ENERGY STAR Residential New Construction Programs:
The Year in Review/The Year Ahead

October 28, 2020

Single Family Homes  Multifamily Homes  Manufactured Homes
Much like art, masterpieces take time…

HVAC QI  One Multifamily  RaterPRO
Partners By Organization Type

- Over 3,000 active Builder and Developer Partners
- Over 400 active Energy Rating Companies
- 88 Program Sponsor Partners
# Top 25 Builders, 2020

<table>
<thead>
<tr>
<th>RANK</th>
<th>ACTIVE ENERGY STAR PARTNER?</th>
<th>COMPANY</th>
<th>2019 TOTAL CLOSINGS</th>
<th>2019 GROSS REVENUE (In Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>D.R. Horton</td>
<td>58,434</td>
<td>$17,378</td>
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<tr>
<td>2</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Lennar Corp.</td>
<td>51,491</td>
<td>$20,560</td>
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<tr>
<td>3</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>PulteGroup</td>
<td>23,232</td>
<td>$9,916</td>
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<td>4</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>NVR</td>
<td>19,668</td>
<td>$7,221</td>
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<tr>
<td>5</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>KB Home</td>
<td>11,871</td>
<td>$4,538</td>
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<tr>
<td>6</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Taylor Morrison</td>
<td>9,964</td>
<td>$4,623</td>
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<tr>
<td>7</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Meritage Homes</td>
<td>9,267</td>
<td>$3,605</td>
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<td>8</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Toll Brothers</td>
<td>8,107</td>
<td>$7,224</td>
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<tr>
<td>9</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Century Communities</td>
<td>8,000</td>
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<tr>
<td>10</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>LGI Homes</td>
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<td>$1,838</td>
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<td>11</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Clayton Properties</td>
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<td>12</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>M.D.C Holdings</td>
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<td>$3,205</td>
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<td>13</td>
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<td>M/I Homes</td>
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<td>$2,420</td>
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<td>14</td>
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<td>Hovnanian Enterprises</td>
<td>5,713</td>
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<td>Beazer Homes</td>
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<td>16</td>
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<td>TRI Pointe Group</td>
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<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>David Weekley Homes</td>
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<td>18</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Ashton Woods Homes</td>
<td>4,763</td>
<td>$1,780</td>
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<td>19</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>William Lyon Homes</td>
<td>4,051</td>
<td>N/A</td>
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<td>20</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Habitat for Humanity International</td>
<td>3,841</td>
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<td>21</td>
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<td>Mattamy Homes</td>
<td>3,624</td>
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<td>22</td>
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<td>Shea Homes</td>
<td>3,478</td>
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<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Highland Homes</td>
<td>3,261</td>
<td>$1,323</td>
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<td>24</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Perry Homes</td>
<td>3,046</td>
<td>$1,212</td>
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<tr>
<td>25</td>
<td><img src="logo.png" alt="Energy Star Partner" /></td>
<td>Dan Ryan Builders</td>
<td>2,443</td>
<td>$798</td>
</tr>
</tbody>
</table>
Growth in ENERGY STAR Certified Manufactured Housing

- 2008: 0
- 2009: 0
- 2010: 5,000
- 2011: 5,000
- 2012: 3,000
- 2013: 7,000
- 2014: 8,000
- 2015: 7,000
- 2016: 10,000
- 2017: 4,000
- 2018: 5,000
- 2019: 5,000
- 2020: 29,000

ENERGY STAR. The simple choice for energy efficiency.
Dean Gamble

Technical Manager,
ENERGY STAR Certified Homes
HVAC Grading
ANSI / RESNET / ACCA Std. 310:
Standard for Grading the Installation of HVAC Systems

1. Design Review
   - Tolerances Not Met
   - Tolerances Met

2. Total Duct Leakage
   - Grade I or II

3. Blower Fan Airflow
   - Grade I or II
   - Flow Grid
   - Pressure Matching
   - Flow Hood
   - Static Press. Table

4. Blower Fan Watt Draw
   - Grade I or II
   - Plug-In Watt Meter
   - Clamp-On Watt Meter
   - House Utility Meter

5. Refrigerant Charge
   - Grade III
   - Non-Invasive Temp.
   - Weigh-In Verification

Grade III

Grade I

- **What is this?** Defines how the Rater completes the design review, field tests, and designates the grade.

