ENERGY STAR Residential New Construction Programs:

Overview of Single-Family New Homes Revision 13 & Multifamily New Construction Revision 04

Presented on December 7, 2023

What is a Revision?

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

Revisions to date

- Single-Family New Homes:
  - 13 Revisions since the release of Version 3.0 in 2010
  - Many significant Revisions early on; now relatively minor
  - Across these revisions, we've cut the number of Rater tasks by a full 1/3

- Multifamily New Construction:
  - 4 Revisions since the release of Version 1.0 in 2019
  - Each Revision is bringing significant improvements

Overview of ENERGY STAR Single-Family New Homes (SFNH) Rev. 13

Overview

- Themes:
  - Rev. 08 – It's Great
  - Rev. 09 – It's Fine…
  - Rev. 13 – A Good Spring Clean

- 5 changes that might impact the way you certify homes
- 8 clarifications that are important but likely won't change the way you certify most homes
- 4 new alternatives or exemptions

5 Changes That Might Impact The Way You Certify Homes

#1 of 5. Program Requirements:
Sampling Sunset

- Rev. 13 removes the allowance to use sampling inspection protocols in the SFNH program for homes permitted on or after 01/01/2025.
- Also, townhouses cannot use sampling inspection protocols, even when certified using the MFNC program, if permitted on or after 01/01/2025.
- Outside of AZ, more than 95% of single-family certifications in 2022 were based on individual inspections of each home.

Program Requirements Documents

4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the inspection procedures for minimum rated features in ANSI / RESNET / ICC 301, Appendix B.[7] This will require a minimum of two inspections: one at pre-drywall and the other at final. All items shall be verified for each certified home and sampling protocols shall not be used. For modular homes, a Rater must verify any requirement in the plant not able to be verified on-site because a feature will

~~10. Raters who operate under an HCO with a Sampling Protocol are permitted to verify the Minimum Rated Features of the home and to verify any Checklist Item designated "Rater Verified" using the HCO approved Sampling Protocol. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. For example, no items on the National HVAC Commissioning Checklist are permitted to be verified using a Sampling Protocol.~~

#2 of 5. Rater Field Checklist:
Limitation on use of builder-verified items

- Program currently allows up to eight items to be builder verified.
- Can be applied to insulation R-value (Item 1.2) and install quality (Item 1.3).

Rater Field Checklist

1.2 Insulation meets or exceeds specification in Item 3.1 of the National Rater Design Review Checklist. [4]
1.3 All insulation achieves Grade I install. per ANSI / RESNET / ICC 301. Alternatives in Footnote 5. [5,6]

- Intent was to allow builder to verify individual details, like insulation behind tub:

#2 of 5. Rater Field Checklist (cont.):
Limitation on use of builder-verified items

- Rev. 13 limits the use of builder verification for Item 1.2 and 1.3 to 10% of the total surface area of non-adiabatic insulated assemblies.
- The remainder of the area must be verified by the Rater.

Rater Field Checklist

Thermal Enclosure System 1. High-Performance Fenestration & Insulation	Must Correct	Builder Verified [1]
1.2 Insulation meets or exceeds specification in Item 3.1 of the National Rater Design Review Checklist. [4]	☐	Up to 10% ☐
1.3 All insulation achieves Grade I install. per ANSI / RESNET / ICC 301. Alternatives in Footnote 5. [5,6]	☐	Up to 10% ☐

1. At the discretion of the Rater, the builder may verify up to eight items in Sections 1-4 of this Checklist. When this allowance is used for Item 1.2 or 1.3, a maximum of 10% of the total surface area of the non-adiabatic insulated assemblies are permitted to be builder-verified; the remainder must be verified by the Rater. When exercised, the builder's responsibility will be formally acknowledged by the builder signing off on the checklist

#3 of 5. Rater Design Review Checklist:
Elimination of Item 3.1.2 – Alternative thermal backstop

- Item 3.1.2 defined an alternative thermal backstop for tight homes:

Rater Design Review Checklist

3.1.2 For all Versions except National v3.2: Achieves ≤ 133% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3, per guidance in Footnote 7, AND specified home infiltration does not exceed the following: [6,7,8,9]

2009 IECC Climate Zone	1 - 2	3 - 4	5 - 7	8
Infiltration Limit (ACH50)	≤ 3.0	≤ 2.5	≤ 2.0	≤ 1.5

- First developed for v3.0; can be used for homes certified to v3.1; but not v3.2.
- No longer necessary to allow a thermal backstop worse than 2009 IECC.
- Rev. 13 eliminates Item 3.1.2 and simplifies Item 3.1:

Rater Design Review Checklist

3. High-Performance Enclosure
3.1 Specified total building thermal envelope UA achieves ≤ 100% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3 or, for National v3.2, 2021 IECC Table 402.1.2. See exception in Fn. 7. [6,7,9,10]

#4 of 5. Program Requirements:
Permit Date definition adjusted

- A footnote in the program requirements documents defines “Permit Date”:

Program Requirements Documents

14. The Rater may define the ‘permit date’ as either the date that the permit was issued or the date of the contract on the home. In cases where permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented.

- For better consistency, Rev. 13 removes the option to use discretion to define ‘permit date’. It also adds an option to use the date of the Rater’s first site visit.

Program Requirements Documents

~~14.~~13. The ~~Rater may define the~~ ‘permit date’ ~~as either~~ is the date on which ~~that~~ the permit authorizing construction of the building was issued. Alternatively, the date of the Rater’s first site visit or the date of the contract on the home is allowed to be used as the ‘permit date’. The permit application date is not allowed to be used. ~~In cases where permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented.~~

- This better aligns with commonly used alternatives in the industry.

#5a of 5. Program Requirements:
ERC partnership, Rater oversight & training clarified

- Rev. 13 maintains requirement that Energy Rating Companies (ERC's) must sign ENERGY STAR Partnership Agreement.
- Rev. 13 clarifies that it is Raters / RFI's who must operate under an HCO (rather than Energy Rating Companies).
- Also clarifies that training and credentialing must occur prior to inspections.

Program Requirements Documents

- Energy Rating Companies (e.g., rater companies and Providers [6]) are required to sign an ENERGY STAR Partnership Agreement, which can be found at www.energystar.gov/homesPA~~, and operate under a Home Certification Organization (HCO).~~ [7] ~~Learn more and find a current list of HCOs at www.energystar.gov/hco~~.
- Raters [7][8] are required to complete EPA-recognized training, which can be found at www.energystar.gov/newhomestraining~~.~~, and be credentialed by a Home Certification Organization (HCO) [7][8] prior to completing inspections. Learn more at www.energystar.gov/hco.

#5b of 5. Program Requirements:
ERC partnership, Rater oversight & training clarified

- Rev. 13 adds two new checklist items to the Rater Design Review Checklist to ensure these requirements are verified.

Rater Design Review Checklist

1. Partnership Status	Must Correct	Rater [2] Verified
1.2 Rater has verified and documented that their company has an ENERGY STAR partnership agreement using www.energystar.gov/ResPartnerDirectory. [5]	☐	☐
1.3 Rater(s) signing checklists attest that they have completed EPA-recognized training and are credentialed by a Home Certification Organization (HCO).	☐	☐

~~4.~~5. Raters are only required to document the partnership status of their company once, for the first home that the Rater certifies for them.

8 Clarifications That Are Important But Likely Won't Change The Way You Certify Most Homes

#1 of 8. Program Requirements:
Only detached dwellings eligible to be certified using SFNH

- While already implied, Rev. 13 clarifies that only detached dwellings, such as single-family homes and duplexes, are eligible to be certified using SFNH.
- No changes to townhouses, which are also eligible to be certified using SFNH.

'2-over-2' condos don't meet definition of 'Townhouse' and are not eligible to participate in SFNH program

Program Requirements Documents

Eligibility Requirements

Site-built or modular [1] detached Dwellings [2] (e.g., single-family homes and duplexes) and Townhouses [3] are eligible to participate in the ENERGY STAR Single-Family New Homes (SFNH) program.

#2a of 8. Program Requirements:
Pre-drywall inspection always required

- While already implied, Rev. 13 reinforces that a pre-drywall inspection is always required in the program requirements documents:

Program Requirements Documents

4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with the inspection procedures for minimum rated features in ANSI / RESNET / ICC 301, Appendix B. ~~7~~ ~~8~~,~~10~~ This will require a minimum of two inspections: one at pre-drywall and the other at final. All items shall be verified for each certified home and sampling protocols shall not be used. For modular homes, a Rater must verify any requirement in the plant not able to be verified on-site because a feature

- For example, the only recourse when drywall has been installed prior to visual verification is to remove the drywall to allow for inspection.

#2b of 8. Rater Field Checklist:
Pre-drywall inspection always required

- Rev. 13 also adds a footnote to the Rater Field Checklist to reinforce this point:

Rater Field Checklist

Rater Pre-Drywall Inspection Date [72]: _____

72. Any Item that will be concealed by drywall (e.g., wall insulation) must be verified during the pre-drywall inspection. If drywall is installed prior to the inspection, then it must be entirely removed to fully verify all Items. It is not sufficient to remove only portions of drywall to inspect a subset of areas. Furthermore, it is not acceptable to complete a Sampled Rating on a home that has missed the pre-drywall inspection. Additional information is available in the Technical Bulletin: Pre-Drywall Inspection Is Always Required.

#3 of 8. Program Requirements:
Refining the Rater's role in verifying program requirements

- Rev. 13 refines the role of the Rater in the Certification Process section:
  - Raters are to verify that items have been met within program-defined tolerances
  - Raters should not use their discretion to discern the intent of requirements; that is EPA's role

Program Requirements – Sample Edits

The Rater must review all items on the National Rater checklists~~. Raters are expected to use their experience and discretion~~ to verify that ~~the overall intent of~~ each inspection checklist item has been met within program-defined tolerances~~(i.e., identifying major defects that undermine the intent of the checklist item versus identifying minor defects that the Rater may deem acceptable)~~.

In the event that a Rater ~~finds an item that is inconsistent with the intent of the checklists,~~determines that a program requirement has not been met, the home cannot earn the ENERGY STAR until the item is corrected. If correction of the item is not possible, the home

#4 of 8. Rater Field Checklist & HVAC Design Report: **Guidance when multiple ventilation designs are provided**

- Designers are allowed to provide multiple acceptable combinations of a design ventilation airflow rate, run-time per cycle, and cycle time.
- Rev. 13 clarifies that, in such cases, the Rater must assess the run-time setting of the installed system and use that to determine the corresponding design ventilation rate.
- This is different than when only one ventilation design is provided. In such cases, the Rater is not required to verify the run-time.

Rater Field Checklist

49. The Dwelling Unit Mechanical Ventilation System air flows and local exhaust air flows shall be determined and documented by a Rater using ANSI / RESNET / ICC 380 including all Addenda and Normative Appendices, with new versions and Addenda implemented according to the schedule defined by the HCO that the home is being certified under. Designers are permitted to provide multiple combinations of a design ventilation airflow rate, run-time per cycle, and cycle time. When multiple combinations are provided, the Rater shall first assess the run-time setting of the installed system and use that to determine the corresponding design ventilation rate. The Rater-measured ventilation rate must fall within the program-specified tolerance relative to that design ventilation rate.

- Similar language added to footnote in National HVAC Design Report.

#4 of 8. Rater Field Checklist & HVAC Design Report (cont.): **Guidance when multiple ventilation designs are provided**

Example:
Designer provides three acceptable vent design options

Option	Design Airflow	Run-Time Per Hour	Avg Hourly Airflow
A	150	20	50
B	100	30	50
C	50	60	50

Which of these three design airflows should the Rater compare the field-measured value to?

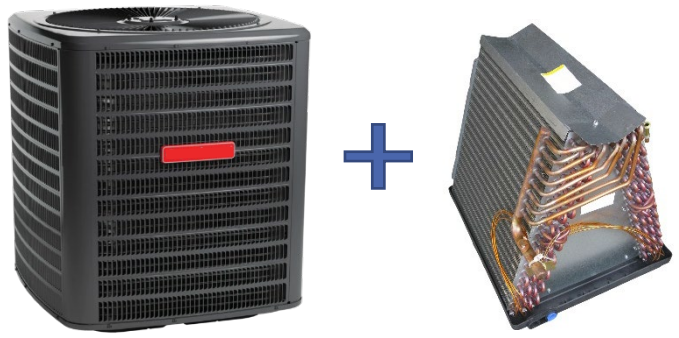
To answer that, they must first assess the run-time of the installed system.

For example, if the Rater finds that the run-time of the installed system is 20 minutes per hour, then the field-measured vent. rate must be within ±15 CFM or 15% of 150 CFM.

#5 of 8. National HVAC Design Report:
AHRI # should encompass indoor and outdoor components

- AHRI #'s for AC's and HP's sometimes represent:

Condenser



Condenser **Evaporator**

Condenser **Evaporator** **Furnace**

- Rev. 13 clarifies that the AHRI # must represent the specific combination of indoor and outdoor components; may optionally include the furnace.

