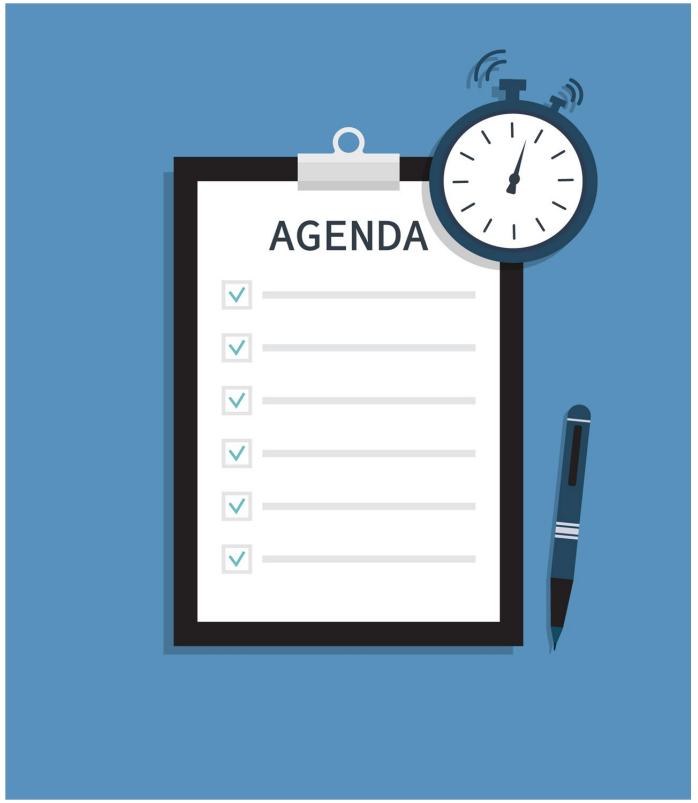
Future of RESNET® Quality Assurance

Scott Doyle, Laurel Elam, Billy Giblin

RESNET

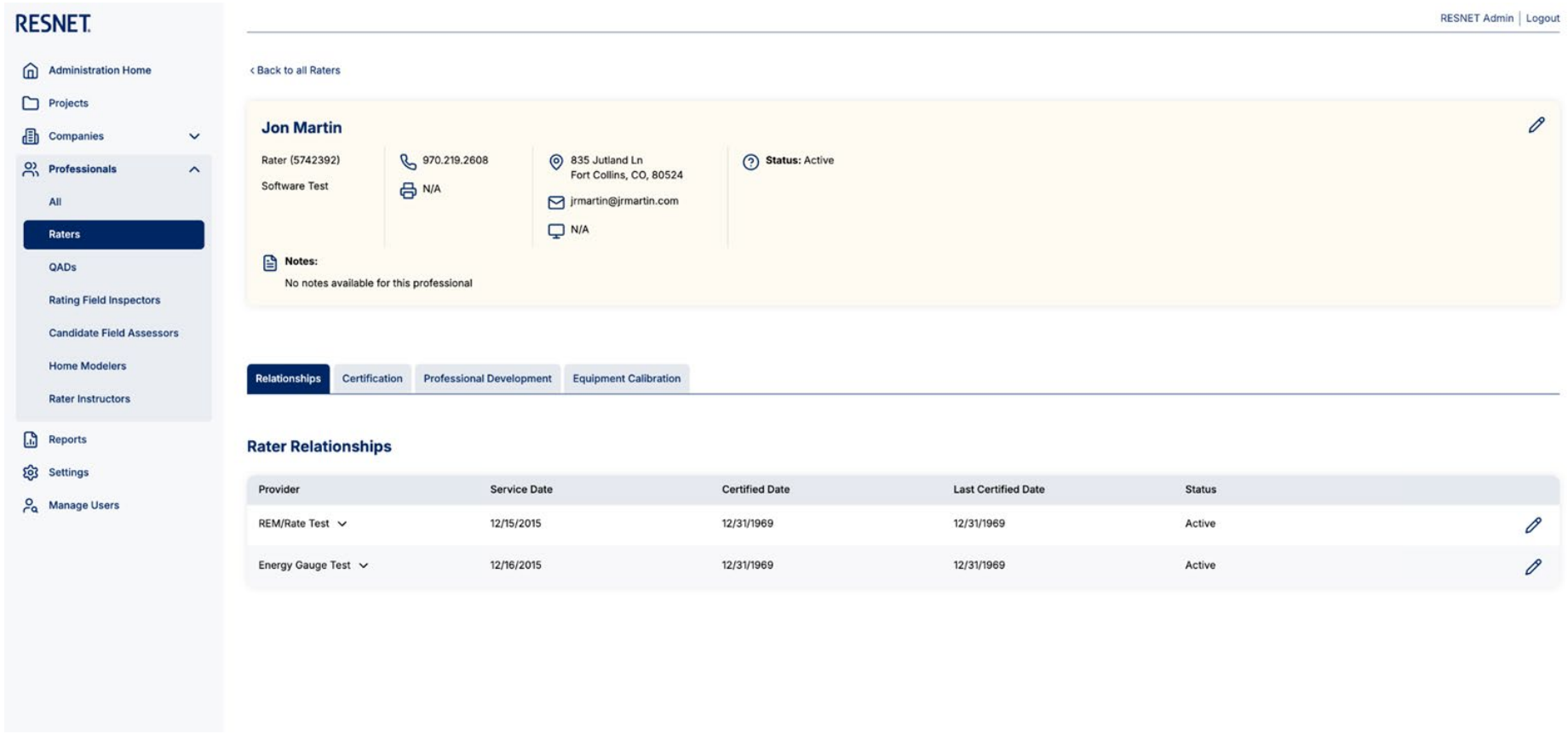
Agenda

- Registry Update
- Chapter Nine Amendment Update
- QA App Updates
- Frequency of Enhanced QA
- Hiring New QA Team Members
- ENERGY STAR Quality Assurance
- New Sampling Protocol and QA



Registry Update

- Alpha Version February (staff and testers)
- Beta Launch in March or April for Providers



Chapter Nine Revisions

- DRAFT PDS-02 MINHERS Addendum 75, Update Ch 9
  - Chapter Nine is currently being voted on by the SDC 900 to send out for Public Comment (expected February 2025)
- Highlights:
  - 903.1.2 Requires QA reviews submitted to RESNET
  - 904.3.3.3.5.1 “Remote QA” Procedures and Eligibility (language update)
  - 908/909/910 Updated Ethics & Appeals and Disciplinary Actions

RESNET QA app

Looking Ahead…

We’re All Too Busy, and…

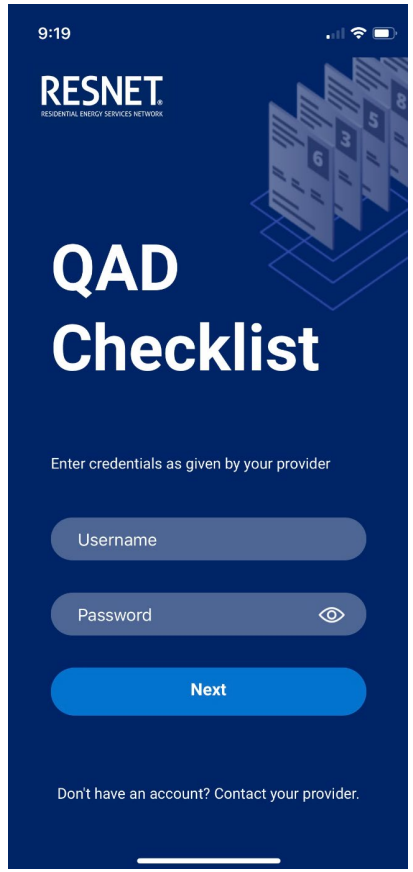
It is time.

- Draft PDS-01 MINHERS Addendum 75, Update Chapter 9 QA
  - 903.1.2 AND 904.3.2
- On track to be REQUIRED by July 1, 2025
- Start NOW (App or API)
- 2025 Annual QA Report will be SO much easier

- 43 Providers - have submitted QA Reviews via RESNET QA app as of last Friday 1/24/25

RESNET QA App - Future Updates!

- Q1- Previous Year QA
  - *"Date Reviewed"* – backdate to previous year
- Cloud Syncing - *In-Progress/Alert* QA Reviews
  - Save when you log out
- QA Dashboard – access for QADs & Admins
- Multiple Field Verifiers (Primary gets credit)
  - Who did what when
  - v3 Registry Schema
    - then Standards and Software
