

Current ENERGY STAR Multifamily High Rise Policy Record

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 program documents. These issues are either pending resolution by EPA or 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 any policy modifications into the next revision of the program documents. Partners may, at their discretion, use the determinations in this document immediately, in advance of the formal implementation dates. If they do so, they should be sure to include a copy of the policy record with their submittals. 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, Comment, or as an Issue Under Review. 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, ASHRAE 90.1). 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 intended to significantly change the scope of the program guidelines, but rather to clarify the original intent of the requirement. A clarification is secondary in importance to a change; it should not significantly alter the way that most partners comply with the program.
- Refinement – A minor revision, such as an improved choice of words, a grammatical correction, or a correction to a typographical error. A refinement is the least important type of edit; it should have no impact on the way that partners comply with the program.
- Comment – A comment provided by EPA in response to a question, which results in no change to the program documents. This may occur, for example, if the question can be answered by referring to already established policy. Aside from the partner asking the question, such comments will typically have no impact on the way that partners comply with the program.
- Issue Under Review – An issue that has been submitted and that EPA is still evaluating. Once EPA has evaluated the issue, it will offer a resolution and reclassify the issue using one of the four categories above.

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ID	Log Date	Program Document	Classification	Topic
00001	12/21/2011	Performance Path	Change	Heating and Cooling Distribution – Total Duct Leakage Limits Prerequisite
	08/21/2013	Prescriptive Path T&V Worksheets		Issue: Total duct leakage testing thresholds have changed in the Certified Homes program in Revision 5, 7 and 8. Will they also change in MFHR?
	Updated 11/15/2014			Response/Resolution: Total duct leakage testing thresholds were initially adopted from the ENERGY STAR Certified Homes Program, Version 3, Revision 2. These thresholds were increased in ESv3 Revision 5, and the MFHR program will allow the use of the new total duct leakage allowances (which increased from 6 CFM to 8 CFM per 100 ft ²). This was adopted in Revision 01 of the MFHR Program. ESv3 Revision 7 added an alternative testing option at rough-in, with a reduced allowance of 4 CFM per 100 ft ² . This has been formally adopted in Revision 02 of the MFHR Program. The thresholds were increased again in Revision 08, for systems serving small homes and for systems with dedicated returns. In general, with pre-approval, all applicable changes in the ENERGY STAR Certified Homes program can be used in the ENERGY STAR MFHR program.
00002	12/21/2011	Performance Path	Change	Domestic hot water storage temperature
		Prescriptive Path T&V Protocols		Issue: Can DHW storage temperatures be set at 130F or 140F to prevent Legionnaire's disease?
		T&V Worksheets		Response/Resolution: The original prerequisite stated that “the temperature of the stored DHW shall be just sufficient to deliver DHW to apartments within a temperature range of 120-125F.” The intent was to reduce potential for scalding as well as energy used to heat water. The prerequisite was modified in Revision 01 to read: “the temperature setting of in-unit storage water heaters must not exceed 140F. For both in-unit and central DHW systems, temperatures measured at faucets and showerheads must not exceed 125F.” If setting in-unit storage water heaters to 140F, this may require a mixing valve to prevent scalding.

ID	Log Date	Program Document	Classification	Topic
00003	1/21/2012	Performance Path Prescriptive Path T&V Worksheets	Change	<p data-bbox="951 224 1915 256">Pipes located in Garages</p> <p data-bbox="951 256 1915 358">Issue: If piping cannot be re-located into conditioned space, is heat tape permitted to prevent the pipes from freezing? What if they are located in other unconditioned spaces (cellars or crawlspaces?) Does this prerequisite still apply?</p> <p data-bbox="951 358 1915 638">Response/Resolution: The intention of this prerequisite should have been applied to all unconditioned spaces and not just limited to garages. This will be adopted in Version 2. If pipes are located in garages (or unconditioned spaces), heat tape is permitted, but only in the Performance Path, where the energy penalty associated with the electricity consumption can be modeled. If selecting this alternative, heat tape that is activated based on pipe wall temperature rather than air temperature is required. The heat tape thermostat set point must be no higher than 40°F and the set point shall be confirmed by a field inspection. This was formally adopted in Revision 01 of the MFHR Program.</p>

