We're going to be recording today's webinar presentation. You can request a recorded copy of the webinar by emailing the Indoor airPLUS inbox at Indoor_airPLUS@epa.gov but the slides themselves will be emailed to all attendees. The Q&A tab is on the right side of your screen. Also if you're having logistical issues, you can also let us know through that window, we'll try and respond. With that, I'm going to hand it off to Bob to get us started.

2 - Differentiate Your Company with EPA's Indoor airPLUS Label for New Homes

Bob Axelrad: Thanks, Ben. This is Bob Axelrad. I'm with the Indoor Environments Division at EPA. We're a sister division to the Climate Protection Division that runs the ENERGY STAR Certified Homes Program. We've been doing quite a bit of work with the ENERGY STAR program over the last year and a half. And for those of you who have some familiarity with Indoor airPLUS, you're going to see some significant changes to the program since it was originally launched in 2009. Our goal today is really to show builders and Raters how you can use Indoor airPLUS to differentiate your company. It's a label that we think you're going to find to be attractive moving forward.

3 - Contents

Bob Axelrad: Our goal today is to accomplish three things. First is to give you an overview of the basics of Indoor airPLUS and how it fits together with ENERGY STAR. Second, we're going to show you how to build and verify Indoor airPLUS homes, and Nick Hurst from ICF will cover that content. Finally, we'll show you how to become a partner and access the Indoor airPLUS resources. We'll also allow some time for Q&A and hopefully have you out of here in 45 minutes.

4 - Indoor airPLUS Basics transition slide

5 - Indoor airPLUS is an EPA label that adds health protections to your ENERGY STAR value proposition

Bob Axelrad: So the basics of Indoor airPLUS: this is a companion label to the ENERGY STAR Certified Home label. We launched it in 2009 and it is built on the foundation of ENERGY STAR which means that you must first complete the ENERGY STAR process in order to be certified ENERGY STAR before you become eligible to claim the Indoor airPLUS label. But the value of Indoor airPLUS is it really allows you to step up from ENERGY STAR and add additional health protections to your ENERGY STAR value proposition.

6 - Reduce Health Risks

Bob Axelrad: The purpose of the program is to try to reduce exposures and health risks associated with contaminants that are typically found in houses, both new and old. We've designed this program exclusively for new homes and we're trying to get at risks that many of you are familiar with. Asthma is

among the most common chronic health problems for many families and one which can be made worse by environmental triggers in homes. A number of pollutants are found in homes, including biological contaminants such as mold, which is primarily a moisture issue, combustion gases from combustion appliances, volatile organic compounds from materials and furnishings, formaldehyde, pesticides, particles, radon (the second leading cause of lung cancer), and pests. All of these are health risks that Indoor airPLUS is designed to address at the design and construction stage. Of course none of these issues are entirely solved through the construction process. Educating homeowners about how to maintain the home to protect against these contaminants is an ongoing component of this.

7 - Differentiate Your Company & Grow Your Market

Bob Axelrad: Through the ENERGY STAR value proposition you are differentiating yourself from many others in the home building market. Indoor airPLUS is in its infancy as a program compared to the ENERGY STAR Certified Homes Program; far fewer numbers than the ENERGY STAR program with smaller market penetration. So adopting Indoor airPLUS is easier than ever before and will give you an opportunity to differentiate your company.

8 - ENERGY STAR + Indoor airPLUS

Bob Axelrad: How do ENERGY STAR and Indoor airPLUS fit together? Well, most of you are familiar with the big step up that ENERGY STAR Version 3 represented. And what happened in Version 3 was that ENERGY STAR recognized the importance of making sure that if you're building a tight energy efficient home that you're also addressing the fundamental building science issues associated with moisture control, for example, and making sure that the HVAC system was performing optimally. So they adopted a number of the requirements that were already included in Indoor airPLUS. The Water Management Checklist for example, is largely taken from Indoor airPLUS and they added considerable installation and HVAC requirements that really make ENERGY STAR v3 a much more robust foundation on which to build a complete indoor air quality package. So, on balance, what's left to do in order to earn the Indoor airPLUS label is a relatively modest set of upgrades that really deal with the sources that you find in homes: radon, pests, materials, some additional combustion requirements , some additional HVAC requirements, and a few additional moisture control requirements. So between ENERGY STAR v3 and Indoor airPLUS what you're really able to offer is a much more compressive indoor air quality protection package.