- View standard at: [https://www.resnet.us/about/standards/resnet-ansi/](https://www.resnet.us/about/standards/resnet-ansi/)

✅ **Status:** Complete!
2. RESNET Training & Evaluation

• **What is this?** Trains and evaluates Raters and RFI’s on new requirements in Std. 310, prior to use.

✓ **Status:** Complete and available for Raters today!
3. Standard 301: Energy Ratings Update

• **What is this?** Integrates Std. 310 into the overall rating process; updates definitions, calculations, minimum rated features, and on-site inspection protocols.

✔️ **Status:** Complete!

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ANSI/RESNET/ICC 301-2019 Addendum B-2020

Clarifications, HVAC Quality Installation Grading, and Dehumidification
4. Rating software updates

• **What is this?** Rating software vendors must add the inputs and calculations to support Std 310.

• **Status:** Underway.
5. Std. 310 HVAC Design Report Template

- **What is this?** Create new Std. 310 HVAC design report and integrate into Wrightsoft, RHVAC, and EnergyGauge.

- **Status:** Underway.
HVAC Grading: What you can do today

1. Review Standard 310.
2. Complete Rater training.

4. Tell your rating software and HVAC design software vendors that you’re looking forward to them adding Standard 310.
HVAC Grading: Integration into ENERGY STAR

Track A: HVAC Grading

Track B: HVAC Credential
HVAC Grading: Benefits

• Potential to earn new HERS / ERI points; meet the tax credit for more homes.
• Burden of finding a credentialed contractor is removed.
• HVAC installing contractor no longer has to complete paperwork.
• More effective feedback loop is created.
  – Contractor is responsible for proper installation
  – Rater uses standard procedures to assess for the rating
  – Proper installations rewarded / improper installations can be corrected
Training & Recruitment Resources
HVAC Grading Factsheets

• Highlights of HVAC grading for:
  • Builders
  • Raters
  • HVAC Designers
  • HVAC Contractors

ENERGY STAR® Certified Homes
HVAC Grading for Builders

Overview
An exciting new option for meeting ENERGY STAR HVAC design and commissioning requirements is here. This new option, called “Track B – HVAC Grading”, leverages the new ANSI / ASHRAE / ACHRA Standard 310 for grading the installation of HVAC systems. Standard 310 integrates an HVAC design review and four sequential field tasks into a standard energy rating. Properly installed HVAC systems are rewarded with new ERH and HER points.

The Five Key Sequential Tasks in Standard 310

- Task 1: Design Review
- Task 2: Total Duct Leakage
- Task 3: Blower Fan Airflow
- Task 4: Blower Fan Water Drain
- Task 5: Refrigerant Charge

This new option can be used, but is not required. Partners can continue to follow the original design and commissioning requirements if desired, which have been rebranded “Track A – HVAC Grading”. However, for homes using the new option, stepping up from an ERH or HER Index rating to ENERGY STAR certification will be easier than ever.

FAQs

ENERGY STAR Timeline: When can I start using it? When do I have to use it?
The “Track B – HVAC Grading” option became available for use in late 2020. It has not yet been approved and there will be no requirements

This partner can continue using the original requirements, rebranded “Track B – HVAC Grading”, as of April 2021. Partners will not be forced to use this new option. (However, some states and other organizations have recommended to use this new option as of April 2021. Partners will not be forced to use it.)

Use this option if:
- You have a new option for assessing the quality of your HVAC system, design and commissioning requirements include a Task B – HVAC Grading. This new option, called “Track B – HVAC Grading”, leverages the new ANSI / ASHRAE / ACHRA Standard 310 for grading the installation of HVAC systems. Standard 310 integrates an HVAC design review and four sequential field tasks into a standard energy rating. Properly installed HVAC systems are rewarded with new ERH and HER points.
- Partners can continue to follow the original design and commissioning requirements if desired, which have been rebranded “Track A – HVAC Grading”. However, for homes using the new option, stepping up from an ERH or HER Index rating to ENERGY STAR certification will be easier than ever.

