# Current DOE Efficient New Homes Multifamily Version 2 Policy Record

**(National & California program versions)**

## Last Updated: September 15, 2025

**How to Use this Document**

DOE regularly receives partner questions and comments regarding various aspects of the program documents. This document is a record of significant issues that have been received since the release of the last revision to the program documents. These issues are either pending resolution by DOE 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.

DOE intends to formally incorporate policy modifications into the next revision of the program documents. Those edits will then be enforced for homes permitted after a specified transition period, typically at least 60 days from the release of the revised program requirements. 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 document the permit dates of the affected homes and to include a copy of the policy record in the files retained by the Verifier or Rater. Should the need arise, this will allow partners to demonstrate that they acted with the best information available. Items are listed below in chronological order, by log date.

Once policy record items have been incorporated into the latest document Revision, they will be marked as such in the Table of Contents.

**Definitions**

Each issue listed here is classified as a Change, Clarification, Refinement, Comment, or 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 DOE's original intent is not being met or from changes in relevant standards. 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 DOE 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 DOE is still evaluating. Once DOE has evaluated the issue, it will offer a resolution and reclassify the issue using one of the four categories above.

## Contents

**Published September 15, 2025**



**Published September 15, 2025** *(incorporated into Multifamily Version 2, Rev. 2)*

**Published January 7, 2025** *(incorporated into Multifamily Version 2, Rev. 2)*



**Published October 16, 2024** *(incorporated into Multifamily Version 2, Rev. 1)*



**Published March 20, 2024** *(incorporated into Multifamily Version 2, Rev. 1)*

| Current DOE Efficient New Homes Multifamily Version 2 Policy Record | | | | | |
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| **ID** | MFV2.045 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | | PV-Ready Checklist (Version 2, Rev. 1) | | | |
| Topic | MFV2.045: Determining eligibility for exception "a" in the PV-Ready Checklist | | | | |
| Issue | Exception "a" in the PV-Ready Checklist currently provides an alternative pathway for projects installing an on-site PV system with a capacity of at least 1 Watt per square foot of roof area. In order to determine whether a project's PV system meets this exception, the design team must calculate the project's total roof area. A partner has asked whether the PV-Ready Checklist's definition of the area available for the "solar ready zone" (the horizontally projected gross roof area less the area covered by skylights, occupied by roof decks, vegetated roof areas and mandatory access or set back areas) should be used to calculate the roof area when determining whether an existing on-site PV system has enough capacity to meet exception "a." DOE has determined that this is a reasonable approach and will allow projects installing on-site PV to use this definition to calculate the roof area when determining whether a project qualifies for exception "a." This ensures that buildings with both installed PV and rooftop obstructions (green spaces, mechanical equipment, terraces, etc.) do not face more stringent capacity requirements that buildings without rooftop obstructions under exception "a." | | | | |
| Resolution | **Exception "a" in the PV-Ready Checklist (Version 2, Rev. 1) will be updated as follows:**<br><br>a. The building already includes an on-site PV system with a capacity of at least 1 Watt per square foot of <u>available</u> roof area. <u>(1)</u> Documentation of the system must be retained by the rater.<br><br><u>(1) Under exception "a," the available roof area is calculated as the sum of:</u><br>• <u>The area occupied by installed PV system components, and</u><br>• <u>All areas which could be part of the building's solar-ready zone, as described by Items 1 and 2 in this checklist.</u> | | | | |
| **ID** | MFV2.044 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | | EV-Ready Checklist (Version 2, Rev. 1) | | | |
| Topic | MFV2.044: Applicability of EV-Ready Checklist percentage requirements to parking lots shared by multiple buildings | | | | |
| Issue | A partner has inquired whether spaces in pre-existing adjacent parking lots that are not be under the same permitted scope as a building certifying under ZERH (but are owned by the same developer and will be available to the ZERH building's residents) must be included when determining the amount of available parking that should be used when calculating the required number of EV-Ready, EV-Capable, and EVSE spaces under the EV-Ready Checklist. Sometimes, existing adjacent lots may be referenced in a building's permit application to fulfill a local jurisdiction's parking requirements. Due to the complexity of implementing the EV-Ready Checklist's features to a pre-existing parking lot, DOE has determined that the EV-Ready checklist does not apply to existing adjacent lots, as long as the adjacent lots are not used to help fulfill the permitted project's parking requirements. Currently the language in the EV-Ready checklist simply refers to "allocated parking for dwelling units in multifamily or mixed-use buildings" as the parking area to which the checklist applies, but this language will be updated to include this clarification on how the checklist applies to pre-existing parking. | | | | |

<table>
<tr><td>Resolution</td><td colspan="5">Endnote 4 in the EV-Ready Checklist (Version 2, Rev. 1) will be updated as follows:<br><br>For developments where multiple buildings (and/or townhomes~~, when certifying under ZERH MF V2~~) share common parking area(s) (e.g., lot(s) or garage(s)), the percentage of spaces required by this checklist shall be applied to the total number of parking spaces in the common parking area(s) that are intended for use by the buildings' residents or by the total number of units in the buildings, whichever is less, and shall be based on the total number of dwelling units that share the parking area(s).<br><br><u>When pre-existing parking will be available to a newly-certified ZERH building’s residents, these existing parking spaces should only be included in the calculation of required EVSE/EV-Ready/EV-Capable spaces if they were also included in the ZERH building’s project documentation to fulfill minimum parking requirements for the local jurisdiction.</u></td></tr>
<tr><td>ID</td><td>MFV2.043</td><td>Log Date</td><td>9/15/2025</td><td>Classification</td><td>Change</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">EV-Ready Checklist (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.043: Alternative EV-Ready requirements for townhouses certifying under Multifamily V2</td></tr>
<tr><td>Issue</td><td colspan="5">When Version 2, Revision 1 was published, the statement describing the EV-Ready requirements for townhouses certifying under the Multifamily program was inadvertently left out. The program’s intent is for all townhouses with a private driveway or garage to meet the EV-Readiness requirements in ZERH Single Family Version 2, which are designed specifically for this type of building. Language will also be added clarifying that townhouses certifying under ZERH Multifamily Version 2 may claim relevant exceptions to the EV-Ready requirements which are published in the Single Family Version 2 program documents and to include language notifying partners that townhouses will be phased out of Multifamily Version 2, as noted in the National Program Requirements.</td></tr>
<tr><td>Resolution</td><td colspan="5">Item 1 in the EV-Ready Checklist (Version 2, Rev. 1) will be updated as follows:<br><br>Allocated parking for dwelling units in multifamily or mixed-use buildings are provided with … or EV Ready Spaces.<br><u>Townhouses certifying under the ZERH Multifamily V2 program must meet alternative EV Ready requirements. (1)</u><br><br><u>(1) Townhouses (as defined in the ZERH Multifamily V2 National Program Requirements) with private driveways or garages that are certifying under ZERH MF V2 must meet the DOE Zero Energy Ready Home Single Family Homes Version 2 EV-Readiness requirements:</u><br>• <u>One parking space is provided per dwelling unit that includes a powered 208/240V, 30A receptacle installed in dwelling unit’s garage or within 6 feet of the dwelling unit’s private driveway. The electric service panel identifies the branch circuit as “Electric Vehicle Charging.”</u><br><u>Townhouses may claim exceptions to this requirement as stated in the Single Family Version 2 National Program Requirements, as applicable. Only townhouses with permit dates on or before 12/31/2025 are eligible for certification under Multifamily Version 2.</u></td></tr>
<tr><td>ID</td><td>MFV2.042</td><td>Log Date</td><td>9/15/2025</td><td>Classification</td><td>Change</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">All program documents</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.042: Program Rebranding</td></tr>
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| Issue | The U.S. Department of Energy has determined that the Zero Energy Ready Home program shall be renamed to "DOE Efficient New Homes." All references to the Zero Energy Ready Home program shall be assumed to now reference the DOE Efficient New Homes program. | | | | |
| Resolution | In all program documents, the title "DOE Zero Energy Ready Home Program" will be updated to "DOE Efficient New Homes Program." | | | | |
| **ID** | MFV2.041 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | National Rater Checklist (Version 2, Rev. 1) | | | | |
| Topic | MFV2.041: Prescriptive path projects must meet efficiency levels in the ZERH Target Dwelling Unit | | | | |
| Issue | In addition to the mandatory requirements described in Exhibit 1 of the National Program Requirements, Prescriptive path projects are required to meet all energy savings requirements described in the Target Dwelling Design (Exhibit 2). While sections 3 and 12 of the National Rater Checklist require the rater to assert that Prescriptive path projects have met the envelope and HVAC requirements of Exhibit 2, there is not currently a place for the rater to indicate that the remaining Prescriptive path efficiency requirements have been met. An oversight organization has indicated that this has resulted in challenges in enforcing this ZERH Program requirement. | | | | |
| Resolution | **A new line item will be added under Section 13 of the National Rater Checklist (Version 2, Rev. 1) as follows:**<br><br><u>13.3. Prescriptive Path: Efficiency features described in the ZERH MF V2 Target Dwelling Design (Exhibit 2 of the National Program Requirements) are present in the Rated Unit.</u> | | | | |
| **ID** | MFV2.040 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | ERI Target Procedure (Version 2, Rev. 1) | | | | |
| Topic | MFV2.040: Refrigerator specifications in the ZERH Target Dwelling Unit | | | | |
| Issue | Currently the ZERH Target Dwelling Unit is configured to include a refrigerator that consumes 450 kWh per year, whether or not a builder-installed refrigerator is specified in the rated unit. According to ANSI/RESNET/ICC 301, if no refrigerator is included in the rated unit, then the energy model should default to the refrigerator assumed for the Energy Rating Reference Home, which is based on the number of bedrooms in a dwelling unit. For example, in a 1-bedroom apartment, the assumed refrigerator for the Energy Rating Reference Home uses 655 kWh/year. Because of this, a rated dwelling unit without a refrigerator is losing a significant amount of efficiency compared to the ZERH Target Dwelling by not including a refrigerator. The ZERH program recognizes that various market drivers determine if appliances like refrigerators are installed by the builder and does not intend to penalize a builder if a particular appliance is not installed. Therefore, this discrepancy will be resolved by setting the ZERH Target Dwelling to the same refrigerator as the Energy Rating Reference Home when no refrigerator is installed.<br><br>Secondly, based on a review of typical ENERGY STAR refrigerators available, DOE has determined that it is also logical to adjust the ZERH Target Dwelling's refrigerator energy use when a refrigerator is installed in the rated unit. In order to account for the wide variety of refrigerators used in new homes and apartments, the ZERH Target Dwelling will now set the refrigerator's energy use based on the number of bedrooms in the unit, similar to how the refrigerator is defined for ANSI/RESNET/ICC 301. The efficiency levels used are based on average ENERGY STAR refrigerator efficiency levels as a function of their size and general industry guidance regarding the appropriate refrigerator volume based on the number of occupants in a unit. | | | | |

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<tr><td>Resolution</td><td colspan="5">The ERI Target Procedure (Version 2, Rev. 2) will be updated as follows:<br><br><table><tr><td>Lighting, Appliances, and Internal Gains</td><td>Refrigerator:<br>If present in Rated Dwelling Unit, annual energy use based on number of bedrooms:<ul><li>1-2 bedrooms: 450 kWh per year</li><li>3-4 bedrooms: 600 kWh per year</li><li>5 or more bedrooms: 650 kWh per year</li></ul>If no refrigerator present in Rated Home, annual energy use same as Energy Rating Reference Home, as defined by ANSI/RESNET/ICC Standard 301: 637 + 18*(number of bedrooms).</td></tr></table></td></tr>
<tr><td>ID</td><td>MFV2.039</td><td>Log Date</td><td>9/15/2025</td><td>Classification</td><td>Clarification</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1), California Rater Checklist (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.039: Indoor AirPlus Version 2 Implementation Date</td></tr>
<tr><td>Issue</td><td colspan="5">The Indoor AirPlus (IAP) program released its specifications for Version 2 in July 2024, which includes two different tiers of certification – Certified and Gold. After significant coordination and discussion with ZERH stakeholders and IAP program staff, ZERH (which currently requires IAP Version 1 certification) decided to adopt IAP Version 2 as the prerequisite certification for the ZERH Version 2 program, accepting certifications under either the Certified or Gold tier with an implementation date of 1/1/2026, matching EPA’s implementation date. Since that time, DOE has received partner feedback that more time is needed for the development of supporting educational and training materials for IAP Version 2 prior to widespread use. With that in mind, the implementation date for IAP Version 2 under the ZERH program will be adjusted to 1/1/2027.</td></tr>
<tr><td>Resolution</td><td colspan="5">The endnote associated with the Indoor AirPlus certification requirement in the National Program Requirements (Version 2, Rev. 1) the National Rater Checklist (Version 2, Rev. 1), the California Program Requirements (Version 2, Rev. 1), and the California Rater Checklist (Version 2, Rev. 1) will be updated as follows:<br><br>Buildings permitted on or before 12/31/<s>2025</s> 2026 must certify under either Indoor airPLUS (IAP) Version 1 (Rev. 4), or the IAP Version 2 Certified (or Gold) tier. Buildings permitted on or after 1/1/<s>2026</s> 2027 must certify under the IAP Version 2 Certified (or Gold) tier. See the Indoor AirPlus program site for Version 2 program documents: https://www.epa.gov/indoorairplus/indoor-airplus-program-documents.</td></tr>
<tr><td>ID</td><td>MFV2.038</td><td>Log Date</td><td>9/15/2025</td><td>Classification</td><td>Clarification</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">National Program Requirements (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.038: Energy efficiency metrics updated to SEER2 and HSPF2</td></tr>
<tr><td>Issue</td><td colspan="5">Exhibit 2 currently specifies heating and cooling equipment using the outdated metrics of HSPF and SEER. While this aligns with the corresponding ZERH ERI Target Procedure, it may cause confusion as partners specify and model equipment using the current metrics of HSPF2 and SEER2. For improved clarity and to align with recent updates to the ENERGY STAR program specifications, the efficiency of heating and cooling equipment in Exhibit 2 will be updated to the current rating metrics. Note that this is an informative update, as</td></tr>
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| | the corresponding ERI Target Procedure that determines the ERI performance target will not change. Changing the ERI Target Procedure in this manner is not necessary because ERI rating software already incorporates the conversion algorithms between HSPF/SEER, and HSPF2/SEER2, respectively. |
| Resolution | **Exhibit 2 in the National Program Requirements will be updated as follows:** |

