

An ENERGY STAR Quality Control Checklist shall be completed during each quality control file review and field review (QC review) of homes being certified through the ENERGY STAR Single-Family New Homes program in accordance with the policies and procedures of the Home Certification Organization (HCO)¹. This revision of the QC checklist is mandatory for homes certified using Version 3 / 3.1 / 3.2, Revision 13. QC reviews for homes certified using earlier Revisions may continue to use the prior matching revision of this document, which can be found in the <u>Archives</u>. Review complete instructions on page 4.

ENERGY STAR Quality Control Checklist

Home Address:		_ City:	_State: Zip C	ode: _				
QC Review	Review Type: File Field QC Reviewer:		Date of Review:					
	Rater Being QC'd:							
Original Rating Energy Rating Company:								
Pre-Drywall Inspection:	Rater Name:	_ Rater ID #:	Date:					
Final Inspection:	Rater Name:	_ Rater ID #:	Date:					
Action Items / Su				Yes	No	N/A		
If any Items are mark	ked "No" or "Not Verified," an action/explanation su	ummary document shall be atta	ched.		-			
Documentation	Collection			Yes	No	N/A		
A) Energy Rating File	e collected.					-		
B) National Rater De	sign Review Checklist collected, with no applicabl	e Items left blank.				-		
C) Documentation th	at builder has an ENERGY STAR partnership agr	eement.				-		
D) Documentation th	at Rater has an ENERGY STAR partnership agre	ement.				-		
E) Documentation th	at Rater completed EPA-recognized training and i	s credentialed by a HCO.				-		
	If Track A – HVA	C Grading was pursued:				•		
F) HVAC design report compliant with ANSI / RESNET / ACCA / ICC Std. 310, and the National HVAC Design Supplement to Std. 310 for Dwelling & Units, collected, with no applicable Items left blank.								
G) ANSI / RESNET /	ACCA / ICC Std. 310 design review criteria have	been met for applicable housin	g type.					
	If Track B – HVAC	Credential was pursued:						
F) ENERGY STAR National HVAC Design Report collected, with no applicable Items left blank.								
G) Documentation that HVAC contractor held required credential at the time of certification, unless all equipment is an exempted type, in which case check: Exempted								
H) National Rater Field Checklist collected, with no Items left blank or marked Must Correct.					-			
List of any exemp	tions or alternatives used by the Rater.							
Per 5b.1, written a	approval from designer collected if installed model	s do not match National HVAC	Design Report.					
Per 7.7, if smaller distance is used for inlet and outlet of balanced ventilation system per footnote, manufacturer's instructions collected indicating that the smaller distance may be used.								
Rater name, Rate	r inspection dates and Rater initials are recorded.					-		
If any Builder Ver	fied Items are used, builder employee, builder ins	pection date and builder initials	are recorded.					
Energy Rating File				Yes	No	N/A		
Energy Rating file pa	sses the Home Certification Organization's (HCO	s) quality control review checkli	ist. ¹			-		
ERI of the home mee	ets or exceeds the ENERGY STAR ERI Target for	the program version applicable	at the time of certification.			-		
Energy Rating file is	consistent with the National Rater Design Review	Checklist				-		
2.1 Modeled fene	estration meets or exceeds 2009 IECC or, for Nation	onal v3.2, 2021 IECC requireme	ents.			-		
	al building thermal envelope UA achieves \leq 100% 8 or, for National v3.2, 2021 IECC Table 402.1.2 ²	of the total UA resulting from th	e U-factors in 2009 IECC			-		
Energy Rating file is	consistent with the National Rater Field Checklist					-		
1.3 Modeled insul	ation achieves Grade I install. per ANSI / RESNE	T / ICC Std. 301. ²				-		
3.1, 3.3 & 4.10 M	odeled attic insulation meets minimum R-value at	perimeter, platforms and attic of	covers. ²			-		
3.2 For slabs on g	rade in CZ 4-8, slab edge modeled with \ge R-5 ins	ulation at depth specified by the	e 2009 IECC. ²					
3.4 Modeled abov	e grade walls are consistent with documented the	ermal bridging strategy (3.4.1, 3	.4.2 or 3.4.3). ²			-		
6.3 Modeled supp	ly and return ducts in unconditioned space are ins	sulated to \geq R-6. ²						
6.4 & 6.5 Modeled	d duct leakage is consistent with Items 6.4 (total le	akage) and 6.5 (leakage to out	doors). ²					
7.1 Modeled vent	lation rate is within \pm 15 CFM or \pm 15% of design	report value (2.3).				-		