Use this option if:
- You have a new option for assessing the quality of your HVAC system, design and commissioning requirements include a Task B – HVAC Grading. This new option, called “Track B – HVAC Grading”, leverages the new ANSI / ASHRAE / ACHRA Standard 310 for grading the installation of HVAC systems. Standard 310 integrates an HVAC design review and four sequential field tasks into a standard energy rating. Properly installed HVAC systems are rewarded with new ERH and HER points.
- Partners can continue to follow the original design and commissioning requirements if desired, which have been rebranded “Track A – HVAC Grading”. However, for homes using the new option, stepping up from an ERH or HER Index rating to ENERGY STAR certification will be easier than ever.

Use this option if:
- You have a new option for assessing the quality of your HVAC system, design and commissioning requirements include a Task B – HVAC Grading. This new option, called “Track B – HVAC Grading”, leverages the new ANSI / ASHRAE / ACHRA Standard 310 for grading the installation of HVAC systems. Standard 310 integrates an HVAC design review and four sequential field tasks into a standard energy rating. Properly installed HVAC systems are rewarded with new ERH and HER points.
- Partners can continue to follow the original design and commissioning requirements if desired, which have been rebranded “Track A – HVAC Grading”. However, for homes using the new option, stepping up from an ERH or HER Index rating to ENERGY STAR certification will be easier than ever.
ENERGY STAR + HVAC Grading

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency Feature</td>
<td>• Energy rating with features locked in</td>
</tr>
<tr>
<td>Comfort Features</td>
<td>• Complete thermal enclosure system</td>
</tr>
<tr>
<td></td>
<td>• Bedroom comfort vents</td>
</tr>
<tr>
<td>Air Quality Features</td>
<td>• Whole-house fresh air system</td>
</tr>
<tr>
<td></td>
<td>• Kitchen and bath fans that work well</td>
</tr>
<tr>
<td></td>
<td>• MERV 6+ filter, properly installed</td>
</tr>
<tr>
<td></td>
<td>• Combustion safety</td>
</tr>
<tr>
<td>Durability Feature</td>
<td>• Complete water management system</td>
</tr>
</tbody>
</table>

• Webinars and ‘sell sheets’ will help reintroduce the ENERGY STAR program in a world with HVAC grading.
“While you Were Away” Training Materials

• Partners who disengaged with the launch of Version 3 may not be aware that:
  • Rater tasks have been reduced by 1/3 through the Revision process
  • Paperwork collection has been reduced to the one-page HVAC design report
  • HVAC grading will further streamline certification
• These optional training materials will reacquaint builders and Raters with the current program requirements and highlight the changes since 2011.
Program Requirements
Revision 11

• Coming in November!

• Key change to note:

  **ENERGY STAR Single-Family New Homes Program**

  • For projects permitted on or after July 1, 2021, program eligibility for SFNH becomes:
    • Dwellings (e.g. single-family homes, duplexes)
    • Townhouses
  
  • All other multifamily projects certified using Multifamily New Construction Program.

  • Rev. 11 will also clarify several aspects of the ventilation requirements and contain additional minor clarifications and refinements.

  • Attend webinar on Revision 11 on Thursday, November 12th to learn more.
Current Implementation of Program Requirements

- **28** National Version 3 in effect
- **15** National Version 3.1 in effect
- **2** National Version 3.1 date defined
- **5** Regional Version in effect
National Program Version Updates

- **New** states implementing National Version 3.1:
  - Pennsylvania implementation date: 04/01/2021
  - Nebraska implementation date: 07/01/2021
Development of National v3.2

• 2021 IECC ~10% more stringent.
• Other states advancing with custom codes.
• As a result, developing National v3.2:
  • For use in states with aggressive codes.
  • Can be incentivized for early adoption.