ID	Log Date	Program Document	Classification	Topic
00035	7/17/2012	Performance Path Prescriptive Path Simulation Guidelines	Change	<p data-bbox="966 230 1701 256">Calculating area illuminated by in-unit hard-wired fixtures</p> <p data-bbox="966 263 1919 386">Issue: In certain rooms within a dwelling unit, a hard-wired fixture is installed, that is not intended to illuminate the entire space, but just a portion, assuming that the occupant will supplement with plug-in or receptacle lighting. How do we calculate the area illuminated by the installed fixture?</p> <p data-bbox="966 393 1919 542">Response/Resolution: In Version 1.0, hardwired fixtures in rooms, such as bedrooms and living rooms, that may be supplemented by lighting that is connected to receptacles, were to provide illumination at a rate of no more than 2 ft² per Watt. This has been increased to 3 ft² per Watt. This change was formally adopted in Revision 01 of the MFHR Program.</p>
00047	08/21/2013	Performance Path Prescriptive Path	Change	<p data-bbox="966 555 1537 581">ENERGY STAR certified lighting prerequisite</p> <p data-bbox="966 587 1898 652">Issue: In lieu of ENERGY STAR certified lighting, can high-efficacy lighting be used to meet the ENERGY STAR prerequisite?</p> <p data-bbox="966 659 1919 899">Response/Resolution: Yes, as an alternative to 80% of installed light fixtures being ENERGY STAR certified or having ENERGY STAR certified lamps, 100% of installed light fixtures may have high-efficacy lamps installed instead. The calculation is done separately in three areas (apartments, common space and exterior) and the alternative may be used in any or all of the three areas. High-efficacy is defined by 2012 IECC. Lighting in range hoods are included in this prerequisite, but can be excluded from lighting power density calculations. This change has been formally adopted in Revision 02 of the MFHR Program.</p>
00048	08/21/2013	Performance Path Prescriptive Path	Change	<p data-bbox="966 912 1835 938">Heating, Cooling and Service Hot Water Pipe Insulation Thicknesses</p> <p data-bbox="966 945 1835 1010">Issue: The prerequisite for pipe insulation thickness is not consistent with ASHRAE 90.1-2010. Is that intentional?</p> <p data-bbox="966 1016 1919 1224">Response/Resolution: In the original prerequisite, 1" of insulation was required on all piping for heating, cooling, and service hot water systems, based on ASHRAE 189.1-2009. This increased to 1.5" for pipes over 1.5" in diameter. The prerequisite has been rewritten to align with ASHRAE 90.1-2010. This decreases the amount of insulation required for cooling system insulation, but maintains the same thickness for heating and service hot water pipe insulation. This change has been formally adopted in Revision 02 of the MFHR Program.</p>

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00049	08/21/2013	Performance Path Prescriptive Path T&V Protocols	Change	Duct Leakage Testing of Central Exhaust systems
				Issue: When calculating the duct leakage allowance for central exhaust risers, how do you account for floors with more than one register or no register at all?
				Response/Resolution: Central exhaust systems that serve one or more apartments must be tested for duct leakage, where the original maximum leakage allowance for the Performance Path was calculated as 10 CFM per floor per shaft, based on the assumption that each shaft served one register per floor. In the Performance Path, this has been revised as 5 CFM per <u>register</u> per shaft <u>plus</u> 5 CFM per <u>floor</u> per shaft to account for other configurations. In the Prescriptive Path, this has been revised as 2.5 CFM per <u>register</u> per shaft <u>plus</u> 2.5 CFM per <u>floor</u> per shaft to account for other configurations. This change has been formally adopted in Revision 02 of the MFHR Program.
00050	08/21/2013	Prescriptive Path	Change	Gas-Fired PTACs
	Updated 2/18/2014			Issue: Using Table 1 of the Prescriptive Path, what heating efficiency applies to a gas-fired PTAC?
	Response/Resolution: Since gas-fired PTACs are not explicitly called out in Table 1, they should meet the same requirements for "Warm-Air Furnaces". A footnote has been added for certain climate zones where gas-fired PTACs are simply not available at those prescribed efficiencies, and reduced efficiencies are offered when combined with additional requirements for compartmentalization, low-flow fixtures and lighting power densities. Certain gas boilers are also offered reduced efficiencies if meeting these additional requirements. The reduced showerhead flow-rate (≤ 1.5 gpm) is still <u>per stall</u> .			
00056	07/18/2014	Performance Path	Change	Performance Target in States that have adopted 2012 IECC or ASHRAE 90.1-2010
				Issue: Similar to Version 3.1 for ENERGY STAR Certified Homes in states with more advanced codes than 2009 IECC, will ENERGY STAR MFHR develop a new version for those states?
				Response/Resolution: A new version has not yet been developed. In the interim, projects in those states will be required to meet a modified Performance Target of 15% over 90.1-2010. All other requirements will remain the same.

ID	Log Date	Program Document	Classification	Topic
00004	12/21/2011	Performance Path Prescriptive Path T&V Worksheets	Clarification	<p data-bbox="966 224 1915 256">NEMA Premium Motors Prerequisite</p> <p data-bbox="966 256 1915 329">Issue: Are fire pumps and booster pumps that don't run except in rare occasions, still subject to the NEMA Premium motor prerequisite?</p> <p data-bbox="966 329 1915 394">Response/Resolution: These pumps are not subject to this prerequisite. This was clarified in Revision 01 of the MFHR Program.</p>
00005	12/21/2011	T&V Protocols, 3.4	Clarification	<p data-bbox="966 394 1915 427">25 year Window Sealant</p> <p data-bbox="966 427 1915 467">Issue: We are unable to find a 25 year window sealant, only 20 years.</p> <p data-bbox="966 467 1915 686">Response/Resolution: The intent of the Performance Specification Criteria for Protocol 3.4 was that the sealant must be compatible with the adjacent surfaces and its durability rating be at least as long as the warranty on the window (this second part was meant to be guidance). Therefore, if manufacturers in your area do not carry 25-year sealant, 20-year sealant is acceptable. Please retain documentation that the sealant is compatible with the adjacent surfaces and lists its durability rating. This was clarified in Revision 01 of the T&V Protocols.</p>
00006	12/21/2011	Performance Path Prescriptive Path	Clarification	<p data-bbox="966 686 1915 719">Senior Housing Lighting Power Densities</p> <p data-bbox="966 719 1915 792">Issue: Can common spaces in senior housing exceed the lighting power densities by more than 20% in order to provide greater illumination?</p> <p data-bbox="966 792 1915 1396">Response/Resolution: Modifications to the LPD and illumination requirements for this building type is permitted in both the Performance and Prescriptive Paths. Minimum illumination requirements can reference IESNA's 2007 <u>Lighting and the Visual Environment for Senior Living</u>, rather than IESNA Lighting Handbook footcandle requirements listed in the Path documents. In the Performance Path, proposed/installed lighting power densities are permitted to exceed 90.1-2007 by more than 20% if needed to meet the higher illumination levels recommended. In the ASHRAE baseline energy model, LPDs can match the LPDs needed to minimally meet these higher illumination requirements. Any excess lighting must still be modeled as an energy penalty. In the Prescriptive Path, rather than following ASHRAE 90.1-2010 LPDs, a project is permitted to exceed those LPDs if needed to meet the higher illumination recommendations. Illumination in excess of the minimum recommendations would require the use of the Performance Path. This was clarified in Revision 01 of the MFHR Program.</p>