Natio	Yes	No	N/.	Ά				
If Track A – HVAC Grading was pursued:								
4a.3 Cooling sizing % is within the cooling sizing limit selected by the HVAC designer.]			
If Track B – HVAC Credential was pursued:								
4b.2 H	VAC Design Report reviewed by Rater for the following parameters (National HVAC Design Report Item # in par	renthes	is):					
4b.2.1 Cooling season and heating season outdoor design temperatures used in loads (3.3) are within the limits defined at <u>energystar.gov/hvacdesigntemps</u> for the State and County, or US Territory where the home is built or the designer has provided an allowance from EPA to use alternative values.]			
4b.2]				
4b.2.3 Conditioned floor area used in loads (3.5) is between 100 sq. ft. smaller and 300 sq. ft. larger than the home being reviewed.]			
	2.4 Window area used in loads (3.6) is between 15 sq. ft. smaller and 60 sq. ft. larger than the home being reviewed or, for homes with > 500 sq. ft. of window area, between 3% smaller and 12% larger.							
	2.6 Sensible, latent & total heat gain are documented (3.10 – 3.12) for the orientation of the home being reviewed.							
4b.2	2.7 The difference between the maximum total heat gain across orientations and that of the orientation of the home being reviewed (3.13) is ≤ 6 kBtuh. ³							
4b.2	2.8 Cooling sizing % (4.13) is within the cooling sizing limit (4.15) selected by the HVAC designer.]			
Natio	nal Rater Field Checklist – Mandatory during Field Review only. As an alternative, complete and attach the National Rater Field Checklist, Version 3 / 3.1 / 3.2 (Rev. 13).	Yes	No	Not Verified	N/A			
1. Hig	h-Performance Fenestration & Insulation							
	ccessible insulation (ceiling, wall, floor, and slab) and Rater's documentation of insulation matches the energy ting file and meets or exceeds specification in Item 3.1 of the National Rater Design Review Checklist. ²				-			
1.3 All insulation achieves Grade I install. per ANSI / RESNET / ICC Std. 301. ²					-			
2. Ful	ly-Aligned Air Barriers							
2.3 At attic knee walls and skylight shaft walls, a complete air barrier provided that is fully aligned at exterior vertical surface of wall insulation in all climate zones; also at interior vertical surface of wall insulation in CZ 4-8.								
3. Rec	duced Thermal Bridging							
3.1 For insulated ceilings with attic space above (i.e., non-cathedralized), Grade I insulation extends to the inside face of the exterior wall below and is ≥ R-21 in CZ 1-5; ≥ R-30 in CZ 6-8.								
3.3 Ins	sulation beneath attic platforms (e.g., HVAC platforms, walkways) ≥ R-21 in CZ 1-5; ≥ R-30 in CZ 6-8.							
4. Air	Sealing							
4.1 Visible ducts, flues, shafts, plumbing, piping, wiring, exhaust fans & other penetrations to unconditioned space sealed, with blocking / flashing as needed.					-			
4.2 Recessed lighting fixtures adjacent to unconditioned space ICAT labeled and gasketed. ²								
4.9 Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions made substantially air-tight with weatherstripping or equivalent gasket.								
4.10 Attic access panels, drop-down stairs, & whole-house fans equipped with durable ≥ R-10 cover that is gasketed (i.e., not caulked). Fan covers either installed on house side or mechanically operated.								
5. Hea	ating & Cooling Equipment - Complete Track A - HVAC Grading or Track B - HVAC Credential							
	5a.1 Blower fan volumetric airflow is Grade I or II per ANSI / RESNET / ACCA / ICC 310.							
Track A	5a.2 Blower fan watt draw is Grade I or II per ANSI / RESNET / ACCA / ICC 310.							
	5a.3 Refrigerant charge is Grade I per ANSI / RESNET / ACCA / ICC 310. ²							
Track B	 5b.1 In accordance with the checkbox selected by the Rater, HVAC manufacturer & model number of installed equipment matches either of the following (check box): ^{2,3} □ National HVAC Design Report □ Written approval from designer 							