Based on data from ACEEE & PNNL
Regional Specs

• New Caribbean program requirements, for use in Puerto Rico and US Virgin Islands:
• The prior “Tropics” program requirements have been rebranded for the “Pacific” and can still be used in Hawaii, Guam, and the Northern Mariana Islands.
• In the year ahead, we’ll be revisiting the program requirements for Hawaii.
• And finally, we’re hard at work on CA v3.3 program requirements.
Thinking Beyond Efficiency

- Renewables
- Grid-Responsive
- Efficiency
- EV-Charging
- Electrification
Rebecca Hudson
Multifamily New Construction Manager
Multifamily New Construction – Program Overview
Multifamily New Construction – Program Overview

• Builds off success in single-family
• Adapts to multifamily
  • Flexible
  • Comprehensive
  • Streamlined
Multifamily New Construction – Key Dates

• Transition Extension
  • Originally January 1, 2021
  • Moved to July 1, 2021
ENERGY STAR Residential New Construction Programs: Present

SFNH

MFHR

MFNC
ENERGY STAR Residential New Construction Programs: Future*

- **SFNH**: (permit before 7/1/2021)
- **MFHR**: (permit before 7/1/2021 + application before 1/1/2021)
- **MFNC**: *(As of July 1, 2021)*
Multifamily New Construction – Key Dates

• ERI Path Availability for 6+ stories
  • ANSI 301-2019 allows for ERI Ratings of dwelling units in buildings over 5 stories
  • ERI Path is available once software updates to ANSI 301-2019 (anticipated by end of 2020) and includes MFNC Reference Design
Multifamily New Construction - Transition Resources

• Comparison of SFNH to MFNC
• Comparison of MFHR to MFNC
• MFNC Certification Process Webpage
• Technical Bulletins on Key Components
  • How to Get Your ENERGY STAR Multifamily New Construction Project Team Ready (Aug 2020)
  • MFNC Certification Process (coming soon)
• Recorded MFNC Webinars
Multifamily New Construction – Revision 02

- Rev. 02 – flexibility and new options for you!
Multifamily New Construction – Revision 02 Highlights

Additional Flexibility, Alignment with Single-Family, Clarifications, and Streamlining

Attend webinar on Revision 02 this Friday, October 30th to learn more.

Performance Target
• ASHRAE Path performance target options
• Reference Design adjustments

Envelope
• Clarifications on thermal bridging
Multifamily New Construction – Revision 02 Highlights

HVAC Systems

• Allowance for HVAC Grading for residential systems in common spaces
• Allowance to use Single-Family HVAC Design Report for dwelling units
• HVAC Functional Testing (FT) Sampling Protocols
• FT Agent may now be a Licensed Professional Engineer (Mechanical Engineer)
• Clarifications and streamlining functional tests and inspections

Required for projects with permits or permit applications on or after July 1, 2021
Multifamily New Construction – Revision 02 Highlights

Caribbean MFNC Program Requirements

- Built off Single-Family New Homes Caribbean Req’ts
- Expands to common spaces
- Adds flexibility
Multifamily New Construction – The Year Ahead

Supporting our Partners

- Technical Resources:
  - Functional Testing Checklist webinars and training
  - Guidance on ANSI / RESNET / ACCA Std. 310 HVAC Grading and Multifamily
  - Video(s) of MF-specific test(s)
  - Multifamily Workbook Webinar

- Specification:
  - Align with Single-Family response to new codes and general updates
  - Continued clarifications and streamlining updates expected in Rev. 03 (next fall)
  - Reference design analysis post-ANSI 301-2019
Multifamily New Construction – Marketing Options

Multifamily Building Locator

Click on a location within the map to see more information, including a link to the building's profile (where available). Designed to Earn the ENERGY STAR designates buildings under construction where the design has met the ENERGY STAR requirements, but post-construction verification is still required for apartments to earn ENERGY STAR certification.

If you are experiencing issues with the interactive features of the map or tables below, try opening the map in a new tab by clicking here.

EPA
ENERGY STAR. The simple choice for energy efficiency.
Multifamily New Construction – Marketing Options

Unit Labeling (required)

Building Labeling (optional)
Multifamily New Construction – Marketing Options

Unit Certificate (required)

Building Certificate (optional)

Gamble Towers on 10/5/2020

Built by: Hudson LLC Verified by: Pasco Projects Oversight by: Residential Energy Services Network
Multifamily New Construction – Action Items

- Visit [MFNC website](#)
- Complete Rater Training
  - Rater must have MFNC training to certify projects
  - Rater Test recently updated based on Partner feedback
- Design to MFNC
  - All multifamily goes through MFNC starting July 1, 2021
- Attend MFNC webinars
  - Section 5 of the HVAC Functional Testing Checklist
  - Multifamily Workbook
Elliot Seibert
Implementation Manager
Version 1.0
Free and Available Now!