- QA Review Summary Email
  - Emphasize Errors and Comments



Integration of EEP QA Checklists

We will be integrating all the recent versions of the EEP QA Checklists in 2025.

* “One Stop Shop” for QA

* Support initiatives outlined in new HCO QAQC requirements

* More transparent QA with national programs

RESNET QA App - Future Updates!?!

RESNET QA app

- Designed to meet the NEEDS of compliance to MINHERS and ANSI Standards for completion of the QA Review Checklist

- We encourage the free market to develop tools and functionality beyond that (WANTS)

App ACCESS

iPhones: App Store
PRIVATE LINK

Android: Google Play
PUBLIC

Web App: https://qa.resnet.us

- Future app updates will be automatic.

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Frequency of Enhanced QA visits

Enhanced QA from RESNET MINHERS:

903.1.2 Annual REVIEW OF Rating Quality Assurance Provider Report Submission And Enhanced Quality Assurance REVIEWS Monitoring Of QA Providers
903.1.2.2.2 This QA review may be enhanced monitoring of QA Provider files and quality assurance process done remotely, an on-site field review, or any combination of these.
903.1.2.2.3 ~~903.1.2.2.3 903.3~~ Quality Assurance File Review RESNET will centrally administer quality assurance review of ratings using data in the National RESNET Registry.
903.1.2.3 RESNET Staff shall conduct enhanced review of newly accredited Rating Quality Assurance Providers within twelve months of accreditation.
903.1.2.4 Every active accredited Rating Quality Assurance Provider shall receive an enhanced review by RESNET staff no less than once every four years.

