



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist

## Version 2 (Rev. 1)

The program requirements in this checklist must be verified based on as-built conditions unless noted otherwise. Project teams are strongly encouraged to use this checklist during the project design phase as well. Raters are reminded that these checklist items must be completed in addition to the items required by ENERGY STAR Multifamily New Construction Version 1.2 and Indoor AirPlus. Overlapping requirements are NOT repeated in this checklist.<sup>1</sup> For items that do not apply based on selected compliance path (ERI, ASHRAE, or Prescriptive) the Rater may enter "N/A." This checklist must be completed for each certified dwelling unit.

DOE Zero Energy Ready Home – Multifamily National Rater Checklist Version 2 (Rev. 1)						
Dwelling Unit Address:			Must Correct	Rater <sup>2</sup> Verified	Verified by Builder or Licensed Professional <sup>3</sup>	Exception or Alternate Used <sup>4</sup> (enter endnote #)
City:	State:	Permit Date <sup>5</sup> :				
<b>1. Partnership Status</b>						
1.1 Rater has verified that builder is a registered DOE ZERH Builder Partner and identified the builder's Partner ID. <sup>6</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
1.2 Rater has verified and documented that their company has a ZERH partnership agreement using the <a href="#">ZERH Partner Locator</a> . <sup>7</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
1.3 Rater(s) signing checklists attest that they have completed DOE-recognized training (according to the timeline posted on the <a href="#">ZERH website</a> ) and are credentialed by a Home Certification Organization for ZERH (HCO for ZERH) or meet the credential requirements of a Multifamily Review Organization for ZERH (MRO for ZERH).			<input type="checkbox"/>	<input type="checkbox"/>		
<b>2. ENERGY STAR Baseline</b>						
2.1 Unit is certified under ENERGY STAR Multifamily New Construction National Program Version 1.2. <sup>8</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
<b>3. Building Envelope</b>						
3.1a ERI and ASHRAE paths: ceiling, wall, floor, and slab insulation for the building meets specified efficiency levels from the 2021 IECC. <sup>9, 10, 11</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
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 IECC in common spaces. <sup>9, 11, 12</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
3.2 Windows in dwelling units meet high performance requirements based on climate zone. <sup>13</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
<b>4. Duct System</b>						
4.1 All in-unit heating and cooling system distribution ducts and in-unit heating and cooling system air-handling equipment are located within the thermal and air barrier boundary. <sup>14</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
<b>5. Hot Water Efficiency</b>						
5.1 WaterSense labeled fixtures for dwelling unit showerheads and bathroom sink faucets and/or faucet accessories. <sup>15</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
5.2 Hot water delivery systems meet stored volume criteria (using Calculation or Field Verification method). <sup>16</sup>			<input type="checkbox"/>	<input type="checkbox"/>		
5.3 In-dwelling unit recirculation systems use on-demand controls. <sup>17</sup>			<input type="checkbox"/>	<input type="checkbox"/>		



