Getting Started with ENERGY STAR Multifamily New Construction

Rebecca Hudson
EPA
Agenda

• Overview of ENERGY STAR
• Key Program Components
• Benefits of ENERGY STAR
• How to Get Started
Overview of ENERGY STAR Program
For more than 25 years, EPA’s ENERGY STAR program has identified the most energy efficient products, buildings, plants, and new homes – all based on the latest government-backed standards and a rigorous third-party certification process.
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in:
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in:

70 Product Categories
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in:

Buildings and Plants Across 24 Industries
ENERGY STAR. The simple choice for energy efficiency.

Today, this little blue label does all the hard work of certifying outstanding energy efficiency in:

NEW HOMES Across the Nation
More than 6,400,000 website visitors each year
Awareness now exceeds 85% and preference is growing.
Every single day, consumers choose ENERGY STAR products more than 800,000 times.
16,000 businesses and public sector organizations partner with ENERGY STAR
More than 23,000 buildings and plants have earned the label
2 MILLION
Consumers are primed for ENERGY STAR

NAHB Survey of What Homebuyers Really Want (2021)

- ENERGY STAR is the only green home certification program known to a majority of buyers (73%), and fewer than 30% are aware of any of the other nine programs in the survey.
- Looking at just green features, the top 5 most wanted are ENERGY STAR windows, ENERGY STAR appliances, efficient lighting, ENERGY STAR rating for whole home/apartment, and triple pane insulating glass windows – all essential or desirable to over 70% of all buyers.
Key Components of ENERGY STAR Multifamily New Construction
Three Key Components to ENERGY STAR Multifamily New Construction

Efficiency Target

Performance target at least 10% more stringent than code

Mandatory Features

To ensure efficiency does not come at the expense of comfort, quality, or durability.

Quality Assurance

Independent verification to ensure requirements to provide improved energy performance are met.
ENERGY STAR Multifamily New Construction

Efficiency Target

- Energy Rating Index (ERI) Path
- ASHRAE Path
- Prescriptive Path
FAQ: How to get 10% savings above code for each State?
Answer: ENERGY STAR Efficiency Targets vary by State
“Version 1”: Efficiency Target for ~2009 IECC States
“Version 1.1”: Efficiency Target for ~2012-2018 IECC States
“Version 1.2”: Efficiency Target for > 2018 IECC States
ENERGY STAR Multifamily New Construction

Mandatory Features

- Thermal Enclosure System
- HVAC & Other Systems
- Water Management System
**ENERGY STAR Multifamily New Construction**

**Mandatory Features**

- High-performance insulation, windows, & doors
- Tightly-sealed apartments
- Reduced thermal bridging for improved comfort
Tightly sealed apartments require compartmentalization tests

Blower door test
What we’re avoiding…
What we’re avoiding…

Image Credit: Building Science Corp.

What we’re requiring…
ENERGY STAR Multifamily New Construction

Mandatory Features

HVAC System

- Right-sized heating & cooling, with functional testing
- Efficient hydronic & air distribution systems
- Mechanical ventilation for dwellings & common spaces
- Effective, efficient kitchen, bath, & garage exhaust fans
What we’re avoiding...
What we’re requiring…

Central exhaust duct leakage test
ENERGY STAR Multifamily New Construction

Mandatory Features

- Efficient DHW, with insulated pipes
- Lighting efficiency, density & control requirements
- Benchmarking systems in place (bldgs. > 50,000 ft²)
ENERGY STAR Multifamily New Construction

Mandatory Features

Water Management System

- Water-managed roof
- Water-managed walls
- Water-managed foundation and site
- Water-managed building materials
What we’re avoiding..
ENERGY STAR Multifamily New Construction

Quality Assurance

EPA

Oversight Org.

Energy Rating Companies
Value of ENERGY STAR
Value for Builders and Developers

• Leverage government-backed building science research.
• Construct higher quality, more durable building.
• Greater quality and process control.
• Maximum value for money invested.
• Offset first costs by accessing available incentives.
• First step towards more advanced energy codes or getting to zero.
Value for Owners / Managers

- Lower utility bills and lower cost of operating.
- Reduced complaints for comfort issues.
- Set up for success to meet building performance standards.
Value for Residents

- Lower utility bills and lower cost of operating.
- Better comfort, durability, and quality.
- A more livable unit.
Value for Utilities, Housing Finance Agencies, Program Sponsors

Fully supported national program for all multifamily:

• Leverages government-backed building science research.
• Meets strict cost-effectiveness requirements.
• Updates automatically based on code changes.
• Provides technical support.
• Includes verification, oversight, and recognition.
• Serves as the basis for other green building programs.
Starting point to increase energy efficiency….
Starting point to increase sustainability…. 
Starting point for other Green Building Programs…

- Enterprise green communities®
- Passive House Institute US
- LEED® FOR HOMES
- Home Innovation Research Labs

