



U.S. DOE Zero Energy Ready Home Quality Assurance Checklist & Certification Review Version 1 (Rev. 9.0)

A Zero Energy Ready Home Quality Assurance Checklist shall be completed during each quality assurance file review and field review (QA review) of homes being certified through the DOE Zero Energy Ready Home (ZERH) program in accordance with the policies and procedures of the DOE-recognized Home Certification Organization for the Zero Energy Ready Home program (HCO for ZERH) or Multifamily Review Organization for ZERH (MRO for ZERH). This edition of the QA checklist is mandatory for homes certified under ZERH Version 1, Revision 9.0.

Instructions for Performing Quality Assurance Review

- Instructions for All Reviews:
 - **An ENERGY STAR Multifamily New Construction Quality Assurance Review must also be completed on a dwelling unit in conjunction with the Quality Assurance Review for ZERH Version 1, Revision 9.0.**
 - Items found to be out of compliance, in accordance with the HCO for ZERH or MRO for ZERH policies, shall be corrected. If correction is not possible, the home's certification is required to be withdrawn (please contact zerh@doe.gov for guidance).
 - Additional items may be reviewed at the reviewer's discretion and reported in Table 10: Additional Checklist Items and Exemptions.
- Instructions for File Review:
 - Complete Tables 1 through 8 below, except where marked "For Field Review Only."
- Instructions for Field Review:
 - Complete all items in Tables 1 through 9 below. Complete all File Review items **before** completing "For Field Review Only" items.
 - Where a National Rater Checklist item cannot be verified because it is not visible, not accessible, cannot be tested, or there are other extenuating circumstances, mark the box in the column "Not Verified" and include an explanation in an attached document.
 - In accordance with the HCO for ZERH or MRO for ZERH policies, a limited amount of the required QA Field Reviews may be performed at the pre-drywall stage. Mark items that are not yet installed as "Not Verified." If any items are "Not Verified" an action/explanation summary document shall be attached.



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1. Project Information

Home Address		City	State
ZERH Certification Pathway			
<input type="checkbox"/>	Performance (ERI)	<input type="checkbox"/>	Prescriptive
<i>Note: For Prescriptive path projects, Table 6 does not apply and some Items in Tables 5 and 7 have alternative requirements, marked with brackets: [].</i>			

2. Original Rating Information

Rater Company Name		
Pre-Drywall Inspection Rater Name	Rater ID #	Date of Pre-Drywall Inspection
Final Inspection Rater Name	Rater ID #	Date of Final Inspection

3. QA Review Information

QA Reviewer Name		File Review or Field Review?	Date of Review
<i>For Field Review Only</i>	Field Review Rater Name	Pre-drywall or Final/completed?	Date of Review

4. Action Items / Summary of QA

	Yes	No
All items in Tables 5 – 7 are marked “Yes.”		
If any items in Tables 5 – 7 are marked “No” or “Not Verified,” a document explaining these items is attached to this file.		



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5. Documentation Collection

All items below must be collected as part of the QA data file for both file and field reviews.		Yes	No
A	Energy rating file (model). [If Prescriptive: N/A]		
B	Documentation that the builder was a ZERH Partner at the time of the home’s certification. If documentation of active partnership cannot be verified, contact zerh@doe.gov.		
C	Documentation that the unit is certified under the applicable ENERGY STAR Multifamily New Construction program version , based on location.		
D	Documentation that the home is certified under EPA Indoor airPLUS.		
E	DOE Zero Energy Ready Home PV-Ready Checklist Version 1, Revision 9 is collected, with all applicable items marked “Verified,” or the home meets an exemption or alternative as specified in the National Program Requirements (see Table 8, below).		
F	DOE Zero Energy Ready Home National Rater Checklist Version 1, Revision 9 is collected, with no items left blank or marked “Must Correct.”		