ID	Log Date	Program Document	Classification	Topic
00007	1/21/2012	Performance Path Prescriptive Path	Clarification	ENERGY STAR Exterior lighting Requirement
				Issue: We are unable to find ENERGY STAR certified pole mounted parking lot fixtures or ENERGY STAR certified LEDs or CFLs that can be installed in them. We can't meet the 80% requirement since these are not readily available. Can we install non-ENERGY STAR certified LEDs or non-ENERGY STAR certified CFLs instead?
				Response/Resolution: Please see ID 00047. As an alternative to 80% of installed light fixtures being ENERGY STAR certified or having ENERGY STAR certified lamps, 100% of installed light fixtures may have high-efficacy lamps installed instead, as defined by 2012 IECC.
00008	2/21/2012 Updated 11/15/2014	Performance Path Prescriptive Path Simulation Guidelines	Clarification	Heaters in Garages for Safety (ice-melt)
				Issue: Can garages be specified with heaters if needed for ice-melt purposes?
				Response/Resolution: The prerequisites in both paths state "Radiant (ie. infrared) heating, either wall or ceiling-mounted, or heating within the garage floor (or sidewalks) may be used to prevent ice formation on the ground as a safety feature only and must comply with ASHRAE 90.1-2007 Section 6.4.3.8," which specifies the temperature set-points that must be verified in the field. If following the Performance Path, the Baseline energy model cannot include any energy costs for heating that unconditioned garage space. The Proposed and As-Built energy models must include the energy costs associated with heating that space. To reduce the energy penalty in the model, garage insulation is recommended. In the Prescriptive Path, since it is no longer an unconditioned space, garage wall insulation might be required in your climate zone. This was clarified in Revision 01 of the MFHR Program. Although on-site power generation may not be used to meet the Performance Target, it may be used to offset this energy penalty.
00034	5/4/2012	Performance Path Prescriptive Path	Clarification	ENERGY STAR certified clothes washers
				Issue: Are clothes washers that are part of a combined washer/dryer unit, exempt from the ENERGY STAR requirement?
				Response/Resolution: Yes, these units are currently not able to earn an ENERGY STAR label, and are therefore exempt from meeting this requirement. When possible, EPA recommends selecting units that meet the key criteria for ENERGY STAR clothes washers (Modified Energy Factor (MEF) of 2.0 or greater, as well as a Water Factor (WF) of 6.0 or lower).

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00051	08/21/2013	Performance Path Prescriptive Path	Clarification	<p data-bbox="991 224 1915 256">Continuous Insulation Prerequisite</p> <p data-bbox="991 256 1915 328">Issue: There are two prerequisites related to ‘continuous’ insulation. Can you please define what that means and what details are exempt?</p> <p data-bbox="991 328 1915 782">Response/Resolution: The first relevant prerequisite requires that “All roof, wall, floor, and slab insulation shall achieve RESNET-defined Grade I installation or, alternatively, Grade II for surfaces with continuous insulation.” This has been revised in Revision 02 to align with ESv3 Rev07, which clarifies that the “surface contains a layer of continuous, air-impermeable insulation”. The second relevant prerequisite has been revised in Revision 02 to establish the minimum R-value that qualifies as “insulation” and clarifies the requirement is by wall assembly, rather than building structure, to accommodate buildings with multiple wall types. “For steel-framed and metal building walls, continuous exterior insulation ($\geq R-3$) is required on above grade walls. For mass or masonry walls with metal framing, continuous interior or exterior insulation ($\geq R-3$) is required on above grade walls.” Projected balconies are currently exempt from this requirement. Shelf angles are also exempt and the Path documents provide guidance on how to de-rate the assembly U-value accordingly.</p>
00052	08/21/2013	T&V Protocols, 8.2	Clarification	<p data-bbox="991 789 1915 821">Measuring Ventilation Performance</p> <p data-bbox="991 821 1915 893">Issue: What systems are required to be tested for duct leakage and for ventilation flow rates? Can natural ventilation be used for common spaces?</p> <p data-bbox="991 893 1915 1406">Response/Resolution: The T&V Protocols and Worksheets have been revised to provide better clarity on inspections and testing. In general, all heating, cooling, DHW and ventilation systems (central, distributed, common space and apartment) are subject to verification of equipment efficiency and duct sealing. Only in-unit forced-air ducts and ventilation risers for central exhaust systems serving apartments are required to be <u>tested</u> for duct leakage. <u>All</u> systems must be tested for ventilation performance (ie. flow rates at the register), although sampling may be applied as described in the Protocols. In general, a sample of apartment bathrooms and kitchens must be tested for flow rates, as well as the system providing whole-unit ventilation, if separate from the exhaust system. Kitchens can be exempt from testing if they meet prescriptive duct requirements. Systems supplying the corridors or exhausting from common spaces must be tested for flow rates. Common spaces that meet Section 5.1.1 of ASHRAE 62.1 can use “natural” ventilation.</p>