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist

## Version 2 (Rev. 1)

5.4 Recirculating central hot water distribution systems meet pipe insulation thickness criteria. <sup>18</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>6. Lighting &amp; Appliances<sup>19</sup></b>					
6.1 All builder-supplied and builder-installed in-dwelling refrigerators, <sup>20</sup> dishwashers, clothes washers, and clothes dryers are ENERGY STAR certified. <sup>21</sup>		<input type="checkbox"/>	<input type="checkbox"/>		
6.2 100% of in-dwelling, builder-installed lighting fixtures and lamps are LEDs. <sup>22, 23</sup>		<input type="checkbox"/>	<input type="checkbox"/>		
6.3 All installed bathroom ventilation fans in dwelling units are ENERGY STAR certified. <sup>24</sup>		<input type="checkbox"/>	<input type="checkbox"/>		
<b>7. Indoor Air Quality</b>					
7.1 Certified under EPA Indoor AirPlus (Version 1 or Version 2 (Certified or Gold), determined by permit date). <sup>25</sup>		<input type="checkbox"/>	<input type="checkbox"/>		
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. <sup>26,27</sup>		<input type="checkbox"/>	<input type="checkbox"/>		
<b>8. Renewable Ready</b>					
8.1 Provisions of the DOE ZERH Multifamily PV-Ready Checklist Version 2 (Rev. 1) are completed.		<input type="checkbox"/>	<input type="checkbox"/>		
<b>9. Electric Vehicle Ready</b>					
9.1 Provisions of the DOE ZERH Multifamily EV-Ready Checklist Version 2 (Rev. 1) are completed.		<input type="checkbox"/>	<input type="checkbox"/>		
<b>10. Heat Pump Water Heater Ready</b>					
10.1 Dwelling units with in-unit water heaters meet minimum electric and space requirements. <sup>28</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.2 Dwelling units with in-unit water heaters have a condensate drain installed within three feet of existing water heater. <sup>29</sup>		<input type="checkbox"/>	<input type="checkbox"/>		
<b>11. Heat Pump Space Heating Ready</b>					
11.1 For units with in-unit combustion space heaters, individual branch circuit outlet is installed, or conduit is installed to facilitate future wiring for a heat pump installation. Circuit or conduit labeled as "For future heat pump." <sup>30</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>12. HVAC System<sup>31</sup></b>					
Track A	12a.1 For Prescriptive path projects: blower fan volumetric airflow is Grade I per ANSI/RESNET/ACCA 310.	<input type="checkbox"/>	<input type="checkbox"/>		
	12a.2 For Prescriptive path projects: blower fan watt draw is Grade I per ANSI/RESNET/ACCA 310.	<input type="checkbox"/>	<input type="checkbox"/>		
Track B	12b.1 For Prescriptive path projects <sup>32</sup> : Install a heat pump water heater <b>OR</b> Achieve dwelling unit infiltration $\leq 0.20$ CFM50/sf <sup>33</sup>	<input type="checkbox"/>	<input type="checkbox"/>		
12.3 For Prescriptive path projects: HVAC system meets or exceeds efficiency levels based on climate zone and system type as defined		<input type="checkbox"/>	<input type="checkbox"/>		



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist

## Version 2 (Rev. 1)

by Exhibit 2 of the ZERH Multifamily Version 2 National Program Requirements.				
<b>13. Energy Efficiency Threshold</b>				
13.1 ERI Path: Dwelling unit's ERI value $\leq$ DOE ZERH Target Dwelling ERI	<input type="checkbox"/>	<input type="checkbox"/>		
13.2 ASHRAE Path: Whole building model complies and meets DOE ZERH savings target.	<input type="checkbox"/>	<input type="checkbox"/>		
<b>14. Photo Documentation</b>				
14.1 For ASHRAE and Prescriptive path projects, photo documentation is collected that complies with the ZERH Photo Documentation Guidance. For ERI path projects, photo documentation is collected that complies with the Rater's HCO for ZERH's documentation requirements.	<input type="checkbox"/>	<input type="checkbox"/>		

Verification Signoffs		
Rater Name: _____	Rater Pre-Drywall Inspection <sup>34</sup> Date(s): _____	Rater Initials: _____
Rater Company Name: _____		
Rater Name: _____	Rater Final Inspection <sup>35</sup> Date(s): _____	Rater Initials: _____
Rater Company Name: _____		
Builder/Developer Employee: _____	Builder Inspection Date(s): _____	Builder Initials: _____
Builder/Developer Name: _____		
Licensed Professional: _____	LP Inspection Date(s): _____	LP Initials: _____

### Endnotes:

The following endnotes are intended to relate the same exemptions and clarifications as noted in the ZERH MF V2 National Program Requirements. However, if there are any inconsistencies, the endnotes in the National Program Requirements shall take precedence.

<sup>1</sup> This Checklist applies to all dwelling units, sleeping units, common spaces, and garages (open or enclosed) in the building being certified, and where specified, parking lots. These requirements apply to all compliance Paths, unless otherwise specified. These requirements do not apply to parking garages or lots where the cost of the energy use of the parking garage or lot is not the responsibility of the Builder/Developer, Building Owner or Property Manager. This Checklist does not apply to commercial or retail spaces. This Checklist does not apply to



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

common spaces that are located in buildings on the property without any dwelling or sleeping units. A 'sleeping unit' as defined by ANSI / RESNET / ICC 301, is a room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Where the term 'dwelling unit' is used in this Checklist, the requirement is also required of 'sleeping' units. 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.

