



National Program Requirements

ENERGY STAR Multifamily New Construction, Version 1 / 1.1 / OR-WA 1.2 (Rev. 024)

Eligibility Requirements

The following multifamily building types are eligible to participate in the ENERGY STAR Multifamily New Construction program:

- Any multifamily building with dwelling or sleeping units that is NOT a two-family dwelling ¹; OR
- Mixed-use buildings, where dwelling units and common space exceed 50% of the building square footage. Parking garage square footage is excluded from this calculation ²; OR
- Townhouses, if following the requirements listed in Footnote 3. ³

Townhouses are also eligible to earn the ENERGY STAR through the ENERGY STAR ~~Certified Single-Family New~~ Homes program, which is a certification program for single-family detached homes and two-family dwellings.¹ For more information, visit: www.energystar.gov/newhomesrequirements. In addition, multifamily buildings with permit dates prior to ~~January–July~~ 1, 2021, may be eligible to earn the ENERGY STAR through the ~~Certified Single-Family New~~ Homes or Multifamily High Rise programs. ⁴ For more information, visit: www.energystar.gov/mfhr/eligibility.

Note that multifamily buildings in California shall follow the California Program Requirements, not these National Program Requirements. Also note that compliance with these requirements is not intended to imply compliance with all local code requirements that may be applicable to the building to be built. ⁵

Partnership, Training, and Credentialing Requirements

The following requirements must be met prior to certifying multifamily buildings:

- The Builder or Developer for the project is required to sign an ENERGY STAR Partnership Agreement and complete the online “Builder / Developer Orientation”, which can be found at www.energystar.gov/homesPA.
- FT Agents must meet one of the following:
 - The HVAC installing contractor AND credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process can be found at www.energystar.gov/eshvac; OR
 - Not the HVAC installing contractor, AND
 - Signed up online in EPA’s online database as an FT Agent and watched the online FT Agent orientation, which can be found at www.energystar.gov/ftas; AND
 - Holds one of the credentials listed online here: www.energystar.gov/ftas or is a representative of the Original Equipment Manufacturer (OEM).
- 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 Raters ⁷ are required to complete EPA-recognized training, which can be found at www.energystar.gov/mftraining.
- Modelers for buildings in the ASHRAE Path must sign up online in EPA’s online database as a Modeler and watch the online Modeler orientation, which can be found at www.energystar.gov/ASHRAEdirectory.

ENERGY STAR Certification Process ⁸

1. The certification process offers three paths to meet the performance target. Each has varying levels of flexibility to select a custom combination of measures for each building:

a. **Prescriptive Path:** The units and common spaces meet or exceed all the prescriptive items in the National Rater Design Review and Field Checklists which align with the minimum requirements set in the ENERGY STAR Multifamily Reference Design, Exhibit 1. As described in Exhibit 3, buildings in states that have adopted the residential 2012, 2015, or 2018 IECC, or an equivalent code will follow Version 1.1 of the Reference Design, buildings in Oregon (OR) and Washington (WA) will follow the OR and WA Version 1.2 of the Reference Design, otherwise buildings will follow Version 1.

b. **ERI Path:** Each unit is equivalent in performance to the minimum requirements of the ENERGY STAR Multifamily Reference Design, Exhibit 1, as assessed through energy modeling, and the common spaces meet or exceed the prescriptive requirements in the National Rater Design Review and Field Checklists which align with the minimum requirements set in Exhibit 1. As described in Exhibit 3, buildings in states that have adopted the residential 2012, 2015, or 2018 IECC, or an equivalent code will follow Version 1.1 of the Reference Design, buildings in OR and WA will follow the OR and WA Version 1.2 of the Reference Design, otherwise buildings will follow Version 1.

An EPA-recognized ~~Verification Oversight Home Certification~~ Organization (HCV~~HO~~O)’s Approved Software Rating Tool shall automatically determine the ENERGY STAR ERI Target, which is the highest ERI value that each rated unit may achieve to earn the ENERGY STAR. ^{9, 10}

Note: The ERI path will be available for buildings that exceed five stories on October 1, 2019. After this date, Raters must use an Approved Software Rating Tool that has been updated to ANSI / RESNET / ICC Std. 301-2019 to use the ERI Path for buildings that exceed five stories.

c. **ASHRAE Path:** The building meets or exceeds the ASHRAE performance target, which is dependent on the commercial state energy code and baseline chosen, as described in Exhibit 4.