9 - ENERGY STAR + Indoor airPLUS cont'd

Bob Axelrad: Indoor airPLUS and ENERGY STAR programs fit together very well. They're both systems-based programs based on the most well understood building science principles. They're all science based. Both programs are based on verification checklists. Indoor airPLUS adds just one checklist on top of the four that are required for ENERGY STAR. Both ENERGY STAR and Indoor airPLUS can be verified during the same two visits by a Home Energy Rater. Reporting to EPA follows the same schedule and is completed using the same online program. And something brand new as of last month, is existing ENERGY STAR partners are now able to join Indoor airPLUS through their existing MESA accounts. And new partners to both ENERGY STAR and Indoor airPLUS will be able to use the ENERGY STAR online partnership system to join both programs simultaneously. So this is a big improvement over the previous system and I think it'll make it easier for particularly the ENERGY STAR partners to move into Indoor airPLUS. You'll hear more about how to do that later in the presentation.

10 - Revision 1

Bob Axelrad: We did quite a bit of work over the last year and a half to upgrade Indoor airPLUS to bring it up to current standards and to basically address the overlaps that occurred when ENERGY STAR v3 and

Indoor airPLUS were both out there separately. So we worked with the ENERGY STAR program and we pulled the checklists apart and we identified those things which were already addressed by ENERGY STAR and those things which were additional requirements for Indoor airPLUS. And then we tried to actually improve the alignment of those specific things as well. So what you'll see in Revision 1 was a simplified, clearer set of specifications in addition to some additional flexibility and climate-specific exemptions. We issued that (Revision 1) last February. We continued to work on additional issues and we issued Revision 2 in November.

11 - Revision 2

Bob Axelrad: This revision really addressed some of the lingering issues that we had not fully addressed in Revision 1. This had to do with garage ventilation requirements as well as issues around aggregate or sand for capillary break in Section 1.2 of Indoor airPLUS. What Nick will explain is some of the changes to those requirements, which I think many of you will find of interest.

12 - How to use the Construction Specifications

Bob Axelrad: What you'd see if you looked at the construction specifications for Indoor airPLUS is a little different from what the first version did. We basically pulled all of the ENERGY STAR requirements into Indoor airPLUS and made clear which issues you've already fully addressed by virtue of completing the ENERGY STAR checklists. And then which additional Indoor airPLUS requirements remain. And in many cases there are either no additional Indoor airPLUS requirements or very few of those. But these are all nicely called out for you so that you can easily see where the additional activity is required.

13 - Indoor airPLUS Version 1 (Rev. 02) Verification Checklist

Bob Axelrad: This is just the verification checklist for Indoor airPLUS. It is still one page. It is, in fact, simpler than it was before in that the only items that are left on there are those items that remain as add-ons over and above ENERGY STAR. So you'll see at the top of the checklist the four ENERGY STAR v3 checklists are required as a prerequisite and the completion of the rest of the checklist will result in qualification for the Indoor airPLUS label.

14 - What Does Indoor airPLUS cost?

Bob Axelrad: We get a lot of questions about what Indoor airPLUS costs and the basics are there is no fee to participate in an EPA voluntarily program. Raters are likely to charge a verification fee. The actual cost of the additional Indoor airPLUS features are going to vary depending on the local code requirements in your area, what the typical building practices are, what climate zone you may be in, what radon zone you're in, what the availability of suppliers and cost of materials are, and the types of construction that you're actually engaged in. All of these are going to vary the cost. We have anecdotal information that suggests that the cost of additional features could be as little as a few hundred dollars in dry, Non-Radon Zone 1 areas or they may be up to a few thousand dollars in moist climates in Radon Zone 1.

15 - What About Existing Homes?

Bob Axelrad: Another question we often get is whether or not Indoor airPLUS is available for existing homes, and the answer to that is, "no". We designed Indoor airPLUS strictly for new construction. But we have developed detailed guidance for retrofit activities around indoor air quality that you can get on our website that provides really detailed recommendations for how to do assessments of existing structures before you undertake renovation or retrofit activities, and then recommendations for what minimum actions you should take around any specific hazard you may find, and then expanded actions of things that we recommend you do to enhance indoor air quality if you can.

16 - How to Build and Verify Indoor airPLUS Homes
Bob Axelrad: I'm going to turn it over now to Nick and let him walk you through the specific requirements that remain to earn the Indoor airPLUS label.