6. Duct Quality	nstallation		Yes	No	Not Verified	N/A	
6.1 Ductwork installed without kinks, sharp bends, compression or excessive coiled flexible ductwork.							
6.2 Bedrooms pressure-balanced using any combination of transfer grills, jump ducts, dedicated return ducts, and / or undercut doors to achieve Reviewer-measured pressure differential ≥ -3 Pa and ≤ +3 Pa with respect to main body of the house when all bedroom doors are closed & all air handlers are operating. For bedrooms with a design airflow ≥ 150 CFM as reported in item 5.5 of the HVAC Design Report, Reviewer-measured pressure differential ≥ -5 Pa ≤ 5 Pa.					-		
6.3 All supply and return ducts in unconditioned space, including connections to trunk ducts, insulated to \geq R-6.							
		reater of \leq 8 CFM25 per 100 sq. ft. of CFA or \leq 80 CFM; or, for l25 per 100 sq. ft. of CFA or \leq 120 CFM. ²					
6.5 Reviewer-mea	sured duct leakage to outdoors is the	e greater of \leq 4 CFM25 per 100 sq. ft. of CFA or \leq 40 CFM25. ²					
7. Dwelling Unit	Mechanical Ventilation Systems	& Inlets In Return Duct					
7.1 Reviewer-mea	sured ventilation rate is within \pm 15 C	FM or \pm 15% of design report value.				-	
7.2 A readily-accessible ventilation override control installed and also labeled if its function is not obvious (e.g., a label is required for a toggle wall switch, but not for a switch that's on the ventilation equipment).						-	
7.3 For any outdo	or air inlet connected to a ducted retu	rn of the HVAC system (Complete if present; otherwise check "h	N/A"): ²	-			
7.3.1 Controls au	tomatically restrict airflow using a mo	torized damper during vent. off-cycle and occupant override. ²					
7.3.2 Reviewer-n	neasured vent. rate is \leq 15 CFM or 15	5% above design value at highest HVAC fan speed. 2					
7.5 If Vent System controller operates the HVAC fan, then HVAC fan operation is intermittent and either the fan type is ECM / ICM or the controls will reduce the run-time by accounting for HVAC system heating or cooling hours. ²							
7.7 Air inlet location (Complete if air inlet location was specified on design report; otherwise check "N/A"): ³			-	-	-		
7.7.1 Inlet pulls ventilation air directly from outdoors & not from attic, crawlspace, garage, or adjacent dwelling unit.						-	
7.7.2 Inlet is ≥ 2 ft. above grade or roof deck; ≥ 10 ft. of stretched-string distance from known contamination sources not exiting the roof, and ≥ 3 ft. distance from dryer exhausts and sources exiting the roof.						-	
7.7.3 Inlet is provided with rodent / insect screen with ≤ 0.5 inch mesh.						-	
8. Local Mechanical Exhaust							
In each kitchen & standards:	bathroom, system is installed that ex	hausts directly to outdoors & meets one of the following Review	er-mea	sured	airflow		
Location	Continuous Rate	Intermittent Rate					
8.1 Kitchen	≥ 5 ACH, based on kitchen volume. ²	≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume 2				-	
8.2 Bathroom	≥ 20 CFM	≥ 50 CFM				-	
9. Filtration				•			
9.1 Filter location capable of accepting a MERV 6 filter installed in each ducted mechanical system in a location where all return and mechanically supplied outdoor air passes through filter(s) prior to conditioning, and that facilitates access and regular service by the occupant. ^{2,3}							
9.2 Filter access panel includes gasket or comparable sealing mechanism and fits snugly against the exposed edge of filter when closed to prevent bypass.							
10. Combustion Appliances							
10.1 Furnaces, boilers, and water heaters located within the home's pressure boundary are mechanically drafted or direct-vented. ²							
10.2 Fireplaces located within the home's pressure boundary are mechanically drafted or direct-vented. ²							
10.3 No unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary.							



Instructions for Performing Quality Control Review

- During File Review, complete the Action Items / Summary of QC, Documentation Collection, Energy Rating File and National Rater Design Review Checklist sections. During Field Review, complete the entire checklist.
- In accordance with the HCO's policies, a limited amount of the required QC Field Reviews may be performed at the pre-drywall stage. Mark items that are not yet installed as "N/A." 1
- Where a 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.
- Additional items may be reviewed at the reviewer's discretion and included in the Additional Checklist Items and Exemptions report below.
- Items found to be out of compliance shall be corrected. If correction is not possible, the home's certification is required to be withdrawn (please contact the HCO for guidance).¹

Footnotes

- 1. Home Certification Organizations (HCOs) are independent organizations recognized by EPA to implement an ENERGY STAR certification program for single-family and multifamily homes and apartments using an Energy Rating Index (ERI) compliance path. Learn more and find a current list of HCOs at <u>energystar.gov/partner_resources/residential_new/working/other_participants/hco</u>.
- 2. This item has been edited for space or has a footnote with an exemption or alternative. Refer to referenced program document for details. When an item is properly met using an exemption or alternative, mark the item as "Yes" and record a description in the Additional Checklist Items and Exemptions table.
- 3. This requirement is modified from the original program requirement in order to be applicable in the context of a finished home.
- 4. Homes certified using the ENERGY STAR Single-Family New Homes California Program Requirements, Version 3.3 and later are automatically deemed compliant with Item 3.1 of the National Rater Design Review Checklist.