National HVAC Design Report

28. If the equipment contains multiple components, the AHRI Reference # shall represent the rated efficiency of the specific combination of indoor and outdoor components. EPA recommends, but does not require, that the rating also encompass the furnace when such a rating is available.

#6 of 8. Water Management System Builder Req.'s: **Moisture resistant materials only required if backers present**

- Item 4.2 requires cement board or equivalent be installed behind tub and shower enclosures composed of tile or panel assemblies.
- Rev. 13 clarifies that moisture-resistant backing materials are only required for enclosures where backing is present.
- The item does not apply to enclosures not required to have backing materials, like a 3-piece fiberglass enclosure.

Water Management System Builder Req.'s

4.2 If present, backers for wall tile and wall panels in tub and shower enclosures are fiber-c~~C~~ement board complying with ASTM C1288 or ISO 8336, Category C, or an alternate material listed in the Footnote. ~~or equivalent moisture resistant backing material installed on all walls behind tub and shower enclosures composed of tile or panel assemblies with caulked joints.~~ Paper-faced backerboard shall not be used. [17]

#7 of 8. Rater Design Review Checklist:
Item 3.1 - 3.4 of Rater Field Checklist must always be met

- Item 3.1 of the National Rater Design Review Checklist specifies the thermal enclosure that must be met. Footnote 7 clarifies that:

> The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach. Note that Items 3.1 through 3.3 of the National Rater Field Checklist shall be met regardless of the UA tradeoffs calculated.

- RFC Items 3.1 to 3.3 cover details at the attic edge, attic platforms, & slab.
- Rev. 13 clarifies that Item 3.4 of the National Rater Field Checklist, covering reduced thermal bridging in walls, must also be met regardless of the thermal enclosure:

Program Requirements – Sample Edits

> The performance of all components (i.e., ceilings, walls, floors, slabs, and fenestration) can be traded off using the UA approach. Note that Items 3.1 through 3.4~~3.3~~ of the National Rater Field Checklist shall be met regardless of the UA tradeoffs calculated.

#8 of 8. Program Requirements:
New program document defining applicable program req.'s

- To more clearly convey all eligibility requirements, Rev. 13 deletes the Effective Date Section and replaces them with a new program document.
- The new document contains the applicable program requirements, including the minimum Version and Revision, for all locations. And more!
- New document will be located at: www.energystar.gov/SFNHVersions.

Program Requirements

Eligibility Requirements

Site-built or modular [1] detached Dwellings [2] (e.g., single-family homes and duplexes) and Townhouses [3] are eligible to participate in the ENERGY STAR Single-Family New Homes (SFNH) program.

To determine the applicable SFNH program requirements, including the minimum Version and Revision, to which a home is eligible to be certified, visit www.energystar.gov/SFNHVersions.

#8 of 8. Program Requirements (cont.):
New program document defining applicable program req.'s

New Program Document

ENERGY STAR Single-Family New Homes
Applicable Program Requirements, Versions, and Revisions
by Location (Rev. 13)

This document, available at www.energystar.gov/newhomesrequirements, is designed to be used in conjunction with the Single-Family New Homes (SFNH) national and regional program requirements documents. Use Exhibit 1 or, for California, Exhibit 2 to determine the applicable SFNH program requirements, including the minimum Version and Revision, to which a home is eligible to be certified.

A home may only be certified to the SFNH program requirements applicable to the location of the home, as listed in the Exhibits below. For locations where both national and regional program requirements have been listed, a home may be certified to either one.

Homes are eligible to be certified to higher Versions and/or higher Revisions of the same program requirements. For example, if a home is eligible to be certified to Version 3.1 of the SFNH National Program Requirements, then it is also eligible to be certified to Version 3.2 of the SFNH National Program Requirements.

Exhibit 1 and 2 contain all Versions and Revisions eligible for use for homes permitted on or after January 1, 2022. Program requirements applicable prior to this date can be obtained by contacting energystarhomes@energystar.gov.

Exhibit 1: Applicable ENERGY STAR SFNH Program Requirements, Versions, and Revisions for All Locations Except California

Home Is Built in This State Or Territory:	Home Is Permitted [1, 2] On or After This Date:	For Homes Meeting the Adjacent Criteria, These Are the Applicable Program Requirements, Including Minimum Version ("v") & Revision ("Rev.")	
AL, AK, AZ, AR, CO, IN, ID, KS, KY, LA, MS, MO, NH, NC, ND, OH, OK, SC, SD, TN, VA, WV, WI, WY	01-01-2022	SFNH National v3	Rev. 11
	01-01-2023	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13
DC, DE, IA, IL, MA, MD, MI, MN, MT, NE, NV, NY, PA, RI, TX	01-01-2022	SFNH National v3.1	Rev. 11
	01-01-2024	SFNH National v3.1	Rev. 12
	01-01-2025	SFNH National v3.1	Rev. 13

4 New Alternatives or Exemptions

#1 of 4. Rater Field Checklist, HVAC Design Report, & 310 Supp.: **Separation distance reduced for certain air inlets**

- Ventilation outdoor air inlets generally must be ≥ 10 ft. from known contamination sources.
- This separation distance can be a challenge for attached housing, deterring partners from designing vent. systems with a dedicated supply of outdoor air.
- Rev. 13 reduces the minimum separation distance from 10 ft. to 5 ft. between air inlets and both:
  - Exhaust dwelling unit mechanical ventilation systems
  - Local mechanical exhaust systems
- Minimum required separation distances from other contamination sources remain unchanged.

#1 of 4. Rater Field Checklist, HVAC Design Report, & 310 Supp. (cont.): **Separation distance reduced for certain air inlets**

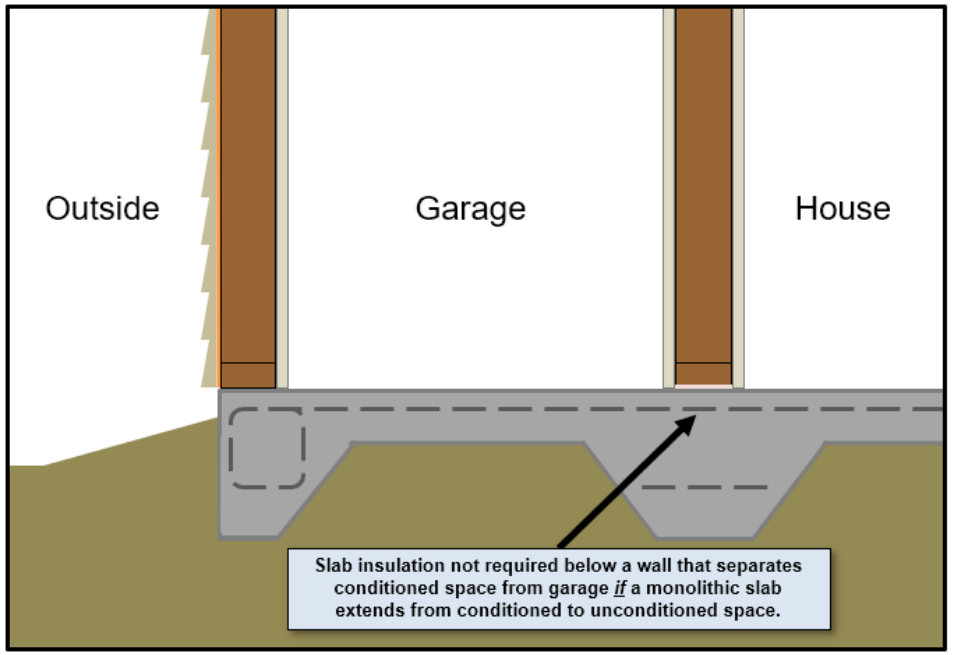
Rater Field Checklist

57. ~~Without proper maintenance, ventilation air inlet screens often become filled with debris. Therefore, EPA recommends, but does not require, that these ventilation air inlets be located so as to facilitate access and regular service by the occupant.~~ Two alternatives to the required 10 ft. distance are provided: 1) inlets providing outdoor air to a dwelling unit are permitted to be ≥ 5 ft. of stretched-string distance from outlets of both exhaust dwelling unit mechanical ventilation systems and local mechanical exhaust systems, and 2) the outlet and inlet of ERV's and HRV's

- Same language has been added to the National HVAC Design Report and the National HVAC Design Supplement to Std. 310 for Dwellings and Units.
- More likely to be used in MFNC program, but may be helpful for townhouses.

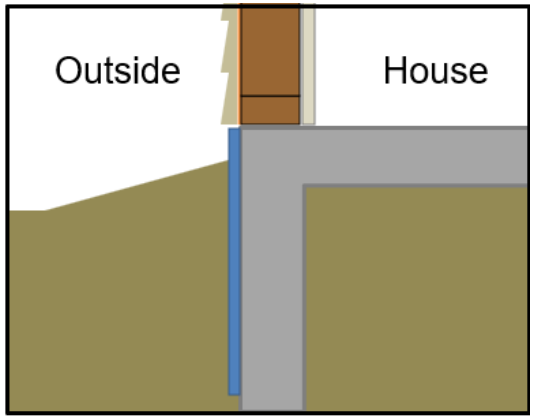
#2 of 4. Rater Design Review Checklist & Rater Field Checklist: **New exemption from slab edge insulation**

- Rev. 13 adds a new exemption from slab edge insulation for monolithic slabs beneath an insulated wall that separates a garage from conditioned space.
- Added because of the challenge incorporating a thermal break when there is a need to maintain the structural continuity of the slab into the garage.

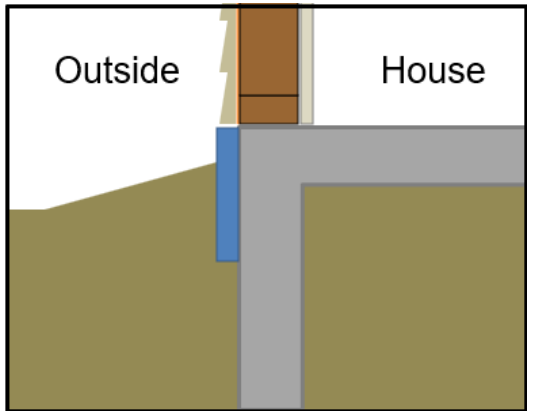


#3 of 4. Rater Design Review Checklist & Rater Field Checklist: **New slab insulation alternative using F-factors**

- F-factor for a slab is an approximation of the total amount of heat transmitted through the slab expressed per unit length of slab perimeter.



R-5 to 2 ft depth
F-Factor = 0.58



R-10 to 1 ft depth
F-Factor = 0.58

- Rev. 13 adds a new alternative to use an assembly that has an equivalent or more stringent F-Factor than that of the required prescriptive insulation.

#3 of 4. Rater Design Review Checklist & Rater Field Checklist (cont.): **New slab insulation alternative using F-factors**

- This provides partners more flexibility without the need to request exemptions.

Rater Field Checklist

16. Slab edge insulation is only required for slab-on-grade floors with a floor surface less than 12 inches below grade. Slab insulation shall extend to the top of the slab to provide a complete thermal break. If the top edge of the insulation is installed between the exterior wall and the edge of ~~the~~an interior, or exterior, slab, it shall be permitted to be cut at a 45-degree angle away from the exterior wall. The following alternatives apply:

    a. Slab assemblies with an F-Factor equivalent to that of the insulation required in Item 3.2 may be used. F-Factors shall be determined using Table A6.3.1-1 from ASHRAE 90.1-2022 Appendix A. See www.energstar.gov/F-Factor for more details.

- Same language has been added to the National Rater Design Review Checklist.

#4 of 4. Rater Design Review Checklist & HVAC Design Report: **Continued allowance to use prior Rev.'s of HVAC Design Report**

- Rev. 13 extends the allowance to use any Revision of the National HVAC Design Report between Rev. 08 and Rev. 13.
- Previously collected HVAC Design Reports are permitted to be used, so long as no aspect of the building design changes.
- Note that if the rated efficiency changes (e.g., SEER2 rating instead of SEER), then a new report is needed.
- In Rev. 13, this allowance has been moved from the program requirements documents to the Rater Design Review Checklist and National HVAC Design Report.

#4 of 4. RDRC & HVAC Design Report (cont.):
Continued allowance to use prior Rev.'s of HVAC Design Report

Rater Design Review Checklist

16. The Rater shall collect one National HVAC Design Report per system design per plan. Regardless of whether the "site-specific design" or "group design" box has been checked in Item 1.6 of the National HVAC Design Report, the system design as documented on the National HVAC Design Report must fall within the tolerances in Item 4b.2 for the home to be certified. The report is only required to be collected once per system design, even if multiple homes are built using this design (e.g., in a production environment where the same plan is built multiple times, only one report is required as long as no aspect of the system design changes between homes). The Rater is only responsible for verifying that the designer has not left any items blank on the National HVAC Design Report and for verifying the discrete objective parameters in Item 4b.2 of this Checklist, not for verifying the accuracy of every input on the National HVAC Design Report. Homes certified under Rev. 13 of the program requirements are permitted to use any Revision of the National HVAC Design Report between Rev. 08 and Rev. 13.

