Help Us Design Rev. 10: Part 1

2018 ENERGY STAR Certified Homes Stakeholder Meeting

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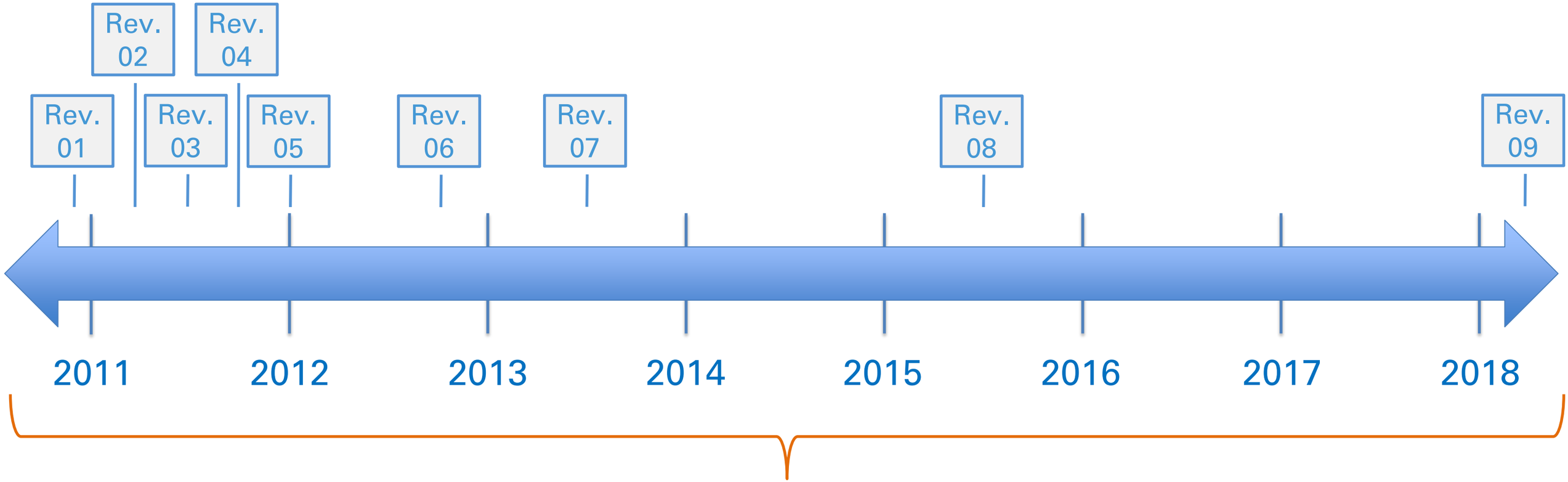
September 6th, 2018

2012	2015	2018
		
		

What is a Revision?

1. It clarifies
2. It simplifies
3. It improves

What is a Revision?



1/3 reduction in rater tasks!

Rev. 09 It's Fine.

- No new checklists.
- No new checklist items.
- No fewer checklist items.
- No fewer checklists.
- Just modifications to a handful of existing checklist items.
- Backwards compatible.

#1. 4- and 5-story building eligibility requirements

- Criteria related to heating, cooling, and hot water systems have been removed from the prerequisite eligibility requirements for four and five story buildings.
- Footnote 5 of the Version 3 / 3.1 National Program Requirements has been revised to recommend that centralized heating, cooling, and hot water systems be modeled using the RESNET Guidelines for Multifamily Ratings.

#2. Sun-setting of plant-certification path for modular homes

- Only the Rater-verification pathway has been retained.
- Program requirements has been updated to reflect this and include a footnote defining a modular home.

National Program Requirements Version 3/3.1

Rater Verification Pathway

Plant-Certification Verification Pathway

#3. Required rating and registration with Verification Oversight Org.

- While previously implied, we now explicitly require homes to receive a rating and be registered with an EPA-approved VOO.

#4. Revised Effective Date section of National Program Requirements

- The Implementation Timeline tables have been revised for clarity.
- Includes information about both the applicable Version and Revision.