6. Energy Rating File (Model) Review [This table does not apply to Prescriptive Path projects]

All items below must be verified as part of the QA process for both file and field reviews.		Yes	No
H	Energy rating file (model) passes the HCO for ZERH’s quality assurance review checklist.		
I	ERI of the modeled unit meets or exceeds the DOE ZERH ERI Target for Version 1, Revision 9 (as generated by the ERI software for the model).		
J	Energy rating file (model) is consistent with the National Rater Checklist (see items 3.1 – 6.2 below).		
3.1	Modeled windows meet or exceed the high-performance requirements based on climate zone.		
3.2	Modeled total building thermal envelope UA is equal to or lower than the UA value that results from multiplying the U factors in the 2015 IECC Table R402.1.2 by the same assembly areas as the home being certified or meet an alternative as specified in the National Program Requirements (see Table 8, below).		
4.1	All heating and cooling distribution ducts are modeled as located within the thermal and air barrier boundary or meet an alternative as specified in the National Program Requirements (see Table 8, below).		
4.2	All heating and cooling air handling equipment is modeled as located within the thermal and air barrier boundary.		
5.2	If Item 5.2 on the DOE Zero Energy Ready Home Single Family Homes National Rater Checklist is marked as “Rater Verified,” then water heater is modeled at an efficiency level equal to or greater than the applicable efficiency level specified in Item 5.2 and fixtures (in-unit showerheads and bathroom sink faucets) are modeled as low-flow (if software allows). If Item 5.2 is not marked as “Rater Verified,” mark this item as “N/A.”		
6.2	Modeled lighting is at least 80% LEDs.		



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7. DOE Zero Energy Ready Home National Rater Checklist Review

All items below must be verified as part of the QA process for both file and field reviews.		Yes	No	
K	Rater name(s) is/are recorded.			
L	Rater inspection dates are recorded.			
M	Rater initials are recorded.			
10.2	[Prescriptive path: All as-built HVAC equipment efficiency levels as stated in the National Rater Checklist Prescriptive Path Efficiency Specifications table (Section 1) meet applicable ZERH prescriptive specification.]			
	[Prescriptive path: All as-built domestic hot water equipment efficiency levels as stated in the National Rater Checklist Prescriptive Path Efficiency Specifications table (Section 4) meet applicable ZERH prescriptive specification.]			
All items below must be verified, with applicable documentation collected, as part of the QA process for field reviews only . As an alternative, complete and attach the DOE Zero Energy Ready Home National Rater Checklist.		Not Verified	Yes	No
N	As-built home is consistent with the National Rater Checklist and Energy Rating File (Model) (see items 3.1 – 6.2, below).			
3.1	Insulation which is accessible for inspection matches the corresponding insulation value used in the energy rating file (model). [Prescriptive N/A]			
3.2	U and SHGC values of windows in rated home match corresponding values in the energy rating file (model). [Prescriptive: U and SHGC values of windows in rated home meet or exceed mandatory high-performance window requirements in National Rater Checklist in both Item 3.1 and the Prescriptive Path Efficiency Specifications table Item 3].			
4.1	All accessible heating and cooling distribution ducts are located within the thermal and air barrier boundary or meet an alternative as specified in the National Program Requirements (see Table 8, below).			
4.2	All accessible heating and cooling air-handling equipment is located within the thermal and air barrier boundary.			
5.1	If Item 5.1 on the DOE Zero Energy Ready Home National Rater Checklist is marked as “Rater Verified,” then hot water delivery systems within the dwelling unit meet stored volume criteria applicable to mandatory requirement 5.1 based on a review of submitted construction documents. If compliance cannot be determined based on a review of construction documents, mark this item “not verified.” (This item does not need to be re-tested in the field). If Item 5.1 is not marked as “Rater Verified,” mark this item as “N/A.”			
5.2	If Item 5.2 on the DOE Zero Energy Ready Home National Rater Checklist is marked as “Rater Verified,” then installed water heater efficiency matches corresponding efficiency value used in the energy rating file (model) [Prescriptive: installed water heater meets or exceeds efficiency level specified in National Rater Checklist Item 5.2]. If Item 5.2 is not marked as “Rater Verified,” mark this item as “N/A.”			