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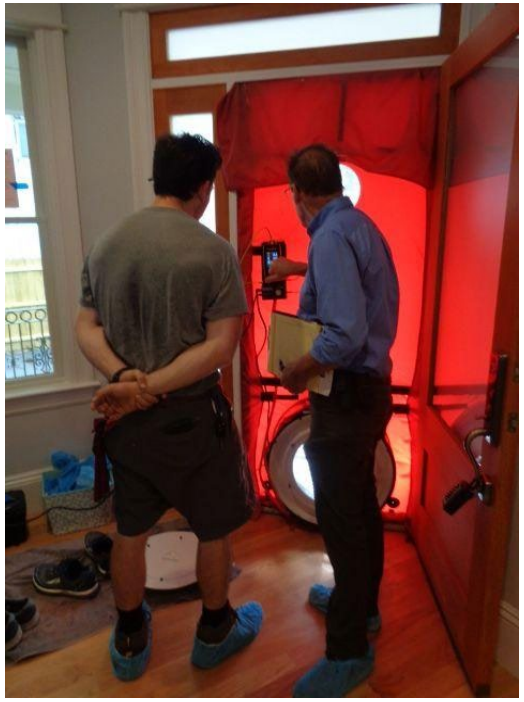
Frequency of Enhanced QA visits

* There is no maximum of direct QA Field Observation visits.

* If we observe issues or make findings that warrant more attention, we will plan more visits for sake of mentoring and continual improvement.



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QA Team Additions

QA Project Manager

Filled in Q2 2025

QA Investigations PM

Filled in Q4 2025

QA Compliance Specialist

RESNET has recently posted job openings for four (4) Regional QA Positions

QA Data Analyst

RESNET has one opening expected for this position (shared resource)

RESNET QA Team

Scott Doyle

Managing Director of Quality Assurance

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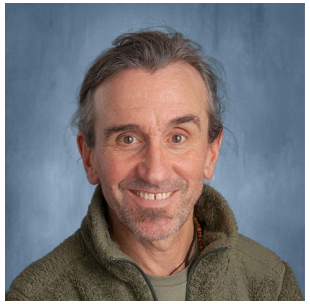

Billy Giblin

Quality Assurance Field Specialist

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Jordi Kimbrough

QA Project Manager

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Ryan Moore

QA Investigations Project Manager

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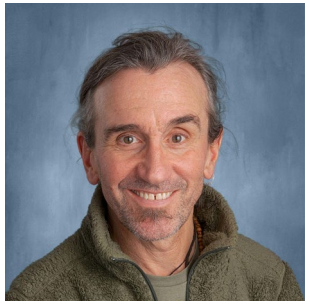

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ENERGY STAR Quality Assurance

Implementation of ENERGY STAR QAQC Begins March of 2025

Final Policy Released in August, 2024

Key Changes:

New Photo and Data Collection Reqs

HCO Direct File QA

Eventually Advancing File QA to Occur Prior to Certification

New Training Reqs

ENERGY STAR QA/QC Implementation Timeline

Early 2025

Direct HCO File QA Begins

Ratings selected upon Registration, files shared upon request via separate system.

Late 2025

HCO Training and Certification Tracking

RESNET to implement measures to track training for verifiers and QADs

2026

QA Precedes Cert

Photo and Checklist Documentation collected for every home, integrated with Registry/Rating Software Tools.

Selection and Submittal Process

Supporting Documentation

HCO File QA Reviews

RESNET Direct HCO QA 2025

Use this slide for a brief overview of content and step breakdown. Add highlights in the colored box, add applicable icons and photo.

STEP ONE

Provider submits ENERGY STAR ratings to Registry, print permissions unlocked and certification issued. RESNET Notifies Provider when a file was selected for HCO QA review.

STEP TWO

Provider collects checklists and photos and submits to RESNET via separate file sharing system.

STEP THREE

RESNET QA Team completes file QA review, results shared with Provider.