17 - 1. Moisture Control
Nick Hurst: Thanks Bob, great introduction to the program. As Bob said, we'll take kind of a high level look at the requirements. Feel free to follow along if you've downloaded the construction specs. We'll kind of look at those items that are above and beyond ENERGY STAR and pay particular attention to those recent revisions that Bob already referenced. Section 1 deals with moisture control. It's obviously very important to keep bulk moisture out of the home both above grade and below grade but also deal effectively with humidity in the home, as well. This is what this is designed to do.

18 - 1.1 Site and Foundation Drainage
Nick Hurst: ENERGY STAR's Water Management Checklist lays a good foundation for this with requirements, such a sloping hard surfaces away from final grade of the home, installing drain tiles in basement footings and around crawl space walls, which are very standard practice now. Indoor airPLUS takes this one step further to require the installation of a drain or sump pump in the basement and in crawl space floors, to relieve the potential for bulk moisture that might be accumulating around the foundation, in the basement, or in the crawl space. There are some exceptions to this as well, if you read the fine print of the construction specs, for slab-on-grade foundations and in areas where there's free-draining soils.

19 - 1.1 Site and Foundation Drainage cont'd
Nick Hurst: Here's a closer look at that section of the checklist that Bob already mentioned. Here you can see the five Items in the Moisture Control Section from 1.1 to 1.11. The reason those numbers skip is because there are additional features in the full construction spec that are already incorporated in ENERGY STAR. So it's a very simple way to see the items for a builder that they're going to be required to do above ENERGY STAR, and also a very simple way for the Rater to view the items that are required to be verified. On the right hand side, same way the ENERGY STAR checklist works, you see that you can check either builder verified or Rater verified. Depending on construction timeline and that sort of thing, it might make more sense for some of those items to be verified by the builder. There are, however, some that are required to be Rater verified, as well.

20 - 1.2 Capillary Break Installation
Nick Hurst: Item 1.2 for Indoor airPLUS is capillary break installation. ENERGY STAR of course requires polyethylene sheeting below concrete slabs to create that moisture break form the soil. In addition, Indoor airPLUS requires the installation of a four-inch layer of aggregate. That might be washed stone typically or alternatively a layer of sand. It could be done in conjunction, of course, with XPS insulation, if you choose so to do that, as long as polyethylene sheeting is on top of that as well. Again, the new exceptions in this area are for slab on grade construction and in areas with free draining soils, as long as those locations are not in a Radon Zone 1 area. We'll talk more about radon in just a minute.

21 - 1.2 Capillary Break Installation cont'd
Nick Hurst: Here's a good example of that insulation technique, the finished concrete slab in the basement or crawlspace on top of polyethylene sheeting. And then that four-inch layer of clean aggregate, which provides an additional break from moisture, but which also provides a little pocket for

potential radon mitigation down the road as well. Caulking the slab edge to the slab wall is also required.

22 - 1.3 & 1.4 Below-grade Foundation Walls

Nick Hurst: Items 1.3 and 1.4 deal with below-grade foundation walls and insulation techniques in crawlspaces and basements. Waterproofing is obviously an important component of ENERGY STAR, and insulation. You have a couple options to insulate crawlspaces walls or floors. With Indoor airPLUS, the requirement is to insulate and seal the crawlspaces to make sure that the crawlspace or basement is really maintaining a constant temperature and humidity, and also to provide conditioned air in that crawlspace to maintain positive pressure and good relative humidity. So, important features that obviously add to the durability of framing members.

23 - 1.11 Moisture-Resistant Materials

Nick Hurst: Item 1.11 relates to moisture-resistant materials. ENERGY STAR prescribes that at least moisture-resistant backing materials be applied behind all tub shower enclosures. Additionally, for all bathrooms and kitchens and laundry areas, anywhere where there's potential for moisture on the floor, Indoor airPLUS requires *only* water-resistant and hard-surface flooring material. This is something that's pretty common in most homes nowadays anyway, just making sure that no carpeting or material that could potential degrade or hold moisture, that these are not installed there. Additionally, Indoor airPLUS adds a very simple requirement to insulate any water supply pipes that are in exterior walls. Typically, your pipes would be inside the insulation and thermal boundary, if they have to be in exterior walls. Certainly, it's a preference to keep them out of exterior walls, especially in cold climates. To reduce the potential for condensation or moisture movement through the wall, and potential condensation on the pipes, simple pipe wrap is a very cheap insurance.

24 - 1. Moisture Control / Water Management

Nick Hurst: A number of benefits for moisture control: Obviously, structural durability, potential flood mitigation from the sump pump, and reducing the potential for water damage and mold growth, especially in those locations behind sheetrock that you might never get to.