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00054	2/18/2014	Prescriptive Path	Clarification	<p data-bbox="991 224 1915 256">Equipment not listed in Table 1 of the Prescriptive Path or 189.1-2009</p> <p data-bbox="991 256 1915 386">Issue: Where do we find the minimum efficiency for equipment that are not listed in Prescriptive Path Table 1 or ASHRAE 189.1-2009 Appendix C, such as Single-Package Vertical Air Conditioners, Single-Package Vertical Heat Pumps or “ground loop” heat pumps?</p> <p data-bbox="991 386 1915 695">Response/Resolution: The ENERGY STAR Prescriptive Path, Table 1, lists the minimum efficiencies for some, but not all, HVAC equipment that is specified in multifamily high-rise buildings. For equipment not listed in Table 1, please see ASHRAE 189.1-2009, Appendix C. For equipment not listed in ASHRAE 189.1-2009, you may meet the efficiencies for those equipment as listed in ASHRAE 90.1-2010, Tables 6.8.1A-K or 189.1-2011, Appendix C. The minimum efficiency for Ground Water Heat Pumps (GWHP) or Ground Loop Heat Pumps (GLHP) may alternatively comply with Tier 2 of the ENERGY STAR Key Product criteria.</p> <p data-bbox="991 695 1915 816">Note: The “water-source” heat pump listed in Table 1 refers to a closed loop water-to-air heat pump that is part of a circulation loop where heat is provided by a boiler, not the ground or groundwater. In the AHRI directory, this is typically a “Water Loop Heat Pump” (WLHP).</p>
00055	2/18/2014 Updated 11/15/2014	Performance Path Prescriptive Path	Clarification	<p data-bbox="991 816 1915 849">Evaluating illumination using alternative software</p> <p data-bbox="991 849 1915 946">Issue: Can my lighting designer affirm that light levels (footcandles) are compliant with IESNA using other software? Should the “nominal” or “delivered” lumens be used in these calculations?</p> <p data-bbox="991 946 1915 1190">Response/Resolution: The Performance Path calculator offers simple calculations to estimate the illumination provided by the fixtures specified. If the lighting designer responsible for the design affirms that the design meets the required illumination using alternative software, that is acceptable. The Licensed Professional must then test a sample of space types for footcandle compliance at the end of construction. “Delivered” lumens should be used in calculations rather than “nominal”.</p> <p data-bbox="991 1190 1915 1255">Note: Average weighted footcandles have been reduced from 16 to 10 within dwelling units.</p>

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00057	11/15/2014	Performance Path Prescriptive Path T&V Worksheets	Clarification	<p data-bbox="989 230 1915 263">ENERGY STAR Certified Appliance verification</p> <p data-bbox="989 305 1892 363">Issue: The ENERGY STAR criteria for appliances has changed since they were specified for our project. Will the installed units meet the prerequisites?</p> <p data-bbox="989 370 1915 516">Response/Resolution: If the appliances were ENERGY STAR certified at the time of purchase, they will meet the prerequisite, even if they no longer meet the ENERGY STAR criteria at the time of inspection. Please retain documentation during the plan review that appliance model numbers were ENERGY STAR certified at that time.</p>

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00009	12/21/2011	Performance Path Prescriptive Path T&V Worksheets	Comment	Piping Insulation Prerequisite
				Issue: Does the piping insulation apply to refrigerant piping or just to hydronic heating and cooling piping?
				Response/Resolution: Per ASHRAE 90.1-2007, Table 6.8.3, this insulation also applies to refrigerant piping. It also applies to domestic <u>hot</u> water (as defined in Section 7.4.3 of ASHRAE 90.1-2007). This has been clarified in Revision 01 of the MFHR Program.
00010	12/21/2011	Performance Path Prescriptive Path T&V Worksheets	Comment	Motorized Outside Air Damper Prerequisite
				Issue: Are motorized dampers required on exhaust ventilation outlets? What about supply air ducted to returns of air handlers?
				Response/Resolution: Please refer to ASHRAE 90.1-2007 Section 6.4.3.4 to determine whether your ventilation system requires a motorized damper or if a gravity damper is acceptable. Continuously running ventilation is not subject to either damper, as they are always in use. (Version 1.0 of the T&V Worksheets indicated that these dampers must be located on an <u>exterior</u> wall. That requirement was removed in Version 1.1.) Although a motorized damper may not be required in your design, the ductwork is subject to duct leakage testing, so the ductwork needs to be temporarily sealed and pressurized (sealing the intake duct may be difficult in a multifamily high rise building).
00011	12/21/2011	T&V Protocols	Comment	Blower Door Testing Method
				Issue: When conducting the blower door test, should continuously running exhaust fans be turned off? Should the duct connection to the exterior be sealed?
				Response/Resolution: EPA follows RESNET procedures for blower door testing. Chapter 8 of the RESNET Standards says that “continuously operating ventilation systems shall be turned off and the air openings sealed, preferably at the exterior terminations.”
00012	12/21/2011	Simulation Guidelines Performance Path	Comment	Corridor Ventilation
				Issue: We have a central corridor on each floor that is served by a 100% outside air system that is used to heat and cool the corridors as well as to pressurize the building. The amount of outside air exceeds the minimum criteria of ASHRAE 62.1 and is included in the Energy Model as an energy penalty. Is this permitted?
				Response/Resolution: Yes, when following the Performance Path you can exceed the minimum ventilation requirements recommended by ASHRAE, but the baseline energy model cannot exceed those rates by more than 50%.