National HVAC Design Report

Provide the National HVAC Design Report to the party you are providing these design services to (i.e., a builder or credentialed HVAC contractor) and to the Rater. The report is only required to be provided once per system design, even if multiple homes are built using this design (e.g., in a production environment where the same plan is built multiple times, only one report is required). As long as a report has been provided that falls within these tolerances for the home to be certified, no additional work is required. However, if no report falls within these tolerances or if any aspect of the system design changes, then an additional report will need to be generated prior to certification. Homes certified under Rev. 13 of the program requirements are permitted to use any Revision of the National HVAC Design Report between Rev. 08 and Rev. 13.

Summary

Summary

- 5 changes that might impact the way you certify homes
  1. Sampling Sunset
  2. Limitation on use of builder-verified items
  3. Elimination of Item 3.1.2 – Alternative thermal backstop
  4. Permit Date definition adjusted
  5. ERC partnership, Rater oversight & training clarified

Summary

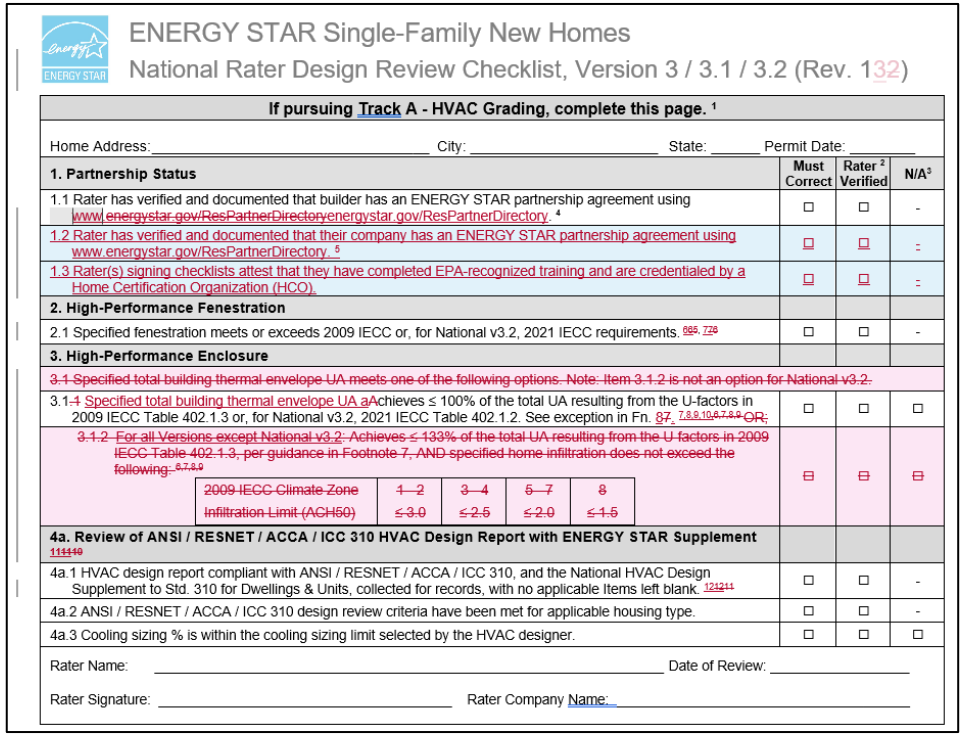
- 8 clarifications that are important but likely won't change the way you certify most homes
  1. Only detached dwellings eligible to be certified using SFNH
  2. Pre-drywall inspection always required
  3. Refining the Rater's role in verifying program requirements
  4. Guidance when multiple ventilation designs are provided
  5. AHRI # should encompass indoor and outdoor components
  6. Moisture resistant materials only required if backers present
  7. Item 3.1 - 3.4 of Rater Field Checklist must always be met
  8. New program document defining applicable program req.'s

Summary

- 4 new alternatives or exemptions
  1. Separation distance reduced for certain air inlets
  2. New exemption from slab edge insulation
  3. New slab insulation alternative using F-factors
  4. Continued allowance to use prior Rev.'s of HVAC Design Report

Release of Revision 13

- Will be released in December 2023.
- Updated program documents at: energystar.gov/newhomesrequirements.
- One-page highlights document, tracked-changes documents, and updated Policy Record at: energystar.gov/newhomespolicyrecord



ENERGY STAR Single-Family New Homes
National Rater Design Review Checklist, Version 3 / 3.1 / 3.2 (Rev. 132)

If pursuing Track A - HVAC Grading, complete this page. [1]

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

1. Partnership Status	Must Correct	Rater [2] Verified	N/A [3]
1.1 Rater has verified and documented that builder has an ENERGY STAR partnership agreement using ~~www.energystar.gov/ResPartnerDirectory~~energystar.gov/ResPartnerDirectory. [4]	☐	☐	-
1.2 Rater has verified and documented that their company has an ENERGY STAR partnership agreement using www.energystar.gov/ResPartnerDirectory. [5]	☐	☐	-
1.3 Rater(s) signing checklists attest that they have completed EPA-recognized training and are credentialed by a Home Certification Organization (HCO).	☐	☐	-
2. High-Performance Fenestration			
2.1 Specified fenestration meets or exceeds 2009 IECC or, for National v3.2, 2021 IECC requirements. ~~6[5],~~ 7[6]	☐	☐	-
3. High-Performance Enclosure			
~~3.1 Specified total building thermal envelope UA meets one of the following options. Note: Item 3.1.2 is not an option for National v3.2.~~			
3.1 ~~1~~ Specified total building thermal envelope UA a~~A~~chieves ≤ 100% of the total UA resulting from the U-factors in 2009 IECC Table 402.1.3 or, for National v3.2, 2021 IECC Table 402.1.2. See exception in Fn. 8[7]. ~~7,8,9,10,6,7,8,9 OR;~~	☐	☐	☐
~~3.1.2 For all Versions except National v3.2: Achieves ≤ 133% of the total UA resulting from the U factors in 2009 IECC Table 402.1.3, per guidance in Footnote 7, AND specified home infiltration does not exceed the following: 6,7,8,9~~	⊟	⊟	⊟

~~2009 IECC Climate Zone~~	~~1–2~~	~~3–4~~	~~5–7~~	~~8~~
~~Infiltration Limit (ACH50)~~	~~≤ 3.0~~	~~≤ 2.5~~	~~≤ 2.0~~	~~≤ 1.5~~

4a. Review of ANSI / RESNET / ACCA / ICC 310 HVAC Design Report with ENERGY STAR Supplement ~~11,10~~			
4a.1 HVAC design report compliant with ANSI / RESNET / ACCA / ICC 310, and the National HVAC Design Supplement to Std. 310 for Dwellings & Units, collected for records, with no applicable items left blank. 12,11,11	☐	☐	-
4a.2 ANSI / RESNET / ACCA / ICC 310 design review criteria have been met for applicable housing type.	☐	☐	-
4a.3 Cooling sizing % is within the cooling sizing limit selected by the HVAC designer.	☐	☐	☐

Rater Name: _____ Date of Review: _____

Rater Signature: _____ Rater Company Name: _____

Implementation of Revision 13

- Implementation date of 01/01/2025.
- What does this mean for you?
  - You can use Rev. 13 upon its release for any home.
  - You must use Rev. 13 for any home permitted after January 1, 2025.

Preview of Revision 14

- Next year's Revision will focus on streamlining the requirements.
- Goal is to achieve same key outcomes with fewer checklist items.
- For example, could we streamline mandatory air sealing details in exchange for mandatory infiltration limit?

Overview of ENERGY STAR Multifamily New Construction Rev. 04

Overview Rev. 04

- Themes:
  - Rev. 03 – “Clarifications are Key”
  - Rev. 04 – “Clarify some More”

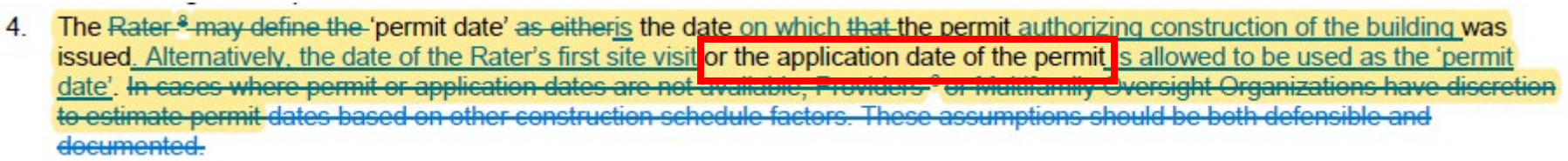
Summary of changes:

- 15 Covered by Dean
- 2 Programmatic
- 10 Envelope
- 5 Ventilation
- 3 Heating and Cooling
- 3 Hot Water and Lighting


15 changes from SFNH

Alignment with SFNH

1. Sampling Sunset
   - Townhouses cannot use sampling inspection protocols, even when certified using the MFNC program, if permitted on or after 01/01/2025.
2. Limitation on use of builder-verified items
3. Permit Date definition adjusted



4. The ~~Rater[8] may define the~~ 'permit date' ~~as either~~is the date on which ~~that~~ the permit authorizing construction of the building was issued. Alternatively, the date of the Rater's first site visit or the application date of the permit is allowed to be used as the 'permit date'. ~~In cases where permit or application dates are not available, Providers[9] or Multifamily Oversight Organizations have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented.~~

4. ERC partnership, Rater oversight & training clarified

Alignment with SFNH

5. Only detached dwellings eligible to be certified using SFNH
6. Pre-drywall inspection always required
7. Refining the Rater's role in verifying program requirements
8. Guidance when multiple ventilation designs are provided
9. AHRI # should encompass indoor and outdoor components
10. Moisture resistant materials only required if backers present
11. New program document defining applicable program req.'s
    - New document will be located at: www.energystar.gov/MFNCVersions.

Alignment with SFNH

12. Separation distance reduced for certain air inlets

Alignment with SFNH

12. Separation distance reduced for certain air inlets
13. New exemption from slab edge insulation
14. New slab insulation alternative using F-factors
15. Continued allowance to use prior Rev.'s of HVAC Design Report

2 Programmatic Changes

#1 of 2. Program Requirements:
Sunset of National Version 1 and ASHRAE 90.1-2007

- Reminder from Rev. 03: Buildings permitted on or after Jan. 01, 2024, will be required to meet National v1.1 instead of v1.0.
  - ASHRAE Path minimum baseline will also transition to ASHRAE 90.1-2010 instead of ASHRAE 90.1-2007.
- Rev. 04 removes ASHRAE 90.1-2007 minimum baseline in National v1.1 and OR/WA v1.2 Program Requirements.

	Performance Target Options: Savings (%) above varying ASHRAE 90.1 Baselines			
State Commercial Code	90.1-2007	90.1-2010	90.1-2013	90.1-2016
2012 IECC / 90.1-2010	20%[17, 18]	15%[17]	N/A	N/A
2015 IECC / 90.1-2013	25%[18]	20%[18]	15%[19]	N/A
2018 IECC / 90.1-2016	N/A	N/A	N/A	15%[19]
2021 IECC / 90.1-2019	N/A	N/A	N/A	15%[19]

#2 of 2. Rater Design Review Checklist:
Whole building verification clarified

- Rev. 04 maintains the requirement that all the dwelling units and the common spaces in the building must meet the Program Requirements.
- Rev. 04 adds a new checklist item to the Rater Design Review Checklist to ensure this requirement is verified.

1.5	Certification is being pursued for the whole building; all units and common spaces in the building are designed to meet the requirements below. [66]	☐	☐	☐

6. The whole building must be submitted to the HCO or MRO for certification after required verification is complete for all units and common spaces, unless using the conditional certification process described in the ENERGY STAR Certification Process in the applicable Program Requirements.