25 - 2. Radon

Nick Hurst: Section 2 deals with radon. Radon is one of those things that's often misunderstood and often overlooked in many homes. It is a cancer-causing radioactive gas that's created just by natural breakdown of uranium in the soil. It's the second leading cause of lung cancer after smoking. EPA estimates about 21,000 deaths per year due to radon. So it's certainly something that should be paid critical attention to. It can be found all over the US and EPA has done a good job of mapping where radon is most likely to be found, by county. You can find this map on EPA's website. There's also a really great interactive website to find the radon zone map with the Weatherization Plus Health (www.wxplushealth.org) website. They have a "GeoExplorer" where you can very quickly zoom into your zip code or your location and find out what radon zone you're in.

27 - 2.1 Radon Control

Nick Hurst: Radon Zone 1 has the highest potential for finding radon in your home. And it's in these homes in Radon Zone 1 that Indoor airPLUS requires at least a passive system to be installed in the home. It's also advised, of course, in Radon Zones 2 and 3 but only *required* in Zone 1. We'll look a little bit at that detail. If you'd like to look closely at radon-resisting construction details, see the link at the bottom of the page, "Building Radon Out", a step by step guide that'll help you to get thorough that.

We'll of course send these slides out afterwards so you have access to these links and can check these a little later on.

28 - 2.1 Radon Control cont'd
Nick Hurst: A very simple diagram here, showing what radon resistant construction looks like. Again, it starts with that four-inch layer of aggregate, creating that little pocket underneath the slab to pull soil gases from. Connect that pocket with a T-fitting and some corrugated pipe below the slab and connect it to a three- or four- inch vertical riser, generally exiting out the attic of the home or the roof of the home. Then finally, install an electrical receptacle in that attic, for a future radon ventilation fan, if needed—if the home is ever tested above four picocuries per liter for radon, which is the EPA action level that they recommend ventilating and providing radon mitigation for that home. So, very simple steps that can be done much more easily in new construction than in retrofit.

29 - 3. Pest Barriers
Nick Hurst: Section 3 deals with pest barriers. There's a number of places pests can enter the home. ENERGY STAR, obviously has the air sealing requirements that do a good job to mitigate that risk, to some degree, around foundations and sill plates. Pests can also, of course, get in at soffits or any penetration where you have a pipe coming out of the home.

30 - 3.2 Rodent/Bird Screens
Nick Hurst: A very simple addition is to provide a corrosion-proof rodent or bird screen for any of those locations to keep raccoons out of your chimney and hopefully squirrels and rodents out of your floor joist cavities as well.

31 - 3.2 Rodent/Bird Screens
Nick Hurst: And the benefits are very simple . . . less vacuuming and dusting, potentially. Certainly less potential for damage to the home from dying rodents or feces in the home, and fewer pest-related allergens and asthma triggers, as well.

32 - 4.1 HVAC Sizing and Design
Nick Hurst: As Bob mentioned, ENERGY STAR Version 3 has made substantial improvements in the realm of HVAC, all the way from sizing and design, up to installation techniques. So the requirement for ENERGY STAR in terms of HVAC sizing and design is to use the ACCA Manual J or the ASHRAE Fundamentals handbooks to design the HVAC system. In addition, Indoor airPLUS requires that in warm humid climates, that equipment selection also be paid special attention to, and that the equipment that's selected provides sufficient latent capacity to keep the indoor relative humidity at or below 60%.

33 - 4.1 HVAC Sizing and Design cont'd
Nick Hurst: Again, this is only for warm humid climates. For instance in the southeast, where you see that white dotted line running though Zone 3, these are areas where equipment should be selected to keep the home at or below 60% relative humidity.

34 - 4.2 Duct System Design and Installation
Nick Hurst: In terms of duct system design and installation, same things apply. That is, industry best practices, ACCA Manual D, the ASHRAE handbooks. ENERGY STAR requires those as part of the duct system design. In addition, Indoor airPLUS requires that no building cavities be used as part of forced air supply or return system, making sure that all ducts are used and not building cavities themselves. It's very challenging to air seal building cavities even when they are (used as ducts). Often times, it's

challenging to clean them when needed. And as buildings change over time, with moisture and humidity, and shrink and swell and potential sag, it's very hard to keep those building cavities sealed properly as well. In addition, covering duct openings throughout construction is also important, or vacuuming out the ducts prior to installing registers to make sure a clean bill of health for the duct systems.