**Residential Cooling Equipment (where provided) serving Dwelling Units** (1) modeled at the applicable efficiency levels below ~~(2)~~ (4). If specified equipment type is not listed here, see Exhibit A.

| | | **2021 IECC Climate Zone** | **1, 2** | **3** | **4A, 4B** | **4C, 5, 6, 7, 8** |
|---|---|---|---|---|---|---|
| | | ~~Central A/C Cooling~~ | ~~18 SEER~~ | ~~16 SEER~~ | ~~16 SEER~~ | ~~14 SEER~~ |
| | | ~~Air Source Heat Pump Cooling~~ | ~~18 SEER~~ | ~~16 SEER~~ | ~~16 SEER~~ | ~~16 SEER~~ |
| | | ~~Ground Source Heat Pump Cooling~~ | ~~16 EER~~ | ~~14 EER~~ | ~~14 EER~~ | ~~14 EER~~ |
| Air Conditioner | | Ductless | 18 SEER2 | 16 SEER2 | 16 SEER2 | 14 SEER2 |
| | | Ducted Split and Single Packaged System | 17.1 SEER2 | 15.2 SEER2 | 15.2 SEER2 | 13.3 SEER2 |
| Air Source HP (cooling) | | Ductless | 18 SEER2 | 16 SEER2 | 16 SEER2 | 16 SEER2 |
| | | Ducted Split and Single Packaged System | 17.1 SEER2 | 15.2 SEER2 | 15.2 SEER2 | 15.2 SEER2 |
| Ground Source HP (cooling) | | Ductless | 16 EER2 | 14 EER2 | 14 EER2 | 14 EER2 |
| | | Ducted Split and Single Packaged System | 15.2 EER2 | 13.3 EER2 | 13.3 EER2 | 13.3 EER2 |

**Residential Heating Equipment (where provided) serving Dwelling Units** (1) modeled at the applicable efficiency levels below ~~(3)~~ (4). If specified equipment type is not listed here, see Exhibit A.

| | | **2021 IECC Climate Zone** | **1, 2** | **3** | **4A, 4B** | **4C, 5, 6, 7, 8** |
|---|---|---|---|---|---|---|
| | | Gas Furnace, Gas Boiler | 90% AFUE | 90% AFUE | 95% AFUE | 95% AFUE |
| | | ~~Air Source Heat Pump (HSPF)~~ | ~~9.2~~ | ~~9.2~~ | ~~9.2~~ | ~~9.5~~ |
| Air Source HP (heating) | | Ductless | 8.2 HSPF2 | 8.2 HSPF2 | 8.2 HSPF2 | 8.5 HSPF2 |
| | | Ducted Split System | 7.8 HSPF2 | 7.8 HSPF2 | 7.8 HSPF2 | 8.0 HSPF2 |
| | | Ductless Single Packaged System | 7.7 HSPF2 | 7.7 HSPF2 | 7.7 HSPF2 | 7.9 HSPF2 |
| | | Ground Source Heat Pump | 2.7 COP | 2.7 COP | 2.7 COP | 2.8 COP |

(1) [no changes]

(4) While the corresponding ERI Target Procedure specifies air conditioners and heat pumps using SEER and HSPF, in this document they have been converted to the current rating metrics, SEER2 and HSPF2.

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| **ID** | MFV2.037 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1), California Rater Checklist (Version 2, Rev. 1) | | | | |
| Topic | MFV2.037: New versions of ESMFNC meet the ZERH MF V2 prerequisite | | | | |

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| Issue | Since the publication of ZERH MF V2 in 2023, ENERGY STAR has released updated versions of their National and California Multifamily New Construction specifications. Since these specifications offer efficiency increases beyond the current ENERGY STAR program versions required for the ZERH MF V2 prerequisites, certification under these new versions (National 1.3 and California 1.5) also satisfy ZERH's ESMFNC prerequisite certification requirement. | | | | |
| Resolution | **Item 2.1 in the National Program Requirements (Version 2, Rev. 1) and the National Rater Checklist (Version 2, Rev. 1) and their associated endnotes will be updated as follows:**<br><br>2.1 Building [Checklist: Unit] is certified under ENERGY STAR Multifamily New Construction National ~~Program~~ Version 1.2 or 1.3. (1)<br><br>(1) DOE Zero Energy Ready Home Multifamily Version 2 requires ~~compliance with~~ certification under ESMFNC V1.2 or 1.3, including in states where ESMFNC V1.1 (or an earlier version) is effective. In states where the ENERGY STAR Residential New Construction program requires additional measures or efficiency levels beyond ESMFNC V1.2, these measures are also mandatory for compliance with the ZERH MF V2 National Program.<br><br>**Item 2.1 in the California Program Requirements (Version 2, Rev. 1) and the California Rater Checklist (Version 2, Rev. 1) and their associated endnotes will be updated as follows:**<br><br>2.1 Building [Checklist: Unit] is certified under ENERGY STAR Multifamily New Construction California ~~Program Requirements,~~ Version 1.4 or 1.5. (1)<br><br>Regardless of the ENERGY STAR program version required for ENERGY STAR certification, ZERH Multifamily California Version 2 requires certification under ~~to~~ ENERGY STAR Multifamily New Construction California Version 1.4 or 1.5. | | | | |
| **ID** | MFV2.036 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | | National Program Requirements (Version 2, Rev. 1) | | | |
| Topic | MFV2.036: Meeting the ZERH performance requirements with performance above Phius 2024 | | | | |
| Issue | The Phius program has recently released their 2024 specifications, including Phius CORE 2024 and Phius ZERO 2024. Because these updated program specifications offer similar efficiency levels to the 2021 versions which are currently referenced by ZERH Multifamily Version 2, the program will be updated to accept performance above either Phius 2021 or 2024. | | | | |
| Resolution | **Section 3.3.1 of the National Program Requirements (Version 2, Rev. 1) will be updated as follows:**<br><br>Meet or exceed the mandatory requirements specified in Exhibit 1. Following the ENERGY STAR Multifamily Simulation Guidelines, configure the preferred set of efficiency measures for the unit to be certified and verify that the resulting energy savings above the ASHRAE building baseline meets or exceeds the required performance target per Exhibit 3. For buildings that are certified as PHIUS CORE 2021, ~~or~~ PHIUS ZERO 2021, Phius CORE 2024, or Phius ZERO 2024 (using PHIUS modeling protocols in lieu of ENERGY STAR Multifamily Simulation Guidelines), achieving 20% less energy use than the PHIUS CORE 2021 or Phius CORE 2024 source energy criteria, without renewables, is accepted in lieu of achieving the ASHRAE performance target based on a baseline of ASHRAE 90.1-2019. | | | | |

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| **ID** | MFV2.035 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1), California Rater Checklist (Version 2, Rev. 1) | | | |
| Topic | MFV2.035: Nominal vs. Rated Capacity of Water Heater to qualify for HPWH readiness exception | | | | |
| Issue | A partner has asked whether the exception to the heat pump water heater ready provision for a condensate drain within three feet of the existing water heater applies if the existing water heater's nominal or rated capacity is less than 50 gallons, since these values often deviate. The program's intent is for this exception to apply to water heaters with a nominal capacity less than 50 gallons and the language in the exception will be updated accordingly. | | | | |
| Resolution | **Endnote 38 in the National Program Requirements (Version 2, Rev. 1), endnote 29 in the National Rater Checklist (Version 2, Rev. 1), endnote 32 in the California Program Requirements (Version 2, Rev. 1), and endnote 25 in the California Rater Checklist (Version 2, Rev. 1) will be updated as follows:**<br><br>Drain is no more than two inches higher than the base of the installed water heater and allows draining without pump assistance. Drain is not required to be reserved exclusively for use with a future heat pump water heater. Drain does not need to be provided if the installed water heater is a tankless water heater or an electric system with a nominal tank volume less than 50 gallons. | | | | |
| **ID** | MFV2.034 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | | ERI Target Procedure (Version 2, Rev. 1) | | | |
| Topic | MFV2.034: Townhouse eligibility under ZERH MF V2 is limited to buildings permitted before 1/1/2026 | | | | |
| Issue | In Revision 1, DOE limited Townhouse eligibility for the ZERH Multifamily Version 2 program to buildings permitted before 1/1/2026 (see Policy Record entry MFV2.016, below). To improve consistency and clarity, this stipulation will also be added to the ERI Target Procedure. | | | | |
| Resolution | **The ERI Target Procedure (Version 2, Rev. 1) introduction will be updated as follows:**<br><br>This document provides detailed instructions for determining the Zero Energy Ready Home (ZERH) ERI Target, the highest ERI value that each rated multifamily dwelling unit, excluding townhouses, may achieve to earn the DOE Zero Energy Ready Home Multifamily Program Version 2 (ZERH MF V2) Certification. In addition to meeting the ZERH MF V2 ERI Target for each unit, units shall also meet all mandatory requirements in Exhibit 1 of the ZERH MF V2 National Program Requirements. While Townhouses permitted before 1/1/2026 are eligible to earn ZERH MF V2 certification by meeting their ZERH ERI Target and also meeting all mandatory requirements in Exhibit 1 of the ZERH MF V2 National Program Requirements, the instructions for determining their ZERH ERI Target is in the ZERH Single Family Homes ERI Target Procedure Version 2 (most recent revision). | | | | |
| **ID** | MFV2.033 | **Log Date** | 9/15/2025 | **Classification** | Refinement |
| **Program Document(s) Affected** | | National Program Requirements (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1) | | | |
| Topic | MFV2.033: Consolidate description of eligible building types | | | | |
| Issue | The ESMFNC program, in Revision 5, has published several adjustments to the building eligibility definition which streamline and refine the requirements. DOE adopts these parameters from the ENERGY STAR program, thus, building type eligibility for certification | | | | |

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| | under ZERH Multifamily Version 2 is the same as building type eligibility for certification under ENERGY STAR Multifamily New Construction Version 1.2, so the ZERH Program Requirements will contain these same updates. |
| Resolution | **Endnote 1 in the National Program Requirements (Version 2, Rev. 1) and the California Program Requirements (Version 2, Rev. 1) will be updated and split into two endnotes, as follows:**<br><br>(1) Buildings that do not contain dwelling or sleeping units are not eligible for certification under ZERH. Hotels, motels, and assisted living or skilled nursing facilities that meet the definition of senior care facilities are also not eligible for certification under MFNC. Dormitories, residence halls, buildings with single-room occupancies, supportive housing, cohousing, and other senior housing not meeting the definition of senior care facilities are eligible for the ZERH program. DOE adopts these parameters from the ENERGY STAR program, thus, building type eligibility for certification under ZERH Multifamily Version 2 is the same as building type eligibility for certification under ENERGY STAR Multifamily New Construction Version 1.2 (California: ENERGY STAR Multifamily New Construction, California Version 1.4). Visit https://www.energystar.gov/partner_resources/residential_new/program_reqs/mfnc_building_eligibility for more information.<br><br>(2) The term 'building' refers to a structure that encompasses dwelling/sleeping units and (if present) common spaces, sharing one or more of the following attributes: a common street address, a common entrance or exit, central/shared mechanical systems, or structurally interdependent wall or roof systems. Attached structures such as townhouses and 4-story two-unit structures (commonly referred to as "2-over-2s") may be considered separate buildings if they are divided by a vertical fire separation wall from the foundation to the roof sheathing and share none of the other attributes listed above. A skyway or a breezeway that connects two structures is not considered a common entrance or exit. ~~DOE adopts these parameters from the ENERGY STAR program, thus, building type eligibility for certification under ZERH Multifamily Version 2 is the same as building type eligibility for certification under ENERGY STAR Multifamily New Construction Version 1.2. For the purposes of eligibility, hotels, motels, and senior care facilities are not considered multifamily buildings. For more information, visit: https://www.energystar.gov/partner_resources/residential_new/program_reqs/mfnc_building_eligibility~~ |