<sup>2</sup> The Rater is defined as the person(s) completing the third-party verification required for certification. Raters must comply with the following:

- Raters are required to complete all ZERH training modules applicable to the ZERH MF V2 program specifications (according to the timeline posted on the [ZERH website](#)) prior to completing a ZERH project's first inspection. Please note that required training modules are subject to change and Raters will have an allocated time period to complete additional or updated training modules as they become available. If a Rater does not successfully complete these modules before the end of the allocated time period, they may not certify ZERH projects until the modules are complete.
- Raters must be (a) a Certified Rater, Approved Inspector, as defined by ANSI / RESNET / IECC 301, or (b) credentialed by a Home Certification Organization for the Zero Energy Ready Home program (HCO for ZERH), or (c) meet the credential requirements of a Multifamily Review Organization for the Zero Energy Ready Home program (MRO for ZERH). Learn more and find a current list of HCOs and MROs for ZERH [here](#).

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.

<sup>3</sup> At the discretion of the Rater, a licensed professional (LP) may verify those line items in this Checklist where a checkbox is in the "Licensed Professional" column. A Licensed Professional must be a Professional Engineer, Registered Architect, or other industry professional (e.g., electrician) in good standing and possess a current license. When exercised, the LP's responsibility will be formally acknowledged by the LP signing off on the checklist for the item(s) that they verified. However, if a quality assurance review indicates that items have not been successfully completed, the Rater will be responsible for facilitating corrective action.

<sup>4</sup> If an exception for a program requirement or an alternate compliance method is used, enter the number of the corresponding endnote from this document that lists the exception or alternate.

<sup>5</sup> The 'permit date' is the date on which the permit authorizing construction of the building was issued. Alternatively, the date of the Rater's first site visit or the application date of the permit is allowed to be used as the 'permit date'.



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

<sup>6</sup> The DOE ZERH Partner ID number for the builder may be obtained from the builder or found on the [Partner Locator tool](#) on the DOE ZERH program website.

<sup>7</sup> Raters are only required to document the partnership status of their company once, for the first home that the Rater certifies for them.

<sup>8</sup> DOE Zero Energy Ready Home Multifamily Version 2 requires compliance with ESMFNC V1.2, 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.

<sup>9</sup> For dwelling units, projects may reference either the 2021 International Energy Conservation Code (IECC) Residential chapter or Commercial (Group R) chapter, but all dwelling unit envelope components must reference the same chapter (whether it be residential or commercial). For common spaces, projects may reference either 2021 International Energy Conservation Code (IECC) Residential or Commercial (All Other), but all common space envelope components must reference the same chapter (whether it be residential or commercial). For both dwelling units and common spaces, 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.

Building envelope assemblies, including exterior walls and unvented attic assemblies (where used), shall comply with the relevant vapor retarder provisions of the 2021 International Residential Code (IRC).

<sup>10</sup> ERI and ASHRAE path projects may use a total UA calculation for the whole building envelope to demonstrate compliance with the mandatory envelope insulation requirements. The as-built UA shall be less than or equal to the target UA calculated using the method below.

- 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 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.

The UA calculation 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.

<sup>11</sup> All insulation allowances, exceptions, and compliance alternatives (e.g., for slab edge (above-grade and on-grade), 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



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

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/slabeledge](http://www.energystar.gov/slabeledge).

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.

However, for 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 calculation for all paths. The code-required insulation level and depth shall be set to the insulation level and depth found in the Rated Dwelling Unit.

<sup>12</sup> 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. All windows which are part of dwelling units must meet or exceed U-values listed in the ZERH Mandatory window provisions (see next endnote).
- 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.

(2) Meet the requirements by using the whole building UA. When using the UA method, the as-built UA shall be less than or equal to the target UA, which is calculated using the method below.

- 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.

<sup>13</sup> Windows in dwelling units 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		





# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

						= 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 fenestration. This rating must comply with ZERH window specifications, above.

The following exceptions to the window performance criteria apply:

- a. An area-weighted average of windows (per dwelling unit) shall be permitted to satisfy the U-factor and SHGC requirements.
- b. Windows utilized as part of a passive solar design shall be exempt from the U-factor and SHGC requirements and shall be excluded from area-weighted averages calculated using a) above. Exempt windows shall be facing within 45 degrees of true South and directly coupled to thermal storage mass that has a heat capacity > 20 btu / ft<sup>3</sup>×F and provided in a ratio of at least 3 sq. ft. per sq. ft. of South facing windows. Generally, thermal mass materials will be at least 2 in. thick.
- c. 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 must instead meet the U and SHGC values listed in Exhibit 2 of the ZERH MF V2 National Program Requirements.