EPA | ENERGY STAR. The simple choice for energy efficiency.
Incentives For ENERGY STAR Homes and Apartments
Incentives for ENERGY STAR

• Financing
  – HUD Mortgage Insurance Premium (MIP)
  – Fannie Mae / Freddie Mac
  – Low-income housing tax credits (LIHTC) are often only accessible to high-performing buildings. Qualified Allocation Plans (QAP) often require/reference ENERGY STAR

• Utility
  – Offers $/unit for ENERGY STAR certified multifamily buildings
    • For example, TECO in Tampa, FL, and NYSERDA in NY
  – Nationwide Incentives | About ENERGY STAR | ENERGY STAR
## Incentives in Maryland

<table>
<thead>
<tr>
<th>Sponsoring Organization</th>
<th>Incentive Program Name</th>
<th>Incentive Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltimore Gas and Electric Company (BG&amp;E)</td>
<td>BGE Smart Energy Savers Program</td>
<td>Program provides incentives for meeting ENERGY STAR Version 3.1 and 100% LED lighting. Builders receive $400 for multifamily, $550 for Two over Two condos, $750 for Townhomes, and $1250 for Single Family homes. Additionally, builders receive $75 for ENERGY STAR thermostats, $200 for 16 SEER+ Air Conditioners, $250 for 16 SEER+/10 HSPF+ Heat Pumps, and $500 for 3.0 UEF Heat Pump Water Heaters.</td>
</tr>
<tr>
<td>Delmarva Power (MD)</td>
<td>Delmarva Power’s Energy Saving Programs</td>
<td>Program provides incentives for meeting ENERGY STAR Version 3.1 and 100% LED lighting. Builders receive $400 for multifamily, $550 for Two over Two condos, $750 for Townhomes, and $1250 for Single Family homes. Additionally, builders receive $75 for ENERGY STAR thermostats, $200 for 16 SEER+ Air Conditioners, $250 for 16 SEER+/10 HSPF+ Heat Pumps, and $500 for 3.0 UEF Heat Pump Water Heaters.</td>
</tr>
<tr>
<td>PECO Energy Company</td>
<td>PECO New Home Rebates</td>
<td>Builders who construct Code Plus homes (Energy Rating Index + 20% more efficient than code) are eligible for $0.25 per kWh up to $750, and ENERGY STAR certified homes are eligible for $0.30 per kWh up to $1750. The average incentive is $600.</td>
</tr>
<tr>
<td>Potomac Edison (FirstEnergy)</td>
<td>Potomac Edison’s Energy Saving Programs</td>
<td>Program provides incentives for meeting ENERGY STAR Version 3.1 and 100% LED lighting. Builders receive $400 for multifamily, $550 for Two over Two condos, $750 for Townhomes, and $1250 for Single Family homes. Additionally, builders receive $75 for ENERGY STAR thermostats, $200 for 16 SEER+ Air Conditioners, $250 for 16 SEER+/10 HSPF+ Heat Pumps, and $500 for 3.0 UEF Heat Pump Water Heaters.</td>
</tr>
</tbody>
</table>
Programs Incentivizing ENERGY STAR
QAP References to ENERGY STAR

• North Carolina QAP:
  – “New construction projects must achieve ENERGY STAR Multifamily New Construction Program certification as verified by an independent, third party expert who assists with project design, verifies construction quality, and tests completed units.”

• Virginia QAP:
  – New Construction
    • “Must become Energy Star Certified using appropriate program for development as defined annually by Energy Star”
  – Green Certification options for extra points:
    • EarthCraft Gold, LEED, NGBS Silver or higher, Enterprise Green Communities
    • Zero Energy Ready Home, Passive House (future points)
Incremental cost from code to ENERGY STAR