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|---|---|---|---|---|---|
| **ID** | MFV2.032 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | | ERI Target Procedure (Version 2, Rev. 1) | | | |
| Topic | MFV2.032: Updating Et and Ec to AFUE conversion | | | | |
| Issue | ENERGY STAR has updated the equations in ESMFNC's ERI Target Procedure which convert a commercial boiler's Et or Ec to AFUE. The equations are now more accurate for typical conversion scenarios. DOE agrees with ENERGY STAR's reasoning and will make the same changes to the ZERH ERI Target Procedure. | | | | |
| Resolution | **Endnote 12 in the ERI Target Procedure (Version 2, Rev. 1) will be updated as follows:**<br><br>For a Rated Unit … air-source heat pump. Where a furnace or boiler is the heating system for the Rated Unit and is rated in ~~combustion efficiency (Ec), the~~ thermal efficiency (Et), it shall be ~~modeled as Ec-2%~~ converted to AFUE using the following equation: AFUE = Et. Where ~~thermal efficiency (Et) is modeled~~ rated in combustion efficiency (Ec), it shall be converted to AFUE using the following equation: ~~Et = 0.875 x AFUE +10.5%.~~ AFUE = Ec-2%. | | | | |
| **ID** | MFV2.031 | **Log Date** | 9/15/2025 | **Classification** | Change |

| **Program Document(s) Affected** | California Program Requirements (Version 2, Rev. 1) |
|---|---|
| Topic | MFV2.031: Consolidation of design review and verification documents and requirement for the Multifamily Workbook in California |
| Issue | Following a stakeholder feedback period regarding ENERGY STAR Multifamily New Construction Revision 05, the EPA has decided to proceed with a proposal to require the Multifamily Workbook for all buildings. To maintain consistency in documentation requirements, DOE will adopt this requirement as well.<br><br>Additionally, with recent documentation updates, a separate Exhibit is not required for documentation submitted to MROs. Similarly, all multifamily buildings, and not just those going through the ASHRAE and Prescriptive Paths in the National program, benefit from a design review. |
| Resolution | **Steps 3.3 and 3.6 in the California Program Requirements will be updated as follows:**<br><br>3.3. Prior to certification, the Rater must submit ~~Upon completion of design, for high-rise multifamily buildings, specific~~ design documentation ~~is submitted~~ to a Provider or an ~~the~~ MRO for ZERH for their review and approval ~~as described in Exhibit 2~~. DOE strongly recommends submitting documentation before construction; however, Raters may choose to submit the design documentation at final certification. ~~MROs for ZERH may choose to implement alternative design review requirements.~~<br><br>3.6 Once verification on all units and common spaces is complete, submit the whole building to the HCO or MRO for ZERH for final certification. The Rater is required to keep electronic or hard copies of the completed and signed California Multifamily Rater checklists, PV and EV-Ready checklists, and Multifamily Workbook with ZERH Addenda. Additionally, the following steps are required:<br>a. Low-rise multifamily buildings: submit the building to the HCO for ZERH for final certification and follow the HCO for ZERH's certification and oversight procedures (e.g., quality assurance, recordkeeping, and reporting).<br>b. High-rise multifamily buildings: submit the building to the MRO for ZERH for final certification with the specified ~~specific~~ documentation ~~must be submitted~~ based on as-built conditions ~~to an MRO for ZERH for their review and approval~~ as described in Exhibit 2~~.~~, and follow the MRO for ZERH's certification and oversight procedures (e.g., quality assurance, recordkeeping, and supporting documentation).<br><br>**Exhibit 2 in the California Program Requirements will be updated as follows:**<br><br>Exhibit 2: ~~Multifamily Building MRO for ZERH~~ Documentation Requirements for All Certified Multifamily Buildings<br><br>~~The following documents must be submitted to the MRO for ZERH. Those designated as 'final only' are only submitted at final certification.~~ Prior to certification, the Rater must submit all documents listed to a Provider or MRO for ZERH for review and approval. Where noted in these documents, Raters are also required to submit evidence (e.g., construction documents, modeling files) showing that program requirements have been met.<br><br>**Party Responsible** \| **Documents**<br>~~Requirements Applicable to All Buildings~~ |

| | | |
|---|---|---|
| Rater | ZERH Multifamily California Rater Checklist Version 2 | |
| | ZERH PV-Ready Checklist Version 2 | |
| | ZERH EV-Ready Checklist Version 2 | |
| | ESMFNC Workbook with ZERH Addenda<br>~~*Note: DOE may in the future expand the Excel-based Multifamily Workbook used to document compliance with ZERH National Multifamily Version 2 and require its use for California Multifamily projects.*~~ | |
| | Photo Documentation | |
| Modeler | California Compliance Report | |

Notes:

- For multifamily projects with multiple buildings, each building must demonstrate compliance with the program requirements but can be documented using one Multifamily Workbook per project.
- While Partners are encouraged to always use the newest versions of the Excel-based Multifamily Workbook available online, file updates between Program revisions will not be required unless otherwise specified. After a Program revision, Raters will be required to use the updated Workbook based on the enforcement timeline set for the revision.

| | | | | | |
|---|---|---|---|---|---|
| **ID** | MFV2.030 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | | National Program Requirements (Version 2, Rev. 1) | | | |
| Topic | MFV2.030: Consolidation of design review and verification documents across all paths, including Multifamily Workbook requirement for all paths | | | | |
| Issue | Following a stakeholder feedback period regarding ENERGY STAR Multifamily New Construction Revision 05, the EPA has decided to proceed with a proposal to require the Multifamily Workbook for all buildings. To maintain consistency in documentation requirements, DOE will adopt this requirement as well. Use of the workbook, which includes addenda for the ZERH program, will improve the quality of data reporting for projects using alternatives within the program, such as a whole-building UA tradeoff, which is not captured in the dwelling unit-level models used by projects following the ERI path.<br><br>Because of this additional documentation requirement, Exhibit 4 of the National Program Requirements, which specifies documentation requirements for ASHRAE and Prescriptive path projects, is now relevant to all paths. As such, ERI path projects will be added to this exhibit and all multifamily buildings, not just those going through the ASHRAE and Prescriptive paths, will be encouraged to perform a design review of the specified documentation. To reflect this new approach, several changes will be made to ZERH program documents. | | | | |
| Resolution | **Section 3.1, Prescriptive Path Certification Process, in the National Program Requirements (Version 2, Rev. 1) will be updated as follows:** | | | | |

3.1.2. ~~Upon completion of design, specific documentation~~ Prior to certification, the Rater must submit design documentation ~~See Exhibit 4) may be submitted~~ to an MRO for ZERH for review and approval. DOE strongly recommends submitting this documentation before construction; however, Raters may instead choose to submit the design documentation at final certification. ~~MROs for ZERH may choose to implement alternative design review requirements.~~ Exhibit 4, below, lists all documents required for certification.

**A new step 3.2.3 will be added to Section 3.2, Energy Rating Index (ERI) Path Certification Process, in the National Program Requirements (Version 2, Rev. 1), and the existing steps 3.2.3, 3.2.4, and 3.2.5 will be renumbered:**

3.2.3. Prior to certification, the Rater must submit design documentation to a Provider for review and approval. DOE strongly recommends submitting this documentation before construction; however, Raters may instead choose to submit the design documentation at final certification. Exhibit 4, below, lists all documents required for certification.

**Section 3.3, ASHRAE 90.1 Path Certification Process, in the National Program requirements (Version 2, Rev. 1) will be updated as follows:**

3.3.2. ~~Upon completion of design, specific documentation may be submitted~~ Prior to certification, the Rater must submit design documentation to an MRO for ZERH for their review and approval. ~~as described in Exhibit 4.~~ DOE strongly recommends submitting this documentation before construction; however, Raters may instead choose to submit the design documentation at final certification. ~~MROs for ZERH may choose to implement alternative design review requirements.~~ Exhibit 4, below, lists all documents required for certification.

**Exhibit 4 of the National Program Requirements (Version 2, Rev. 1) will be updated as follows:**

Exhibit 4: ~~ASHRAE and Prescriptive Path MRO Documents~~ Documentation Requirements for All Certified Multifamily Buildings

Prior to certification, the Rater must submit all documents listed to a Provider or MRO for ZERH for review and approval. Where noted in these documents, Raters are also required to submit evidence (e.g., construction documents, modeling files) showing that program requirements have been met. ~~Upon completion of design, documentation listed below (the Photo Documentation) may be submitted to an MRO for ZERH for their review and approval. DOE strongly recommends submitting this documentation before construction; however, Raters may instead choose to submit the design documentation at final certification along with the Photo Documentation. All documentation listed below must be submitted at final certification. MROs for ZERH may choose to implement alternative design review requirements.~~

| Party Responsible | Documents |
|---|---|
| **Requirements Applicable to the ~~Prescriptive and ASHRAE Paths~~ All Buildings** | |
| Rater | ENERGY STAR Multifamily Workbook, including ZERH addenda |
| | ZERH Multifamily National Rater Checklist Version 2 |

| | | |
|---|---|---|
| | ZERH Multifamily PV-Ready Checklist Version 2 | |
| | ZERH Multifamily EV-Ready Checklist Version 2 | |
| | ~~Construction Documents~~ | |
| | ZERH Multifamily Version 2 Photo Documentation | |
| **Requirements Applicable Only to the ASHRAE Path** | | |
| ASHRAE Modeler | ASHRAE Standard 90.1 Performance-Based Compliance Form (Compliance Form) | |
| | ~~ESMFNC~~ ENERGY STAR MFNC/ZERH MF Companion Tool ~~to the ASHARE Standard 90.1 Performance-Based Compliance Form~~ (Companion Tool) | |
| | ~~Modeling file or modeling input and output files~~ | |

Notes

- For multifamily projects with multiple buildings, each building must demonstrate compliance with the program requirements but can be documented using one Multifamily Workbook per project.
- For buildings pursuing the ASHRAE Path, where buildings are identical, only one set of modeling files, one Compliance Form, and one Companion Tool are required to be submitted. At the discretion of the ASHRAE modeler, connected buildings may be modeled as one building or separate buildings.
- For buildings choosing the Phius alternative modeling option in the ASHRAE Path, in lieu of submitting the Compliance Form, Companion Tool, and modeling files, documentation is instead provided that demonstrates achievement of the required source energy per person and final certification from Phius.
- For the Excel-based Compliance Form, Companion Tool, and Multifamily Workbook, while Partners are encouraged to always use the newest versions available online, unless otherwise specified, file updates between Program revisions will not be required. After a Program revision, Raters will be required to use the updated documents based on the enforcement timeline set for the revision.

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| **ID** | MFV2.029 | **Log Date** | 9/15/2025 | **Classification** | Refinement |
| **Program Document(s) Affected** | | ERI Target Procedure (Version 2, Rev. 1) | | | |
| Topic | MFV2.029: Clothes washer in the ZERH Target Home | | | | |
| Issue | Software developers have pointed out a lack of clarity over how to implement clothes washer specifications in the ZERH Target Dwelling. DOE will adjust the language to increase the clarity of the language in this section of the ERI Target Procedure. | | | | |
| Resolution | **The "clothes washer" item in the ERI Target Procedure (Version 2, Rev. 1) will be updated as follows:**<br>Clothes Washer: If ~~clothes washer present in~~ the Rated Unit includes a clothes washer, then the clothes washer in the Target Home is ~~efficiency equal to~~ "Std 2018-Present." ~~Standard Clothes Washer Model; otherwise,~~ If the Rated Unit does not include a clothes washer, then the clothes washer in the Target Home is the same as the Energy Rating Reference Home, as defined by ANSI/RESNET/ICC Standard 301. | | | | |
| **ID** | MFV2.028 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1) | | | |

| | |
|---|---|
| Topic | MFV2.028: Common space requirements apply to commercial spaces when included in the whole building energy model to achieve the savings target |
| Issue | The ENERGY STAR Multifamily Simulation Guidelines, which must be used by all projects pursuing ZERH certification under the ASHRAE path, provide clear instructions that energy savings in nonresidential spaces (e.g., retail, commercial) may be included in energy models only if the efficiency measure meets 'relevant mandatory program requirements.' This language also applies to the ZERH MF V2 mandatory requirements. If a commercial space is included in the energy model which demonstrates the required 20% savings beyond the ASHRAE 90.1-2019 baseline, that commercial space must meet the ZERH program's mandatory envelope requirements for common spaces, in addition to all common space requirements for the ENERGY STAR Multifamily New Construction program. |
| Resolution | **Endnotes 5 and 8 in the National Program Requirements (Version 2, Rev. 1) will be updated as follows:**<br><br>5. The term 'common space' refers … in support of the residents. For the ASHRAE path, the requirements for 'common spaces' apply to commercial or retail spaces where they are included in the energy model and savings contribute to achieving the Performance Target.<br><br>8. These requirements apply to all dwelling units and common spaces covered by the program, and garages (open or enclosed) in the building being certified, and where specified, parking lots. These requirements do not apply to commercial or retail spaces, except in the ASHRAE Path, if included in the energy model and the savings contribute to achieving the Performance Target. These requirements… [no further changes]<br><br>**Endnote 1 in the National Rater Checklist (Version 2, Rev. 1) will be updated as follows:**<br><br>1. This Checklist applies to all dwelling units, sleeping units, common spaces, and garages… Property Manager. This Checklist does not apply to commercial or retail spaces, except in the ASHRAE Path, if included in the energy model and the savings contribute to achieving the Performance Target. This Checklist does not apply to common spaces… [no further changes] |

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| **ID** | MFV2.027 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | | ERI Target Procedure (Version 2, Rev. 1) | | | |
| Topic | MFV2.027: No whole-house fan in the Target Dwelling | | | | |
| Issue | Because the ERI Target Procedure does not specify whether the ZERH Target Dwelling should be configured with a whole-house fan, the logic in endnote 1 applies: "Any parameter not specified in this exhibit shall be identical to the value entered for the Rated Unit." As a result, when a Rated Unit is configured with a whole-house fan, the ZERH Target Dwelling Unit will also be configured with one, negating the benefits of the measure.<br><br>To align with ANSI / RESNET / ICC 301, the ERI Target Procedures for both the Single-Family and Multifamily programs will be updated to specify that the ZERH Target Dwelling should be configured ***without*** a whole-house fan. For clarity, this will be grouped with the | | | | |

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| | other Cooling System parameters and include the key portion of the definition in ANSI / RESNET / ICC 301, so as not to be confused with HVAC fans or whole-dwelling mechanical ventilation systems. | | | | |
| Resolution | **A new row will be added to the end of the "Building Component: Cooling Systems" section of the ERI Target Procedure (Version 2, Rev. 1) as follows:**<br><br>Whole-House Fan: None. Per ANSI / RESNET / ICC 301, a Whole-House Fan is a forced air system that exhausts at least 5 ACH of indoor air to the outdoors thereby drawing outdoor air into a home through open windows and doors for the purpose of cooling the home. | | | | |
| **ID** | MFV2.026 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1), California Rater Checklist (Version 2, Rev. 1) | | | |
| Topic | MFV2.026: Clarifying the definition of garage | | | | |
| Issue | ENERGY STAR has adjusted the reference to garages in their program to include both shared and individual garages. The intent is that requirements that use the word 'garage' will apply to all garages, shared and individual, unless a qualifier is used, such as 'attached' or 'shared' that would limit the requirement to a subset of garages. In order to maintain consistency with ENERGY STAR on this issue, the ZERH program is adopting the same language. | | | | |
| Resolution | **Endnote 8 in the National Program Requirements (version 2, Rev. 1) and endnote 10 in the California Program Requirements (Version 2, Rev. 1) will be updated as follows:**<br>These requirements apply to all dwelling units and common spaces covered by the program, and garages (open or enclosed, shared or individual) in the building being certified, and where specified, parking lots. These requirements … [no further changes]<br><br>**Endnote 1 in the National Rater Checklist (Version 2, Rev. 1) and the California Rater Checklist (version 2, Rev. 1) will be updated as follows:**<br>This Checklist applies to all dwelling units, sleeping units, common spaces, and garages (open or enclosed, shared or individual) in the building being certified, and where specified, parking lots. These requirements … [no further changes] | | | | |
| **ID** | MFV2.025 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | | California Program Requirements (Version 2, Rev. 1); California Rater Checklist (Version 2, Rev. 1) | | | |
| Topic | MFV2.025: Jump ducts in a high-performance vented attic in the state of California | | | | |
| Issue | Partners have inquired if ZERH will allow jump ducts insulated to R-8 to be fully exposed in a vented attic in the state of California (with the possibility of some under-roof-deck insulation being present depending on the California climate zone). In the 2022 California Building Energy Efficiency Standards (BEES), forced-air ducts carrying heated and/or cooled air may be located in a high-performance attic (meeting the insulation specifications in Table 170.2-A, Option B) if the duct is insulated according to Table 170.2-K (R-6 insulation in CA climate zones 5, 6,and 7, R-8 in all other climate zones). Since ZERH already provides for the BEES allowance for these ducts with a much higher potential for thermal transfer to be located in the attic with an R-8 or R-6 duct, then allowing the same configuration for jump ducts in a high-performance attic is reasonable and will also be permitted by the program. | | | | |