35 - 4.3 Location of Air Handler and Ducts
Nick Hurst: Section 4.3 deals with location of air handlers and ducts. Very simple requirement here to just keep all air handlers and ducts out of garages. We'll talk about garage combustion pollutants in attached garages in just a minute. If there are building cavities that are used for duct work adjacent to garages, that's fine as long as the air sealing details are maintained and a good air barrier is maintained.

36 - 4.7 Filtration
Nick Hurst: Item 4.7 discusses filtration. ENERGY STAR requires that any filter access panels are gasketed to prevent any bypass and any potential particulates or dust to be bypassed around the filter—very important. In addition, Indoor airPLUS requires a MERV 8 filter or higher. MERV is the Minimum Efficiency Reporting Value and the higher the MERV rating the better, in terms of filtration of dust and particulates. In addition to the MERV 8 filter, making sure there's no air cleaning equipment that's designed or installed to produce ozone in the indoor atmosphere.

37 - 4.1 HVAC Systems
Nick Hurst: Again, a number of key benefits for the home owner with HVAC systems. The house is going to stay cleaner with improved filtration, reduced potential for mold and mildew growth, keeping relative humidity at appropriate levels, and increase durability and lifespan of building materials.

38 - 5. Combustion Pollutants
Nick Hurst: Combustion pollutants is Section 5. A number of potential hazards with combustion pollutants. Of course, auto exhaust, but also any fuel burning appliances. There is certainly a movement, in some communities, to do all electric homes. But there are also various parts of the country where gas is extremely cheap and certainly is used regularly in homes as well. Keeping carbon monoxide at bay is probably one of the most important issues with combustion pollutants, as it certainly can be fatal at high doses.

39 - 5.1 Combustion Equipment
Nick Hurst: In Section 5.1, there are a number of emissions standards and restrictions cited in the Indoor airPLUS construction specs. We certainly won't go into all those today, but make sure the builder and Rater coordinate to make sure that all those emissions standards are met for any fuel burning appliances. Also making sure that no unvented combustion space heating appliances are installed in the home.

40 - 5.1 Combustion Equipment
Nick Hurst: Here's another quick snapshot of this combustion pollutant section. Just four requirements here—the emissions standards in Section 5.1 that we just spoke about, as well as carbon monoxide alarms. 5.3 deals with some multifamily building restrictions as well as 5.4, attached garages. Most of these items, with the exception of the multifamily buildings smoking restrictions, must be Rater verified.

41 - 5.2 Carbon Monoxide Alarms

Nick Hurst: 5.2 is carbon monoxide alarms. This is becoming more and more standard in the industry, especially as codes increase, as well. Indoor airPLUS requires that a carbon monoxide alarm be installed near each separate sleeping zone.

42 - 5.4 Attached Garages

Nick Hurst: Section 5.4 deals with attached garages. And EPA has looked very closely, over the last several months, at this part of this specification. There are some exceptions here, and some modifications as well. Obviously, pollutants from attached garages like auto exhaust, potentially stored fuels and paints and solvents, possibly pesticides—these can all be a substantial threat to indoor air quality in the home, depending on pressure differentials and how well air sealing techniques were done on the home. The illustration on the left kind of highlights some of those areas were air sealing details should be given strict attention, such as between foundation walls and sill plates, between sheetrock and framing members, and of course around jams and door thresholds at entry doors. Additionally, what you don't see here, is those areas in floor joist cavities where blocking and sealing should be done between the home and the garage. The Rater should always check that these areas have been thoroughly sealed to make sure there are no bypasses that were missed before sheetrock is installed. The illustration on the right touches on the already-mentioned air handlers and duct work and keeping them out of the garage.

43 - 5.4 Attached Garages cont'd

Nick Hurst: EPA has looked at a significant amount of research over the last nine months with regard to garage contaminants and ventilation strategies, and the overwhelming recommendation from a lot of those studies indicates that air sealing is of primary importance in making sure those pollutants are kept out of the home. ENERGY STAR already includes a number of important requirements for air sealing—those details we just mentioned—like making sure doors are adequately weather-stripped. Indoor airPLUS has just a simple requirement, to include an automatic door closer on the walk-in door to make sure it stays closed as much as possible. Even with all these construction details, building scientists recognize that there's still potential for garage pollutants to migrate into the home if the home is under negative pressure. This might be from an "intentional" ventilation source, such as an automatic bath fan. But on the flip side, homes that use supply-only or balanced ventilation are certainly at less risk because the home is generally under conditions of positive pressure. So EPA has recently revised Item 5.4, such that all those homes that utilize exhaust-only ventilation strategies, like a timer on a bath fan, these homes do require either a garage exhaust fan vented directly to the outdoors, or a pressure test across the garage-to-house interface to verify the effectiveness of that air barrier.