<table>
<thead>
<tr>
<th>CZ Location</th>
<th>HVAC Equipment Type</th>
<th>Weighted Average Annual Purchased Energy Savings</th>
<th>Weighted Average Total Upgrade Cost</th>
<th>Monthly Purchased Energy Savings</th>
<th>Monthly Mortgage Upgrade Cost</th>
<th>Net Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Miami, FL</td>
<td>Elec. Air-Source HP</td>
<td>$155 17%</td>
<td>$1,687</td>
<td>$13</td>
<td>$9</td>
<td>$4</td>
</tr>
<tr>
<td>1 Miami, FL</td>
<td>Gas Furnace / Elec. AC</td>
<td>$172 19%</td>
<td>$1,910</td>
<td>$14</td>
<td>$10</td>
<td>$4</td>
</tr>
<tr>
<td>2 Tampa, FL</td>
<td>Elec. Air-Source HP</td>
<td>$165 17%</td>
<td>$1,371</td>
<td>$13</td>
<td>$7</td>
<td>$6</td>
</tr>
<tr>
<td>2 Tampa, FL</td>
<td>Gas Furnace / Elec. AC</td>
<td>$168 19%</td>
<td>$1,594</td>
<td>$14</td>
<td>$9</td>
<td>$5</td>
</tr>
<tr>
<td>3 Fort Worth, TX</td>
<td>Elec. Air-Source HP</td>
<td>$162 16%</td>
<td>$814</td>
<td>$13</td>
<td>$4</td>
<td>$9</td>
</tr>
<tr>
<td>3 Fort Worth, TX</td>
<td>Gas Furnace / Elec. AC</td>
<td>$162 17%</td>
<td>$1,037</td>
<td>$14</td>
<td>$6</td>
<td>$8</td>
</tr>
<tr>
<td>4 St. Louis, MO</td>
<td>Elec. Air-Source HP</td>
<td>$182 16%</td>
<td>$884</td>
<td>$15</td>
<td>$5</td>
<td>$10</td>
</tr>
<tr>
<td>4 St. Louis, MO</td>
<td>Gas Furnace / Elec. AC</td>
<td>$178 18%</td>
<td>$1,065</td>
<td>$15</td>
<td>$6</td>
<td>$9</td>
</tr>
<tr>
<td>5 Indianapolis, IN</td>
<td>Elec. Air-Source HP</td>
<td>$202 17%</td>
<td>$1,114</td>
<td>$17</td>
<td>$6</td>
<td>$11</td>
</tr>
<tr>
<td>5 Indianapolis, IN</td>
<td>Gas Furnace / Elec. AC</td>
<td>$186 19%</td>
<td>$1,079</td>
<td>$15</td>
<td>$6</td>
<td>$10</td>
</tr>
<tr>
<td>6 Burlington, VT</td>
<td>Elec. Air-Source HP</td>
<td>$217 17%</td>
<td>$1,159</td>
<td>$18</td>
<td>$6</td>
<td>$12</td>
</tr>
<tr>
<td>6 Burlington, VT</td>
<td>Gas Furnace / Elec. AC</td>
<td>$187 19%</td>
<td>$1,047</td>
<td>$16</td>
<td>$6</td>
<td>$10</td>
</tr>
<tr>
<td>7 Duluth, MN</td>
<td>Gas Furnace / Elec. AC</td>
<td>$214 20%</td>
<td>$1,047</td>
<td>$18</td>
<td>$6</td>
<td>$12</td>
</tr>
</tbody>
</table>
ENERGY STAR Certification Process
ENERGY STAR Residential New Construction Eligibility*

1. Is the building new construction and residential?
   - NO
   - YES

2. Is the building a motel/hotel or senior care community?
   - NO
   - YES
   - ENERGystar Buildings and Plants

3. Does the building have one or two units, or is it a townhome?
   - NO
   - YES
   - ENERGystar Single-Family New Homes
   - ENERGystar Multifamily New Construction

*As of July 1, 2021
ENERGY STAR Residential New Construction Eligibility

Single-Family New Homes

*As of July 1, 2021

MFNC
All participants met participation requirements prior to certifying multifamily buildings.

Complete Design Verification Documents.

Complete Construction Verification Documents.

Rater submits all documentation to an oversight organization.

ENERGY STAR certification label and ENERGY STAR certificate.
ENERGY STAR plaques available for purchase.
How to Get Started
How to Get Started

Find a rater at: www.energystar.gov/partnerlocator
All participants meet participation requirements prior to certifying multifamily buildings.

Rater or ASHRAE modeler completes energy modeling (if applicable)
HVAC system is designed to be properly sized and meet ventilation requirements
Rater reviews design to make sure mandatory measures and the performance target are met

Rater and Functional Testing Agent complete their testing and inspections
Builder/Developer meets the Water Management System requirements

When all requirements are complete, Rater submits documentation to an oversight org.

ENERGY STAR certification label and ENERGY STAR certificate.
ENERGY STAR plaques available for purchase.
How to Get Started

1. Housing Agencies: [https://www.energystar.gov/partner-resources/residential_new/related_programs/housing_agencies/](https://www.energystar.gov/partner-resources/residential_new/related_programs/housing_agencies/)

2. Utilities & Other Program Sponsors: [https://www.energystar.gov/partner-resources/residential_new/working/utilities_other](https://www.energystar.gov/partner-resources/residential_new/working/utilities_other)
ENERGY STAR Multifamily New Construction: Learn More

Website: www.energystar.gov/mfnc

- See program requirements for a selected certification pathway and region.
- View eligibility chart
- Other resources:
  - Webinars (live and recorded)
  - Technical Bulletins
  - Costs & Savings analysis
  - Comparisons with MFHR and ESCH
ENERGY STAR Multifamily New Construction

Web & Email:
Main: energystar.gov/newhomespartners
Technical: www.energystar.gov/mfnc
Email: energystarhomes@energystar.gov

Social Media:
@energystarhomes
facebook.com/energystar

Contact:
Rebecca Hudson
EPA
Technical Manager
ENERGY STAR Multifamily New Construction
Hudson.Rebecca@epa.gov