<sup>14</sup> Exceptions and alternative compliance paths to this requirement are:

- a. Up to 10 ft. of total duct length is permitted to be outside of the thermal and air barrier boundary.
- b. Ducts (but not air handlers) may be located in a vented attic if minimum R-8 duct insulation is used, duct leakage to outdoors is measured ≤ 3 CFM25 per 100ft<sup>2</sup> of conditioned floor area, and:
  - i. In Moist (A) climate zones (per 2021 IECC Table R301.1), an additional 1.5 in. (min.) of closed-cell spray foam encapsulates the ducts and ductwork is buried under 2 in. (min.) of blown-in insulation; OR
  - ii. In Dry (B) and Marine (C) climate zones (per 2021 IECC Table R301.1, ductwork is buried under at least 3.5 in. of blown-in insulation.
- c. Ducts which meet the criteria for “Ducts Located in Conditioned Space” as defined by the 2021 IECC Section R403.3.2.
- d. 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.
- e. Ducts and air-handling equipment associated with dedicated outdoor air systems (DOAS), which may also provide supplemental heating and cooling, are permitted to be outside of the building’s thermal and air barrier boundary.

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.

<sup>15</sup> WaterSense labelling of products may be verified in one of two ways:



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

- a. A cut sheet for the installed product indicates that it is WaterSense labeled and field verification shows that the installed product is the one described on the cut sheet.
- b. The installed product can be found in the most recent WaterSense Product Search tool (<https://lookforwatersense.epa.gov/products/>) and field verification shows that the installed product matches the product described in the search tool.

<sup>16</sup> Hot water delivery systems meet the following efficiency requirements:

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. 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.

To verify that the distribution system stores no more than 1.8 gallons (6.8 liters), raters shall either use the Calculation method **or** the Field Verification method. In the Calculation method, the rater shall calculate the stored volume between the hot water source and the furthest fixture from the source using the piping or tubing inside diameter and the length of the piping/tubing. In the case of recirculation systems (either within the dwelling or central systems), the 1.8 gallon (6.8 liter) storage limit shall be measured from the point where the branch feeding the furthest fixture branches off the recirculation loop, to the fixture itself. An Excel-based tool is available on the DOE ZERH website for this calculation.

Using the Field Verification method, no more than 2 gallons (7.6 liters) of water shall be collected from the hot water fixture before hot water is delivered. This accounts for any water stored in the fixture in addition to the 1.8-gallon limit on pipe storage. Only the fixture with the greatest stored volume between the fixture and the hot water source (or recirculation loop) needs to be tested. To field-verify that the system meets the 2-gallon (7.6 liter) limit, raters shall first initiate operation of recirculation systems, if present, and let such systems run for at least 40 seconds. Next, a bucket or flow measuring bag (pre-marked for 2 gallons) shall be placed under the hot water fixture. The hot water shall be turned on completely and a digital temperature sensor used to record the initial temperature of the water flow. Once the water reaches the pre-marked line at 2 gallons, the water shall be turned off and the ending temperature of the water flow (not the collection bucket) shall be recorded. The temperature of the water flow must increase by  $\geq 10$  °F in comparison to the final to the initial temperature reading.

- <sup>17</sup> In-dwelling unit hot water recirculation systems meet the following requirements:
- a. Must be based on an occupant-controlled switch or an occupancy sensor. 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.
  - b. In-dwelling unit recirculation systems which operate based on “adaptive” scheduling, meaning that they “learn” the hot water demand profile in the dwelling unit and adapt their operation to anticipate this profile, are permitted at this time, and do not require the use of occupant-controlled switches or occupancy sensors.
  - c. In-dwelling unit recirculation systems that are activated based **solely** on a timer and/or temperature sensor are not eligible.

These provisions do not apply to recirculating central hot water distribution systems.





# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

<sup>18</sup> For recirculating central hot water distribution systems, the following pipe insulation thickness levels or R-values must be met or exceeded. Additionally, pipe insulation shall cover the entire length of the recirculation loop to the extent possible. If piping is routed in building cavities that prevent the noted thickness or R-value from being used due to space constraints, then the maximum thickness of insulation possible within the space shall be used.

Nominal Pipe or Tube Size (inches)	Insulation Thickness (inches)
< 1.5	1.5 (or R10 minimum)
≥ 1.5	2.0 (or R12 minimum)

<sup>19</sup> ENERGY STAR product certification must be verified with a visual confirmation that installed product is listed in the online ENERGY STAR product registry.

<sup>20</sup> Due to industry supply chain challenges, DOE is temporarily allowing the use of non-ENERGY STAR certified refrigerators for projects using the ERI and ASHRAE compliance paths. Any project utilizing this temporary alternative must account for the non-ENERGY STAR certified refrigerator in the energy model and still achieve the required performance threshold. DOE advises partners that this alternative may be rescinded in a future program update.