During Inspection

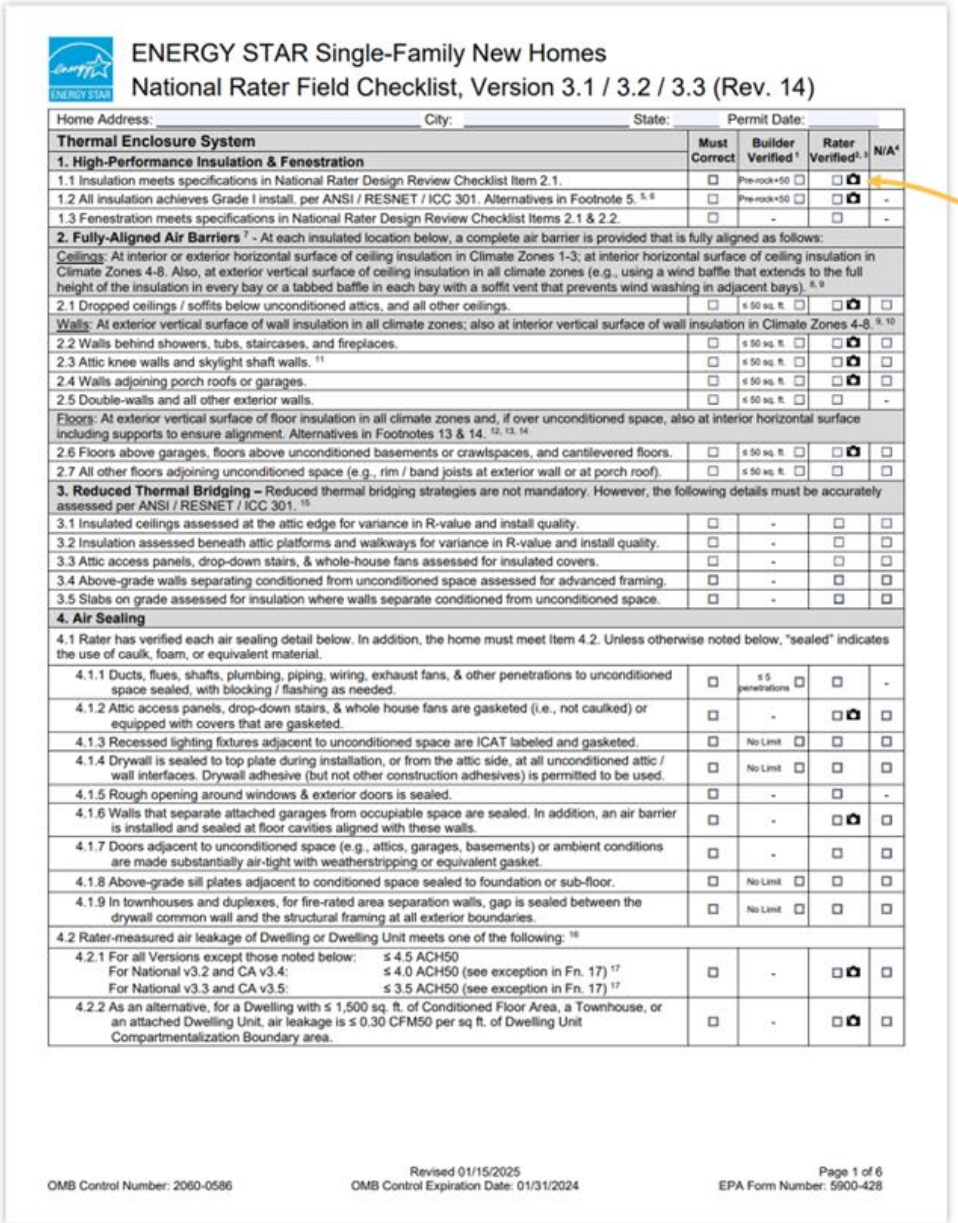
On-Site Photo Collection

Revision 14/05 introduces a list of photos that Raters are required to capture at each inspection, including:

- One geo-tagged and time-stamped Rater "selfie" per inspection (it is recommended, but not required, for other photos to be timestamped and geo-tagged).
- Overlap with ANSI / RESNET 301 and MINHERS photo lists.
  - For performance tests, one photo or automated report per test.
- Additional ENERGY STAR-specific checklist measures.
  - Capture at least one "representative" photo per specified item.

See applicable National Rater Field Checklist at energystar.gov/newhomesrequirements

ENERGY STAR



ENERGY STAR Single-Family New Homes
National Rater Field Checklist, Version 3.1 / 3.2 / 3.3 (Rev. 14)