- Completely free, and available for all Rater and Providers
- Available for both Apple and Android Devices
- Compatible with REM/Rate and Ekotrope, with EnergyGauge coming soon
RaterPRO Stats

- Released August 2019
- 55 rater and provider companies
- Over 700 real-world jobs
Demo
Open Source Update

- Available now as a free open-source project on Github
- Many back-end infrastructure, frameworks, and documentation improvements since last year

Phase 2: Free-to-Fork

- EPA will continue to own and operate ‘RaterPRO’
- Version 1.0 source code released under MIT License
  - 3rd parties can fork versions on their own servers
  - Can sell modified version as commercial product
  - Must re-brand (can’t use the name “RaterPRO”)
- Limited EPA support resources
• Available to all raters and providers
• Completely **free**
• Open-Source
• Phone version coming soon

Join Today!

Visit: [www.raterpro.net](http://www.raterpro.net)
Email: energystarhomes@energystar.gov
New QA Checklist
Pilot QA Checklist released in August

1. Comprehensive.

2. Clarifies which pieces of documentation should be collected (at minimum).

3. Separation of file review and field review tasks.
New QA Checklist

• Pilot released in August and available for optional use today at: https://www.energystar.gov/partner_resources/residential_new/certification_review

• Standard checklist will use new format starting with Revision 11.

• Implementation timeline:
  – Transitioning from calendar year (2018, 2019, etc.) to Revision schedule
  – QADs must use Rev. 11 QA Checklist on any Rev. 11-rated homes.
  – QA Checklist is backwards compatible and can be used immediately.
Home Certification Organization (HCOs)

• Comprehensive update began in 2018, and included several rounds of stakeholder feedback
• Changes reflect an expanded focus on the entire home certification process, rather than just verification oversight
• Eligibility expansion to allow for-profit applicants
• Increases consistency with ES Products and other EPA home labeling programs
• Final revised HCO application released in May 2020
New Home Online Submittal Tools (HOST)

- New reporting process will use an application programming interface (API) to transmit specific data directly from the RESNET Registry
- Providers will perform data quality/matching to org names in ES database
- Reduces manual data entry and improves data quality
- Increases consistency with RESNET Registry
- Launches for Quarter 4, 2020 reporting season, opening in January 2021
New ENERGY STAR Subscription Center

• New online tool for you to manage your ENERGY STAR mailing preferences
• The Subscription Center allows you to sign up for emails across all ENERGY STAR program areas
• Customize your mailings based on your specific interests, including single family, multifamily, and manufactured homes
  – Plus access to other ES program areas (windows, HVAC, smart thermostats, etc.)
Marketing/Messaging and Website Update

- Refreshed consumer messaging
- New consumer-focused tools, tactics, and creative
- Updated website UX

All coming in early 2021!
Welcome to the team,

Asa Foss

foss.asa@epa.gov
Upcoming Partner Meeting Webinar Series Sessions

- **ES Multifamily New Construction Revision 02** | Rebecca Hudson, EPA | Friday, October 30, 2020 at 1:00pm ET
- **HVAC Grading and Standard 310** | Dean Gamble, EPA | Thursday, November 5, 2020 at 1:00pm
- **Indoor airPLUS Version 2** | Nick Hurst, EPA | Tuesday, November 10, 2020 at 1:00pm ET
- **ES Certified Homes Revision 11** | Dean Gamble and Elliot Seibert, EPA | Thursday, November 12, 2020 at 1:00pm ET
- **ES Marketing Materials & Communications** | Marta Montoro, EPA | Tuesday, November 17, 2020 at 1:00pm ET
- **WaterSense Labeled Homes Version 2.0** | Jonah Schein, EPA | Thursday, November 19, 2020 at 1:00pm ET