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00013	12/21/2011	Performance Path Prescriptive Path T&V Protocols, 3.1 Simulation Guidelines	Comment	Continuous Insulation Prerequisite
				Issue: Does the continuous insulation requirement apply to window walls?
				Response/Resolution: Yes, the non-vision glazing areas of the window wall system are treated as opaque walls per ASHRAE and continuous insulation must be installed to reduce thermal bridging. In addition, these non-vision glazing areas must be treated as opaque walls (not fenestration) when calculating window-to-wall ratios or determining minimum Prescriptive Path U-values. This was clarified in Revision 01 of the MFHR Program.
00014	12/21/2011	Simulation Guidelines	Comment	Modeling of retail spaces
				Issue: Our building has 2 small retail spaces on the ground floor. Our interpretation of the Simulation Guidelines is that these spaces may be included or excluded from the energy model. We have chosen to exclude them and wanted to confirm this conforms with the criteria.
				Response/Resolution: This is correct, you may choose to include or exclude that area from your model.
00015	12/21/2011	Performance Path Prescriptive Path	Comment	Exhaust-only strategy
				Issue: Does an exhaust only ventilation strategy meet the MFHR prerequisites? Can the same fan be used to meet local exhaust (Section 5) and whole-house (Section 4) rates?
				Response/Resolution: Dedicated supply air is not a requirement under Version 1.0, so exhaust-only strategies are acceptable. If using the same exhaust fan, the 50% over-ventilation limit in the Prescriptive Path is evaluated on the higher of the two rates. For example, if the bath fan is used for local and whole-house, and whole-house requires 33 CFM but local is 20 CFM, 33 CFMx150% would be permitted.
00016	12/21/2011 Updated 2/18/2014	Performance Path Prescriptive Path	Comment	Kitchen range hoods
				Issue: Do kitchen range hoods or microwaves that provide local exhaust need to be ENERGY STAR certified? Do they need to be vented to the exterior? Does the light bulb need to meet the In-Unit lighting requirements?
				Response/Resolution: They do not need to be ENERGY STAR certified, but they do need to be vented to the exterior. If ENERGY STAR certified, and following the Performance Path, you can take credit for the energy savings in the energy model for the certified range hood. If the range hood provides lighting, the light bulb must be included when evaluating the 80% ENERGY STAR or 100% high-efficacy requirements, but is not included in the calculations for lighting power density.

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00017	12/21/2011	Performance Path Prescriptive Path T&V Protocols T&V Worksheets	Comment	Central DHW Mixing Valve Prerequisite
				Issue: Are mechanical mixing valves permitted?
				Response/Resolution: The prerequisite states that “self-contained or electronic mixing valves shall be used to control hot water temperature for central domestic hot water heating systems.” Mechanical mixing valves are not permitted for central domestic hot water systems.
00018	12/21/2011	Performance Path Prescriptive Path T&V Worksheets	Comment	Low-flow rates for faucets and showerheads
				Issue: My faucet aerator lists different GPMs for different pressures. Which one should I use to show compliance with the Prerequisite?
				Response/Resolution: For faucets and showerheads, use the GPM that is associated with 80 psi in the energy model and/or to meet program requirements. If specifying a WaterSense labeled faucet or aerator rated at 60 psi, not 80 psi, adjust the Baseline GPM to 2.2 in the energy model. Depending on actual water pressure, actual flow rates may be lower or higher, but measured flow rates are not used as the criteria in Version 1.0 of the MFHR Program. This was clarified in Revision 01 of the MFHR Program.
00019	12/21/2011	Simulation Guidelines Performance Path Prescriptive Path	Comment	Apartment Balcony Lighting
	Updated 2/18/2014			Issue: In terms of requirements, are lighting fixtures on apartment balconies considered part of the apartment or exterior?
	Response/Resolution: Balcony lighting is part of the exterior, but can be modeled using the same schedule as the apartment and is not required to have a photosensor or timer if the lighting is controlled by the tenant. If the lighting is controlled by the building, it must have a photosensor or timer to prevent continuous operation. The lighting allowances are determined by ASHRAE 90.1 requirements for “other doors” or “building façade” lighting.			
00020	12/21/2011	T&V Protocols	Comment	Sampling protocol
				Issue: We have a 100 unit MFHR building. I interpret the sampling to mean that I must test 7 in a row that pass before I can begin sampling. If those first 7 pass, I can just test 1 in 7. So, the least number of units I would need to test is 7+14, 21. Is that correct?
				Response/Resolution: Yes, that is correct. Please keep in mind that ANY unit tested that fails, must be brought into compliance. The group of tested units must also be representative of the units in the building (not all tested units can be interior units or of the same floorplan or on the same floor).