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

Thermal Enclosure System	Must Correct	Builder Verified [1]	Rater Verified [2, 3]	N/A [4]
1. High-Performance Insulation & Fenestration				
1.1 Insulation meets specifications in National Rater Design Review Checklist Item 2.1.	☐	Pre-rock+50 ☐	☐ 📷	
1.2 All insulation achieves Grade I install. per ANSI / RESNET / ICC 301. Alternatives in Footnote 5. [5, 6]	☐	Pre-rock+50 ☐	☐ 📷	-
1.3 Fenestration meets specifications in National Rater Design Review Checklist Items 2.1 & 2.2.	☐	-	☐	-
2. Fully-Aligned Air Barriers [7] - At each insulated location below, a complete air barrier is provided that is fully aligned as follows:				
Ceilings: At interior or exterior horizontal surface of ceiling insulation in Climate Zones 1-3; at interior horizontal surface of ceiling insulation in Climate Zones 4-8. Also, at exterior vertical surface of ceiling insulation in all climate zones (e.g., using a wind baffle that extends to the full height of the insulation in every bay or a tabbed baffle in each bay with a soffit vent that prevents wind washing in adjacent bays). [8, 9]				
2.1 Dropped ceilings / soffits below unconditioned attics, and all other ceilings.	☐	≤ 50 sq. ft. ☐	☐ 📷	☐
Walls: At exterior vertical surface of wall insulation in all climate zones; also at interior vertical surface of wall insulation in Climate Zones 4-8. [9, 10]				
2.2 Walls behind showers, tubs, staircases, and fireplaces.	☐	≤ 50 sq. ft. ☐	☐ 📷	☐
2.3 Attic knee walls and skylight shaft walls. [11]	☐	≤ 50 sq. ft. ☐	☐ 📷	☐
2.4 Walls adjoining porch roofs or garages.	☐	≤ 50 sq. ft. ☐	☐ 📷	☐
2.5 Double-walls and all other exterior walls.	☐	≤ 50 sq. ft. ☐	☐	-
Floors: At exterior vertical surface of floor insulation in all climate zones and, if over unconditioned space, also at interior horizontal surface including supports to ensure alignment. Alternatives in Footnotes 13 & 14. [12, 13, 14]				
2.6 Floors above garages, floors above unconditioned basements or crawlspaces, and cantilevered floors.	☐	≤ 50 sq. ft. ☐	☐ 📷	☐
2.7 All other floors adjoining unconditioned space (e.g., rim / band joists at exterior wall or at porch roof).	☐	≤ 50 sq. ft. ☐	☐	☐
3. Reduced Thermal Bridging – Reduced thermal bridging strategies are not mandatory. However, the following details must be accurately assessed per ANSI / RESNET / ICC 301. [15]				
3.1 Insulated ceilings assessed at the attic edge for variance in R-value and install quality.	☐	-	☐	☐
3.2 Insulation assessed beneath attic platforms and walkways for variance in R-value and install quality.	☐	-	☐	☐
3.3 Attic access panels, drop-down stairs, & whole-house fans assessed for insulated covers.	☐	-	☐	☐
3.4 Above-grade walls separating conditioned from unconditioned space assessed for advanced framing.	☐	-	☐	☐
3.5 Slabs on grade assessed for insulation where walls separate conditioned from unconditioned space.	☐	-	☐	☐
4. Air Sealing				
4.1 Rater has verified each air sealing detail below. In addition, the home must meet Item 4.2. Unless otherwise noted below, "sealed" indicates the use of caulk, foam, or equivalent material.				
4.1.1 Ducts, flues, shafts, plumbing, piping, wiring, exhaust fans, & other penetrations to unconditioned space sealed, with blocking / flashing as needed.	☐	≤ 5 penetrations ☐	☐	-
4.1.2 Attic access panels, drop-down stairs, & whole house fans are gasketed (i.e., not caulked) or equipped with covers that are gasketed.	☐	-	☐ 📷	☐
4.1.3 Recessed lighting fixtures adjacent to unconditioned space are ICAT labeled and gasketed.	☐	No Limit ☐	☐	☐
4.1.4 Drywall is sealed to top plate during installation, or from the attic side, at all unconditioned attic / wall interfaces. Drywall adhesive (but not other construction adhesives) is permitted to be used.	☐	No Limit ☐	☐	☐
4.1.5 Rough opening around windows & exterior doors is sealed.	☐	-	☐	-
4.1.6 Walls that separate attached garages from occupiable space are sealed. In addition, an air barrier is installed and sealed at floor cavities aligned with these walls.	☐	-	☐ 📷	☐
4.1.7 Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions are made substantially air-tight with weatherstripping or equivalent gasket.	☐	-	☐	☐
4.1.8 Above-grade sill plates adjacent to conditioned space sealed to foundation or sub-floor.	☐	No Limit ☐	☐	☐
4.1.9 In townhouses and duplexes, for fire-rated area separation walls, gap is sealed between the drywall common wall and the structural framing at all exterior boundaries.	☐	No Limit ☐	☐	☐
4.2 Rater-measured air leakage of Dwelling or Dwelling Unit meets one of the following: [16]				
4.2.1 For all Versions except those noted below: ≤ 4.5 ACH50 For National v3.2 and CA v3.4: ≤ 4.0 ACH50 (see exception in Fn. 17) [17] For National v3.3 and CA v3.5: ≤ 3.5 ACH50 (see exception in Fn. 17) [17]	☐	-	☐ 📷	☐
4.2.2 As an alternative, for a Dwelling with ≤ 1,500 sq. ft. of Conditioned Floor Area, a Townhouse, or an attached Dwelling Unit, air leakage is ≤ 0.30 CFM50 per sq ft. of Dwelling Unit Compartmentalization Boundary area.	☐	-	☐ 📷	☐

OMB Control Number: 2060-0586 Revised 01/15/2025 OMB Control Expiration Date: 01/31/2024 Page 1 of 6 EPA Form Number: 5900-428

Rater Verified[2, 3] ☐ 📷

For each item with a camera icon, capture one representative photo of the strategy installed.