Additional Checklist Items and Exemptions

Use this space to list additional Items reviewed and describe any exemptions or alternatives that were used (attach additional pages, if needed) Not **Checklist/Section Name** Item # Notes N/A Yes No /erified Π

				1	
Revised 12/01/2023				Page	



Certification Review

EPA has developed a process, called Certification Review, to address cases where a homeowner has concerns about the ENERGY STAR certification of their home. The purpose of a Certification Review is to determine whether a home should maintain its ENERGY STAR certification. There are two possible outcomes: (1) the home will maintain its ENERGY STAR certification or (2) the home's ENERGY STAR certification will be withdrawn. Learn more at energystar.gov/partner_resources/residential_new/certification_review.

Certification Review Process

When a Home Certification Organization (HCO)¹ receives an eligible homeowner inquiry, the HCO will initiate a Certification Review of the home and assign it to an appropriate individual according to the HCO's policies. The assigned reviewer shall complete the Certification Review within 60 days by performing the following steps.

- 1. Collect Documentation. Collect all pertinent documentation using the Document Collection sections of the Quality Control Checklist and Certification Review Supplement Checklist. Inability to collect a required documentation item constitutes a failure, in which case proceed directly to Step 3: preparing the certification review report.
- 2. Perform Home Inspection. Coordinate a time with the homeowner to inspect the home. During that inspection, complete the remainder of the Quality Control Checklist and Certification Review Supplement Checklist based on observations of the current state of the home.
- 3. Prepare Certification Review Report. Prepare a report that includes the completed Quality Control Checklist and Certification Review Supplement Checklist, documented observations of the home's current state, and a determination of whether the Certification Review passes or fails. Share a copy of the report with the HCO, which will in turn provide a copy to the homeowner.

If the assigned reviewer determines that the Certification Review fails, the ENERGY STAR certification of the home shall be withdrawn.

If the assigned reviewer determines that the Certification Review passes, the ENERGY STAR certification of the home shall be maintained. In that case, the homeowner has the opportunity to appeal the determination. Refer to the HCO's policies for details on the appeals process.

Instructions for Performing Certification Review

This document should be used in conjunction with the applicable ENERGY STAR Certified Homes Program Requirements, Rater Design Review Checklist, Rater Field Checklist, HVAC Design Report, HVAC Commissioning Checklist, and Water Management System Builder Requirements. Additional program requirements may be inspected and included in the Additional Checklist Items and Exemptions table above. Alternatives and exceptions in those documents, including those in the footnotes, should be considered where applicable. Where a program revision or policy record entry has lowered the stringency of a requirement, the most recent policy may be used, even if it was not in place at the time of original certification.

In general, the benefit of doubt should be given to the original rating unless it is definitively clear that a requirement was not met at time of certification. The assigned reviewer should apply judgment in accounting for normal aging of construction materials over time, such as the settling of blown insulation. For example, for item 4.9 of the National Rater Field Checklist, the focus should be on the *presence* of weatherstripping on doors rather than the current *efficacy* of the weatherstripping. The Certification Review Supplement Checklist modifies performance thresholds for certain checklist Items to account for these types of aging effects.

Homes are eligible for Certification Review only if there have been no significant structural changes to the home since it was built. If such modifications are observed, the assigned reviewer has the prerogative to suspend the inspection and share documentation of the observed modifications with the HCO in lieu of the Certification Review Report.

If any individual item on the Rater Quality Control Checklist or Certification Review Supplement Checklist is marked as "No", the Certification Review is considered to have failed.

Guidance on Destructive Testing

At the behest of the homeowner, destructive testing may be used to inspect items that would otherwise not be visible. For example, if it were suspected that no insulation was installed in an exterior wall, observation holes could be drilled in the interior gypsum board. The homeowner bears complete responsibility for arranging all demolition and repair for destructive testing that they elect to undertake. Before undertaking destructive testing, it is recommended that homeowners consult with a qualified expert who can use non-invasive methods like infrared imaging to prioritize areas of concern. Demolition work, such as drilling observation holes, must occur in the presence of the assigned reviewer performing the Certification Review. Areas that are exposed outside the presence of the assigned reviewer of the Certification Review.