State	Applicable to Homes with the Following Permit Date
MA	On or after 01/01/2015
DC, IL, MD, RI	On or after 04/01/2015 (except for Calvert County and St. Mary's County in MD, for which the applicable permit date is on or after 07/01/2015)
IA	On or after 06/01/2015
DE	On or after 12/01/2015
MT,OR, WA	On or after 01/01/2016
MN, VT	On or after 04/01/2016
NV	On or after 07/01/2016
NJ	On or after 04/01/2017
TX	On or after 10/01/2017

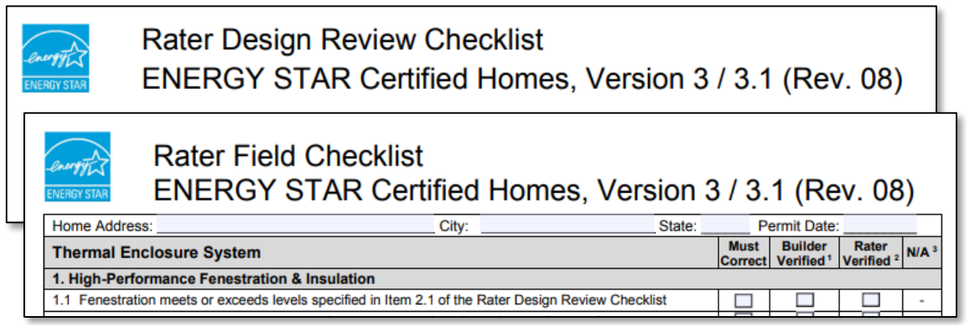
Old Format

State / Territory	Homes Permitted [14] On or After This Date Must Meet the Adjacent Version & Revision	Version	Revision [15]
AL, AK, AZ, AR, CO, GA, IN, ID, KS, KY, LA, ME, MS, MO, NE, NH, NM, NC, ND, OH, OK, PA, SC, SD, TN, UT, VA, WV, WI, WY	07-01-2016	National v3	Rev. 08
	01-01-2019	National v3	Rev. 09
DC, DE, IA, IL, MA, MD, MN, MT, RI, VT	07-01-2016	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09
NV	07-01-2016	National v3	Rev. 08
	10-01-2016	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09
MI, NJ	07-01-2016	National v3	Rev. 08
	04-01-2017	National v3.1	Rev. 08
	01-01-2019	National v3.1	Rev. 09

New Format

#5. Rater Design Review Checklist and Rater Field Checklist separated

- The National Rater Design Review and Field Checklists have been separated into their own individual documents:

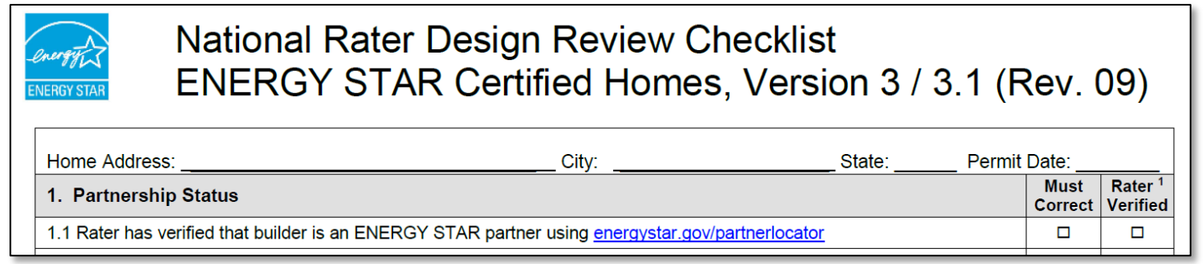


Rater Design Review Checklist
ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

Rater Field Checklist
ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

Home Address: _____ City: _____ State: _____ Permit Date: _____

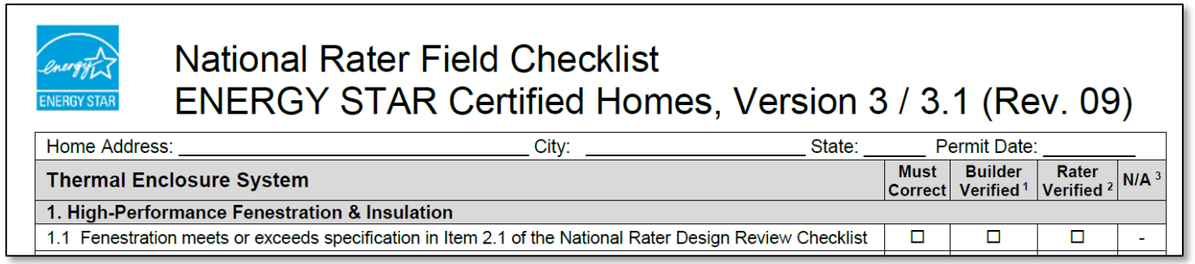
Thermal Enclosure System	Must Correct	Builder Verified [1]	Rater Verified [2]	N/A [3]
1. High-Performance Fenestration & Insulation				
1.1 Fenestration meets or exceeds levels specified in Item 2.1 of the Rater Design Review Checklist	☐	☐	☐	-