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	If Item 5.2 on the DOE Zero Energy Ready Home National Rater Checklist is marked as “Rater Verified,” installed in-unit showerheads and bathroom sink faucets and aerators which are accessible for inspection are WaterSense labeled. WaterSense label can be verified using the item’s serial number (if available) if the fixture’s label has been removed since installation. If Item 5.2 is not marked as “Rater Verified,” mark this item as “N/A.”			
	If Item 5.2 on the DOE Zero Energy Ready Home National Rater Checklist is marked as “Rater Verified,” then hot water delivery systems within the dwelling unit meet stored volume criteria applicable to mandatory requirement 5.2 based on a review of submitted construction documents. If compliance cannot be determined based on a review of construction documents, mark this item “not verified.” If Item 5.2 is not marked as “Rater Verified,” mark this item as “N/A.”			
6.1	All builder-supplied and builder-installed in-unit refrigerators, dishwashers, and clothes washer are ENERGY STAR certified, or meet an alternative as specified in the National Program Requirements (see Table 8, below).			
6.2	80% or more of builder-installed lighting fixtures and lamps (bulbs) are LEDs.			
6.3	All builder-installed, in-unit bathroom ventilation fans are ENERGY STAR certified.			
8.1	Provisions of the DOE Zero Energy Ready Home PV-Ready Checklist Version 1 Revision 9 marked as “Verified” are present in the as-built home.			
10.2	[Prescriptive path: All installed HVAC and domestic hot water equipment has specifications which match the efficiency levels documented in the National Rater Checklist Prescriptive Path Efficiency Specifications table – Sections 1 and 4]			

8. DOE Zero Energy Ready Home National Rater Checklist Exemptions and Alternatives

Mark any exemptions or alternatives used during the original rating.		Yes	No
3.1	Windows are exempted from U/SHGC requirements because they are utilized as part of a passive solar design.		
3.2	Slab edge insulation allowance for jurisdictions designated as having Very Heavy Termite Infestation.		
	Slab edge insulation allowances permitted by the most recent version and revision of the ENERGY STAR Single Family New Homes program, listed here: www.energystar.gov/slabedge .		
	Adjustments to the UA calculation related to slab edge insulation details that are permitted by ENERGY STAR Single Family Homes Version 3.2.		
4.1	Up to 10’ of total duct length is outside the dwelling unit’s thermal and air barrier boundary.		
	Ducts are located in an unvented attic.		
	Ducts are located in a vented attic and have the characteristics described in the Version 1, Revision 9.0 National Program Requirements, endnote 18c.		
	Systems meet the criteria for “Ducts Located in Conditioned Space” as defined by the 2018 IECC Section R403.3.7 or 2021 IECC Section R403.3.2.		



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	Jump ducts which do not directly deliver conditioned air from the HVAC unit are located in attics. All joints are fully sealed with mastic or foam and the jump duct is fully buried under the attic insulation.		
	Ducts are located within an unvented crawl space.		
	Ducts are located in a basement which is within the home's thermal boundary.		
	Ductless HVAC System is used.		
6.1	Products are in categories which are not covered by ENERGY STAR product criteria.		
8.1	The building has an on-site PV system or receives renewable energy from a community solar system, with an agreement meeting the terms noted in the National Program Requirements.		
	Location, based on zip code, does not have at least 5 kWh/m2/day average daily solar radiation based on annual solar insolation.		
	Location has significant natural shading.		
	The home does not have the minimum required free roof area within +/- 45° of true south as noted in the National Program Requirements.		

9. Verification of Key Equipment Performance [This table does not apply to Prescriptive Path projects]

All items below must be verified, with applicable documentation collected, as part of the QA process <i>for field reviews only</i> .		Not Verified	Yes	No
O	Installed residential heating equipment has specifications which match the efficiency levels used in the energy rating file (model).			
P	Installed residential cooling equipment has specifications which match the efficiency levels used in the energy rating file (model).			
Q	Installed domestic water heating equipment has specifications which match the efficiency levels used in the energy rating file (model).			

10. Additional Checklist Items and Exemptions

Use this space to list additional items reviewed and describe any other exemptions or alternatives that were used (attach additional pages, if needed).		
Checklist Name	Item #	Notes