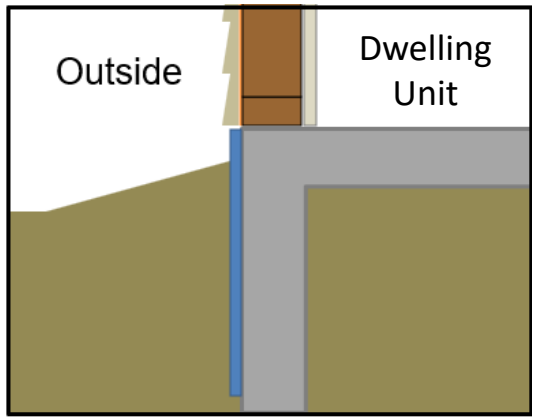
10 Envelope Changes

Envelope

3. Reduced 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. [10, 19]	☐	☐	☐	☐
3.2 For insulated ceilings with attic space above, attic access panels and drop-down stairs insulated ≥ R-10 or equipped with durable ≥ R-10 cover. [20]	☐	☐	☐	☐
3.3 Insulation beneath attic platforms (e.g., HVAC platforms, walkways) ≥ R-21 in CZ 1-5; ≥ R-30 in CZ 6-8. [10]	☐	☐	☐	☐
3.4 For slabs on grade in CZ 4-8, 100% of slab edge insulated to ≥ R-5 at a depth of 2 ft., or 4 ft. for heated slabs in CZ 6-8, & aligned with the thermal boundary of the walls. [10, 21, 22]	☐	☐	☐	☐
3.5 For above-grade and at-grade concrete floor edges (e.g., podiums, balconies) in CZ 4-8, 100% of floor edge insulated to ≥ R-5 & aligned with the thermal boundary of the walls. At this boundary, concrete floors resting on mass walls must provide insulation that extends ≥8 ft. below the bottom of the floor edge & for floors resting on columns, insulation must surround the column, at a depth of 4ft. Alternatives in Fn. 24.[10,23]	☐	☐	☐	☐
3.6 For concrete slab floors in CZ 4-8 above ambient conditions, garages, or unconditioned spaces outside the thermal boundary, floor insulation meets the U-factor specified in Table 502.1.2 of the 2009 IECC for Group R when dwelling units are above the slab, & 'All Other' when common space is above the slab. [10, 25]	☐	☐	☐	☐
3.7 At above-grade walls and rim / band joists separating conditioned space from the exterior, one of the following options used: [26, 27]				
3.7.1 Continuous rigid insulation, insulated siding, or combination of the two is: ≥ R-3 in CZ 1-4; ≥ R-5 in CZ 5-8 [10, 27, 28, 29, 30], OR;	☐	☐	☐	☐

#1 of 10. Rater Field Checklist:
Slab-on-grade insulation minimum depth clarified

- Item 3.4 required slab-on-grade insulation to a depth specified by the 2009 IECC.
- In the 2009 IECC Table 502.2(1) the depth is always 2ft for unheated slabs.
- Rev. 04 adds depth of 2ft to requirement instead of referencing the IECC Table.

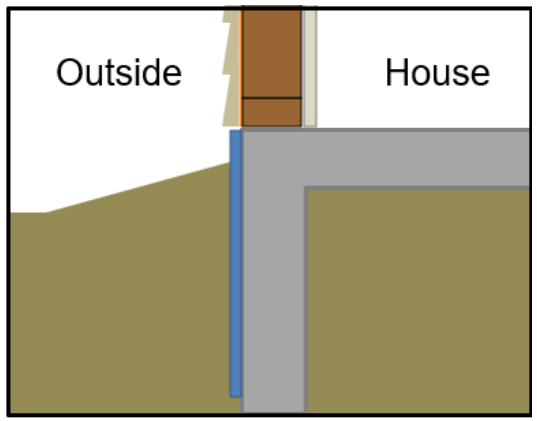


R-5 to 2 ft depth

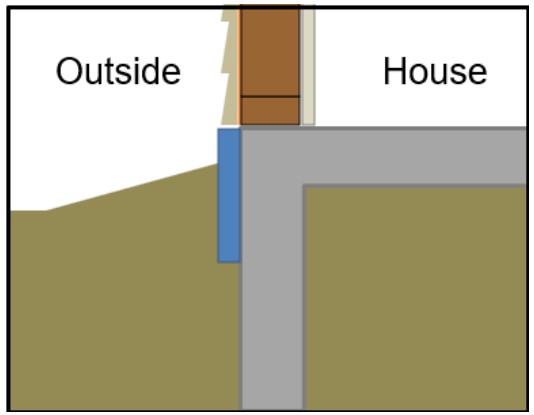
3.4 For slabs on grade ~~or at grade without ground contact~~ in CZ 4-8, 100% of slab edge insulated to ≥ R-5 at ~~a~~the depth of 2 ft., or 4 ft. for heated slabs in CZ 6-8, ~~specified by 2009 IECC Table 502.2(1)~~ & aligned with the thermal boundary of the walls.[10, 21, 22]	☐	☐	☐	☐

#2 of 10. Multifamily Workbook:
Workbook updated to include F-Factors in "UA" calculation

- As noted, there is a new slab insulation alternative using F-factors.

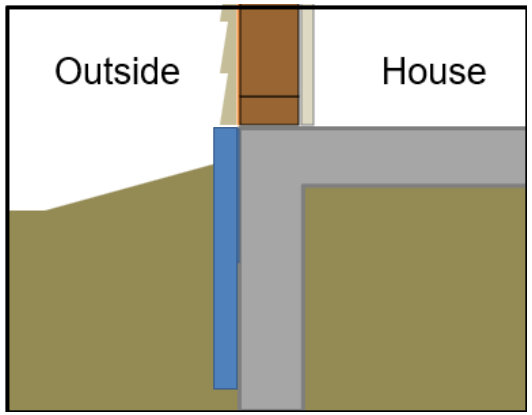


R-5 to 2 ft depth
F-Factor = 0.58



R-10 to 1 ft depth
F-Factor = 0.58

Rater Field Checklist Item 3.4



R-10 to 2 ft depth
F-Factor = 0.54

Rater Design Review Checklist Section 3

#2 of 10. Multifamily Workbook:
Workbook updated to include F-Factors in "UA" calculation

- As noted, there is a new slab insulation alternative using F-factors.
- Multifamily Workbook previously did not include F-Factors in the calculation of the UA, so could not calculate 'trade-offs' with slab-on-grade insulation.
- 2024 IECC likely will update UA calculation to include F-Factors:

$$U_pA + F_pP \leq U_rA + F_rP$$

F_pP = the sum of proposed F-factors times the slab-on-grade perimeter lengths

- Rev. 04 Multifamily Workbook includes entries for the F-Factor and the slab perimeter length. These are multiplied and added to the UA to allow trade-offs.

#2 of 10. Multifamily Workbook (con't.):
Workbook updated to include F-Factors in "UA" calculation

- 5c. Total UA Compliance Tab

High-Performance Insulation Tables (Per Section 3 of the MFNC National Rater Design Checklist)	
Dwelling Unit:	2009 IECC - 'Group R' Commercial chapter
Common Space:	2009 IECC - 'All Other' Commercial chapter

For Version 1.2 Projects (Pre-2025)

Dwelling or Common?	Building Component	Component Type	Addt'l Component Details	Specified/Installed U-Factor (or F-factor if Slabs)	Area (or length if Slabs)	Total UA	ENERGY STAR Requirement Values	Required U-factor (or F-factor if Slabs)	Required UA
Dwelling	Slab-on-Grade Floors	Unheated slabs		0.54	1000	540	F-0.540	F-0.540	540
Dwelling	Slab-on-Grade Floors	Unheated slabs		0.48	1000	480	F-0.540	F-0.540	540

#3 of 10. Rater Design Review and Field Checklists: **UA req'ts when using slab edge exemption clarified**

- Rev. 04 clarifies that where a slab edge exemption is used, the "UA" must be made up for elsewhere.
  - ASHRAE and Prescriptive Paths must use the Total UA Compliance option (5c) in the Multifamily Workbook.

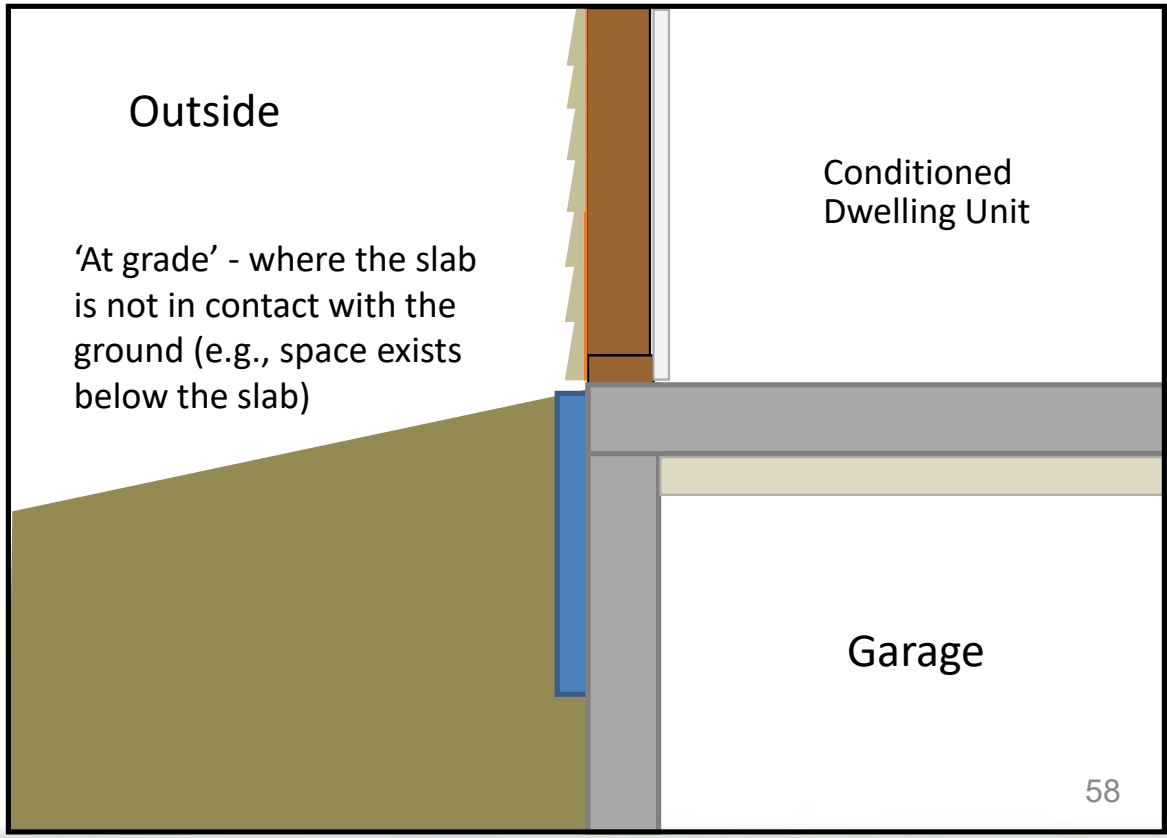
Rater Field Checklist

~~20.~~22. Where an insulated wall separates a garage, patio, courtyard, porch, or other unconditioned space from the conditioned space of the building, slab perimeter insulation shall also be installed at this interface to provide a thermal break between the conditioned and unconditioned slab, if the slab is in contact with the ground, ambient, or unconditioned space at that interface. Where specific details cannot meet this requirement, partners shall provide the detail to EPA to request an exemption prior to the building's certification. EPA will compile exempted details and work with industry to develop feasible details for use in future revisions to the program. A list of currently exempted and non-exempted details is available at: www.energystar.gov/slabedge. If an exemption is used, then the Total UA Compliance option (5c) within the Multifamily Workbook must be used to demonstrate compliance with Item 1.2 if the ASHRAE Path or Prescriptive Path is used, and may be used to demonstrate compliance if the ERI Path is used. F-Factors shall be determined using Table A6.3.1-1 from ASHRAE 90.1-2022 Appendix A. See www.energstar.gov/F-Factor for more details.

- The same language has been added to the Rater Design Review Checklist

#4 of 10. Rater Field Checklist:
Slab ‘at-grade’ insulation requirements reorganized

- Rev. 03 reorganized Item 3.4 to include slab at-grade.
- Rev. 04 adds slab ‘at-grade’ back to Item 3.5
  - Item 3.4 covers slab-on-grade.
  - Item 3.5 covers above-grade and ‘at-grade’ concrete podiums and projected slabs.



#4 of 10. Rater Field Checklist (con't):
Slab 'at-grade' insulation requirements reorganized

- Rev. 03 reorganized Item 3.4 to include slab 'at-grade'.
- Rev. 04 adds slab 'at-grade' back to Item 3.5.
  - Item 3.4 covers slab-on-grade.
  - Item 3.5 covers above-grade and 'at-grade' concrete podiums and projected slabs.

3.4 For slabs on grade ~~or at-grade without ground contact~~ in CZ 4-8, 100% of slab edge insulated to ≥ R-5 at ~~athe~~ depth of 2 ft., or 4 ft. for heated slabs in CZ 6-8, ~~specified by 2009 IECC Table 502.2(1)~~ & aligned with the thermal boundary of the walls. [10, 21, 22]
3.5 For above-grade and at-grade concrete ~~slab~~ floor edges (e.g., podiums, balconies) in CZ 4-8, 100% of ~~slab~~ floor edge insulated to ≥ R-5 & aligned with the thermal boundary of the walls. At this boundary, ~~for slabs~~concrete floors resting on mass walls~~,~~ must provide insulation ~~must~~ that extends ≥8 ft. below the bottom of the ~~slab~~ floor edge & for ~~slabs~~ floors resting on columns, ~~the~~ insulation must surround the column, at a depth of 4ft. Alternatives in Fn.~~Footnote~~ 24.~~-~~[10,~~23~~]

- Rev. 04 also edits Item 3.5 for clarity.

#5 of 10. Rater Field Checklist:
New alternative to concrete floor edge insulation

- Item 3.5 requires insulation at the floor edge of podiums and projected slabs.