<table>
<tr><td>Resolution</td><td colspan="5">The following language will be added to endnote 17 in the California Program Requirements (Version 2, Rev. 1) and endnote 10 in the California Rater Checklist (Version 2, Rev. 1):<br>c. Jump ducts which do not directly deliver conditioned air from the heating/cooling equipment may be located in attics if all joints, including boot-to-drywall, are air sealed and the jump duct is fully buried under the attic insulation. <u>If the jump ducts are located in a ventilated attic space meeting the roof and ceiling insulation level from 2022 BEES Table 170.2-A, Option B and the jump duct insulation levels meet the Option B duct insulation requirements in Table 170.2-K, then the jump ducts do not have to be fully buried under the attic insulation</u>.</td></tr>
<tr><td>ID</td><td>MFV2.024</td><td>Log Date</td><td>9/15/2025</td><td>Classification</td><td>Clarification</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">ERI Target Procedure (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.024: Insulation installation grading, definitions of “floor” and floor construction type in the ERI Target Dwelling Unit</td></tr>
<tr><td>Issue</td><td colspan="5">Exhibit 2 of the National Program Requirements indicates that the Target Dwelling should be configured with Grade I insulation, but the ERI Target Procedure does not currently include insulation grades. Because this item is not included in the Target Procedure, software could potentially assume that this assembly should be equivalent to the rated dwelling (at an installation quality less than Grade I), which is not the intent. The ERI Target procedure will be updated to include this metric.<br><br>Additionally, the phrasing of the floors description in the Target Procedure is inconsistent with the phrasing in ANSI/RESNET/ICC 301. For improved consistency and clarity with this standard and with the ENERGY STAR Multifamily New Construction program, the building component description for floors will be updated accordingly.<br><br>Finally, when defining the ZERH Target Dwelling, the intent is to benchmark the Rated Unit against a floor of the same construction type. Since only the wood-framed and mass floor are specified in the Target Procedure, confusion may arise if a third construction type other than wood-framed and mass floors is present in the Rated Unit. The intent is to align the floor construction types in the Target Procedure with the 2021 IECC Table C402.1.4, which categorizes them as ‘Joist/Framing’ and ‘Mass.” To avoid confusion and improve consistency, the floor construction type will be revised to align with the 2021 IECC terms, and specify that the Target Dwelling should be configured with the same floor type as the Rated Unit.</td></tr>
<tr><td>Resolution</td><td colspan="5">The ERI Target Procedure (Version 2, Rev. 1) will be updated as follows:<br><br>
<table>
<tr><td colspan="9">Building Component: Above-Grade Walls, adjacent to Exterior or Garage</td></tr>
<tr><td colspan="9">Interior and Exterior Construction Type: Wood frame</td></tr>
<tr><td colspan="9">Gross Area: Same as Rated Unit</td></tr>
<tr><td colspan="9">Solar Absorptance = 0.75</td></tr>
<tr><td colspan="9">Emittance = 0.90</td></tr>
<tr><td colspan="9">Insulation: <u>Grade I installation</u></td></tr>
<tr><td>Climate Zone:</td><td>1</td><td>2</td><td>3</td><td>4A, 4B</td><td>4C, 5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Wall Assembly U-Factor:</td><td>0.084</td><td>0.084</td><td>0.060</td><td>0.045</td><td>0.045</td><td>0.045</td><td>0.045</td><td>0.045</td></tr>
<tr><td colspan="9">Building Component: Ceilings, adjacent to Exterior of Unconditioned Space Volumes</td></tr>
</table></td></tr>
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Construction Type: Wood Frame | | | | | | | | |
| | Gross Area: Same as Rated Unit | | | | | | | | |
| | Insulation: Grade I installation | | | | | | | | |
| | Climate Zone: | **1** | **2** | **3** | **4A, 4B** | **4C, 5** | **6** | **7** | **8** |
| | Ceiling Assembly U-Factor: | 0.035 | 0.026 | 0.026 | 0.024 | 0.024 | 0.045 | 0.024 | 0.024 |
| | Building Component: Floors Over Unconditioned Space Volume, Non-Freezing Space, Unrated Heated Space, Multifamily Buffer Boundary, or over outdoor environment ~~Volumes, Non-Freezing Space, or Outdoor Space~~ | | | | | | | | |
| | Construction Type: ~~Mass Floor if Rated Unit has a Mass Floor; otherwise, Wood frame~~ Same as Rated Unit | | | | | | | | |
| | Gross Area: Same as Rated Unit | | | | | | | | |
| | Insulation: Grade I installation | | | | | | | | |
| | Climate Zone: | **1** | **2** | **3** | **4A, 4B** | **4C, 5** | **6** | **7** | **8** |
| | ~~Wood Framed~~ Joist/Framing Floor U-Factor: | 0.064 | 0.064 | 0.047 | 0.047 | 0.033 | 0.033 | 0.028 | 0.028 |
| | Mass Floor U-factor: | 0.322 | 0.087 | 0.074 | 0.051 | 0.051 | 0.051 | 0.042 | 0.042 |

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| **ID** | MFV2.023 | **Log Date** | 9/15/2025 | **Classification** | Change |
| **Program Document(s) Affected** | National Program Requirements (Version 2, Rev. 1); National Rater Checklist (Version 2, Rev. 1) | | | | |
| Topic | MFV2.023: Options for compliance with the mandatory high-performance envelope backstop | | | | |
| Issue | This set of updates makes ZERH current with recent changes to the ENERGY STAR Multifamily New Construction program, including the treatment of slab edge insulation requirements and the inclusion of the 2024 thermal conductance (TC) calculation. These updates clarify and add flexibility to the ZERH program requirements.<br><br>**1. Slab Insulation:** Under ENERGY STAR Multifamily New Construction, Rev. 5, there are no longer any mandatory reduced thermal bridging requirements, including requirements for slab edge insulation details. Instead, ENERGY STAR recommends the use of reduced thermal bridging strategies but only requires that they are assessed and accurately reflected in the representative energy model and UA calculation. In order to maintain consistency with ENERGY STAR, ZERH will remove all references to the mandatory ENERGY STAR slab edge insulation requirements.<br><br>**2. 2024 TC Option**: ENERGY STAR MFNC Version 1.3 also includes the 2024 Thermal Conductance (TC) calculation as part of the program's envelope requirements. Because ZERH Multifamily Version 2 now allows certification under either ESMFNC Version 1.2 or 1.3 to meet the ZERH prerequisite certification requirement for ENERGY STAR (see entry MFV2.037, above), ZERH will also allow use of the 2024 TC calculation to meet the ZERH mandatory high-performance envelope backstop. Allowing either the 2021 UA or the 2024 TC to meet this ZERH program requirement increases flexibility for builders and keeps the program up to date with the most recent residential construction standards.<br><br>Additionally, edits are required to maintain consistency with policy record entry MFV2.021 (below), which eliminates the ZERH mandatory window U-factor backstop. | | | | |

Resolution

**Items 3.1a and 3.1b in the National Program Requirements (Version 2, Rev. 1) and the National Rater Checklist (Version 2, Rev. 1) will be updated as follows:**

3.1a ERI and ASHRAE paths: ceiling, wall, floor, and slab insulation for the building meets specified efficiency levels from the 2021 or 2024 IECC. (~~1,~~ 2, 3)

3.1b Prescriptive path: ceiling, wall, floor, and slab insulation for the building meets or exceeds specified ZERH MF V2 Target Dwelling Design insulation levels in dwelling units, and specified efficiency levels from the 2021 or 2024 IECC in common spaces. (3, 4)

(2) ERI and ASHRAE path projects may use a ~~total~~ whole-building 2021 IECC UA calculation or whole-building 2024 IECC TC calculation ~~for the whole building envelope~~ to demonstrate compliance with the mandatory envelope insulation requirements. ~~The as-built UA shall~~ When using the 2021 UA approach, the total building envelope UA must be less than or equal to the sum of UA values that result from multiplying the U factors specified in the table below (for the 2021 IECC) by the same exterior assembly areas as the building being certified. ~~target UA calculated using the method below.~~ When using the 2024 TC approach, the total building envelope TC must be less than or equal to the total TC resulting from using the assembly factors specified below for the 2024 IECC and Equation 4-1 of that code.

ERI path projects may also meet the thermal backstop on a unit-by-unit basis, but must document common space compliance using the Multifamily Workbook.

- ~~All envelope components (e.g., wall, ceiling, floor, slab, windows) which are part of dwelling units:~~
  - ~~Multiply the assembly area of the component by the U-factor specified for that component in the 2021 International Energy Conservation Code (IECC) Residential or Commercial (Group R) chapter. The same chapter must be used for all dwelling unit envelope components. U-factors shall be taken from the 2021 IECC - Table R402.1.2 (when using the Residential chapter) or Table C402.1.4 (when using the Group R values from the Commercial chapter).~~
- ~~All envelope components which are part of common spaces:~~
  - ~~Multiply the assembly area of the component by the U-factor specified for that component in the 2021 International IECC Residential or Commercial (All Other) chapter. The same chapter must be used for all common space envelope components.~~
- ~~The sum of these two calculations is the target UA for the whole building envelope.~~

Table 3.1a: Mandatory Envelope Insulation Requirements for ERI and ASHRAE Path Projects

| Component | Opaque assemblies (including opaque doors and opaque spandrel panels) | Windows and glazed doors (except Class AW) | Class AW windows and glazed doors | Skylights |
|---|---|---|---|---|
| **Mandatory Building Envelope Requirements, 2021 IECC UA Option** | | | | |
| Dwelling Units | 2021 IECC Table R402.1.2 [a] or 2021 IECC Table C402.1.4 (Group R) [b] | 2021 IECC Table R402.1.2 | 2021 IECC Table C402.4 | 2021 IECC Table C402.4 |
| Common Spaces | 2021 IECC Table R402.1.2 [a] or 2021 IECC Table C402.1.4 (All Other) [c] | | **ERI path:** ZERH Reference Design (Exhibit 2) **ASHRAE path:** 2021 IECC Table C402.4 | |

| Mandatory Building Envelope Requirements, 2024 TC Option | | | | |
|---|---|---|---|---|
| Dwelling Units | 2024 IECC Table R402.1.2 or 2024 IECC Table C402.1.2 (Group R) [b] | 2024 IECC Table R402.1.2 | 2024 IECC Table C402.5 | 2024 IECC Table C402.5 |
| Common Spaces | 2024 IECC Table R402.1.2 or 2024 IECC Table C402.1.2 (All Other) [c] | | **ERI path:** ZERH Reference Design (Exhibit 2)<br>**ASHRAE path:** 2024 IECC Table C402.5 | |

[a] For steel-frame ceilings, walls, and floors, use 2021 IECC Table R402.2.6.

[b] The same chapter must be used for all opaque dwelling unit envelope components.

[c] The same chapter must be used for all opaque common space envelope components.

(3) Notes on Section 3: Building Envelope Requirements

- The ~~UA~~ calculations shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. The calculation for a steel-frame envelope assembly shall use the ASHRAE zone method or a method providing equivalent results, and not a series-parallel path calculation method. ~~The performance of components (i.e., fenestration, ceilings, walls, floors, slabs) can be traded of using the UA approach. Note that the ZERH Mandatory window provisions (Exhibit 1) and Section 3 of the ESMFNC National Rater Field Checklist must also be met regardless of the UA tradeoffs calculated.~~
- Where documenting UA within the workbook, F-factors and slab perimeter lengths will be used in place of U-factors and areas.
- The 2021 UA or 2024 TC calculation (and energy model) for the dwelling unit must accurately reflect all envelope details assessed in Items 3.1 through 3.6 of the ESMFNC National Rater Field Checklist.
- Building envelope assemblies, including exterior walls and unvented attic assemblies (where used), shall comply with the relevant vapor retarder provisions of the 2021 or 2024 International Residential Code (IRC).
- If no NFRC rating is noted on a window or in its product literature (e.g., for site-built fenestration), select the U factor from Tables 4 and 10, respectively, in 2013 ASHRAE Fundamentals, Chapter 15. Select the highest U-factor among the values listed for the known window characteristics (e.g., frame type, number of panes, glass color, and presence of low-e coating).
- ~~However, for~~ In jurisdictions designated by a code official as having Very Heavy Termite Infestation, the slab edge insulation value and depth shall be adjusted in the target UA or TC calculation for all paths. The slab ~~code-required~~ insulation level and depth used in the UA or TC limit calculation and the energy model shall be set to the insulation level and depth found in the Rated Dwelling Unit. However, these projects are still required to achieve the ZERH Target ERI, which assumes the use of slab edge insulation per Exhibit 2.