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00021	12/21/2011	Performance Path Prescriptive Path	Comment	Electric Resistance Heating
				Issue: When is electric resistance heating permitted and when is it not?
				Response/Resolution: First, this only applies to space heating, not water heating. In the Prescriptive Path, electric resistance space heating is not permitted in ANY space, with the exception of heat pumps in certain climates, in which case it is permitted as the auxiliary heating source if a thermostat with adaptive recovery is installed. In the Performance Path, it is permitted, but it will be modeled as an energy penalty as the Baseline will never use electric resistance for space heating.
00022	12/21/2011	Performance Path Prescriptive Path	Comment	Load Calculation Software
				Issue: Is Trace 700 software considered a 'substantively equivalent procedure' as using software based on ACCA Manual J?
				Response/Resolution: Trace and HAP are software typically used for commercial load sizing, rather than for residential applications. In general, they will result in different loads than if using software approved for ACCA Manual J. If the assumptions in the commercial software can be adjusted to be residential in nature in terms of lighting, occupancy, and internal gains, then they would be deemed substantively equivalent.
00023	1/21/2012	Performance Path Simulation Guidelines	Comment	Baseline wall construction in energy model
				Issue: Our building is wood-framed construction but the Simulation Guidelines says to use the steel-frame wall assembly U-factor requirements for our climate zone in the Baseline energy model. Why is that?
				Response/Resolution: ASHRAE 90.1 Appendix G has established a baseline that is based on a particular building type. Although it is not an apples-to-apples comparison, it is consistent with ASHRAE modeling procedure. In the Baseline model, you may use the U-factors in the Residential column for dwelling unit walls and you may use the U-factors in the Nonresidential column for all other exterior walls.

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00024	1/21/2012 Updated: 2/18/2014	Performance Path Simulation Guidelines	Comment	Modeling of ENERGY STAR appliances
				<p>Issue: Why are the electricity usage numbers for ENERGY STAR dishwashers, clothes washers, and refrigerators, fixed values? Why can't I model the actual energy use of the model that's installed?</p> <p>Response/Resolution: Using exact consumption numbers required more verification and you were also forced to modify the baseline consumption (making the baseline a moving target). By assigning one fixed value, the Baseline is fixed and verification only involves confirming an ENERGY STAR label, rather than looking up the model numbers and extrapolating by unit and model. The rated energy use for the installed appliance(s) as reported on the ENERGY STAR website, <u>may</u> be used, if the Baseline appliance is updated with the energy use for the equivalent appliance meeting the Federal Standards.</p>
00025	1/21/2012	Prescriptive Path	Comment	Slab Insulation Requirements
				<p>Issue: Do the requirements for "Slab Insulation" in the Prescriptive Path apply to below grade slabs?</p> <p>Response/Resolution: This requirement applies to slab-on-grade assemblies only. Per ASHRAE, these are defined as being in "contact with the ground and that is either above grade or is less than or equal to 24 in. below the final elevation of the nearest exterior grade."</p>
00026	1/21/2012	Performance Path Prescriptive Path	Comment	Exit Signs
				<p>Issue: The prerequisites require battery backup in the exit signs. We have powered all of the exit signs through the emergency power system, so in the event of a power outage, the exit signs will be powered off of the emergency generator. Are battery backups still required?</p> <p>Response/Resolution: If the scenario you described is acceptable per local code, then it would be accepted as meeting the intent of program requirements.</p>
00027	1/21/2012	Performance Path Prescriptive Path	Comment	Determining Lighting Power Allowance
				<p>Issue: In the Performance Path, total specified lighting power for the combined common (non-apartment) spaces should not exceed ASHRAE 90.1-2007 allowances for those combined spaces by more than 20%. In the Prescriptive Path, they can't exceed 90.1-2010. Can we use the building area method or space-by-space method when doing this calculation?</p> <p>Response/Resolution: Both the building area or space-by-space methods may be used to determine lighting power. If following the Performance Path and using the building area method, you cannot exceed 0.7 W/sf (per ASHRAE 90.1 2007 Table 9.5.1) by more than 20%. If following the Prescriptive Path and using the building area method, you cannot exceed 0.6 W/SF (per ASHRAE 90.1 2010 Table 9.5.1.)</p>

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00028	1/31/2012	Performance Path Simulation Guidelines	Comment	Modeling of multiple buildings in the same project
				Issue: We have a project that is proposing to build 3 buildings all next to each other that are all served by the same central plant for heating and cooling. Two of the buildings are connected via an exterior walkway on each floor. All 3 buildings are eligible for the new high rise program per the EPA flowchart. Could we model all three buildings under one energy model and submit one Proposed and one As-Built building submittal for the entire project? Or would we have to model each building separately and submit individual submittals to EPA for each building?
				Response/Resolution: Either approach would be acceptable to EPA. If all three buildings met the program requirements, EPA would still consider each individual building as being ENERGY STAR certified.
00029	1/31/2012	Eligibility Flow Chart	Comment	Assisted living or supportive housing buildings
				Issue: Are assisted living or supportive housing buildings eligible?
				Response/Resolution: Visit this website for space type definitions that make a building eligible for the ENERGY STAR through Portfolio Manager. The MFHR program accepts residential buildings that are not already eligible for the ENERGY STAR through other programs. If they are not eligible through other programs, they are likely eligible for MFHR. For example, independent senior living and group homes are typically eligible for the MFHR program.
00030	1/31/2012	Prescriptive Path	Comment	Exterior and interior wall insulation requirements
				Issue: Tables 2 and 3 of the Prescriptive Path list both a nominal R-value and maximum U-value. Do both of those requirements need to be met or can you select one approach over the other? Also, if we can meet the Prescriptive U-value entirely using interior insulation, do we have to also provide exterior insulation?
				Response/Resolution: Either the R value or the U-value requirements in those Prescriptive Path envelope Tables must be followed; not both. If following R-value, some R-value requirements suggest a combination of interior and exterior insulation. Also, for certain buildings (ex. steel or metal-frame), there are continuous exterior insulation prerequisites to reduce thermal bridging. For those buildings, even if following the U-value approach, you would still need to provide exterior insulation. In addition, if interior insulation will not achieve Grade I, there are minimum R-values for that exterior insulation. A total building UA calculation, that excludes fenestration, is acceptable for compliance with the insulation requirements in these Tables.