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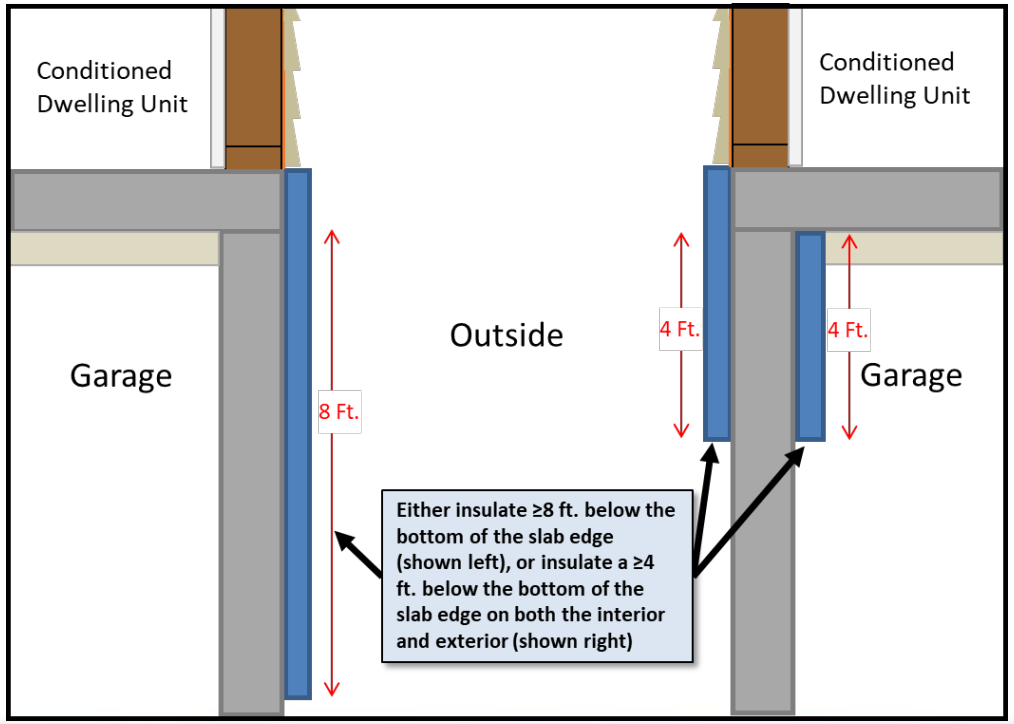
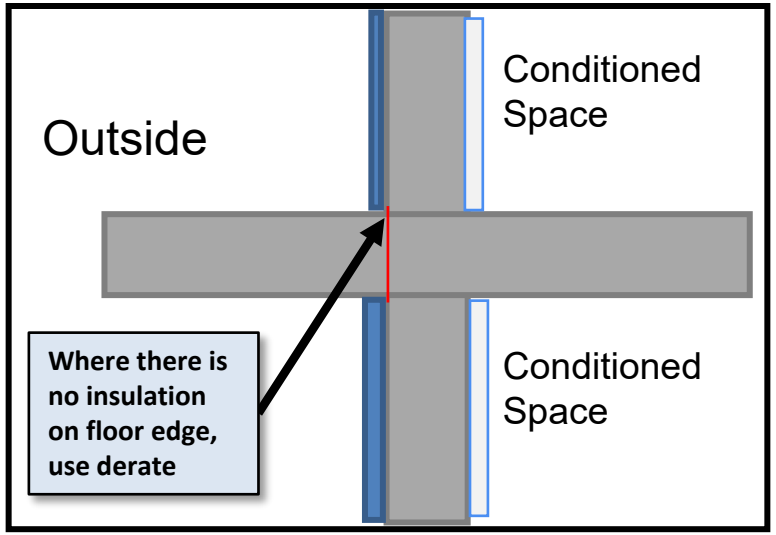
New alternative to concrete floor edge insulation

- Item 3.5 requires insulation at the floor edge of podiums and projected slabs.
- Partners have asked for exemptions or new alternatives to Item 3.5 for podiums in MF buildings.



#5 of 10. Rater Field Checklist (con't):
New alternative to concrete floor edge insulation

- Item 3.5 requires insulation at the floor edge of podiums and projected slabs.
- Partners have asked for exemptions or new alternatives to Item 3.5 for podiums in MF buildings.
- Projected slabs (e.g., balconies) were allowed to use a derate option alternative where the area of the floor edge was multiplied by 4 when calculating UA.

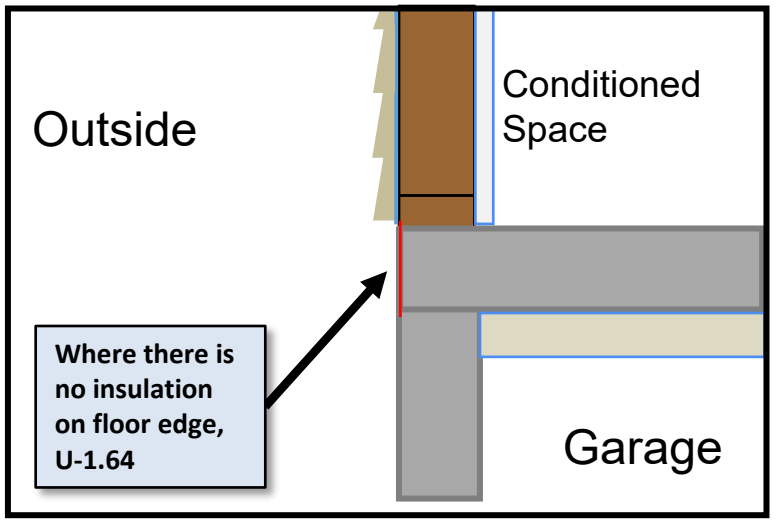


#5 of 10. Rater Field Checklist (con't):
New alternative to concrete floor edge insulation

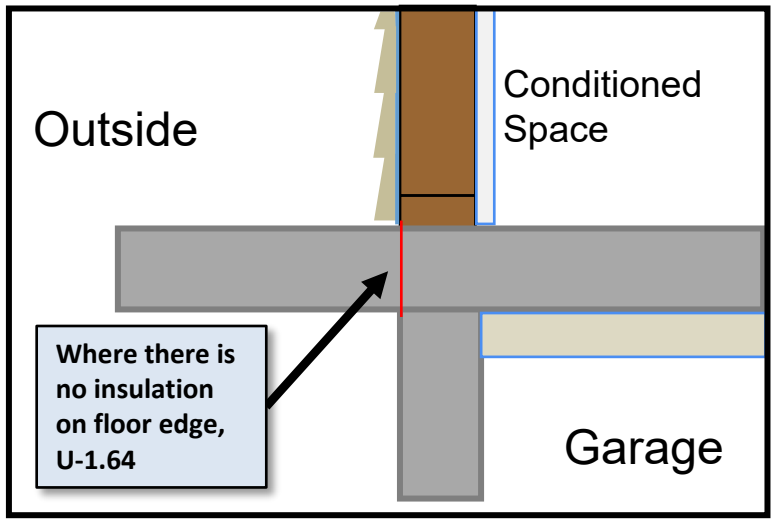
- Item 3.5 requires insulation at the floor edge of podiums and projected slabs.
- Partners have asked for exemptions or new alternatives to Item 3.5 for podiums in MF buildings.
- Projected slabs (e.g., balconies) were allowed to use a derate option alternative where the area of the floor edge was multiplied by 4 when calculating UA.
- Recent codes (e.g., ASHRAE 90.1-2022) are adding thermal bridging energy loss into the "UA" calculation; providing method to trade-off for thermal bridges as part of the overall "UA".
- EPA developed a new U-Factor derate option using the same principles, but simplifying it into a U-Factor.
- Rev. 04 updates the projected slab derate and expands to podiums.

#5 of 10. Rater Field Checklist (con't):
New alternative to concrete floor edge insulation

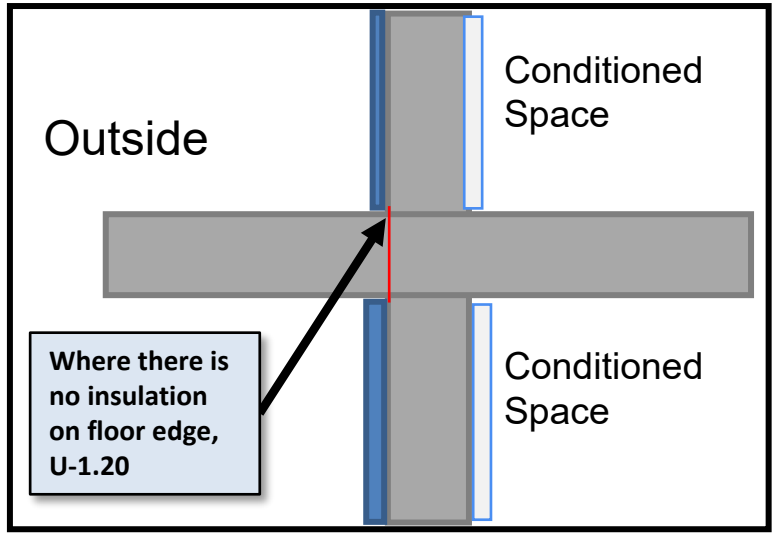
- New alternative applies to all types of above or at-grade concrete floor edges:



Podium



Projected Slab or Balcony over garage or unconditioned space



Balcony over conditioned space

#5 of 10. Rater Field Checklist (con't.):
New alternative to concrete floor edge insulation

- Use the Total UA Compliance option (5c) within the Multifamily Workbook to demonstrate compliance with Item 1.2, and use the following U-factors:
  - Where the above grade wall is in contact with a concrete floor above conditioned space, include a row that represents the floor-edge condition using a U-Factor of 1.20.
  - Where the above grade wall is in contact with a concrete floor above unconditioned space, include a row that represents the floor-edge condition using a U-Factor of 1.64.
- Where using the ASHRAE or ERI Paths, in the energy model the concrete floor edge area must be modeled with R-0.

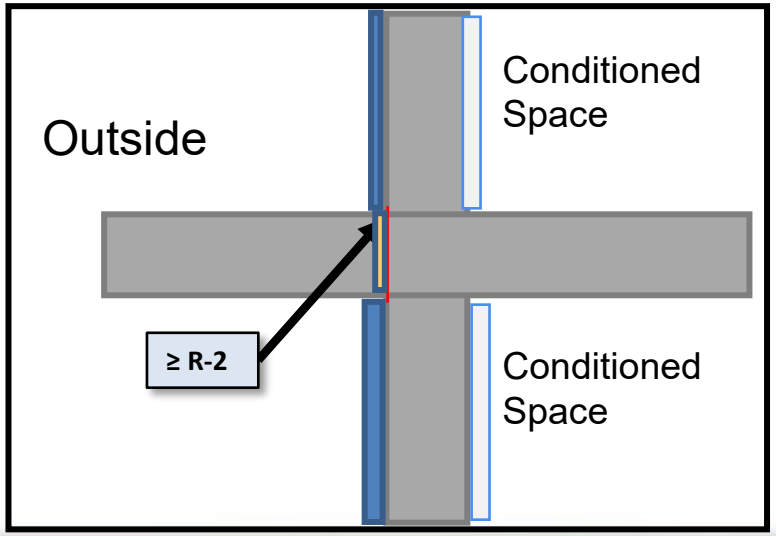
#5 of 10. Rater Field Checklist (con't.):
New alternative to concrete floor edge insulation

- Use the Total UA Compliance option (5c) within the Multifamily Workbook to demonstrate compliance with Item 1.2.

Dwelling or Common?	Building Component	ls	Specified/Installed U-Factor (or F-factor if Slabs)	Area (or length if Slabs)	Total UA	ENERGY STAR Requirement Values	Required U-factor (or F-factor if Slabs)	Required UA
Dwelling	Projected Concrete Floor Edge / Balcony		1.64	1000	1640	U-0.080	U-0.080	80
Dwelling	Podium Floor Edge		1.64	1000	1640	U-0.080	U-0.080	80
Dwelling	Projected Concrete Floor Edge / Balcony		1.2	1000	1200	U-0.080	U-0.080	80

#6 of 10. Rater Field Checklist:
Documentation when using concrete floor edge insulation alternative clarified

- Rev. 04 maintains alternative to install ≥ R-2 (but <R-5) on the floor edge of a projected slab, but the documentation is clarified:
  - ASHRAE and Prescriptive Paths: The Multifamily Workbook Total UA Compliance option (5c) must be used for the with a row that represents the floor edge.
  - ERI Path: the floor edge must be modeled using the R-value of the insulation provided (e.g., not the R-value of the above grade wall).



#7 of 10. Rater Field Checklist:
Concrete floor edge insulation alternatives footnote reorganized

- Rev. 04 reorders alternatives in the footnote with podium alternatives listed first.
- Rev. 04 maintains previous alternatives.