44 - 5.4 Attached Garages

Nick Hurst: To verify this, the Rater would simply conduct a 45-Pascal zonal pressure test, which can easily be done during the whole-house infiltration testing. Some Raters do this as standard course already, so with the blower door running at negative 50 Pascals, the Rater would simply insert a tube or probe under the weather stripping at the sweep of the walk-in door. And in this instance, if the reading was 50, it would indicate the garage was the same as the outdoors with respect to the house. Of course, lower readings of 25 or below might mean that the garage is actually somewhat connected to the home. So this test should be done with all operable openings in the garage in a closed position to verify that reading. If the home doesn't pass this test either additional air sealing will need to be done or a garage fan installed. Again, there's no garage ventilation requirement for homes with a balanced or supply-only ventilation in Revision 2. EPA certainly still recommends using a garage fan, especially in homes where they'll be knowingly used for hobbies or actives that might have more contaminant sources in the garage.

45 - Combustion Pollutants
Nick Hurst: A number of important benefits regarding combustion pollution and these protections. Obviously, round-the-clock peace of mind for the family. That's a big one.

46 - 6. Materials
Nick Hurst: Second to last section in the construction specs is on materials, Section 6. There are three primary components to the material section—one being composite woods, one being low VOC paints and finishes, and one being related to carpets. In Section 6.1, ensuring that there's certified low-formaldehyde composite wood, such as MDF or particle board, making sure that any structural plywood is PS1 or PS2 compliant which are fairly standard in the industry. Section 6.2, certified low-VOC or no-VOC paint, such as GREENGUARD, Green Seal Certified, Master Painter Institute (MPI). There's a number of low- or no-VOC paint available off the shelf. And then in 6.3, making sure that any carpet cushion is Green Label Certified and that any carpet or carpet adhesives carries a CRI Green Label Plus certification. So, working with your subcontractors and suppliers to make sure that those are all included the first time and second time you do an Indoor airPLUS home.

47 - 6. Low- Emission Materials
Nick Hurst: A number of benefits to low emission materials for the home owner. Certainly, those that have chemical sensitivities might recognize that there's less "new home smell" or "chemical smell" in these homes. And as Bob mentioned, lower exposure to volatile organic compounds and potential for occupant health complaints down the road.

48 - 7. Home Commissioning
Nick Hurst: The final section deals with home commissioning. This is part of certifying that the home was done correctly, but also so that the builder and Rater provide some type of educational resources for the homeowner. So, three components here. One, making sure that the HVAC system and duct work were verified to be dry and clean and that a new filter was installed prior to occupancy. Second, making sure that the home is ventilated at the highest reasonable rate possible before occupancy. And then three, providing the homeowner with the completed checklists and any other documentation related to Indoor airPLUS or ENERGY STAR requirements. Specifically HVAC and ventilation system design—those are often overlooked by homeowners but can certainly come in handy for future maintenance and maintenance scheduling with HVAC contractors down the road.

49 - That's It. You're ready to build & label Indoor airPLUS homes!
Nick Hurst: So that's it. One additional Indoor airPLUS checklist on top of those four other checklists, and upon verification, the home earns the Indoor airPLUS label which is applied to the breaker box, the same as the ENERGY STAR label. It's a very straightforward process for the Rater to do, generally in those two visits that they make to the home for ENERGY STAR inspection.

50 - Become an Indoor airPLUS Partner
Nick Hurst: We're going to give you some resources that are on the web, as well as describe how to become a partner if you're interested in Indoor airPLUS. If you have any questions, please feel free to write them in now and we'll try to answer as many of them here in the next few minutes as we can. If you're completely new to ENERGY STAR and Indoor airPLUS you can visit the ENERGY STAR join page at www.energystar.gov/newhomesPA. You can find online partnership agreement links for both builders and Home Energy Raters there, and it'll walk you through the partnership process.

