



U.S. DOE Zero Energy Ready Home Program
Multifamily National Program Requirements Version 2 DRAFT
Summary of Major Changes from Version 1

Program Component	Version 1	Draft Multifamily Version 2	Rationale
Built-In Best Practices (Mandatory Requirements)			
ENERGY STAR Prerequisite	Requires certification under the ENERGY STAR program applicable to the project. Program version depends on state.	Requires certification under ENERGY STAR Multifamily New Construction (ESMFNC) Version 1.2 , which is the most recent version of ESMFNC.	ZERH-MF V2 builds upon the efficiency and performance of ESMFNC and therefore references the highest efficiency ESMFNC program version available.
Building Envelope Insulation Levels	2015 IECC insulation requirements (Residential Chapter) for opaque areas.	2021 IECC insulation requirements (Residential or Commercial chapter) for opaque areas.	All ZERH projects take advantage of the one chance to build a very high-performance envelope.
Window U/SHGC Values in Dwelling and Sleeping Units	Based on ENERGY STAR V5.0 and 6.0 specs, depending on climate zone.	Based on ENERGY STAR V6.0 specs for all climate zones, except for Very Cold Climates (6-8) which are more rigorous at U 0.25. Allowances provided for structural (Class AW) windows.	Updates the minimum window requirements to higher performance levels. Even higher performance windows may be used to meet performance targets.
Hot Water System Efficiency	Requires an efficient hot water plumbing layout or the use of high efficiency water heater + water conserving fixtures (and a backstop for stored volume in hot water piping).	Also requires a maximum amount of stored volume in hot water piping (similar to V1). Adds pipe insulation requirements for central recirculating systems, and requires WaterSense fixtures for in-dwelling showerheads, bath faucets and aerators.	Targeted measures to reduce water heating energy, improve overall building performance, and generate water use savings.
High Efficiency Lighting in Dwellings	80% requirement.	100% requirement.	Recognizes the cost-effectiveness and availability of LEDs, and increases ZERH efficiency.
Energy Efficient Appliances	All builder-installed refrigerators, dishwashers, and clothes washers are ENERGY STAR qualified.	All builder-supplied and installed in-dwelling refrigerators, dishwashers, clothes washers, and clothes dryers are ENERGY STAR qualified	Recognizes ENERGY STAR labeling of clothes dryers and increases ZERH efficiency.



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Built-In Best Practices (Mandatory Requirements), cont.			
Indoor Air Quality	Certify under Indoor airPLUS (IAP) V1.	<p>Certify under IAP V1. Advises that DOE may consider updated IAP provisions as they are developed.</p> <p>H/ERVs in Very Cold Climates (6-8).</p>	<p>Maintains requirement to certify under the IAP Version 1 program through at least 2024.</p> <p>Adds energy efficient whole-house ventilation in very cold climates.</p>
Photovoltaic (PV) Ready	Implement the ZERH PV-Ready Checklist in all locations with the requisite annual solar radiation.	PV-Ready Checklist is revised to specifically address Multifamily buildings and provides a solar-ready zone as defined by Appendix CB of the 2021 IECC , covering at least 40% of the roof area. Include additional dead load in the design, conduit to the service panel, space for an additional breaker, and documentation of all solar-ready provisions. These provisions apply everywhere, regardless of annual solar radiation.	Increases PV readiness in multifamily buildings in a flexible manner to provide a streamlined opportunity to add renewable energy in the future.
Electric Vehicle Ready	No requirement.	Provide EVSE, EV Capable, and EV Ready spaces for 40% of units or automobile parking spaces with designated capacity and connections as established by the EV-Ready Checklist.	Provides EV Charging infrastructure for a portion of parking spaces with provisions similar to drafted 2024 IECC requirements.
Heat Pump Water Heater Ready	No requirement.	Dedicated circuit is installed and energized for each installed fossil fuel water heater in dwellings. Space is reserved for a future electric (heat pump) water heater.	Lays the groundwork for the future installation of a HPWH and reduces retrofit cost and complexity.
Heat Pump Space Heater Ready	No requirement.	A dedicated circuit outlet or conduit, and condensate drain, are installed to facilitate a future heat pump installation for dwellings with installed fossil fuel space heaters.	Lays the groundwork for the future installation of a heat pump for space heating and reduces retrofit cost and complexity.



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Efficiency Threshold			
Minimum Required Energy Efficiency Threshold	Energy Rating Index (ERI) scores to qualify for ZERH in the 50s.	ERI scores to qualify for ZERH in the low- to mid-40s (when using the ERI compliance pathway). Note: the ASHRAE and Prescriptive pathways are designed to achieve a similar level of energy efficiency (see below).	ZERH builds upon ESMFNC to achieve energy efficiency at least 15% beyond 2021 IECC.
Program Compliance & Certification Oversight			
Building Eligibility	Allows multifamily up to 5 stories.	No height limits on multifamily buildings. Same eligibility provisions as the ENERGY STAR Multifamily New Construction (ESMFNC) program.	Aligning building eligibility for ESMFNC and ZERH-Multifamily allows stakeholders to leverage both programs in a consistent manner where ZERH builds upon the performance of ESMFNC, and to qualify for the 45L tax credit.
Compliance Path Based on ASHRAE 90.1	No ASHRAE 90.1 compliance pathway.	Includes an ASHRAE 90.1 compliance pathway, which is also offered under ESMFNC.	Adding this element makes ZERH-Multifamily more accessible for commercial multifamily builders.
Certification Oversight	EPA-approved Home Certification Organizations (HCOs) required to provide oversight (effective in Revision 8).	DOE-approved HCOs and Multifamily Review Organizations (MROs) for ZERH required to provide oversight and quality assurance for raters and ZERH certifications.	DOE-recognized HCOs and MROs for ZERH assure minimum oversight and quality assurance provisions for ZERH certifications.