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00032	5/4/2012	Project Application Submittal Validation form	Comment	Submittals
				<p>Issue: It is clear that we will be submitting a Project Application, Submittal Validation form, and the T&V worksheets, but there is no mention of whether you require the drawing set to be included. Will you also be reviewing the drawings? Are there any associated review fee's to be paid when sending the submittal?</p>
				<p>Response/Resolution: There are no fees associated with the submittal to EPA and drawings are not reviewed, unless specifically requested after reviewing a submission.</p>
00033	5/4/2012	Performance Path Prescriptive Path	Comment	Plug-in Lighting
				<p>Issue: Can ENERGY STAR certified bulbs installed in plug-in light fixtures count toward the 80% requirement?</p>
				<p>Response/Resolution: Although recommended as a cost-effective energy-efficient measure in all light fixtures, only ENERGY STAR certified bulbs installed in <u>hard-wired</u> fixtures can meet this requirement.</p>
00038	7/26/2012	T&V Workbook	Comment	Testing & Verification Workbook – Program Requirements
				<p>Issue: Our Architect is reviewing the T&V Workbook and has noticed there are some requirements in the worksheets that are not identified in the Program Prerequisites or in the T&V Protocol document. Are these additional requirements? Do we need to comply with all items of the T&V worksheet as well?</p>
				<p>Response/Resolution: There are no requirements in the T&V Workbook that are not identified either in the Path documents or in the Testing and Verification Protocols. The T&V Workbook was prepared with the intent of helping program participants with verification of the program requirements. Items listed in the T&V Workbook are intended to be further clarification of what Licensed Professionals or their designated agents need to look for in order to verify compliance with the Program requirements. The T&V Workbook uses the terms, “must” or “shall” when referencing a Program requirement, but also uses the term “recommend” or “should” when referencing a best practice for achieving a Program requirement.</p>

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00039	7/26/2012	T&V Protocols	Comment	<p data-bbox="991 207 1919 237">Type of Testing Protocol</p> <p data-bbox="991 243 1919 305">Issue: Is Third-Party Commissioning a requirement of the Program? What certification(s) are necessary for the commissioning agent?</p> <p data-bbox="991 311 1919 669">Response/Resolution: Third party commissioning is an option for a participating partner to verify As-Built compliance. Although the participating partner is not responsible for commissioning, they must verify that the installed system meets the program requirements. The EPA has not yet defined a certification requirement for inspectors (such as BPI MFBA), so this is an option for participants who do not have the skill set to conduct the verification testing and inspections required. If the participating partner has the skill set to conduct such commissioning themselves, another party is not required. Ultimately, the installer should not be verifying his/her own work. The commissioning agent may also submit a Statement of Substantial Completion (please refer to page 6 of the T&V Protocols v1.0) to satisfy the verification requirements.</p>
00040	7/26/2012	T&V Protocols	Comment	<p data-bbox="991 675 1919 704">Performance Specification Criteria: Contract Language</p> <p data-bbox="991 711 1919 808">Issue: Is the “Contract Language” provided in the Testing & Verification Protocols a requirement of the program? Some of the language conflicts with our specification writer’s protocol.</p> <p data-bbox="991 815 1919 961">Response/Resolution: Contract language is not requirement, but is provided as guidance for the participating partner as a way to verify program compliance at the design stage. Further, if this language, or a variation of it, is not included, the project may risk compliance of the related requirement during As-Built verification.</p>
00041	7/26/3012	T&V Protocols	Comment	<p data-bbox="991 967 1919 997">Procedures and Documentation: DHW Sizing Calculations</p> <p data-bbox="991 1003 1919 1127">Issue: In the DHW section of the T&V Protocols, it states “the responsible party shall review the sizing calculations from the designer to confirm that the system meets the requirements.” This is not stipulated in the Path documents. Is this a requirement?</p> <p data-bbox="991 1133 1919 1242">Response/Resolution: The first prerequisite of DHW systems states that the project must comply with ASRHAE 90.1 2007 Section 7.4. Section 7.4.1 requires load calculations for sizing equipment. The participating partner is responsible to verify this procedure was used for sizing the DHW equipment.</p>