51 - Become an Indoor airPLUS Partner cont'd
Nick Hurst: If you're currently an ENERGY STAR partner, there's a new way to join Indoor airPLUS and that's through MESA (your My ENERGY STAR Account). If you don't know your user name or password for MESA, there's a couple prompts on this page to potentially get you to find those. And if you still have trouble, you can certainly email energystarhomes@energystar.gov to get your MESA credentials. A lot of great resources here behind MESA that you should be aware of if you aren't already.

52 - Become an Indoor airPLUS Partner cont'd
Nick Hurst: If you're a builder, and new to ENERGY STAR, make sure you looked at your to-do list there and go through the builder training for ENERGY STAR. On the right hand side you see the My ENERGY STAR tools including the link to join Indoor airPLUS and some other linking opportunities there. Also some great promotional materials available from ENERGY STAR, such as co-brandable brochures, web banners, and co-brandable videos.

53 - Become an Indoor airPLUS Partner cont'd
Nick Hurst: So once you've gone through the Indoor airPLUS partnership process, you should have access now to a link to download the Indoor airPLUS logos.

54 - Become an Indoor airPLUS Partner cont'd
Nick Hurst: These are in the same location as the ENERGY STAR logos. So there are just three Indoor airPLUS promotional marks to consider using in brochures or on your website. They are the "Ask about", the "Look For", and the "We Sell" mark. And of course these are available in both JPEG format, and in a more high-resolution format if you want to use them in larger displays or signage.

55 - Promotional Guidelines
Nick Hurst: Then, as you're navigating the website, be sure to see the promotional guidelines for the Indoor airPLUS marks, which show you the general guidelines for how to maintain and build value with the brand and use the marks appropriately, as well as some graphic technical guidance.

56 - Resources and Tools
Nick Hurst: A couple more items and resources you'll want to check out on the website—the construction specs and technical details are there. Also, some website widgets you might be able to utilize, and a partner locator. When you join Indoor airPLUS you will be located on the web. This is under revision right now, and new partners will be found on the ENERGY STAR partner locator with an Indoor airPLUS icon.

57 - Resources and Tools cont'd
Nick Hurst: Finally, if you're into social media, you can find Indoor airPLUS on Facebook, on twitter, and there's a number of podcasts and YouTube videos that might be helpful. And there's also a mobile app which might be helpful for most builders but also Home Energy Raters to review the construct specs and potentially go through the checklist in the field on a handheld device. This is under revision currently. It currently has the Revision 1 specifications on it so watch for a notification soon for an update to include Revision 2.

58 - Indoor airPLUS
Nick Hurst: So that's the extent of the presentation today. I think we might have a little bit of time for questions and we'll turn it back to Ben.

Ben Bunker: Alright, thank you, gentleman. Just to remind everybody, we will be sending out a copy of the slides to everyone. If you'd like a recorded copy of the presentation, you can email us Indoor_airPLUS@epa.gov. That email address is up on the screen right now. Bob and Nick's personal emails are also up there as well so feel free to contact them with specific questions if you'd like. We're going to transition now to the Q&A session. We do have a couple questions already queued up which I'm going to run through. If you have additional questions, as a reminder you can enter those in the question box on the right side of your screen. And so we're going to start here, someone asked, whether or not there were any thoughts on adding a "not applicable" choice on some of the duct items on the checklist. And I guess specifically this would apply to homes that have hydronic systems, potentially some ductless system or something along those lines.

Nick Hurst: Sure, very good question, I think this is inquirer is probably correct about there is not any sort of N/A option specifically for hydronic systems on the checklists. Something that we can certainly look into adding in the future.

Ben Bunker: Great. Specific to the exhaust fan in the garage, are there any recommendations or requirements for how long that fan has to run?

Bob Axelrad: If you look at the construction specifications in detail—and we encourage everyone not to rely solely on the verification checklist; it's really important to go through and look at the construction specs in their entirety—there's a quite a lot of information in there that we weren't able to cover in the presentation. But with respect to the garage fan, as part of the advisory, and in fact as the requirement previously existed, we recommend that it be either wired for continuous operation or be put on a timer or other control, perhaps a motion sensor, that would ensure that it would run for about an hour post occupancy.

Ben Bunker: Great. Thanks. Do you have any thoughts on . . . one person comment that there may be some quality issues or high warranty callbacks with low-VOC paint. Have you heard that from other partners or is that a concern that you hear from the field?