24. For the following podium constructions, a minimum of 8ft insulation is not required below the floor edge:
    a) Where podium wall is less than 8ft in height, insulation must instead be installed for the full height of the podium.
    b) For podiums that are at-grade or continue below-grade, insulate to a minimum of 8ft below the bottom of the slab edge, or a the depth of 2ft. below-grade.
    c) Where a minimum of 4ft of insulation is installed on both interior and exterior surfaces of the wall.
    d) For podiums where the horizontal slab is not in direct contact with the exterior wall and R-5 insulation is provided at the slab edge, continuous with the under-slab insulation. See www.energystar.gov/slabedge for example.

#7 of 10. Rater Field Checklist (con't):
Concrete floor edge insulation alternatives footnote reorganized

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    c) Where a minimum of 4ft of insulation is installed on both interior and exterior surfaces of the wall.
    d) For podiums where the horizontal slab is not in direct contact with the exterior wall and R-5 insulation is provided at the slab edge, continuous with the under-slab insulation. See www.energystar.gov/slabedge for example.

EPA has developed the following alternatives to comply with Item 3.5, instead of installing the insulation required:

a) Projected concrete floors may use one of the options below:

i. Install minimum R-2 insulation at the floor edge between conditioned space and the projected slab, AND:
    a. ASHRAE and Prescriptive Paths: Use the Total UA Compliance option (5c) within the Multifamily Workbook to demonstrate compliance with Item 1.2 and include a row that represents the floor edge.
    b. ERI Path: Model the floor edge using the R-value of the insulation provided (e.g., not the R-value of above-grade wall).

ii. Install minimum R-5 insulation, above and below the concrete slab that extends horizontally for a minimum of 4 ft. Insulation installed on top of slab shall be covered by a durable floor surface. See www.energystar.gov/slabedge for example. When demonstrating compliance with Item 1.2, R-1 insulation may be associated with the area of the wall that is uninsulated due to the projected slab.

#7 of 10. Rater Field Checklist (con't):
Concrete floor edge insulation alternatives footnote reorganized

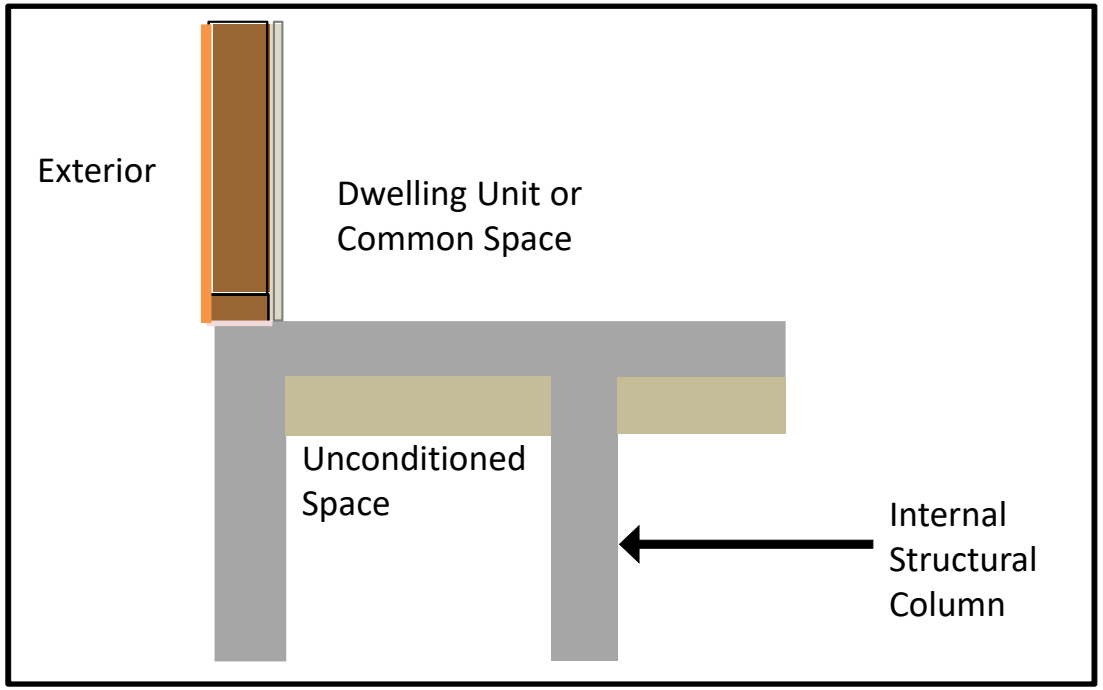
EPA has developed the following alternatives to comply with Item 3.5, instead of installing the insulation required:

a) Projected concrete floors may use one of the options below:
   i. Install minimum R-2 insulation at the floor edge between conditioned space and the projected slab, AND:
      a. ASHRAE and Prescriptive Paths: Use the Total UA Compliance option (5c) within the Multifamily Workbook to demonstrate compliance with Item 1.2 and include a row that represents the floor edge.
      b. ERI Path: Model the floor edge using the R-value of the insulation provided (e.g., not the R-value of above-grade wall).
   ii. Install minimum R-5 insulation, above and below the concrete slab that extends horizontally for a minimum of 4 ft. Insulation installed on top of slab shall be covered by a durable floor surface. See www.energystar.gov/slabedge for example. When demonstrating compliance with Item 1.2, R-1 insulation may be associated with the area of the wall that is uninsulated due to the projected slab.

b) All podiums and projected concrete floors, in lieu of installing the insulation required in Item 3.5, meet all of the following requirements:
   i. Use the Total UA Compliance option (5c) within the Multifamily Workbook to demonstrate compliance with Item 1.2 and use the following U-factors:
      a. Where the above grade wall is in contact with a concrete floor above conditioned space, include a row that represents the floor-edge condition using a U-Factor of 1.20.
      b. Where the above grade wall is in contact with a concrete floor above unconditioned space, include a row that represents the floor-edge condition using a U-Factor of 1.64.
   ii. Where using the ASHRAE or ERI Paths, in the energy model the concrete floor edge area must be modeled with R-0.

#8 of 10. Rater Field Checklist:
UA penalty for uninsulated columns removed

- Rev. 04 removes the UA derate penalty for uninsulated internal columns.



#9 of 10. Rater Design Review Checklist:
Requirement to derate wall UA for fasteners and openings removed

- Rev. 04 removes requirement to derate the wall UA for fasteners and openings.

#10 of 10. Rater Field Checklist:
10% area exempted from continuous insulation clarified

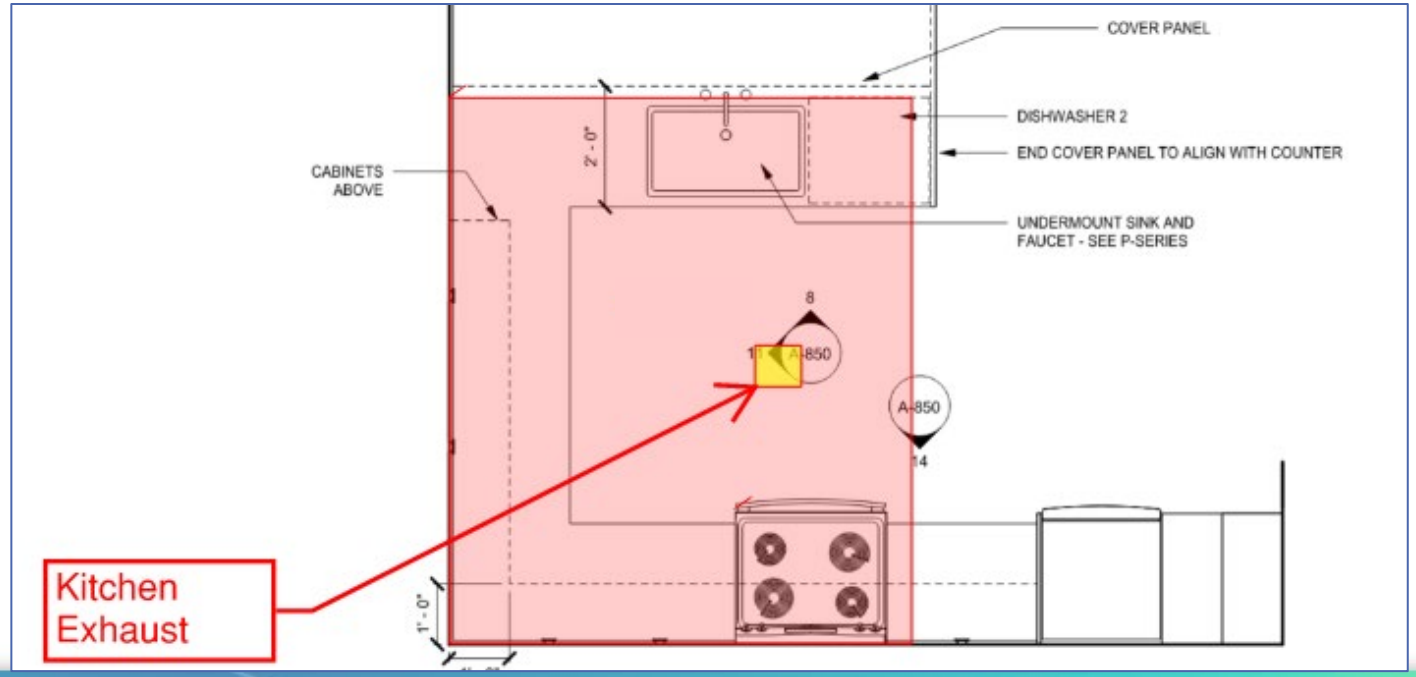
- Rev. 04 clarifies what is included in the 10% area exempted from continuous wall insulation in Item 3.7.1.
  - Includes architectural details, cladding details, mechanical openings
    - Do not need to account for stand-off shelf angles, screws, bolts or brick ties
  - Maintains exemption cannot be used for the repeated concrete floor perimeter edges.

28. Up to 10% of the total exterior wall surface area is exempted from the reduced thermal bridging requirements to accommodate intentionally designed details. This exemption does not apply to steel columns or the repeated concrete floor perimeter edges of a multistory building. To calculate the exempted wall area, the Rater shall sum the areas of the following features that either prevent the use of, or interrupt, continuous insulation when they are present in the design: architectural details (e.g., ~~architectural details such as thermal fins,~~ wing walls, shading devices, roof overhangs, projected balconies, brick returns, stone window sills, metal panels, or masonry fireplaces); ~~structural~~ cladding details~~, such as fasteners~~ (e.g., non-thermally broken shelf angles, metal clips, metal brackets, and metal z-girts~~.~~; but not stand-off shelf angles, screws, bolts, or brick ties); ~~, projected balconies, and service~~ mechanical openings (e.g., PTACs, ~~or~~ PTHPs, through-wall air conditioners)~~, but not steel columns or wall area occupied by intermediate floors).~~ It shall be apparent to the Rater that the exempted areas are intentionally designed details, or the exempted area shall be documented in a plan provided by the builder, architect, or engineer. ~~The entire area of the wall area that is bypassed by the fastener must be used in the calculation.~~ The Rater need not evaluate the necessity of the designed detail to certify the building.

5 Ventilation Changes

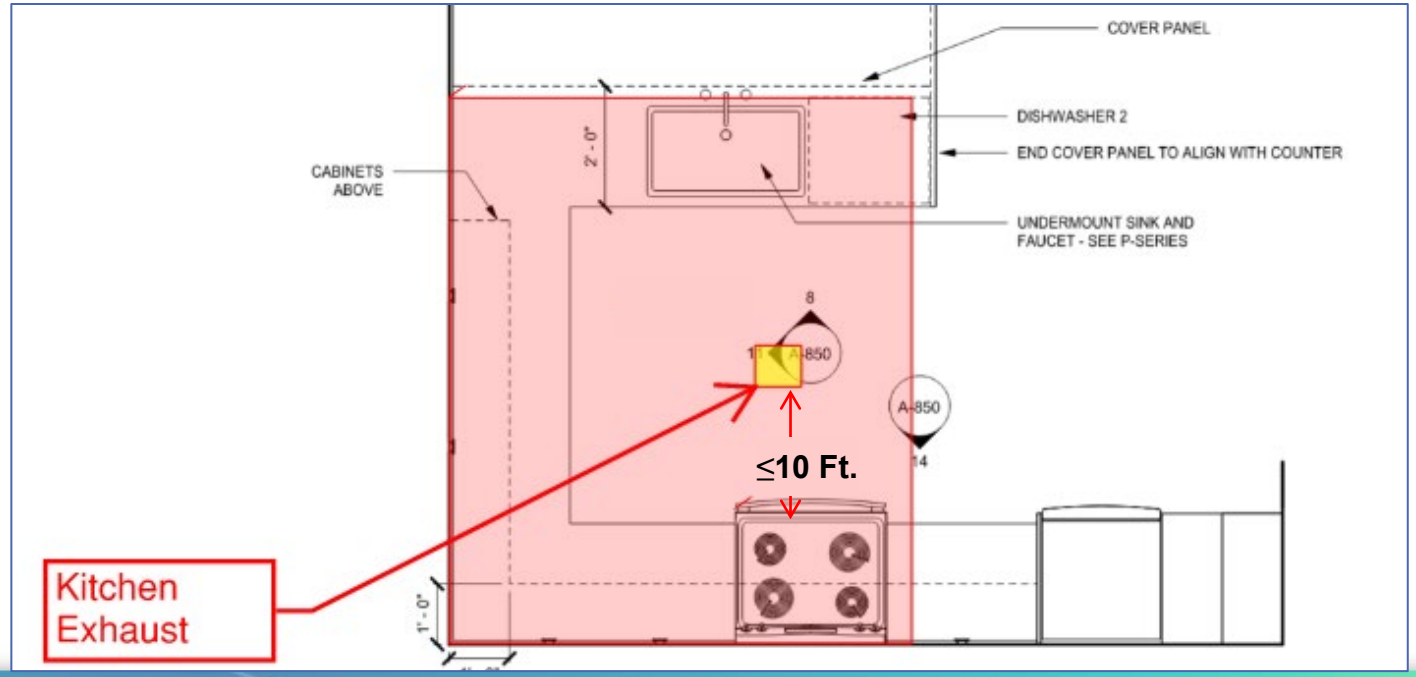
#1 of 5. Rater Field Checklist & HVAC Design Report: **New 50 cfm continuous kitchen exhaust alternative**

- Item 8.1 requires continuous kitchen ventilation to meet a rate of 5 ACH.