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00042	7/26/2012	T&V Protocols	Comment	Examples of Responsible Parties
				Issue: How are project teams to interpret the list of Responsible Parties given with each T&V Protocol?
				Response/Resolution: All parties who are involved in the specification, installation, or verification for each component are considered responsible parties, as any one of these parties could impact the final installed item or equipment. The list is intended to identify typical responsible parties – it is not meant to be all inclusive or it may not applicable to all projects.
00043	7/26/2012	Performance Path Prescriptive Path	Comment	ENERGY STAR Appliance and ADA Compliance
				Issue: Our project must provide a number of ADA compliant under-cabinet freezers / refrigerators. I've examined the list of ENERGY STAR rated freezers. And could not identify any on the ENERGY STAR list that also meet ADA height requirements. The ENERGY STAR rated freezers are 34" tall; to meet ADA requirements the counter must be at 34". Therefore, these units will not fit under the ADA compliant counters at our project.
				Response/Resolution: As stated in footnote #1 of both the Performance and Prescriptive Path Notes, "where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines, the conflicting requirement within these guidelines shall not be met." In this particular case, the ADA compliant freezers / refrigerators are exempt from the ENERGY STAR appliance prerequisite.
00044	7/26/2012	T&V Protocols	Comment	Ventilation & Infiltration – Total Air Leakage
				Issue: Apartments shall be sealed to reduce air exchange between the apartment and outside as well as the apartment and other adjacent spaces. A maximum air leakage rate of 0.30 CFM50 per square feet of enclosure is allowed." 0.3 CFM50/SF is really extreme and almost unattainable. We work extremely hard on 700SF units to get them to between 500-600 CFM50 for units with adjoining apartments and this is very tough, with 0.3 CFM50/SF this would be 210. This seems extremely difficult and likely unattainable.
				Response / Resolution: The Total Air Leakage metric is 0.30 CFM50 per square feet of <i>enclosure</i> area. The calculation referred to above seems to use only the floor area. The enclosure area includes the floor area, the ceiling area, and the demising and exterior wall areas. A 700 SF unit should have a target CFM in the 600-700 CFM range when taking into account this additional area.

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00046	8/21/2012	Eligibility Flow Chart	Comment	Definition of New Construction
				Issue: Our 3-story building has a partial fourth floor. Is there a requirement for occupiable area or % of the 4th floor for it to be considered a “story”?
				Response / Resolution: If the 4 th floor is more than 20% conditioned area in relation to the floor footprint below, than it would be considered a story. If it is 20% or less, the 4 th floor would not be considered a story per EPA’s ENERGY STAR Multifamily New Construction Program Decision Tree, v1.0.
00053	8/31/2013	Partnership	Comment	ENERGY STAR Developer Partner status
				Issue: What does it mean to be an “active” ENERGY STAR Developer Partner?
				<p>Response / Resolution: To maintain <u>active</u> status in the ENERGY STAR MFHR program, within any 12 month period the Developer Partner must be actively “designing” or “building” a project that is pursuing the ENERGY STAR or actively “benchmarking” a project that has earned the ENERGY STAR through the MFHR program.</p> <ul style="list-style-type: none"> ▪ To be considered actively “designing” a project, the Developer Partner must have an approved ENERGY STAR MFHR Project Application on file with the EPA or its designated agent. A Developer Partner may become inactive if they fail to submit a Proposed Design Submittal within 3 years of the Project Application submittal date. ▪ To be considered actively “building” a project, the Developer Partner must have an approved Proposed Design Submittal on file with EPA or its designated agent for a building that has not yet been certified. ▪ To be considered actively “benchmarking” a project that has earned the ENERGY STAR, the project must have earned certification through the ENERGY STAR MFHR program, and the energy performance of the building is being measured and tracked in Portfolio Manager <p>Note: If a Developer Partner is inactive, they must discontinue the use of the ENERGY STAR Partner Logo and will no longer have access to their My ENERGY STAR Account (MESA). Inactive Developer Partners may continue to use the ENERGY STAR Certification Mark to promote buildings that have earned the ENERGY STAR.</p>

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00031	1/31/2012	Eligibility Flow Chart	Issue under Review	<p data-bbox="989 206 1919 235">Definition of New Construction</p> <p data-bbox="989 240 1919 305">Issue: To be eligible for the program, must a gut rehabilitation project include removing drywall and re-insulating?</p> <p data-bbox="989 310 1919 581">Response/Resolution: Significant gut rehabilitations are allowed to participate in this program if they are able to meet all program requirements. In general, it is unlikely that the envelope prerequisites can be met, without evaluating the quality of the insulation installation and achieving the required Grade. It is also unlikely that a building would be able to pass performance testing if envelope improvements are not a part of the scope. However, those buildings are not explicitly prevented from participating. ENERGY STAR is considering clarifying the eligibility language and definition of significant gut rehabilitation.</p>
00045	7/30/2012	Performance Path Prescriptive Path	Issue under Review	<p data-bbox="989 591 1919 620">Heating and Cooling Distribution System Tightness</p> <p data-bbox="989 625 1919 755">Issue: Our project uses VRF heat pumps in small studio apartments. There is one supply duct that is typically less than 10 feet in each apartment and a central return to the air handler. Are we required to test the total duct leakage for this small distribution system?</p> <p data-bbox="989 760 1919 880">Response/Resolution: Currently, there is no length of duct specified at which duct leakage testing is or is not required. The ENERGY STAR Homes and Multifamily High-Rise teams are currently reviewing relevant standards and are working to determine if setting a minimum duct length should be defined.</p>