Nick Hurst: Not so much. I know that, certainly, painters who have used a certain brand or type of paint for a long time have hesitancy at using low-VOC or no-VOC paint. All paints feel differently to different painters and certainly the way they're applied is to some degree the personal preference. So it's understandable that some might have hesitancy. I would encourage anyone looking into low-VOC/no-VOC paints to try a number of different brands. There's certainly a number of different qualities out there. We haven't heard any specific complaints about the quality of paint or any call backs necessarily as of yet but certainly open to hearing that feedback.

Ben Bunker: Great. So we have a RESNET-accredited Quality Assurance Designee who does not currently do energy ratings. And they're interested to learn how they become an ENERGY STAR partner.

Nick Hurst: Well I think certainly the ENERGY STAR website has a partner resource page that will probably be your best place to go to learn a little bit more about the ENERGY STAR program. There are specific pages dedicated to builders and Home Energy Raters, so I would encourage you to go to the ENERGY STAR website first and foremost for more information on that.

Ben Bunker: Yeah, and we can make sure the person who asked that question gets the links that they need. So we'll follow up with you. Question about CO detectors, are they require to be hardwired or not? Or is that covered by the spec?

Bob Axelrad: It is covered by the spec.

Ben Bunker: I'm just looking up the answer to that right now.

Nick Hurst: In Section 5.2, the alarm shall be hardwired with a battery back up function and there's a specific certification that those alarms must have as well, a UL listing, UL 2034. But yes they should be hardwired with battery backup.

Ben Bunker: Great. A couple of questions sort of in regards to product recommendations. Again, we encourage you to try out some different products, talk to other builders or your Home Energy Rater. There are no recommended products that EPA suggests for this program specially. Another question, kind of going back to the beginning of the presentation, about verification fees. Maybe talk a little bit more about how those vary by region and whether or not we do have any information to provide people on that.

Nick Hurst: Sure, I mean we've heard from a number of different partners around the country and it does vary. I mean there are certainly Home Energy Raters who feel passionately about the program and want to make sure that builders and consumers are getting this service and so they have very little fees and sometimes none in some cases. But, it's obviously very simple to implement the program from the Rater's standpoint. So, as far as verification fees, they should be fairly low if the Home Energy Rater is already doing ENERGY STAR for the builder.

Ben Bunker: Yeah, definitely. And I guess a good next step might be to show the spec to your Home Energy Rater and get a quote from them. And you can always share this presentation with them. Question about the app. You mentioned that there is an iPhone app. What's the status of that right now?

Bob Axelrad: So we are actually meeting with the contractors tomorrow to get the updates completed as quickly as we can. Right now there's an iPhone, an iPad, and Android, and Blackberry version of the app. It will probably be, being that the government doesn't run as quickly as we might like, it will probably still be several weeks before the revised app is available. The app is still available right now from the iTunes store if you want to see what some of the functionally is. It does have the capacity for you to actually complete the checklist in the field and to then email a copy of the form either back to your office or to other appropriate folks. So, hopefully we'll have the app up and running within a month.

Ben Bunker: Great. A question sort of specific to a certain type of sprinkler system. So this person noticed that sprinkler systems are being required by code, and that's connected to the live water system. They're wondering if the Indoor airPLUS program is requiring insulation on that piping. So maybe more general, in terms of any type of sprinkler system or anything like that, do all the pipes require insulation on them or is it just certain circumstances?

Nick Hurst: I'm not sure we've ever fielded that question. It is a very good question. But the way the Indoor airPLUS specification reads, if they are in exterior walls, they would need to be insulated, again to

avoid condensation. If that's an exceptional challenge, I'd certainly be open to hearing more feedback about that. But the way the spec reads right now, that would be required.

Ben Bunker: Great. And it looks like we have one more question about builder participation. What sort of numbers are we seeing right now in terms of the number of builders participating and Home Energy Raters participating, anything along those lines.

Bob Axelrad: We have about 800 builders and Raters and allies currently in the program. We have several hundred builders. I don't have the numbers in front of me at the moment. We're seeing a lot more interest now since Revision 1 and 2 have come out. The program, as I said, started in 2009. We had a lot of interest initially, but I think realistically what we found was that there were some barriers to the program that existed that had limited a lot of builders' participation. So, we're seeing a ramp up now, we're expecting that ramp up to continue.

Ben Bunker: Great. So that's all we have in terms of questions. Thank you all for spending your afternoons or mornings with us, depending on which coast you're on. We will be sending out the slides to all attendees so look for that the next day. And if you'd like a recorded copy of the presentation please feel free to email us at Indoor_airPLUS@epa.gov. Thank you.