National Rater Design Review Checklist
ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 09)

Home Address: _____ City: _____ State: _____ Permit Date: _____

1. Partnership Status	Must Correct	Rater [1] Verified
1.1 Rater has verified that builder is an ENERGY STAR partner using energystar.gov/partnerlocator	☐	☐



National Rater Field Checklist
ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 09)

Home Address: _____ City: _____ State: _____ Permit Date: _____

Thermal Enclosure System	Must Correct	Builder Verified [1]	Rater Verified [2]	N/A [3]
1. High-Performance Fenestration & Insulation				
1.1 Fenestration meets or exceeds specification in Item 2.1 of the National Rater Design Review Checklist	☐	☐	☐	-

#6. Low-end bedroom pressure-balancing limit specified

- A low-end bedroom pressure-balancing limit has been specified; this was ambiguous before Rev. 09.
- Low-end limit is -3 Pa, or -5 Pa for bedrooms with a design airflow ≥ 150 CFM.

Old Policy	New Policy
< 150 CFM: ? to +3 Pa	< 150 CFM: -3 to +3 Pa
≥ 150 CFM: ? to +5 Pa	≥ 150 CFM: -5 to +5 Pa

- Footnote has clarified door configurations during testing:
  - Doors separating bedrooms from the main body of the house shall be closed (e.g., a door between a bedroom and a hallway)
  - Doors to rooms that can only be entered from the bedroom shall be open (e.g., a closet, a bathroom)

#7. Alternative compliance option added for filter access in attics

Old Policy

HVAC filters located in the attic are considered accessible if drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter…

New Policy

…or the filter location:

- Enables arm-length access from a portable ladder without the need to step into the attic, AND,
- The ceiling height where access is provided is ≤ 12 ft.

#8. Document retention period of three years specified in HVAC-C

- While previously ambiguous, a document retention period of 3 years has been specified for the HVAC contractor to retain their completed HVAC Commissioning Checklists.
- This ensures that completed checklists are available for quality assurance activities.

#9. Increased tolerance for conditioned floor area on HVAC Design Report

Old Policy

0 ft^2 smaller - 300 ft^2 larger than the rated home

Rated Home

New Policy

100 ft^2 smaller - 300 ft^2 larger than the rated home

2,100 ft^2

2,500 ft^2

HVAC Design Home

#10. Increased tolerance for window area on HVAC Design Report

- The low-end limit of window area used in the loads, relative to the rated home, was lowered from 0 to 15 sq. ft.
- In addition, a secondary metric was added for homes with a large amount of window area.

Old Policy

Difference in window area:
0 ft^2 smaller to 60 ft^2 larger

New Policy

Difference in window area:
15 ft^2 smaller to 60 ft^2 larger

Or, for homes with
> 500 ft^2 of window area:

Difference in window area:
3% smaller to 12% larger

#11. Increased tolerance for furnace sizing on HVAC Design Report

- The heating sizing limit for furnaces paired with cooling increased.
- No changes to the cooling sizing limits.

Old Policy	New Policy
Recommended: 100 - 140%	Recommended: 100 - 140%
Allowed: 100 - 200%	Allowed: 100 - 400%

#12. Clarification on definition of mini-split / multi-split system

- The definition of a mini-split / multi-split system has been revised to state that the length of the duct system is not a determinant for meeting this definition.
- The implication is that even a mini-split with a longer duct run would be exempted from most of the HVAC Design Report and from the HVAC Commissioning Checklist.

#13. ENERGY STAR Reference Design updates

Adjustments to ENERGY STAR Reference Design

Applies To	Measure	Old Value	New Value	Approx. ERI Impact
National v3.1: CZ 3 Only	Furnace Efficiency	90 AFUE	80 AFUE	~2-3

Rev. 09

It’s Fine.

Work Session for Rev. 10 – Part 1

To-do list for Rev. 10:

1. Integrate RESNET's new HVAC grading standard into program.
2. Provide flexibility for innovative vent. system products (e.g. inline fans on return-side, CAR dampers)
3. Other items tagged by partners as needing attention…

Rev. 10 Triage – 25 mins

- Item is fine as is
- Item could use some refinement
- Item needs work

Rev. 10 Solutions – 20 mins

For each pink item, discuss amongst table possible solutions.