~~All insulation allowances, exceptions, and compliance alternatives (e.g., for slab edge (above-grade and ongrade), columns, balcony details) recognized by the most recent national version and revision of ENERGY STAR Multifamily New Construction (ESMFNC) are permitted. This includes adjustments to the UA calculations based on reduced insulation levels. These allowances and alternatives may be used by projects following the Prescriptive, ERI, or ASHRAE path (to the extent permitted by ESMFNC), and will be integrated into the ESMFNC workbook, with ZERH addenda, envelope UA calculation. A list of currently exempted slab-edge details is available at www.energystar.gov/slabedge.~~

~~Note the following requirements for projects using any of these allowances, exceptions, or alternatives:~~
~~• ERI path projects must still achieve the Target ERI and the total building envelope UA requirement.~~
~~• ASHRAE path projects must still achieve the total building envelope UA requirement.~~
~~• Prescriptive path projects must still achieve the total building envelope UA requirement, as defined in the next endnote.~~

(4) Prescriptive path projects may meet these requirements in one of two ways (including any allowances, exceptions, or alternatives provided in the prior endnote). ~~Regardless of the tradeoffs calculated, all windows which are part of dwelling units must meet the ZERH Mandatory window provisions (see next endnote), and Section 3 of the ESMFNC National Rater Field Checklist must also be met.~~

(1) Meet the requirements for all individual building envelope components using the U or R method.

- ~~All opaque envelope components which are part of dwelling units must meet or exceed values listed in the DOE ZERH Multifamily National Program Requirements Version 2, Exhibit 2: Envelope, Windows, and Doors for Dwelling Units.~~ When using the 2021 IECC for common spaces, equivalent R values to the U factors provided for dwelling units in Exhibit 2 may be taken from the 2021 IECC, Table R402.1.3. When using R values to demonstrate compliance for steel-frame assemblies, the steel-frame equivalent R-value from Table 402.2.6 must be used. ~~All windows which are part of dwelling units must meet or exceed U-values listed in the ZERH Mandatory window provisions (see next endnote).~~
- When using the 2024 IECC for common spaces, Equivalent R values to the U factors provided for dwelling units in Exhibit 2 may be taken from the 2024 IECC, Table R402.1.3.
- ~~All envelope components which are part of common spaces must meet or exceed values listed in either the 2021 International Energy Conservation Code (IECC) Residential or Commercial (All Other) chapter. The same chapter must be used for all common space envelope components. When referencing the R value from the Residential chapter, steel-frame components must use Table R402.2.6 for steel-frame ceiling, walls, and floors.~~
  *Note: When individual U factors are used, each component must have a U-factor* ***less than or equal to*** *what is prescribed by the table below. When individual R values are used, each component must have an R-value* ***greater than or equal to*** *what is prescribed by the references in the above bullets.*

(2) Meet the requirements by using the whole building UA or TC. When using the UA or TC method, the as-built UA shall be less than or equal to the target UA or TC. ~~which is calculated using the method below.~~ When using the 2021 UA approach, the total building envelope UA must be less than or equal to the sum of UA values that result from multiplying the U factors specified in the table below for the 2021 IECC by the same exterior assembly areas as the building being certified. When using the 2024 TC approach, the total building envelope TC must be less than or equal to the total TC resulting from using the assembly factors specified below for the 2024 IECC and Equation 4-1 of that code.

~~All envelope components (e.g., wall, ceiling, floor, slab, windows) which are part of dwelling units:~~

- ~~Multiply the assembly area of the component by the U-factor specified for that component in the DOE ZERH Multifamily National Program Requirements Version 2, Exhibit 2: Envelope, Windows, and Doors for Dwelling Units.~~

- ~~All envelope components which are part of common spaces:~~
  - ~~Multiply the assembly area of the component by the U-factor specified for that component in the 2021 International Energy Conservation Code (IECC) Residential or Commercial (All Other) chapter. The same chapter must be used for all common space envelope components.~~

- ~~The sum of these two calculations is the target UA for the whole building envelope.~~

Table 3.1b: Mandatory Envelope Insulation Requirements for Prescriptive Path Projects

| Component | Opaque assemblies (including opaque doors and opaque spandrel panels) | Windows and glazed doors (except Class AW) | Class AW windows and glazed doors | Skylights |
|---|---|---|---|---|
| **Mandatory Building Envelope Requirements, 2021 IECC UA Option** | | | | |
| Dwelling Units | ZERH Reference Design (Exhibit 2) | ZERH Reference Design (Exhibit 2) | ZERH Reference Design (Exhibit 2) | 2021 IECC Table C402.4 |
| Common Spaces | 2021 IECC Table R402.1.2 [a] or 2021 IECC Table C402.1.4 (All Other) [c] | ENERGY STAR MFNC 1.2 Reference Design | | |
| **Mandatory Building Envelope Requirements, 2024 TC Option** | | | | |
| Dwelling Units | ZERH Reference Design (Exhibit 2) | ZERH Reference Design (Exhibit 2) | ZERH Reference Design (Exhibit 2) | 2024 IECC Table C402.5 |
| Common Spaces | 2024 IECC Table R402.1.2 or 2024 IECC Table C402.1.2 (All Other) [c] | ENERGY STAR MFNC 1.2 Reference Design | | |

[a] For steel-frame ceilings, walls, and floors, use 2021 IECC Table R402.2.6.

[b] The same chapter must be used for all opaque dwelling unit envelope components.

[c] The same chapter must be used for all opaque common space envelope components.

| **ID** | MFV2.022 | **Log Date** | 9/15/2025 | **Classification** | Clarification |
|---|---|---|---|---|---|
| **Program Document(s) Affected** | National Program Requirements (Version 2, Rev. 1) | | | | |
| Topic | MFV2.022: Window specifications for meeting the mandatory high-performance window requirements under the Prescriptive path. | | | | |
| Issue | Exhibit 2 in the National Program Requirements indicates the required efficiency levels for the ZERH Multifamily Version 2 Target Dwelling Unit and is also used by Prescriptive path projects to determine the minimum efficiency levels for each component in dwelling units. However, because of the updated SHGC requirements (see entry MFV2.021, below), there is now conflicting guidance for SHGC requirements for Prescriptive path projects. Exhibit 2 will be updated to clarify that Prescriptive path projects should meet the SHGC requirements described in Exhibit 1. Since the separate mandatory backstop for window U factors has been removed for all paths, Prescriptive path projects are still required to meet the Window U-values as indicated in Exhibit 2. | | | | |
| Resolution | **Exhibit 2 in the National Program Requirements (Version 2, Rev. 1) will be updated as follows:** | | | | |

**Dwelling Unit Windows Except Class AW**

(Prescriptive pathway: meet ~~allowable U/~~SHGC requirements in Exhibit 1, Item 3.2 in place of SHGC requirements below.) ~~combinations as listed in endnote 22. If Class AW, meet values listed in Class AW table below.)~~

| **2021 IECC Climate Zone** | **1** | **2** | **3** | **4A, 4B** | **4C, 5** | **6** | **7** | **8** |
|---|---|---|---|---|---|---|---|---|
| Window U-Value | 0.40 | 0.40 | 0.30 | 0.30 | 0.27 | 0.25 | 0.25 | 0.25 |
| Window SHGC | 0.23 | 0.23 | 0.25 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |

<table>
<tr><td></td><td></td><td colspan="9">Dwelling Unit Class AW Fenestration<br><u>(Prescriptive pathway: meet SHGC requirements in Exhibit 1, Item 3.2 in place of SHGC requirements below)</u></td></tr>
<tr><td></td><td></td><td>2021 IECC Climate Zone</td><td>1</td><td>2</td><td>3</td><td>4A, 4B</td><td>4C, 5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td></td><td></td><td>Fixed Window U-Factor</td><td>0.48</td><td>0.43</td><td>0.40</td><td>0.34</td><td>0.34</td><td>0.32</td><td>0.28</td><td>0.27</td></tr>
<tr><td></td><td></td><td>Operable Window U-Factor</td><td>0.59</td><td>0.57</td><td>0.51</td><td>0.43</td><td>0.43</td><td>0.40</td><td>0.34</td><td>0.30</td></tr>
<tr><td></td><td></td><td>Glazed Entrance Door U-Factor</td><td>0.79</td><td>0.73</td><td>0.65</td><td>0.60</td><td>0.60</td><td>0.60</td><td>0.60</td><td>0.60</td></tr>
<tr><td></td><td></td><td>SHGC</td><td>0.25</td><td>0.25</td><td>0.25</td><td>0.40</td><td>0.40</td><td>0.40</td><td>0.40</td><td>0.40</td></tr>
<tr><td>ID</td><td>MFV2.021</td><td>Log Date</td><td colspan="3">9/15/2025</td><td>Classification</td><td colspan="3">Clarification</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="7">National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1), California Rater Checklist (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="8">MFV2.021: Eliminate U backstop for windows in all climate zones and SHGC backstop for windows in climate zones 4C and 5, add exception for Phius and PHI certified projects</td></tr>
<tr><td>Issue</td><td colspan="8">This entry updates three aspects of the ZERH mandatory window requirements to add flexibility while maintaining the ZERH efficiency level and benefits for residents:<br><br>1. Window U-Factors: In the latest revision of ENERGY STAR program requirements, the program has removed the mandatory U-factor backstop for windows in all climate zones. The underlying rationale is that the U-factor backstop overlapped with the program's total envelope UA requirements, which on its own ensures a high level of efficiency from the home's envelope. DOE has determined that the ZERH program will also remove the window U-factor backstop from the mandatory requirements. This move increases flexibility for builders and does not impact the building's overall energy performance, since the U-factors in the ERI Target Home are unchanged, and the 2021 IECC UA (or 2024 TC) backstop for the whole building also ensures good window performance.<br><br>2. Window SHGCs: The ZERH program requirements for SHGCs in climate zones 4C and 5 have presented design flexibility limitations for some high performance projects. At the same time, the ENERGY Multifamily New Construction program has also removed SHGC prescriptive limits for windows in climate zones 4C and 5. Based on these factors DOE will remove the SHGC requirements for windows in climate zones 4C and 5. Additionally, as with the removal of the mandatory U-factor backstop, the SHGCs in the ZERH ERI Target Home will be unchanged so energy savings associated with the SHGC backstop are still ensured. Finally, this adjusted mandatory SHGC backstop will apply to all fenestration which is at least 50% glazed, in order to maintain consistency with the ESMFNC program. Fenestration other than windows had previously been removed from this requirement to simplify compliance with the U-factor requirement but will now be added back in.<br><br>3. Phius and PHI Certified Projects: Because of their excellent thermal performance, DOE will allow the same exemption for triple-glazed windows in Phius and PHI-certified homes that is allowed by the ENERGY STAR Multifamily New Construction program.</td></tr>
</table>

Resolution

**Item 3.2 and its endnotes in the National Program Requirements (Version 2, Rev. 1) and the National Rater Checklist (Version 2, Rev. 1), respectively, will be updated as follows:**

3.2 ~~Windows in dwelling units meet high performance requirements based on climate zone.~~ Windows, skylights, and doors in dwelling units that are ≥ 50% glazed achieve an area-weighted average SHGC less than or equal to 0.23 (Climate Zone 1-2), 0.25 (Climate Zone 3), or 0.40 (Climate Zone 4A, 4B). (1, 2)

(1) ~~Windows must meet the following performance criteria, based on 2021 IECC climate zone:~~

| ~~CZ 1-2~~ | | ~~CZ 3~~ | | ~~CZ 4A, 4B~~ | | ~~CZ 4C, 5 *~~ | | ~~CZ 6, 7, 8~~ | |
|---|---|---|---|---|---|---|---|---|---|
| ~~U-factor~~ | ~~SHGC~~ | ~~U-factor~~ | ~~SHGC~~ | ~~U-factor~~ | ~~SHGC~~ | ~~U-factor~~ | ~~SHGC~~ | ~~U-factor~~ | ~~SHGC~~ |
| ~~≤ 0.40~~ | ~~≤ 0.23~~ | ~~≤ 0.30~~ | ~~≤ 0.25~~ | ~~≤ 0.30~~ | ~~≤ 0.40~~ | ~~≤ 0.27~~ | ~~Any~~ | ~~≤ 0.25~~ | ~~Any~~ |
| | | | | | | ~~= 0.28~~ | ~~≥ 0.32~~ | | |
| | | | | | | ~~= 0.29~~ | ~~≥ 0.37~~ | | |
| | | | | | | ~~= 0.30~~ | ~~≥ 0.42~~ | | |

~~* SHGC values listed for climate zones 4C and 5 may be paired with the U-factor in the same row.~~

~~If no NFRC rating is noted on the window or in product literature (e.g., for site-built windows), select the U-factor and SHGC value from Tables 4 and 10, respectively, in 2013 ASHRAE Fundamentals, Chapter 15. Select the highest U-factor and SHGC value among the values listed for the known window characteristics (e.g., frame type, number of panes, glass color, and presence of low-e coating) to determine the rating of the unrated window. This rating must comply with ZERH window specifications, above.~~

~~The following exceptions apply:~~

Exceptions:

~~a. An area-weighted average of windows (for all dwelling units) shall be permitted to satisfy the U-factor and SHGC requirements.~~

b. ~~Windows utilized~~ Fenestration used as part of a passive solar design ~~shall be~~ is exempt from the ~~U-factor and~~ SHGC requirements and ~~shall~~ may be excluded from the area-weighted average. ~~s calculated using a) and b), above.~~ Exempt ~~windows shall~~ fenestration must be facing within 45 degrees of true ~~S~~south and directly coupled to thermal storage mass that has a heat capacity greater than 20 btu/ft$^3$x°F and provided in a ratio of at least 3 ft$^2$ per 1 ft$^2$ of ~~S~~south-facing windows. Generally, thermal mass materials will be at least 2 inches thick.

c. In Phius or PHI certified homes, where triple-glazed window assemblies with thermal breaks/spacers between the panes are used, such windows meet the intent of Item 3.2 and may be excluded from the area-weighted average SHGC.