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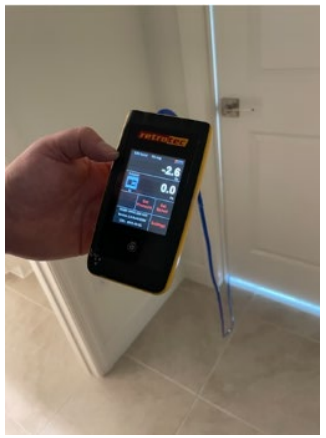

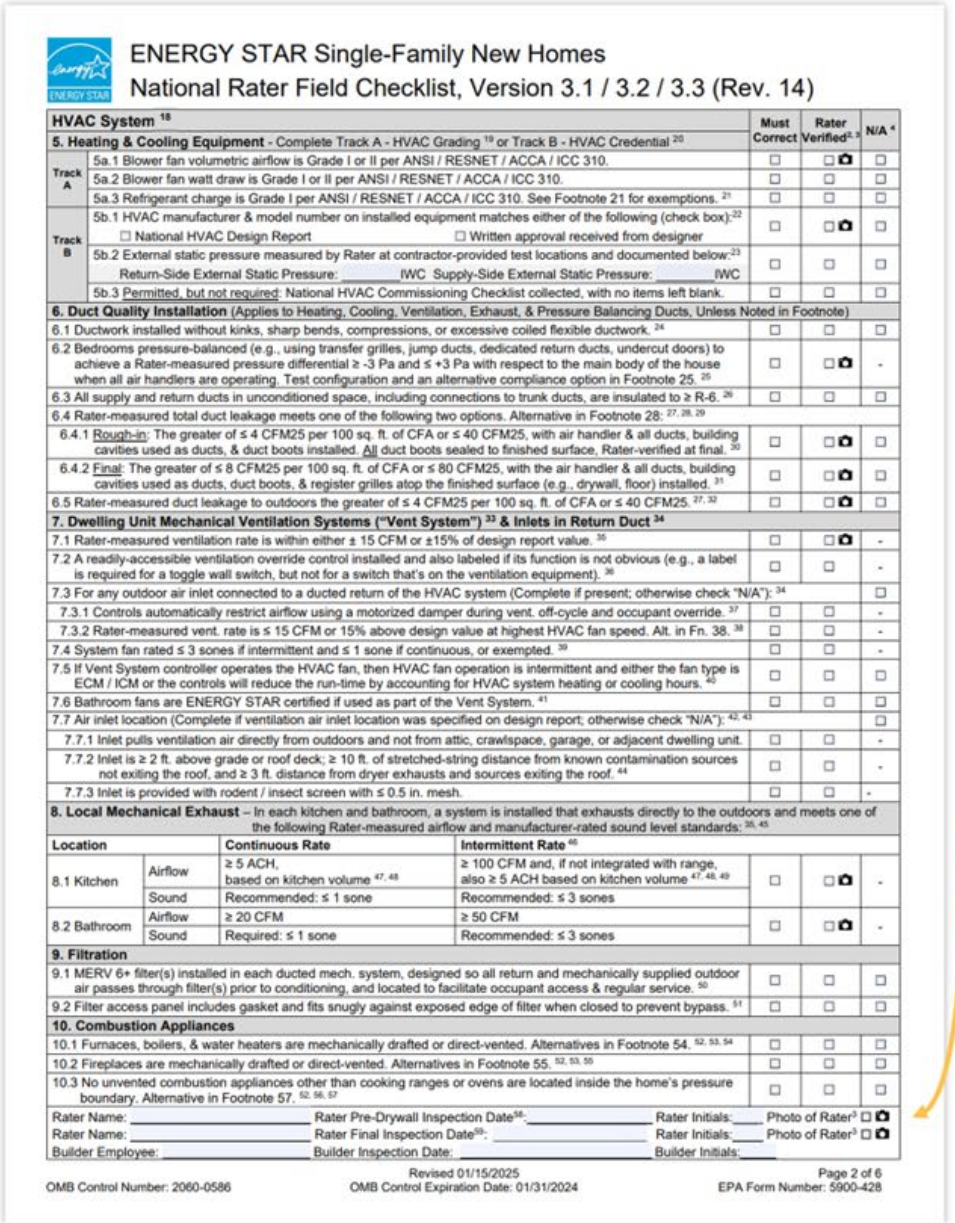

ENERGY STAR Single-Family New Homes
National Rater Field Checklist, Version 3.1 / 3.2 / 3.3 (Rev. 14)