#1 of 5. Rater Field Checklist & HVAC Design Report (con't): **New 50 cfm continuous kitchen exhaust alternative**

- Item 8.1 requires continuous kitchen ventilation to meet a rate of 5 ACH.
- Rev. 04 adds an alternative to use a rate of 50cfm of continuous exhaust, regardless of kitchen volume.
  - The edge of the exhaust fan or intake grill must be within 10ft of the edge of the range.



#1 of 5. Rater Field Checklist & HVAC Design Report (con't): **New 50 cfm continuous kitchen exhaust alternative**

- Item 8.1 requires continuous kitchen ventilation to meet a rate of 5 ACH.
- Rev. 04 adds an alternative to use a rate of 50cfm of continuous exhaust, regardless of kitchen volume.
  - The edge of the exhaust fan or intake grill must be within 10ft of the edge of the range.

Rater Field Checklist

Location		Continuous Rate	Intermittent Rate 747473	Must Correct	Rater Verified [4]	N/A [5]
8.1 Kitchen	Airflow	≥ 5 ACH, based on kitchen volume 757574, 767876 (Alternative in Fn. 75)	≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume 757574, 767876, 777776	☐	☐	-

75. Where 5 ACH is selected, Kkitchen volume shall be determined by drawing the smallest possible rectangle on the floor plan that encompasses all cabinets, pantries, islands, peninsulas, ranges / ovens, and the kitchen exhaust fan, and multiplying by the average ceiling height for this area. In addition, the continuous kitchen exhaust rate shall be ≥ 25 CFM, per 2009 IRC Table M1507.3, regardless of the rate calculated using the kitchen volume. Cabinet volume shall be included in the kitchen volume. As an alternative to 5 ACH for Dwelling Units and Sleeping Units (but not Townhouses), 50 CFM of continuous exhaust is permitted to be used, regardless of kitchen volume. In such cases, the edge of the exhaust fan or intake grille shall be located within 10 ft of the edge of the range, as measured horizontally on the floor plan.

  - Similar text is included on the HVAC Design Report.

#2a of 5. Rater Design Review Checklist & HVAC Design Report: **Common space outdoor air verification clarified**

- Rev. 04 maintains that common spaces must meet 62.1 outdoor air requirements.
- Rev. 04 adds an Item to the Rater Design Review Checklist to confirm that common space ventilation is listed on the HVAC Design Report.

4a.7 Common spaces: Item 2.3 is completed for all spaces in the building listed in Footnote 1917.	☐	☐	☐
4a.8 Common spaces: Item 2.4 is equal to or greater than Item 2.3.	☐	☐	☐

  - To further clarify, a new Footnote includes all common spaces that must meet 62.1 outdoor air requirements.

19. The following spaces require outdoor air ventilation: corridors, offices, break rooms, gyms, fitness centers, exercise rooms, lobbies, community rooms, meeting rooms, multi-purpose rooms, lounges, laundry rooms, swimming pools, daycares, classrooms, shared or commercial kitchens, shared dining rooms, and computer rooms.

  - The same text is included on the HVAC Design Report.

#2b of 5. Rater Field Checklist:
Common space outdoor air verification clarified

- Rev. 04 continues to allow common space ventilation to be measured by a Rater or a certified air-balancing contractor under the observation of a Rater.
- Rev. 04 clarifies that sampling is only permitted where airflows are measured by the Rater.

~~60.~~62. While common spaces are not under the scope of ANSI / RESNET / ICC 380, the ventilation air flow and exhaust air flows in common spaces shall be measured in accordance with the procedures in ANSI / RESNET / ICC 380. The air flows may be measured by a Rater or a certified air-balancing contractor under the observation of a Rater. Sampling is only permitted where airflows are measured directly by the Rater. Where a system provides supply air that is a mix of return and outdoor air, and not 100% outdoor air, the outdoor air airflow shall be measured and compared to the total supply airflow to determine percentage of outdoor air supplied. This percentage shall be applied to airflow measured at supply registers to determine outdoor air provided for comparison to design airflow rates. Where the building has total corridor space ≤ 250 ft^2 and does not contain any of the other common spaces which require outdoor air per Item 2.2 of the National HVAC Design Report, outdoor air is not required to be provided to the corridor.

#3 of 5. Rater Field Checklist & HVAC Design Report:
New outdoor air allowance for buildings with corridors ≤ 250ft²

- Occasionally very small building (e.g., 4 units) will have a small corridor and no other common spaces.
- These corridors require very limited ventilation (≤ 15cfm).
- Rev. 04 does not require outdoor air in the corridors where the building has total corridor space ≤ 250 ft², and does not require outdoor air in any other common spaces.

Rater Field Checklist

~~60.~~62. While common spaces are not under the scope of ANSI / RESNET / ICC 380, the ventilation air flow and exhaust air flows in common spaces shall be measured in accordance with the procedures in ANSI / RESNET / ICC 380. The air flows may be measured by a Rater or a certified air-balancing contractor under the observation of a Rater. Sampling is only permitted where airflows are measured directly by the Rater. Where a system provides supply air that is a mix of return and outdoor air, and not 100% outdoor air, the outdoor air airflow shall be measured and compared to the total supply airflow to determine percentage of outdoor air supplied. This percentage shall be applied to airflow measured at supply registers to determine outdoor air provided for comparison to design airflow rates. Where the building has total corridor space ≤ 250 ft² and does not contain any of the other common spaces which require outdoor air per Item 2.2 of the National HVAC Design Report, outdoor air is not required to be provided to the corridor.

- Similar text is added to the HVAC Design Report.

#4 of 5. Rater Field Checklist & HVAC Design Report: **Ventilation rate for sleeping units clarified**

- Rev. 03 added a sleeping unit equation for minimum ventilation:
  - Dwelling units: 0.01 x Conditioned Floor Area + 7.5 x (number of bedrooms +1)
  - Sleeping units: 0.01 x Conditioned Floor Area + 7.5 x (number of beds)
- Rev. 04 clarifies that the minimum ventilation requirements for sleeping units must be calculated using the equation with the number of beds.

Rater Field Checklist

~~59.~~61. The dwelling-unit ventilation air flows and local exhaust air flows shall be determined and documented by a Rater using ANSI / RESNET / ICC 380 including all Addenda and Normative Appendices, with new versions and Addenda implemented according to the schedule defined by the HCO or MRO that the building is being certified under. In Item 7.2, the dwelling-unit ventilation rates required by ASHRAE 62.2-2010 can be calculated using the Multifamily Workbook or the following equation: 0.01 x Conditioned Floor Area + 7.5 x (number of bedrooms + 1). For sleeping units, the following equation ~~may~~must be used: 0.01 x Conditioned Floor Area + 7.5 x (number of beds). Where local codes do not permit dwelling-unit ventilation to exceed ASHRAE 62.2-2010 rates, Rater-measured ventilation rate is permitted to be 0-15 CFM less than rates required by ASHRAE 62.2-2010. Designers are permitted to provide multiple combinations of a design ventilation airflow rate, run-time per cycle, and cycle time. When multiple combinations are provided, the Rater shall first assess the run-time setting of the installed system and use that to determine the corresponding design ventilation rate. The Rater-measured ventilation rate must fall within the program-specified tolerance relative to that design ventilation rate.

- Same language has been added to the HVAC Design Report

#5 of 5. Rater Field Checklist:
New central exhaust duct leakage test allowance

- Rev. 04 clarifies testing options where aerosol-based sealant is used on 100% of the exhaust ductwork between the fan and the grilles:
  - 100% of the exhaust ductwork is tested.
  - Duct-sealing contractor may perform the test.
  - Sampling is not permitted.
  - Where tested at 25 Pa, the leakage allowance may be reduced using the specified equations.

Where aerosol-based sealant is used on 100% of the exhaust ductwork between the fan and the grilles, the duct-sealing contractor is permitted to perform the test, but sampling is not permitted. Where tested at 25 Pa, the leakage allowance is permitted to be reduced according to the equation above by substituting "25" for "50". The Rater is not required to witness these tests. Where aerosol-based sealant is used on some but not all ~~risers~~ductwork, the ductwork selected for testing must be representative of all sealing strategies used. This test is not required of central exhaust systems serving clothes dryers but is required for the central exhaust portion of balanced systems such as HRVs and ERVs.

3 Heating and Cooling Changes

#1 of 3. Rater Field Checklist & HVAC Design Report :
New exemption from electric resistance space heating limitations

- Rev. 04 clarifies that electric resistance limitations do not apply to heat pumps with integral supplemental or emergency electric resistance heating.
  - EPA recommends controls to limit the use of electric resistance heat.
  - EPA recommends ENERGY STAR certified cold-climate heat pumps in CZ 5-8.

Rater Field Checklist

~~45.~~47. Electric resistance limitations do not apply to heat pumps with integral supplemental or emergency electric resistance heating. EPA recommends but does not require that heat pumps have controls to limit the use of emergency or supplemental heat to heat pump failures or when the heat pump cannot meet the heating load. ~~ENERGY STAR~~EPA also recommends but does not require that heat pumps in CZ 5-8 are ENERGY STAR certified cold-climate heat pumps. ~~These requirements apply to systems that provide primary space heating and cooling.~~ Electric resistance limitations do not apply to systems dedicated to heating outdoor air supplied by a mechanical ventilation system, as long as the space served is primarily heated by a non-electric-resistance system that meets the efficiency requirements noted in Exhibit X. Electric resistance limitations apply to garages, but do not apply to heated plenums meeting Item 5.11, or stairwells where automatic thermostatic controls prevent operation above 50°F.

- Similar text is on the HVAC Design Report

#2 of 3. Program Requirements:
Minimum EER requirement removed for residential cooling equipment

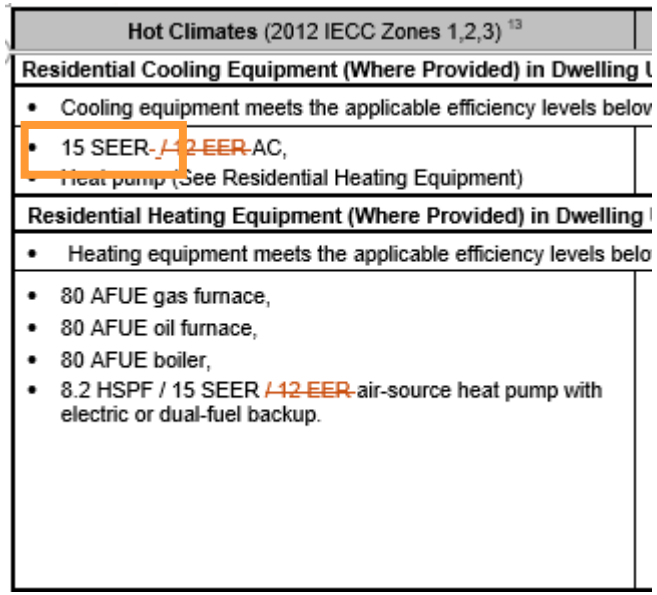
- Rev. 04 removes requirement to meet EER efficiency level for heat pumps and AC when using the Prescriptive Path and in common spaces using the ERI Path.