~~For project sites located at an elevation ≥ 5,000 feet above sea level and located in Climate Zones 5 – 8, windows with a maximum U-factor of 0.30 (with any SHGC) may be used to satisfy this program requirement. For project sites located at an elevation ≥ 8,000 feet above sea level and located in Climate Zones 5 – 8, windows with a maximum U-factor of 0.32 (with any SHGC) may be used to satisfy this program requirement.~~

d. Structural dwelling unit windows and doors that are classified as “Class AW” under the North American Fenestration Standard may use ~~must instead meet~~ the following ~~U and~~ SHGC values: ~~listed in Exhibit 2.~~

| Climate Zone | 1-3 | 4A, 4B | 4C, 5-8 |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Class AW SHGC | ≤ 0.25 | ≤ 0.40 | Any | |

(2) If no NFRC rating is noted on the window or in product literature (e.g., for site-built fenestration), select the ~~U-factor and~~ SHGC value from Tables 4 and 10, respectively, in 2013 ASHRAE Fundamentals, Chapter 15. Select the highest ~~U-factor and~~ SHGC value among the values listed for the known window characteristics (e.g., frame type, number of panes, glass color, and presence of low-e coating). Alternatively, where the U-factor is determined in accordance with NFRC 100 by a laboratory accredited by a nationally recognized accreditation organization, such as the NFRC, documentation provided by the laboratory or manufacturer listing the assembly U-factor and SHGC can be used in lieu of NFRC labels.

**Endnotes 16 and 8 in the California Program Requirements (Version 2, Rev. 1) and the California Rater Checklist (Version 2, Rev. 1), respectively, will be updated as follows:**

Windows in dwelling units and common spaces … thermal mass materials will be at least 2 in thick.
d. In Phius or PHI certified buildings, where triple-glazed window assemblies with thermal breaks / spacers between the panes are used, such windows meet the intent of Item 3.1 and may be excluded from the area-weighted averages calculated.

| **ID** | MFV2.020 | **Log Date** | 1/7/2025 | **Classification** | Clarification |
|---|---|---|---|---|---|
| **Program Document(s) Affected** | National Program Requirements (Version 2, Rev. 1); National Rater Checklist (Version 2, Rev. 1); California Program Requirements (Version 2, Rev. 1); California Rater Checklist (Version 2, Rev. 1) | | | | |
| Topic | MFV2.020: Definition of "Rater's first site visit" | | | | |
| Issue | Partners have asked about potential interpretations of the current definition of "permit date" in the National and California Program Requirements, particularly the allowance to use the "Rater's first site visit" as the permit date. DOE allows the option for the Rater's first site visit in order to provide program flexibility where the project's permit date may not be clearly identifiable. The intent of this language is to allow projects to use the date when the Rater first performs an on-site inspection to verify a ZERH program requirement to serve as the permit date. This option is not intended to use any Rater site visit, such as a pre-construction site visit, to establish the project's permit date.<br><br>Additionally, for residential construction projects that involve multiple permits with the local jurisdiction, questions may arise regarding which "building permit" is the permit that is referenced in the DOE ZERH program requirements. The date of a project's permit is important as this date establishes which DOE ZERH program version must be used.<br><br>In cases where multiple permits are issued for a project (e.g., footing permits, building permits), the 'permit date' is the date on which the permit *authorizing construction of the building*, including the building features affecting energy use (e.g., insulation levels, window U/SHGC specifications, mechanical equipment efficiency), was issued. Permits that establish the ability of a project to conduct work not related to construction of the building and its energy-related features, such as permits related to site development activities, are not intended to establish a project's permit date within the context of the DOE ZERH program. | | | | |

<table>
<tr><td>Resolution</td><td colspan="5">The endnote defining ‘Permit Date’ in the National Program Requirements (Version 2, Rev. 1), National Rater Checklist (Version 2, Rev. 1), California Program Requirements (Version 2, Rev. 1), and California Rater Checklist (Version 2, Rev. 1) will be updated as follows:<br><br>The ‘permit date’ is the date on which the permit authorizing construction of the building was issued. In cases where multiple permits are issued for a project (e.g., footing permits, building permits), the ‘permit date’ is the date on which the permit authorizing construction of the building, including the building features affecting energy use (e.g., insulation levels, window U/SHGC specifications, mechanical equipment efficiency), was issued. Alternatively, the ~~date of the Rater’s first site visit~~ application date of the permit authorizing construction of the building or the date that the Rater first verifies a ZERH program provision requiring an on-site inspection (e.g., inspection of slab insulation) is allowed to be used as the ‘permit date’.</td></tr>
<tr><td>ID</td><td>MFV2.019</td><td>Log Date</td><td>1/7/2025</td><td>Classification</td><td>Clarification</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">National Program Requirements (Version 2, Rev. 1); National Rater Checklist (Version 2, Rev. 1); California Program Requirements (Version 2, Rev. 1); California Rater Checklist (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.019: Meeting the conditioned space requirement with PTACs and VTACs</td></tr>
<tr><td>Issue</td><td colspan="5">Packaged terminal heat pumps (PTHPs), packaged terminal air conditioners (PTACs), and (by extension) vertical terminal air conditioners (VTACs) are recognized as HVAC options under ZERH Multifamily Version 2, National and California. Due to a partner inquiry, DOE has developed clarifying language to call out these through-wall system types and allow them to satisfy the mandatory provision for ducts and air handling equipment to be located within a dwelling unit’s thermal boundary. PTACs and similar equipment can be highly efficient and are a common application for commercial and multifamily buildings. The program will recognize PTACs and add an endnote to the conditioned space requirement.</td></tr>
<tr><td>Resolution</td><td colspan="5">The endnote associated with Mandatory Item 4.1 will be updated in the National Program Requirements (Version 2, Rev. 1) and the National Rater Checklist (Version 2, Rev. 1) as follows:<br><br>Exceptions and alternative compliance paths to this requirement are:<br>a. Up to 10 ft. of total duct length is permitted to be outside of the thermal and air barrier boundary. Jump ducts are not included as part of this duct length and are covered by exception (d).<br>b. – e. [no changes]<br><br>This requirement does not apply to equipment or ductwork that only provides ventilation, including make-up air systems. This requirement does not apply to air handling equipment or ductwork serving multiple dwelling units. This requirement does not apply to through-wall systems (i.e., packaged terminal heat pumps (PTHPs), packaged terminal air conditioners (PTACs), and vertical terminal air conditioners (VTACs)).<br><br>The endnote associated with Mandatory Item 4.1 will be updated in the National Program Requirements (Version 2, Rev. 1) and the National Rater Checklist (Version 2, Rev. 1) as follows:<br><br>Exceptions and alternative compliance paths:</td></tr>
</table>

<table>
<tr><td></td><td colspan="5">a. – d. [no changes]<br>This provision does not apply to equipment or ductwork that only provides ventilation, including make-up air systems. This requirement does not apply to air handling equipment or ductwork serving multiple dwelling units. <u>This requirement does not apply to through-wall systems (i.e., packaged terminal heat pumps (PTHPs), packaged terminal air conditioners (PTACs), and vertical terminal air conditioners (VTACs)).</u></td></tr>
<tr><td>ID</td><td>MFV2.018</td><td>Log Date</td><td>1/7/2025</td><td>Classification</td><td>Clarification</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">National Program Requirements (Version 2, Rev. 1); California Program Requirements (Version 2, Rev. 1)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.018: Certification of dwelling units and common spaces under Indoor AirPlus</td></tr>
<tr><td>Issue</td><td colspan="5">Based on the formatting of the Indoor AirPlus requirements as stated in Exhibit 1 of the ZERH Multifamily Version 2 (Rev. 1) National and California Program Requirements, partners have expressed confusion regarding the requirements for Indoor AirPlus certification of common spaces. DOE will clarify that all dwelling units and common spaces must be certified under the applicable version of Indoor AirPlus (determined by permit date).</td></tr>
<tr><td>Resolution</td><td colspan="5">Exhibit 1 in the National Program Requirements (Version 2, Rev. 1) will be updated as follows:<br><br>Where ZERH Mandatory requirements apply only to dwelling units and not to common spaces, common space requirements shall be met through compliance with ENERGY STAR Multifamily New Construction Version 1.2 <u>and Indoor AirPlus</u> National Program Requirements.<br><br>
<table>
<tr><td rowspan="2">7. Indoor Air Quality</td><td>7.1 Certified under EPA Indoor AirPlus (Version 1 or Version 2 (Certified or Gold), determined by permit date). (1)</td><td>Dwelling units<u>; common spaces</u></td></tr>
<tr><td>7.2 Either in-unit or centralized energy efficient balanced ventilation (HRV or ERV) is provided for dwelling units in Climate Zones 6, 7, and 8. (2, 3)</td><td>Dwelling units</td></tr>
</table>
No changes to endnotes.<br><br>Exhibit 1 in the California Program Requirements (Version 2, Rev. 1) will be updated as follows:<br><br>Where ZERH Mandatory requirements apply only to dwelling units and not to common spaces, common space requirements shall be met through compliance with ENERGY STAR Multifamily New Construction, California Program Requirements, Version 1.4 <u>and Indoor AirPlus program requirements</u>. Where ZERH requirements reference specific BEES requirements, the exceptions listed for those requirements in BEES shall be allowable exceptions for compliance with the ZERH mandatory requirement unless noted otherwise.<br><br>
<table>
<tr><td>7. Indoor Air Quality</td><td>7.1 Certified under EPA Indoor AirPlus (Version 1 or Version 2 (Certified or Gold), determined by permit date). (1)</td><td>Dwelling units<u>; common spaces</u></td></tr>
</table>
</td></tr>
</table>

| | | | |
|---|---|---|---|
| | 7.2 Either in-unit or centralized energy efficient balanced ventilation (HRV or ERV) is provided for dwelling units in 2021 International Energy Conservation Code Climate Zones 6, 7, and 8. (2, 3) | Dwelling units |

*No changes to endnotes.*

| | | | | | |
|---|---|---|---|---|---|
| **ID** | MFV2.017 | **Log Date** | 1/7/2025 | **Classification** | Clarification |
| **Program Document(s) Affected** | | EV-Ready Checklist (Version 2, Rev. 1) | | | |
| Topic | MFV2.017: Definition of EVSE | | | | |
| Issue | The ZERH Multifamily Version 2 EV-Ready Checklist currently aligns the definition of EVSE with the definition from the 2024 IECC. However, partners have requested clarification regarding the minimum required features of EVSE when used to comply with the ZERH EV-Ready Checklist. The program's intent is for EVSE (electric vehicle service equipment) spaces to provide everything necessary to charge a vehicle parked in the space, including an energized charging cord or wireless charging apparatus. There are many additional features that EVSE *may* include but these are not required by the ZERH program. | | | | |
| Resolution | **The endnote which defines EVSE in the EV-Ready Checklist (Version 2, Rev. 1) will be updated as follows:**<br>~~Electric Vehicle Service Equipment (EVSE) is equipment for plug-in power transfer, including: ungrounded, grounded, and equipment grounding conductors; electric vehicle connectors; attached plugs; any personal protection system; and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and an electric vehicle.~~<br><br><u>Electrical Vehicle Service Equipment (EVSE) transfers power to an electric vehicle. EVSE must include an energized conductor, and a connector and plug (i.e., charging cord) or apparatus for wireless (e.g., inductive) charging to provide power directly to a vehicle. EVSE may also optionally include load management, scheduling, adapters, and other features to facilitate on-site electric vehicle charging.</u> | | | | |

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| **ID** | MFV2.016 | **Log Date** | 10/16/2024 | **Classification** | Change |
| **Program Document(s) Affected** | | National Program Requirements (Version 2) | | | |
| Topic | MFV2.016: Townhome certification eligibility | | | | |
| Issue | In order to simplify ZERH program implementation and maintain consistency with the ENERGY STAR Residential New Construction program, townhomes permitted on or after 1/1/2026 will not be eligible for certification under the DOE ZERH Multifamily Version 2 program. Townhouses are eligible to participate in the DOE ZERH Single Family program. | | | | |
| Resolution | **Section 1 (Building Eligibility Requirements) of the National Program Requirements (Version 2) will be updated as follows:**<br><br>Eligible building types:<br>• Any multifamily building…detached dwelling.<br>• Any mixed-use buildings…from this calculation.<br>• Townhouses with permit dates on or before 12/31/2025 ~~if following~~ Townhouses must follow requirements listed in the endnote. (1)<br><br>(1) [no changes to endnote] | | | | |
| **ID** | MFV2.015 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2), National Rater Checklist (Version 2), California Program Requirements (Version 2), California Rater Checklist (Version 2) | | | |
| Topic | MFV2.015: Addition of advisory language encouraging partners to use the HVI CPD to source equipment meeting the mandatory H/ERV requirement in cold climates. | | | | |
| Issue | Following discussions with a program stakeholder, DOE has determined that an advisory note referencing the HVI Certified Products Directory (CPD) as an option for sourcing the specifications needed to demonstrate compliance with mandatory requirement 7.2 (in both the National and California Single Family Version 2 specifications) could be helpful for program partners. This advisory language will serve to increase industry awareness of the CPD resource and streamline compliance for builders using listed products. | | | | |
| Resolution | **A new endnote will be added to the Indoor Air Quality mandatory requirement in the National (Version 2) and California (Version 2) Program Requirements and the National (Version 2) and California (Version 2) Rater Checklists as follows:**<br><br>7.2 Either in-unit or centralized energy efficient balanced ventilation (HRV or ERV) is provided for dwelling units in Climate Zones 6-8. (1, 2)<br><br>(1) [no change]<br><br>(2) Advisory: DOE encourages, but does not require, that partners use equipment listed in the Home Ventilating Institute (HVI) Certified Products Directory (CPD) to comply with this requirement. The listing may be used to demonstrate compliance with this program requirement. | | | | |