HVAC System [18]				Must Correct	Rater Verified[2, 3]	N/A [4]
5. Heating & Cooling Equipment - Complete Track A - HVAC Grading [19] or Track B - HVAC Credential [20]						
Track A	5a.1 Blower fan volumetric airflow is Grade I or II per ANSI / RESNET / ACCA / ICC 310.			☐	☐ 📷	☐
	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. See Footnote 21 for exemptions. [21]			☐	☐	☐
Track B	5b.1 HVAC manufacturer & model number on installed equipment matches either of the following (check box):[22] ☐ National HVAC Design Report ☐ Written approval received from designer			☐	☐ 📷	☐
	5b.2 External static pressure measured by Rater at contractor-provided test locations and documented below:[23] Return-Side External Static Pressure: _____ IWC Supply-Side External Static Pressure: _____ IWC			☐	☐	☐
	5b.3 Permitted, but not required: National HVAC Commissioning Checklist collected, with no items left blank.			☐	☐	☐
6. Duct Quality Installation (Applies to Heating, Cooling, Ventilation, Exhaust, & Pressure Balancing Ducts, Unless Noted in Footnote)						
6.1 Ductwork installed without kinks, sharp bends, compressions, or excessive coiled flexible ductwork. [24]				☐	☐	☐
6.2 Bedrooms pressure-balanced (e.g., using transfer grilles, jump ducts, dedicated return ducts, undercut doors) to achieve a Rater-measured pressure differential ≥ -3 Pa and ≤ +3 Pa with respect to the main body of the house when all air handlers are operating. Test configuration and an alternative compliance option in Footnote 25. [25]				☐	☐ 📷	-
6.3 All supply and return ducts in unconditioned space, including connections to trunk ducts, are insulated to ≥ R-6. [26]				☐	☐	☐
6.4 Rater-measured total duct leakage meets one of the following two options. Alternative in Footnote 28: [27, 28, 29]						
6.4.1 Rough-in: The greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM25, with air handler & all ducts, building cavities used as ducts, & duct boots installed. All duct boots sealed to finished surface, Rater-verified at final. [30]				☐	☐ 📷	☐
6.4.2 Final: The greater of ≤ 8 CFM25 per 100 sq. ft. of CFA or ≤ 80 CFM25, with the air handler & all ducts, building cavities used as ducts, duct boots, & register grilles atop the finished surface (e.g., drywall, floor) installed. [31]				☐	☐ 📷	☐
6.5 Rater-measured duct leakage to outdoors the greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM25. [27, 32]				☐	☐ 📷	☐
7. Dwelling Unit Mechanical Ventilation Systems ("Vent System") [33] & Inlets in Return Duct [34]						
7.1 Rater-measured ventilation rate is within either ± 15 CFM or ±15% of design report value. [35]				☐	☐ 📷	-
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). [36]				☐	☐	-
7.3 For any outdoor air inlet connected to a ducted return of the HVAC system (Complete if present; otherwise check "N/A"): [34]						☐
7.3.1 Controls automatically restrict airflow using a motorized damper during vent. off-cycle and occupant override. [37]				☐	☐	-
7.3.2 Rater-measured vent. rate is ≤ 15 CFM or 15% above design value at highest HVAC fan speed. Alt. in Fn. 38. [38]				☐	☐	-
7.4 System fan rated ≤ 3 sones if intermittent and ≤ 1 sone if continuous, or exempted. [39]				☐	☐	-
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. [40]				☐	☐	☐
7.6 Bathroom fans are ENERGY STAR certified if used as part of the Vent System. [41]				☐	☐	☐
7.7 Air inlet location (Complete if ventilation air inlet location was specified on design report; otherwise check "N/A"): [42, 43]						☐
7.7.1 Inlet pulls ventilation air directly from outdoors and 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. [44]				☐	☐	-
7.7.3 Inlet is provided with rodent / insect screen with ≤ 0.5 in. mesh.				☐	☐	-
8. Local Mechanical Exhaust – In each kitchen and bathroom, a system is installed that exhausts directly to the outdoors and meets one of the following Rater-measured airflow and manufacturer-rated sound level standards: [35, 45]						
Location		**Continuous Rate**	**Intermittent Rate [46]**			
8.1 Kitchen	Airflow	≥ 5 ACH, based on kitchen volume [47, 48]	≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume [47, 48, 49]	☐	☐ 📷	-
	Sound	Recommended: ≤ 1 sone	Recommended: ≤ 3 sones			
8.2 Bathroom	Airflow	≥ 20 CFM	≥ 50 CFM	☐	☐ 📷	-
	Sound	Required: ≤ 1 sone	Recommended: ≤ 3 sones			
9. Filtration						
9.1 MERV 6+ filter(s) installed in each ducted mech. system, designed so all return and mechanically supplied outdoor air passes through filter(s) prior to conditioning, and located to facilitate occupant access & regular service. [50]				☐	☐	☐
9.2 Filter access panel includes gasket and fits snugly against exposed edge of filter when closed to prevent bypass. [51]				☐	☐	☐
10. Combustion Appliances						
10.1 Furnaces, boilers, & water heaters are mechanically drafted or direct-vented. Alternatives in Footnote 54. [52, 53, 54]				☐	☐	☐
10.2 Fireplaces are mechanically drafted or direct-vented. Alternatives in Footnote 55. [52, 53, 55]				☐	☐	☐
10.3 No unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary. Alternative in Footnote 57. [52, 56, 57]				☐	☐	☐