<sup>21</sup> Products in categories which are not covered by ENERGY STAR product criteria are exempt.

<sup>22</sup> Up to 5% of lighting, for task or decorative lighting, may be exempt from this provision. The Target Dwelling specification for lighting will remain at 100% regardless of whether this exemption is used. Projects following the prescriptive path may not use this 5% exemption.

<sup>23</sup> This requirement does not apply to lighting inside appliances (e.g., refrigerator, laundry, microwave, cooking equipment).

<sup>24</sup> This provision does not apply to H/ERVs that are used to provide exhaust ventilation for bathrooms or to exhaust ventilation systems serving more than one dwelling unit.

<sup>25</sup> Buildings permitted on or before 12/31/2025 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 1/1/2026 must certify under the IAP Version 2 Certified or Gold tier. See the Indoor airPLUS program site for information on Version 2 requirements: <https://www.epa.gov/indoorairplus/indoor-airplus-version-2>.

<sup>26</sup> An in-unit HRV or ERV is required to provide whole-dwelling mechanical ventilation for dwelling units in Climate Zones 6 – 8 and must meet or exceed the following specifications: ≥ 65% SRE (@ 32 °F) and ≥ 1.2 CFM/Watt (at one or more rating points). Alternatively, projects may utilize centralized H/ERVs serving multiple dwelling units with any efficacy and recovery efficiency.

<sup>27</sup> Advisory: DOE encourages, but does not require, that partners use equipment listed in the Home Ventilating Institute (HVI) Certified Product Directory (CPD) to comply with this requirement. The listing may be used to demonstrate compliance with this program requirement.

<sup>28</sup> Each dwelling unit with an in-unit fossil fuel water heater must have:

- a. An individual branch circuit outlet that is installed and energized and terminates within 3 feet of each installed fossil fuel water heater. The individual branch circuit shall have a rating not less than 240V/30A or 120V/20A.
- b. A volume of open space located within the dwelling unit that is at least 3' x 3' wide and 7' high available surrounding or within 3 feet of the installed fossil fuel water heater, to facilitate future heat pump water



# U.S. DOE Zero Energy Ready Home Multifamily National Rater Checklist Version 2 (Rev. 1)

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heater installation. The 3' x 3' x 7' volume may contain the existing water heater. The 3' x 3' x 7' space does not need to be provided if the installed water heater is a tankless water heater system.

Dwelling units utilizing an electric water heater are exempt from these requirements.

<sup>29</sup> 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 system or an electric system with a tank volume less than 50 gallons.

<sup>30</sup> If a branch circuit outlet is installed, it shall be in compliance with 2021 IRC Section E3702.11 based on heat pump space heating equipment sized in accordance with 2021 IECC R403.7 and shall terminate within three feet of each fossil fuel space heater. Alternatively, code-compliant wiring conduit to facilitate future wiring for a heat pump installation may be installed and shall terminate within three feet of each fossil fuel space heater.

Dwelling units utilizing in-unit electric heating systems as the primary heating for the dwelling unit are exempt from this requirement.

<sup>31</sup> Any project may choose to follow Track B for common spaces, even if Track A has been used for dwelling units. Systems eligible for Track A include all systems eligible for Track A under ENERGY STAR Multifamily New Construction, Version 1.2.

<sup>32</sup> For Prescriptive Path projects using Track B, one of these additional measures is required to achieve energy savings that would be achieved through HVAC Grading for projects using Track A. Projects may use either option for each dwelling unit in the building. If any units are served by a central heat pump water heater, those units also comply with this requirement.

<sup>33</sup> Field verification of infiltration requirements must be done on a unit-by-unit basis. Infiltration requirements may not be verified with whole-building testing or with an average of results across all units.

<sup>34</sup> Any Item that will be concealed by drywall (e.g., wall insulation) must be verified during the pre-drywall inspection. If drywall is installed prior to the inspection, then it must be entirely removed to fully verify all Items. It is not sufficient to remove only portions of drywall to inspect a subset of areas. Additional information is available in the ENERGY STAR Technical Bulletin: [Pre-Drywall Inspection Is Always Required](#).

<sup>35</sup> Some Items can typically only be verified at a later stage of construction than when the pre-drywall inspection occurs (e.g., bath fan airflow). Any Item that has not been verified during the pre-drywall inspection must be verified prior to or during the final inspection.