| ID | MFV2.014 | Log Date | 10/16/2024 | Classification | Clarification |
|---|---|---|---|---|---|
| **Program Document(s) Affected** | | National Rater Checklist (Version 2) | | | |
| Topic | MFV2.014: Prescriptive path HVAC efficiency verification | | | | |
| Issue | Projects following the Prescriptive path are required to meet the ZERH Multifamily Version 2 efficiency target by meeting or exceeding each specified efficiency measure in the Target Dwelling Design (Exhibit 2). While Raters are required to enter all efficiency specifications in the Multifamily Workbook with ZERH Addenda, there are not currently stand-alone line items for verifying each of these measures for Prescriptive path projects in the Rater Checklist. Since a building's HVAC system efficiency is critical to achieving the efficiency expected of a ZERH-certified building, in order to improve verification and increase transparency regarding this critical efficiency requirement under the Prescriptive path, DOE will add minimum HVAC efficiency specifications to the National Rater Checklist for Prescriptive path projects. | | | | |
| Resolution | **A new line item will be added to the National Rater Checklist (Version 2) as follows:**<br><br>12.3. For Prescriptive path projects: HVAC system meets or exceed efficiency levels based on climate zone and system type as defined by Exhibit 2 of the ZERH Multifamily Version 2 National Program Requirements. | | | | |
| **ID** | MFV2.013 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2); National Rater Checklist (Version 2); California Program Requirements (Version 2); California Rater Checklist (Version 2) | | | |
| Topic | MFV2.013: All building types eligible for certification under the ENERGY STAR Multifamily New Construction program, Version 1.2, are eligible for certification under the ZERH Multifamily Version 2 program | | | | |
| Issue | The intent of all building definition language in the ZERH program documents is to align with the ENERGY STAR program. However, partners ask for clarification regarding this aspect of the program. In order to maximize clarity regarding building type eligibility for the ZERH Multifamily Version 2 program, DOE will state this directly in the ZERH program documents. | | | | |
| Resolution | **Endnote 1 in the National Program Requirements (Version 2), National Rater Checklist (Version 2), California Program Requirements (Version 2), and California Rater Checklist (Version 2) will be updated as follows:**<br><br>(1) … is not considered a common entrance or exit. DOE adopts these parameters from the ENERGY STAR program, thus, building type eligibility for certification under ZERH Multifamily Version 2 is the same as building type eligibility for certification under ENERGY STAR Multifamily New Construction Version 1.2 (California: 1.4). | | | | |
| **ID** | MFV2.012 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2); National Rater Checklist (Version 2); California Program Requirements (Version 2); California Rater Checklist (Version 2) | | | |
| Topic | MFV2.012: Sampling is only allowed for apartments within the same building | | | | |
| Issue | In the HCO for ZERH certification system, a sampling protocol, if used, must "require that apartments participating in sampling be within the same building, be the same construction type, and include the same envelope systems." In order to improve clarity for partners on this sampling provision, DOE will add language to the ZERH Multifamily program documents. | | | | |
| Resolution | **The following sentence will be added to endnote 7 in the National Program Requirements (Version 2):** | | | | |

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| | Sampling of these ZERH program requirements may be allowed if the Multifamily Review Organization (MRO) for ZERH or Home Certification Organization (HCO) for ZERH overseeing the project's certification has a sampling protocol approved by DOE as part of the MRO/HCO for ZERH approval process. Apartments participating in sampling must be within the same building, be the same construction type, and include the same envelope systems.<br><br>**The following sentence will be added to endnote 2 in the National Rater Checklist (Version 2):**<br><br>As stated in the National Program Requirements, Raters who operate under an MRO or HCO for ZERH with a Sampling Protocol are permitted to verify any Checklist Item designated "Rater Verified" using an MRO or HCO for ZERH-approved sampling protocol. No parties other than Raters are permitted to use sampling to complete this Checklist. Apartments participating in sampling must be within the same building, be the same construction type, and include the same envelope systems.<br><br>**The following sentence will be added to endnote 9 in the California Program Requirements (Version 2):**<br><br>The term 'Rater' refers to the person(s) completing the third-party verification required for certification. Raters who operate under an MRO or HCO for ZERH with a Sampling Protocol are permitted to verify the minimum rated features of the building and to verify any Checklist Item designated "Rater Verified" using an MRO or HCO-approved sampling protocol. No parties other than Raters are permitted to use sampling to complete the Checklist. All other items shall be verified for each certified building. For example, no builder verified items are permitted to be verified using a sampling protocol. Apartments participating in sampling must be within the same building, be the same construction type, and include the same envelope systems.<br><br>**The following sentence will be added to endnote 2 in the California Rater Checklist (Version 2):**<br><br>As stated in the Program Requirements, Raters who operate under an MRO or HCO for ZERH with a Sampling Protocol are permitted to verify any Checklist Item designated "Rater Verified" using an MRO or HCO for ZERH-approved sampling protocol. No parties other than Raters are permitted to use sampling to complete this Checklist. All other items shall be verified for each certified building. For example, no builder verified items are permitted to be verified using a sampling protocol. Apartments participating in sampling must be within the same building, be the same construction type, and include the same envelope systems. |

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| **ID** | MFV2.011 | **Log Date** | 10/16/2024 | **Classification** | Change |
| **Program Document(s) Affected** | | National Program Requirements (Version 2) | | | |
| Topic | MFV2.011: Use of DOE's ASHRAE Standard 90.1 Performance Based Compliance Form Companion Tool | | | | |

<table>
<tr><td>Issue</td><td colspan="5">Since the initial publication of ZERH Multifamily Version 2, DOE has developed an Excel tool called the “ASHRAE Standard 90.1 Performance Based Compliance Form Companion Tool.” This tool is meant to help projects document compliance with above-code programs, including ZERH Multifamily Version 2’s ASHRAE 90.1-based compliance path. DOE and EPA have coordinated to customize a version of this tool for partners working with the ENERGY STAR Multifamily New Construction and ZERH Multifamily Version 2 programs, available on the ZERH program website. The tool uses a data upload from DOE’s ASHRAE Standard 90.1 Performance Based Compliance Form (which is already required for the ZERH Multifamily Version 2 program) to show compliance with the ZERH performance target. It also contains information on specific modeling rules to be used for the 90.1 compliance path for the ZERH Multifamily Version 2 program. This tool is now ***required*** as part of the documentation package to demonstrate compliance with the ZERH Multifamily Version 2 program.</td></tr>
<tr><td>Resolution</td><td colspan="5">The section of the table in Exhibit 4 of the National Program Requirements Version 2 which lists required document submittals for ASHRAE Path Only projects will be updated as follows:
<table>
<tr><th>Party Responsible</th><th>Documents</th></tr>
<tr><td colspan="2">Requirements Applicable to the ASHRAE Path Only</td></tr>
<tr><td rowspan="3">ASHRAE Modeler</td><td>ASHRAE Standard 90.1 Performance Based Compliance Form</td></tr>
<tr><td>ESMFNC/ZERH Companion Tool to the ASHRAE Standard 90.1 Performance Based Compliance Form</td></tr>
<tr><td>Modeling file or modeling input and output files</td></tr>
</table></td></tr>
<tr><td>ID</td><td>MFV2.010</td><td>Log Date</td><td>10/16/2024</td><td>Classification</td><td>Change</td></tr>
<tr><td colspan="2">Program Document(s) Affected</td><td colspan="4">EV-Ready Checklist (Version 2)</td></tr>
<tr><td>Topic</td><td colspan="5">MFV2.010: Re-alignment of EV-Ready Checklist with 2024 IECC, Appendix RE</td></tr>
<tr><td>Issue</td><td colspan="5">To improve clarity, the ZERH Multifamily EV-Ready requirements will be updated to align more closely with the Residential rather than the Commercial chapter of the 2024 IECC. Because the Residential chapter’s Appendix RE was designed specifically with residential occupancies in mind, the requirements are structured to more readily apply to multifamily scenarios and provide slightly reduced circuit capacity requirements due to longer dwell times in residential parking lots and garages, as opposed to commercial spaces where there are typically shorter duration parking dwell times.</td></tr>
<tr><td>Resolution</td><td colspan="5">The EV-Ready Checklist (Version 2) will be restructured and include adjusted requirements as follows:<br>(For clarity and conciseness, only changes affecting compliance with the checklist’s requirements are noted in strikethrough and underline.)<br><br>Updates to Item 2:<br>2b. The raceway or assembly and panelboard (or other electrical distribution equipment) are sized and rated to supply a system capacity not less than:<br>• ~~7.2~~ 6.2 kVA per space, if serving a single space or serving multiple spaces without an energy management system.<br>• ~~3.3~~ 2.1 kVA per space, if serving multiple spaces with an energy management system.<br>Updates to Item 3:<br>3b. Circuit and panelboard (or other electrical distribution equipment) are sized and rated to supply a system capacity not less than:<br>• ~~7.2~~ 6.2 kVA per space, if serving a single space or serving multiple spaces without an energy management system.</td></tr>
</table>

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| | • ~~3.3~~ 2.1 kVA per space, if serving multiple spaces with an energy management system.<br>**Updates to Item 4:**<br>4b. Circuit and panelboard (or other electrical distribution equipment) serving EVSE are sized and rated to supply a system capacity not less than:<br>• ~~7.2~~ 6.2 kVA per space, if serving a single space or serving multiple spaces without an energy management system.<br>• ~~3.3~~ 2.1 kVA per space, if serving multiple spaces with an energy management system.<br>4c. Nameplate charging capacity of installed EVSE is not less than:<br>• ~~6.2 kW~~ 6.2 kVA (30A and 208/240V) per space, if serving a single space or serving multiple spaces without an energy management system.<br>• 2.1 kVA per space (10A at 208/240V), if serving multiple spaces with an energy management system. | | | | |
| **ID** | MFV2.009 | **Log Date** | 10/16/2024 | **Classification** | Change |
| **Program Document(s) Affected** | | EV-Ready Checklist (Version 2) | | | |
| Topic | MF2.009: Addition of Low-Power Level 2 option in EV-Ready Checklist | | | | |
| Issue | In order to improve design flexibility associated with the installation of ZERH Multifamily Version 2's current EV readiness requirements, DOE will include an alternative option for Low-Power Level 2 to meet the requirements of the EV-Ready checklist. Based on partner feedback, an option to increase the number of EVSE spaces but reduce the required capacity for these spaces provides design flexibility and can provide more parking spaces with EVSE. DOE has determined that a reduced charging capacity is reasonable given the typical parking dwell times in multifamily buildings, especially if the overall number of EVSE spaces is increased. | | | | |
| Resolution | **Item 1 in the EV-Ready Checklist (Version 2) will be updated as follows (note that this entry already incorporates changes established by MFV2.008):**<br><br>Allocated parking for dwelling units in multifamily or mixed-use buildings are provided with an EV Capable, EV Ready, or EVSE space for 20% of units or automobile parking spaces, whichever is less. See endnotes for parking that is shared by multiple buildings (1) and alternative percentage requirements for Low-Power Level 2 (L2) charging (2). The following minimum types of spaces… [no further changes].<br><br>(1) [no changes]<br><br>(2) Projects that do not include an energy management system may opt to reduce the capacity of EVSE spaces (and associated circuit and panel board/distribution equipment) to a nameplate rating less than 6.2 kW (but no less than 3.3 kW, or 16A at 208/240V), if the percentage of EVSE spaces is increased from 10% to 20% of units or automobile parking spaces, whichever is less. If this alternative is used, the project is not required to provide any additional EV Ready or EV Capable spaces. | | | | |
| **ID** | MFV2.008 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | EV-Ready Checklist (Version 2) | | | |
| Topic | MFV2.008: Calculating the required number of EV Capable, EV Ready, and EVSE spaces | | | | |

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| Issue | ZERH Multifamily Version 2 requires that 20% of parking spaces be EVSE, EV Ready, or EV Capable, where 10% must be EVSE and the remaining 10% may be any combination of these three space types. Due to a partner's confusion regarding how to calculate these values and round appropriately (the requirements state that spaces must be rounded up to the nearest whole number), DOE will add clarifying language regarding this calculation and include an endnote with an example calculation. |
| Resolution | **Item 1 in the EV-Ready Checklist (Version 2) will be updated as follows:**<br><br>Allocated parking for dwelling units in multifamily or mixed-use buildings ~~shall be~~ are provided with an EV Capable ~~space~~, EV Ready ~~space~~, or EVSE space for 20% of units or automobile parking spaces, whichever is less. ~~For parking that is shared by multiple buildings,~~ See endnotes for parking that is shared by multiple buildings (1). ~~To meet this 20% threshold,~~ The following minimum types of spaces are provided (2):<br>10% of the ~~total (based on units or automobile parking spaces)~~ spaces provided must be EVSE spaces.<br>~~The remaining~~ 10% ~~of the total~~ of the spaces provided may be any combination of EVSE, EV Capable, or EV Ready spaces.<br>~~The number of required compliant spaces shall be rounded up to the nearest whole number.~~<br>~~Townhouses certifying under the ZERH Multifamily V2 program must meet alternative EV Ready requirements.~~<br>Advisory: DOE intends to raise ~~the percentages of EVSE, EV Ready, and EV Capable spaces~~ these percentages in a future program update.<br><br>(1) [no changes]<br><br>(2)To determine the number of EVSE, EV-Ready, and EV-Capable spaces required for a project:<br>Calculate the number of spaces equal to 20% of spaces provided for resident parking or 20% of dwelling units, whichever is less.<br>Round up to the next whole number.<br>At least half of these spaces must be EVSE. The remaining spaces may be any combination of EVSE, EV Ready, and/or EV Capable.<br><br>*For example, a building with 70 dwelling units and 62 spaces provided for resident parking would require at least 7 EVSE spaces and 6 EVSE, EV Ready, or EV Capable spaces.*<br>*20% of 62 = 12.4, rounded up to the next whole number = 13*<br>*At least half of 13 must be EVSE (7). The remaining 6 may be any combination of EVSE, EV Ready, and EV Capable.* |

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| **ID** | MFV2.007 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2) | | | |
| Topic | MFV2.007: Equivalent envelope R values for Prescriptive path projects | | | | |
| Issue | Projects following ZERH Multifamily Version 2's Prescriptive path are required to meet or exceed the envelope efficiency levels found in Exhibit 2 of the National Program Requirements (Target Dwelling Design). Projects may use a total UA, a component U-factor, or component R-value. The endnotes specify how to determine the appropriate values and calculations to use for the UA and U-factor component methods, but there is no guidance for projects that prefer to meet or exceed the Target Dwelling's envelope insulation levels using component R-values. Because the Target Dwelling's envelope backstop comes from the 2021 IECC, the intent is for the R- | | | | |