Rater Name: _____ Rater Pre-Drywall Inspection Date[58]: _____ Rater Initials: ____ Photo of Rater[3] ☐ 📷
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ENERGY STAR Single-Family New Homes
National Rater Field Checklist, Version 3.1 / 3.2 / 3.3 (Rev. 14)

HVAC System [18]			Must Correct	Rater Verified[2, 3]	N/A [4]
5. Heating & Cooling Equipment - Complete Track A - HVAC Grading [19] or Track B - HVAC Credential [20]					
Track A	5a.1 Blower fan volumetric airflow is Grade I or II per ANSI / RESNET / ACCA / ICC 310.		☐	☐ 📷	☐
	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. See Footnote 21 for exemptions. [21]		☐	☐	☐
Track B	5b.1 HVAC manufacturer & model number on installed equipment matches either of the following (check box):[22] ☐ National HVAC Design Report ☐ Written approval received from designer		☐	☐ 📷	☐
	5b.2 External static pressure measured by Rater at contractor-provided test locations and documented below:[23] Return-Side External Static Pressure: _____ IWC Supply-Side External Static Pressure: _____ IWC		☐	☐	☐
	5b.3 Permitted, but not required: National HVAC Commissioning Checklist collected, with no items left blank.		☐	☐	☐
6. Duct Quality Installation (Applies to Heating, Cooling, Ventilation, Exhaust, & Pressure Balancing Ducts, Unless Noted in Footnote)					
6.1 Ductwork installed without kinks, sharp bends, compressions, or excessive coiled flexible ductwork. [24]			☐	☐	☐
6.2 Bedrooms pressure-balanced (e.g., using transfer grilles, jump ducts, dedicated return ducts, undercut doors) to achieve a Rater-measured pressure differential ≥ -3 Pa and ≤ +3 Pa with respect to the main body of the house when all air handlers are operating. Test configuration and an alternative compliance option in Footnote 25. [25]			☐	☐ 📷	-
6.3 All supply and return ducts in unconditioned space, including connections to trunk ducts, are insulated to ≥ R-6. [26]			☐	☐	☐
6.4 Rater-measured total duct leakage meets one of the following two options. Alternative in Footnote 28: [27, 28, 29]					
6.4.1 Rough-in: The greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM25, with air handler & all ducts, building cavities used as ducts, & duct boots installed. All duct boots sealed to finished surface, Rater-verified at final. [30]			☐	☐ 📷	☐
6.4.2 Final: The greater of ≤ 8 CFM25 per 100 sq. ft. of CFA or ≤ 80 CFM25, with the air handler & all ducts, building cavities used as ducts, duct boots, & register grilles atop the finished surface (e.g., drywall, floor) installed. [31]			☐	☐ 📷	☐
6.5 Rater-measured duct leakage to outdoors the greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM25. [27, 32]			☐	☐ 📷	☐
7. Dwelling Unit Mechanical Ventilation Systems ("Vent System") [33] & Inlets in Return Duct [34]					
7.1 Rater-measured ventilation rate is within either ± 15 CFM or ±15% of design report value. [35]			☐	☐ 📷	-
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). [36]			☐	☐	-
7.3 For any outdoor air inlet connected to a ducted return of the HVAC system (Complete if present; otherwise check "N/A"): [34]					☐
7.3.1 Controls automatically restrict airflow using a motorized damper during vent. off-cycle and occupant override. [37]			☐	☐	-
7.3.2 Rater-measured vent. rate is ≤ 15 CFM or 15% above design value at highest HVAC fan speed. Alt. in Fn. 38. [38]			☐	☐	-
7.4 System fan rated ≤ 3 sones if intermittent and ≤ 1 sone if continuous, or exempted. [39]			☐	☐	-
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. [40]			☐	☐	☐
7.6 Bathroom fans are ENERGY STAR certified if used as part of the Vent System. [41]			☐	☐	☐
7.7 Air inlet location (Complete if ventilation air inlet location was specified on design report; otherwise check "N/A"): [42, 43]					☐
7.7.1 Inlet pulls ventilation air directly from outdoors and 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. [44]			☐	☐	-
7.7.3 Inlet is provided with rodent / insect screen with ≤ 0.5 in. mesh.			☐	☐	-
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Beyond 2025: Where Do We Go From Here?

- ZERH and IAP QAQC Implementation
- Increasing Field Presence by RESNET QA Team
- QA for IECC Program
- All QA Reviews Tracked in App or API, summarized in RESNET QA Data Tool (Kibana)
- Multifamily QA Proposal?
- Photo collection for all ratings?
- File Completion Checks Automated?
- AI and Machine Learning- Photo Recognition, Logic Checks, etc
    - Model Numbers Read By Machine
    - Manometer Values Read and Compared to Model

What are your ideas?

Quality Assurance of Samplied Ratings

Expect a short amendment to reconcile method to calculate file QA review requirements (cannot use sample sets)

Note: Addendum 46 Mandatory Compliance Date is 7/01/2025

THANK YOU

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