Certification Review Supplement Checklist

Documentation Collection				No	N/#	١				
If Track B – HVAC Credential pursued, HVAC Commissioning Checklist collected, with no applicable Items left blank										
Energy Rating File – File is consistent with program requirements, Rater's documentation, and field observations.										
Energy Rating file	passes the Home Certification Organiza	tion's (HCO's) Certification Review checklist. ¹			-					
Rater Field Che	ecklist		Yes	No	Not Verified	N/A				
6. Duct Quality I	6. Duct Quality Installation									
6.2 Reviewer-measured pressure differential meets ≥ -5 Pa and ≤ 5 Pa or, for bedrooms with a design airflow ≥ 150 CFM, ≥ -8 Pa and ≤ 8 Pa. ³						-				
		meet ≤ 12 CFM25 per 100 sq. ft. of CFA or ≤ 120 CFM FM25 per 100 sq. ft. of CFA or ≤ 180 CFM. 3								
6.5 Reviewer-mean CFM25. ³	sured duct leakage to outdoors is permi	tted to meet ≤ 6 CFM25 per 100 sq. ft. of CFA or ≤ 60								
7. Whole-House	Mechanical Ventilation System									
7.1 Reviewer-mea	sured ventilation rate is permitted to be	within \pm 25 CFM or \pm 25% of design value (2.3). ³				-				
7.3 If outdoor inlet connected to a ducted return of the HVAC system, controls automatically restrict airflow during ventilation off-cycle and occupant override. As long as the controls are <i>capable</i> of meeting these criteria, it is permissible for the control's <i>settings</i> to differ at the time of certification review. ^{2,3}										
7.5 If Vent System controller operates the HVAC fan, then HVAC fan operation is intermittent and either the fan type is ECM / ICM or the controls will reduce the run-time by accounting for HVAC system heating or cooling hours. As long as the controls are <i>capable</i> of meeting these criteria, it is permissible for the control's <i>settings</i> to differ at the time of certification review. ^{2, 3}										
8. Local Mechanical Exhaust										
Kitchen & bathroom exhausts systems are permitted to meet one of the following Reviewer-measured airflow standards: ³										
Location	cation Continuous Rate Intermittent Rate									
8.1 Kitchen	≥ 3 ACH, based on kitchen volume ²	\geq 60 CFM and, if not integrated with range, also \geq 3 ACH based on kitchen volume ²				-				
8.2 Bathroom	≥ 12 CFM	≥ 30 CFM				-				
Water Management System Builder Requirements			Yes	No	Not Verified	N/A				
•	ed Site and Foundation									
1.1 Patio slabs, porch slabs, walks, and driveways sloped ≥ 0.25 in. per ft. away from home to edge of surface or 10 ft., whichever is less.										
1.2 Final grade sloped \geq 0.25 in. per ft. away from home for \geq 10 ft. ^{2, 3}						-				
1.7 Sump pump covers mechanically attached with full gasket seal or equivalent.										
2. Water-Manage	ed Wall Assembly									
2.1 Flashing at bottom of exterior walls with weep holes included for masonry veneer, or equivalent drainage system. See footnote on the Water Management System Builder Requirements for exemptions. ²										
3. Water-Managed Roof Assembly										
3.2 For homes that don't have a slab-on-grade foundation and do have expansive or collapsible soils, gutters & downspouts provided that empty to lateral piping that discharges water on sloping final grade ≥ 5 ft. from foundation, or to underground catchment system. ²										
4. Water-Manage	ed Building Materials									
4.1 Wall-to-wall carpet not installed within 2.5 ft. of toilets, tubs, and showers.						-				
	ensate-producing HVAC component, co that drains to a conspicuous point of o	rrosion-resistant drain pan (e.g., galvanized steel, disposal in case of blockage. ²								



Footnotes

- Home Certification Organizations (HCOs) are independent organizations recognized by EPA to implement an ENERGY STAR certification program for single-family and multifamily homes and apartments using an Energy Rating Index (ERI) compliance path. Learn more and find a current list of HCOs at <u>www.energystar.gov/hco</u>.
- 2. Where the 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.
- 3. This item has been edited for space or has a footnote with an exemption or alternative. Refer to referenced program document for full details. When an item is properly met using an exemption or alternative, mark the item as "Yes" and record a description in the Additional Checklist Items and Exemptions table.
- 4. This requirement is modified from the original program requirement in order to be applicable in the context of a finished home.