Hot Climates (2012 IECC Zones 1,2,3) [13]	**Mixed and Cold Climates** (2012 IECC Zones 4,5,6,7,8) [13]
Residential Cooling Equipment (Where Provided) in Dwelling Units or Common Spaces. If not listed here, see Rater Field Checklist Exhibit X.[14]	
• Cooling equipment meets the applicable efficiency levels below:	
• 15 SEER ~~/ 12 EER~~ AC, • Heat pump (See Residential Heating Equipment)	• 13 SEER AC, • Heat pump (See Residential Heating Equipment)
Residential Heating Equipment (Where Provided) in Dwelling Units or Common Spaces. If not listed here, see Rater Field Checklist Exhibit X.~~14~~	
• Heating equipment meets the applicable efficiency levels below, dependent on fuel and system type:	

• 80 AFUE gas furnace,
• 80 AFUE oil furnace,
• 80 AFUE boiler,
• 8.2 HSPF / 15 SEER ~~/ 12 EER~~ air-source heat pump with electric or dual-fuel backup.
	• 95 AFUE ENERGY STAR gas furnace (common spaces see Exhibit X),
	• 85 AFUE ENERGY STAR oil furnace,
	• 90 AFUE ENERGY STAR gas boiler,
	• 86 AFUE oil boiler,
	• Heat pump, with efficiency as follows:
	  • *CZ 4:* 8.5 HSPF / 15 SEER ~~/ 12 EER~~ air-source w/ electric or dual-fuel backup,
	  • *CZ 5:* 9.25 HSPF / 15 SEER ~~/ 12 EER~~ air-source w/ electric or dual-fuel backup,
	  • *CZ 6:* 9.5 HSPF / 15 SEER ~~/ 12 EER~~ air-source w/ electric or dual-fuel backup,
	  • CZ 7-8: 9.2 HSPF / 16 SEER air-source~~3.6 COP / 17.1 EER ground source~~ w/ electric or dual-fuel backup.

#3 of 3. Program Requirements:
SEER2/HSPF2 conversions added to the ENERGY STAR Reference Design

- DOE updated the efficiency ratings for AC's and heat pumps.
- Rev. 04 adds tables with the new efficiency metrics using conversion factors from Draft PDS-02, BSR/RESNET/ICC 301-2022 Addendum C-202x.



Hot Climates (2012 IECC Zones 1,2,3) [13]
Residential Cooling Equipment (Where Provided) in Dwelling U
• Cooling equipment meets the applicable efficiency levels belov
• 15 SEER ~~/ 12 EER~~ AC,
• Heat pump (See Residential Heating Equipment)
Residential Heating Equipment (Where Provided) in Dwelling
• Heating equipment meets the applicable efficiency levels belo
• 80 AFUE gas furnace, • 80 AFUE oil furnace, • 80 AFUE boiler, • 8.2 HSPF / 15 SEER ~~/ 12 EER~~ air-source heat pump with electric or dual-fuel backup.

	SEER		HSPF				
	13	15	8.2	8.5	9.2	9.25	9.5
Equipment Type	**SEER2**		**HSPF2**				
Ductless Systems	13.0	15.0	7.3	7.6	8.2	8.3	8.5
Ducted Split System	12.3	14.2	6.9	7.2	7.8	7.8	8.0
Ducted Single Packaged System	12.3	14.2	6.8	7.1	7.7	7.7	7.9

2 Hot Water and Lighting Changes

#1 of 2. Rater Field Checklist:
Hot water streamlining

- Rev. 04 removes the requirement to have a heat trap
- Rev. 04 removes the requirement to measure the hot water delivery temperature

#2 of 2. Rater Field Checklist:
Footcandle verification added to Rater Field Checklist

- Rev. 04 maintains requirement in ASHRAE Path that footcandles must be measured for spaces taking ≥ 30% lighting savings
- Rev. 04 highlights this requirement within the Rater Field Checklist

85. As an alternative to the efficiency requirements in Item 12.3, installed lighting may instead meet the following lighting power allowances. In common spaces (except garages), for ERI and Prescriptive Path, total installed lighting power for the combined common spaces [2] must not exceed ASHRAE 90.1-2007 allowances for those combined spaces, using the Space-by-Space or Building Area Method. For ASHRAE Path, total installed lighting power for the combined common spaces [2] must not exceed ASHRAE 90.1-2007 allowances for those combined spaces, using the Space-by-Space or Building Area Method, by more than 20%. In addition, for ASHRAE Path, where the proposed lighting power in a given space is modeled with 30% or greater savings compared to the allowance in the Simulation Guidelines, field measurement of footcandles is required. For all Paths, see Footnote 86 and 87 for allowances.

Summary of Rev. 04

Alignment with SFNH

1. Sampling Sunset
2. Limitation on use of builder-verified items
3. Permit Date definition adjusted
4. ERC partnership, Rater oversight & training clarified
5. Only detached dwellings eligible to be certified using SFNH
6. Pre-drywall inspection always required
7. Refining the Rater's role in verifying program requirements
8. Guidance when multiple ventilation designs are provided
9. AHRI # should encompass indoor and outdoor components
10. Moisture resistant materials only required if backers present
11. New program document defining applicable program req.'s

Summary of Rev. 04, con't.

Alignment with SFNH

12. Separation distance reduced for certain air inlets
13. New exemption from slab edge insulation
14. New slab insulation alternative using F-factors
15. Continued allowance to use prior Rev.'s of HVAC Design Report

Summary of Rev. 04, con't.

Programmatic

1. Sunset of National Version 1 and ASHRAE 90.1-2007
2. Whole building certification required

Envelope

1. Slab-on-grade insulation minimum depth clarified
2. Workbook updated to include F-Factors in UA calculation
3. UA req'ts when using slab edge exemption clarified
4. Slab 'at-grade' thermal bridging requirements reorganized
5. New alternative to concrete floor edge insulation
6. Documentation when using concrete floor edge insulation alternative clarified
7. Concrete floor edge insulation alternatives footnote reorganized
8. UA penalty for uninsulated columns removed
9. Requirement to derate wall UA for fasteners and openings removed
10. 10% area exempted from continuous insulation clarified

Summary of Rev. 04, con't.

Ventilation

1. New 50 cfm continuous kitchen exhaust alternative
2. Common space outdoor air verification clarified
3. New outdoor air allowance for buildings with corridors ≤ 250ft2
4. Ventilation rate for sleeping units clarified
5. New central exhaust duct leakage test allowance

Heating and Cooling

1. New exemption from electric resistance space heating limitations
2. Minimum EER requirement removed for residential cooling equipment
3. SEER2/HSPF2 conversions added to the ENERGY STAR Reference Design

Hot Water and Lighting

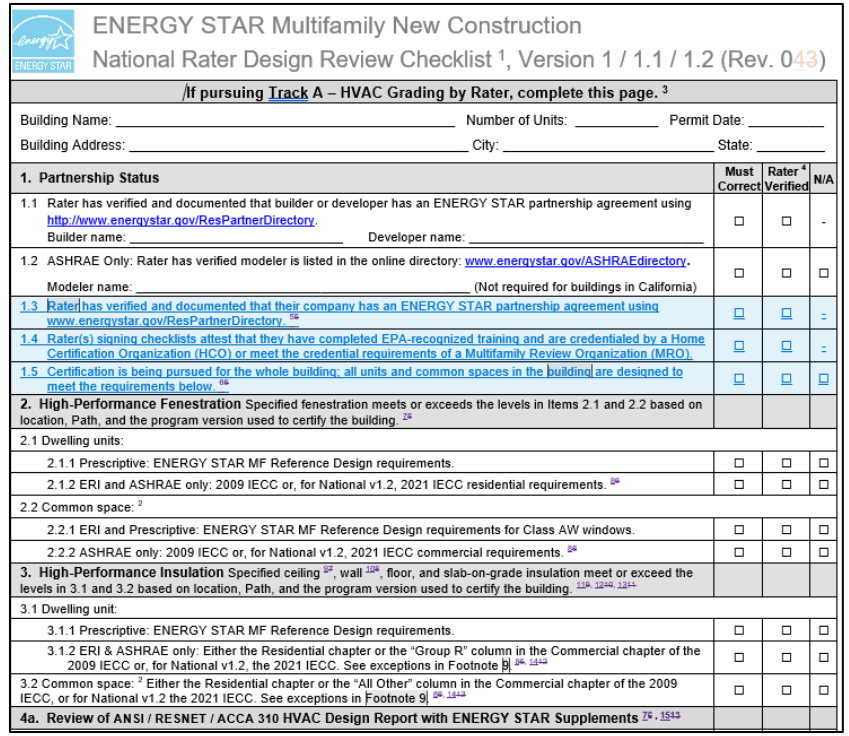
1. Hot water streamlining
2. Footcandle verification added to Rater Field Checklist

What we didn’t cover today

- Clarifications with limited applicability
- General cleanup of language and references

Release of Revision 04

- Will be released in December 2023.
- Updated program documents at: energystar.gov/newhomesrequirements.
- One-page highlights document, tracked-changes documents, and updated Policy Record at: energystar.gov/newhomespolicyrecord



ENERGY STAR Multifamily New Construction
National Rater Design Review Checklist [1], Version 1 / 1.1 / 1.2 (Rev. 043)

If pursuing Track A – HVAC Grading by Rater, complete this page. [3]

Building Name: _____ Number of Units: _____ Permit Date: _____

Building Address: _____ City: _____ State: _____

1. Partnership Status	Must Correct	Rater [4] Verified	N/A
1.1 Rater has verified and documented that builder or developer has an ENERGY STAR partnership agreement using http://www.energystar.gov/ResPartnerDirectory. Builder name: _____ Developer name: _____	☐	☐	-
1.2 ASHRAE Only: Rater has verified modeler is listed in the online directory: www.energystar.gov/ASHRAEdirectory. Modeler name: _____ (Not required for buildings in California)	☐	☐	☐
1.3 Rater has verified and documented that their company has an ENERGY STAR partnership agreement using www.energystar.gov/ResPartnerDirectory. [5b]	☐	☐	-
1.4 Rater(s) signing checklists attest that they have completed EPA-recognized training and are credentialed by a Home Certification Organization (HCO) or meet the credential requirements of a Multifamily Review Organization (MRO).	☐	☐	-
1.5 Certification is being pursued for the whole building; all units and common spaces in the building are designed to meet the requirements below. [6a]	☐	☐	☐
2. High-Performance Fenestration Specified fenestration meets or exceeds the levels in Items 2.1 and 2.2 based on location, Path, and the program version used to certify the building. [7a]			
2.1 Dwelling units:			
2.1.1 Prescriptive: ENERGY STAR MF Reference Design requirements.	☐	☐	☐
2.1.2 ERI and ASHRAE only: 2009 IECC or, for National v1.2, 2021 IECC residential requirements. [8a]	☐	☐	☐
2.2 Common space: [7]			
2.2.1 ERI and Prescriptive: ENERGY STAR MF Reference Design requirements for Class AW windows.	☐	☐	☐
2.2.2 ASHRAE only: 2009 IECC or, for National v1.2, 2021 IECC commercial requirements. [8a]	☐	☐	☐
3. High-Performance Insulation Specified ceiling [9a], wall [10a], floor, and slab-on-grade insulation meet or exceed the levels in 3.1 and 3.2 based on location, Path, and the program version used to certify the building. [11a, 12a, 13a]			
3.1 Dwelling unit:			
3.1.1 Prescriptive: ENERGY STAR MF Reference Design requirements.	☐	☐	☐
3.1.2 ERI & ASHRAE only: Either the Residential chapter or the "Group R" column in the Commercial chapter of the 2009 IECC or, for National v1.2, the 2021 IECC. See exceptions in Footnote 9. [9a, 14a]	☐	☐	☐
3.2 Common space: [7] Either the Residential chapter or the "All Other" column in the Commercial chapter of the 2009 IECC, or for National v1.2 the 2021 IECC. See exceptions in Footnote 9. [9a, 14a]	☐	☐	☐
4a. Review of ANSI / RESNET / ACCA 310 HVAC Design Report with ENERGY STAR Supplements [7a, 15a]			

Implementation of Revision 04

- Implementation date of 01/01/2025.
- What does this mean for you?
  - You can use Rev. 04 upon its release for any building.
  - You must use Rev. 04 for any building permitted after January 1, 2025.

Preview of Revision 05

- Next year's Revision will focus on streamlining the requirements.
- Key topic areas include:
  - Envelope
  - Ventilation
  - ASHRAE performance target and documentation

2023 ENERGY STAR Partner Meeting Webinar Series

Completed	**ENERGY STAR: The Year in Review/The Year Ahead**
Completed	**A Beginners Guide to the ENERGY STAR Multifamily New Construction Program**
Completed	**45L Tax Credit Update**
Now	**Overview of the Latest Revisions (Rev.13 & 04) of the ENERGY STAR Single-Family and Multifamily Programs**
Monday, December 11th 1 PM Eastern	**Strengthening the ENERGY STAR Certification System's Quality Assurance and Quality Control Requirements**
Tuesday, December 12th 1 PM Eastern	**Just Launched: ENERGY STAR NextGen New Homes and Apartments Program**

Register at www.energystar.gov/partner_resources/residential_new/educational_resources/energy_star_webinars.

Each webinar will be recorded and available for playback afterward on our Recorded Webinars page:
www.energystar.gov/partner_resources/residential_new/educational_resources/energy_star_webinars/recorded_webinars

Q & A

ENERGY STAR Residential New Construction

Program website & email:

Single Family:	www.energystar.gov/newhomesrequirements
Multifamily:	www.energystar.gov/mfnc
ENERGY STAR NextGen:	www.energystar.gov/nextgenhomes
Email:	energystarhomes@energystar.gov