

U.S. DOE Zero Energy Ready Home

Single Family Homes National Program Requirements – Version 2

Summary of Major Changes from Version 1

Program Component	Version 1	Version 2	Rationale
Built-In Best Practices (Mandatory Requirements)			
Building Envelope Insulation Levels	2015 IECC insulation requirements for opaque areas	2021 IECC insulation requirements for opaque areas.	Delivers most robust code-based building envelope. All ZERHs take advantage of the one chance to build a very high-performance envelope.
Window U/SHGC Values	Based on ENERGY STAR V6.0 specs, except for Cold Climates which are based on V5.0 specs	Based on ENERGY STAR V6.0 specs, except for Very Cold Climates (6-8) which are more rigorous at U 0.25.	Updates the window requirements to higher performance levels. Even higher performance windows may be used by partners as part of the overall envelope compliance strategy.
High Efficiency Lighting	80% requirement	100% requirement, with an exception for up to 5% for task or decorative lighting.	Recognizes the cost-effectiveness of LEDs and increases ZERH efficiency, while offering minor flexibility. Note that the ZERH Target Homes assumes 100% high efficiency lighting, so the Energy Rating Index (ERI) Target for V2 is based on 100% LEDs.
Energy Efficient Appliances	All builder-installed refrigerators, dishwashers, and clothes washers are ENERGY STAR qualified	All builder-supplied and installed refrigerators, dishwashers, clothes washers, <u>and clothes dryers</u> are ENERGY STAR qualified	Recognizes ENERGY STAR labeling of clothes dryers and increases ZERH efficiency.
Indoor Air Quality	Certify under Indoor airPLUS (IAP) V1	Certify under IAP V1. Advises that DOE may consider updated IAP provisions as they are developed. H/ERVs in Very Cold Climates (6-8)	Maintains requirement to certify under the IAP Version 1 program through at least 2023. Adds energy efficient whole-house ventilation in very cold climates.
Photovoltaic (PV) Ready	Implement the ZERH PV-Ready Checklist	Similar to V1. Eliminates the exception for sites with lower annual solar resources. Also adopts same roof area provisions as found in Appendix RB of the 2021 IECC.	Increases PV readiness in ZERH homes and recognizes the major increases in PV cost effectiveness.
Electric Vehicle Ready	No requirement	One parking space per dwelling unit includes an electric vehicle charging receptacle.	Lays the groundwork for the transition to electric vehicles in the near future. Many partners already incorporate this feature.
Heat Pump Water Heater Ready	No requirement	Dedicated circuit is installed and energized for each installed fossil fuel water heater. 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.

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Heat Pump Space Heater Ready	No requirement	A dedicated circuit outlet or conduit is installed to facilitate a future heat pump installation.	Lays the groundwork for the future installation of a heat pump for space heating and reduces retrofit cost and complexity.
Efficiency Threshold			
Minimum Required Energy Efficiency Threshold	Energy Rating Index (ERI) scores to qualify for ZERH in the 50s.	Updated ZERH Target Home achieves increased energy savings. Resulting ERI Targets to qualify for ZERH in the 40s.	Numerous innovations have entered the industry since the development of V1 and are reflected in the updated ZERH efficiency threshold.
Program Compliance & Administration			
Prescriptive Compliance Pathway	Allows a non-modeling compliance path. This path was rarely used.	Sunsets the Prescriptive compliance pathway for single family homes.	Removes this element of program infrastructure for single family homes because of extremely limited usage.
Certification of Multifamily buildings	Allows multifamily up to 5 stories, like ENERGY STAR Homes program had permitted.	Multifamily buildings will be certified under ZERH Multifamily V2 (under development) and not under ZERH Single Family V2. A transition period will allow MF buildings to continue to certify under the ZERH V1 single family program.	Multifamily buildings warrant a sector-specific program design. ZERH-MF will provide partners with the same framework found in ENERGY STAR Multifamily New Construction, with higher efficiency and performance specs.
Certification Oversight	EPA-approved Home Certification Organizations (HCOs) required to provide oversight.	DOE-approved HCOs for ZERH required to provide oversight and quality assurance for raters and ZERH certifications.	DOE-recognized HCOs for ZERH assure minimum oversight and quality assurance provisions for ZERH certifications.
Size Adjustment Factor (SAF)	SAF makes the ERI Target lower for homes larger than the benchmark. It does not apply to most ZERHs because they are not larger than the benchmark.	SAF is sunset. ENERGY STAR Homes V3.1 and V3.2 have both eliminated SAF as well.	Homes under ZERH V2 will be very efficient regardless of SAF. Removing SAF simplifies program requirements.