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| | values in the 2021 IECC to represent the required R-values for the Target Home even though only the U factors are present in Exhibit 2. To add clarity for partners who wish to use component R-values under the prescriptive path, this option will be clarified in the endnote that explains how Prescriptive path projects comply with the envelope insulation requirements. | | | | |
| Resolution | **Endnote 21 in the National Program Requirements (Version 2) will be updated as follows**:<br><br>… All opaque envelope components which are part of dwelling units must meet or exceed values listed in the DOE ZERH Multifamily National Program Requirements Version 2, Exhibit 2: Envelope, Windows, and Doors for Dwelling Units. Equivalent R values to the U values provided in Exhibit 2 may be taken from the 2021 IECC, Table R402.1.3. When using R values to demonstrate compliance for steel-frame assemblies, the steel-frame equivalent R-value from Table 402.2.6 must be used. All windows which are part of dwelling units must meet or exceed U-values listed in the ZERH Mandatory window provisions (see next endnote). [no further changes to endnote] | | | | |
| **ID** | MFV2.006 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2); National Rater Checklist (Version 2); California Program Requirements (Version 2); California Rater Checklist (Version 2) | | | |
| Topic | MFV2.006: WaterSense certification of bathroom sink faucets and aerators | | | | |
| Issue | The Multifamily program requirements currently state that dwelling units must have WaterSense labeled bath faucets. However, the intent of this requirement is to include WaterSense labeled bathroom *sink* faucets, rather than bathtub filler faucets. To improve the clarity of this line item and align with the ZERH Single Family Version 2 program requirements, all ZERH Multifamily program documents will be updated to specify that bathroom sink faucets must be WaterSense labeled, rather than simply stating that bath faucets must be WaterSense labeled. Additionally, because aerators are only one type of flow control technology, and others exist that would serve the same function (to make a non-WaterSense labeled fixture compliant with this requirement by adding a WaterSense labeled flow control accessory), the term aerator will be adjusted. While it is common to use the term "aerator" to describe this whole category of accessories, it is more accurate to use the term "accessories." | | | | |
| Resolution | **The line item relating the requirement for WaterSense certified fixtures in the National Program Requirements Version 2, National Rater Checklist Version 2, California Program Requirements Version 2, and California Rater Checklist Version 2 will be updated as follows:**<br><br>WaterSense labeled fixtures for dwelling unit showerheads~~, bath faucets,~~ and bathroom sink faucets and/or faucet accessories ~~and aerators~~. [no changes to endnotes] | | | | |
| **ID** | MFV2.005 | **Log Date** | 10/16/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2), ERI Target Procedure (Version 2) | | | |
| Topic | MFV2.005: Addition of a total duct leakage requirement (not just leakage to outside) in the target home | | | | |
| Issue | ZERH requires the target home to be configured with Grade I blower fan airflow deviation and Grade I blower fan watt draw efficiency. However, because of the HVAC Grading procedure in Standard 310, Grade I cannot be achieved for these two metrics unless Grade I is also achieved for total duct leakage. Currently, the ZERH target for duct leakage to the outside is zero, but the program does not include an explicit target home specification for total duct leakage. Because of this, in situations where the design has high total duct leakage, the target home could receive Grade II or III ratings for blower fan airflow deviation and blower fan watt | | | | |

draw efficiency, impacting the ZERH ERI Target Score. To eliminate this issue, the Target Dwelling Unit should be configured with Grade I total duct leakage.

Resolution

**Exhibit 2 of the National Program Requirements Version 2 will be updated as follows:**

| HVAC Grading for Residential Heating and Cooling Equipment (where provided) in Dwelling Units | | | |
|---|---|---|---|
| Total Duct Leakage | Airflow Deviation | Watt Draw Efficiency | Refrigerant Grade (as applicable) |
| Grade I (1) | Grade I, -7.5% | Grade I, 0.45 W/cfm | Grade III |

(1) The Target Home's duct leakage shall be configured as the maximum allowable total duct leakage to achieve Grade I, per Standard 310, section 5.4.1, Table 2a (shown below):

| Time of Test | Number of Returns | Leakage Limit (CFM at 25 Pa) |
|---|---|---|
| Rough-In | < 3 | The greater of ≤ 4 per 100 $ft^2$ of CFA or ≤ 40 |
| Rough-In | ≥ 3 | The greater of ≤ 6 per 100 $ft^2$ of CFA or ≤ 60 |
| Final | < 3 | The greater of ≤ 8 per 100 $ft^2$ of CFA or ≤ 80 |
| Final | ≥ 3 | The greater of ≤ 12 per 100 $ft^2$ of CFA or ≤ 120 |

**Exhibit 1 of the ERI Target Procedure Version 2 will be updated as follows:**

| Building Component: Heating Systems |
|---|
| Installation Quality: For forced-air HVAC systems, Grade I total duct leakage (1), Grade I (-7.5%) blower fan airflow deviation, Grade I (0.45 Watts/CFM) blower fan watt draw efficiency, and for air-source heat pumps, Grade III refrigerant undercharge. |
| Building Component: Cooling Systems |
| Installation Quality: For forced-air HVAC systems, Grade I total duct leakage (1), Grade I (-7.5%) blower fan airflow deviation; Grade I (0.45 Watts/CFM) Watt draw efficiency, and for A/Cs and air-source heat pumps, Grade III refrigerant undercharge. |

(1) The Target Home's duct leakage shall be configured as the maximum allowable total duct leakage to achieve Grade I, per Standard 310, section 5.4.1, Table 2a (shown below):

| Time of Test | Number of Returns | Leakage Limit (CFM at 25 Pa) |
|---|---|---|
| Rough-In | < 3 | The greater of ≤ 4 per 100 $ft^2$ of CFA or ≤ 40 |
| Rough-In | ≥ 3 | The greater of ≤ 6 per 100 $ft^2$ of CFA or ≤ 60 |
| Final | < 3 | The greater of ≤ 8 per 100 $ft^2$ of CFA or ≤ 80 |
| Final | ≥ 3 | The greater of ≤ 12 per 100 $ft^2$ of CFA or ≤ 120 |

| ID | MFV2.004 | Log Date | 3/20/2024 | Classification | Clarification |
|---|---|---|---|---|---|
| **Program Document(s) Affected** | | National Program Requirements (Version 2); National Rater Checklist (Version 2) | | | |
| Topic | MFV2.004: Adding "National" to the title for the Energy Star prerequisite | | | | |
| Issue | Both the ENERGY STAR and Zero Energy Ready Home programs have location-specific program requirements for the state of CA, as well as program requirements which are nationally applicable. Exhibit 1 of the ZERH Multifamily Version 2 National Program Requirements and Item 2.1 of the ZERH Multifamily Version 2 National Rater Checklist both include the ENERGY STAR prerequisite requirement but do not include the term "National" in the program title. In order to clarify this requirement and prevent any confusion, the term "national" will be added to the ENERGY STAR title in both documents, as it appears in the ENERGY STAR Multifamily New Construction National Program, Version 1.2 materials. | | | | |
| Resolution | **Exhibit 1, Item 2 in the Multifamily Version 2 National Program Requirements will be updated as follows:**<br><br>2. Building is certified under ENERGY STAR Multifamily New Construction National Program Version 1.2. [no edits to endnotes]<br><br>Item 2.1 of the Multifamily Version 2 National Rater Checklist will be updated as follows:<br><br>2.1 Unit is certified under ENERGY STAR Multifamily New Construction National Program Version 1.2. [no edits to endnotes] | | | | |
| **ID** | MFV2.003 | **Log Date** | 3/20/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | EV-Ready Checklist (Version 2) | | | |
| Topic | MFV2.003: Definition of energy management system for electric vehicle charging | | | | |
| Issue | Requirement 5a.2 in the Multifamily EV-Ready Checklist Version 2 refers to parking spaces for electric vehicles that are controlled by an energy management system. However, the term "energy management system" is not currently clearly defined and led to partner inquiries if certain charging equipment met this requirement. | | | | |
| Resolution | **The Multifamily EV-Ready Checklist Version 2 item 5a.2 will be revised as follows:**<br><br>For spaces controlled by an energy management system (1):<br>The maximum equipment load on the electrical distribution equipment supplying the branch circuit(s) serving spaces controlled by an energy management system shall be the maximum load permitted by the energy management system, but not less than 3.3 kVA per space.<br>(Mark N/A if energy management system is not in place.)<br>(1) An energy management system is defined as a system of one or more monitors, controllers, communications systems, or other devices used to control electric vehicle charging loads by increasing or reducing electric power supplied to the vehicle charging location. | | | | |
| **ID** | MFV2.002 | **Log Date** | 3/20/2024 | **Classification** | Clarification |
| **Program Document(s) Affected** | | National Program Requirements (Version 2); National Rater Checklist (Version 2); California Program Requirements (Version 2); California Rater Checklist (Version 2) | | | |
| Topic | MFV2.002: Domestic hot water system storage limit requirements | | | | |

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| Issue | The current water heating efficiency requirements allow a stored volume limit of 1.8 gallons between the water heater (or recirculation loop) and the furthest fixture. However, the "furthest fixture" is not clearly defined and has led to partner inquiries regarding this requirement's applicability to fixtures that are not located in bathrooms. The program's intent is to require all hot water fixtures (including, but not limited to, bathroom, kitchen, and utility fixtures) to comply with these requirements. One exception are fixtures located in bathrooms that do not contain a shower or tub, which have a lower hot water demand profile. Language clarifying this requirement and the exception for bathrooms without a tub or shower will be included as noted below. |
| Resolution | **The mandatory water heating efficiency requirement (items 5.2 and 5.3) in the National Program Requirements Version 2 and National Rater Checklist Version 2 will be revised as follows:**<br><br>5.2 Hot water delivery systems meet stored volume criteria. (1)<br>5.3 In-dwelling unit recirculation systems use on-demand controls. (2)<br><br>(1) Hot water delivery systems meet the following efficiency requirements:<br>To minimize water wasted while waiting for hot water and water heating energy, the hot water distribution system shall store no more than 1.8 gallons (6.8 liters) of water in any piping/manifold between the hot water source (e.g., central or in-unit hot water tank, central or in-unit recirculation loop) and any in-dwelling hot water fixture.<br>This provision applies to in-dwelling unit plumbing systems and central hot water distribution systems. In-dwelling unit system options include manifold-fed systems; structured plumbing systems; core plumbing layouts, and recirculation systems. This provision does not apply to fixtures in dwelling unit bathrooms without a shower or bathtub.<br><br>[no further changes to endnote]<br><br>(2) In-dwelling unit hot water recirculation systems meet the following requirements:<br>Must be based on an occupant-controlled switch or an occupancy sensor. ~~, installed in each bathroom~~ A sensor or switch must be installed for each fixture or set of fixtures within a room (e.g., a bathroom with multiple fixtures) in the dwelling unit ~~which is~~ located beyond a 1.8 gallon stored-volume range from the water heater or central recirculation loop.<br><br>[no further changes to endnote]<br><br>**The mandatory water heating efficiency requirement (items 5.1 and 5.3) in the California Program Requirements (Version 2), and California Rater Checklist (Version 2) will be revised as follows:**<br><br>5.1 Hot water distribution system (HWDS) qualifies as HERS-Verified Compact HWDS as specified in BEES Reference Appendix (RA) RA3.6.5 (1) for units with in-unit water heaters *or* hot water delivery systems (in-unit or central) meet stored volume criteria. (2)<br>5.3 In-dwelling unit recirculation systems use on-demand controls. (3)<br><br>(1) [no changes] |

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| | (2) Hot water delivery systems meet the following efficiency requirements:<br>To minimize water wasted while waiting for hot water and water heating energy, the hot water distribution system shall store no more than 1.8 gallons (4.5 liters) of water in any piping/manifold between the hot water source and any hot water fixture. This provision applies to in-dwelling unit plumbing systems and central hot water distribution systems. System options include manifold-fed systems; structured plumbing systems; core plumbing layouts, and recirculation systems. <u>This provision does not apply to fixtures in dwelling unit bathrooms without a shower or bathtub.</u><br><br>[no further changes to endnote]<br><br>(3) In-dwelling unit hot water recirculation systems meet the following control requirements (these provisions do not apply to recirculating central hot water distribution systems):<br>Must be based on an occupant-controlled switch or an occupancy sensor. ~~, installed in each bathroom~~ <u>A sensor or switch must be installed for each fixture or set of fixtures (e.g., bathrooms with multiple fixtures)</u> in the dwelling unit ~~which is~~ located beyond a 1.8 gallon stored-volume range from the water heater or central recirculation loop.<br>[no further changes to endnote] | | | | |
| **ID** | MFV2.001 | **Log Date** | 3/20/2024 | **Classification** | Change |
| **Program Document(s) Affected** | | National Program Requirements (Version 2); National Rater Checklist (Version 2); California Program Requirements (Version 2); California Rater Checklist (Version 2) | | | |
| Topic | MFV2.001: Exception to HPWH readiness requirement for condensate drain | | | | |
| Issue | If the installed water heater is a tankless system or an electric system, the 3’x3’x7’ space for HPWH readiness is not required. Therefore, one can expect that the unit will not install a heat pump water heater in the future without significant renovations. This means that a condensate drain is also not required. | | | | |
| Resolution | **The endnote associated with the mandatory heat pump water heating ready requirement (item 10.2) in the National Program Requirements Version 2, National Rater Checklist Version 2, California Program Requirements Version 2, and California Rater Checklist Version 2 will be revised as follows:**<br><br>Drain is no more than two inches higher than the base of the installed water heater and allows draining without pump assistance. Drain is not required to be reserved exclusively for use with a future heat pump water heater. <u>Drain does not need to be provided if the installed water heater is a tankless water heater system or an electric system with a tank volume less than 50 gallons.</u> | | | | |