Work Session for Rev. 10 – Part 2

Report Out: High-Performance Fenestration & Insulation

			Item	Description
-	2	-	1.1	Fenestration matches proposed design
-	1	-	1.2	Insulation levels match proposed design
-	4	1	1.3	Insulation is Grade I

Report Out: Fully-Aligned Air Barriers

			Item	Description
-	1	-	2.1	Air barrier at dropped ceilings / soffits & all other ceilings
-	-	-	2.2	Air barrier behind showers, tubs, staircases, & fireplaces
-	2	1	2.3	Air barrier at attic knee walls and skylight shaft walls
-	-	-	2.4	Air barrier at walls adjoining porch roofs or garages
-	-	-	2.5	Air barrier at double-walls and all other exterior walls
-	-	1	2.6	Air barrier at floors above uncond. Space & at cantilevers
-	-	1	2.7	Air barrier at all floors adjoining unconditioned space

Report Out: Reduced Thermal Bridging

			Item	Description
-	2	-	3.1	Grade I ceiling insulation extends to exterior wall below
-	1	1	3.2	100% of slab edge insulated
-	1	-	3.3	Grade I insulation beneath attic platforms
-	-	-	3.4.1	Continuous rigid insulation
-	-	-	3.4.2	SIPs OR; ICFs OR; double-wall framing
-	-	-	3.4.3a	Corners insulated ≥ R-6 to edge
-	-	1	3.4.3b	Windows & door headers insulated
-	-	1	3.4.3c	Framing limited at all windows & doors
-	-	-	3.4.3d	Interior / exterior wall intersections insulated
-	2	-	3.4.3e	Stud spacing of ≥ 16 in. o.c. for 2x4 framing

Report Out: Air Sealing

			Item	Description
-	-	-	4.1	Air sealing at penetrations, with blocking / flashing
-	1	-	4.2	Recessed light fixtures ICAT & gasketed, insulated ≥ R-10
-	2	-	4.3	Sill plates sealed to foundation / sub-floor, plus gasket
-	1	-	4.4	Continuous top plate / blocking at top of walls; sealed
-	2	-	4.5	Drywall sealed to top plates
-	1	-	4.6	Rough opening around windows & exterior doors sealed
-	-	1	4.7	Garage walls sealed & sealed air barrier at floor cavity
-	-	1	4.8	Multifamily gap between common walls sealed
-	-	-	4.9	Doors sealed with weatherstripping or equivalent gasket
-	2	-	4.10	Gasketed ins. cover for attic stairs / access panels & fans

Report Out: Heating & Cooling Equipment

			Item	Description
-	1	-	5.1	HVAC manufacturer & model matches design
-	3	2	5.2	External static pressure measured by Rater
-	2	1	5.3	National HVAC Commissioning Checklist collected

Report Out: Duct Quality Installation

			Item	Description
-	-	1	6.1	Ductwork installed without kinks, sharp bends, coils, etc.
-	1	1	6.2	Bedrooms pressure-balanced to ± 3 Pa / 5 Pa
-	1	1	6.3	All ducts in unconditioned space insulated to ≥ R-6
-	5	-	6.4.1	Measured total duct leakage is within limits at rough-in
-	4	-	6.4.2	Measured total duct leakage is within limits at final
-	1	-	6.5	Measured duct leakage to outdoors is within limits

Report Out: Whole-House Mech. Ventilation System

			Item	Description
-	4	1	7.1	Rater-measured vent. rate is ± 15 CFM / 15% of design
-	4	-	7.2	Readily-accessible override control installed and labeled
-	2	-	7.3	No outdoor air intakes connected to return side of HVAC
-	1	-	7.4	System fan rated ≤ 3 sones if interm. or ≤ 1 sone if cont.
-	2	-	7.5	If HVAC fan used, then ECM or controls reduce run-time
-	1	-	7.6	ENERGY STAR bath fans if used in whole-house system
-	-	-	7.7.1	Inlet pulls ventilation air directly from outdoors
-	2	-	7.7.2	Inlet req. distance above grade / roof, from contaminants
-	1	-	7.7.3	Inlet is provided with rodent / insect screen

Report Out: Local Mechanical Exhaust

			Item	Description
-	1	1	8.1	Kitchen airflow and exhaust meets requirements
-	-	-	8.2	Bathroom airflow and exhaust meets requirements

Report Out: Filtration

			Item	Description
-	2	-	9.1	At least one MERV 6 or higher filter installed
-	-	-	9.2	Filter access panel includes gasket and prevents bypass
-	-	-	9.3	All return air and supplied outdoor air goes through filter

Report Out: Combustion Appliances

			Item	Description
-	-	-	10.1	Furnaces, boilers, water heaters mech. draft / direct-vent
-	-	-	10.2	Fireplaces mech. draft / direct-vent
-	-	-	10.3	Unvented combustion appliances meet CO test limits

Questions?