Projects must follow the modeling requirements in the ENERGY STAR Multifamily Simulation Guidelines.

Exception: For buildings that are PHIUS+ certified, achieving a specific source energy use of <6,500 kWh/person per year, without renewables, is accepted in lieu of achieving the ASHRAE performance target.

All ENERGY STAR certifications are subject to the oversight of a Multifamily Oversight Organization which include ~~Verification Oversight Organizations (HCV~~HO~~O)s~~ or Multifamily Review Organizations (MROs). All ERI Path projects must be overseen by an



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HCVOO (e.g., **RESNET**) and all ASHRAE and Prescriptive Path projects must be overseen by an MRO. MRO information can be found at www.energystar.gov/mro.

2. Based on the path chosen, select the efficiency measures for the building:
 - a. Prescriptive Path: Meet or exceed the prescriptive requirements specified in the National Rater Design Review and Field Checklists.
 - b. ERI Path: Meet or exceed the prescriptive requirements specified in the National Rater Design Review and Field Checklists for common spaces. Using the same software program specified in Step 1, configure the preferred set of efficiency measures for the unit to be certified and verify that the resulting ERI meets or exceeds the ENERGY STAR ERI Target, as determined in Step 1.
 - c. ASHRAE Path: Meet or exceed the prescriptive requirements specified in the National Rater Design Review and Field Checklists for common spaces. Following the Simulation Guidelines, configure the preferred set of efficiency measures for the building to be certified and verify that the resulting energy ~~cost~~-savings above the ASHRAE Baseline Building meets or exceeds the required performance target per Exhibit 4. ~~The Performance Target is based on the units of energy cost unless specific EPA guidance approves alternate units for use.~~

Exception: For buildings that are PHIUS+ certified and submitting the specific source energy use per person in lieu of meeting the ASHRAE Performance Target, calculations are done in accordance with PHIUS+ modeling protocols.

Note that, regardless of the path chosen or the measures selected, the Mandatory Requirements for All Certified Multifamily Projects in Exhibit 2 are also required and impose certain constraints on the efficiency measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage). Furthermore, on-site power generation may not be used to meet the ENERGY STAR ERI Target or the performance target in the ASHRAE Path.

~~3. Upon completion of design, multifamily buildings may be eligible for the Designed to Earn the ENERGY STAR designation. To earn this optional additional designation, follow the guidance available at www.energystar.gov/mfdees.~~

~~4.3. Upon completion of design, for ASHRAE and Prescriptive Path projects only, specific documentation must be submitted to an MRO for their review and approval. These documents include the Multifamily Workbook, with applicable portions completed; the Rater Design Review Checklist, unless included in the Multifamily Workbook; the HVAC Design Report; construction documents; and for ASHRAE projects, the ASHRAE Path Calculator (APC) and either the modeling file or input and output files. For PHIUS+ certified projects choosing the alternative modeling option in the ASHRAE Path, in lieu of submitting the APC and modeling files, documentation is instead provided that demonstrates achievement of the required source energy per person and pre-certification from PHIUS. For multifamily projects with multiple buildings, each building must demonstrate compliance with the program requirements, but can be documented using one Multifamily Workbook and one HVAC Design Report per project. For ASHRAE Path projects, where buildings are identical, only one set of modeling files and ASHRAE Path Calculator are required to be submitted. At the discretion of the ASHRAE modeler, connected buildings may be modeled as one building or separate buildings. MROs may choose to implement alternative design review requirements. EPA strongly recommends submitting documentation before construction; however, project teams may choose to submit the design documentation with the As-Built Submittal. For the Excel-based ASHRAE Path Calculator and Multifamily Workbook, while Partners are encouraged to always use the newest versions available online, unless otherwise specified, file updates between Program revisions will not be required. After a Program revision, project teams will be required to use the updated documents based on the enforcement timeline set for the revision.~~

~~4. Upon completion of design, multifamily buildings may be eligible for the Designed to Earn the ENERGY STAR designation. To earn this optional additional designation, follow the guidance available at www.energystar.gov/mfdees.~~

5. Construct the building using the measures selected in Step 2 and the Mandatory Requirements for All Certified Multifamily Projects, Exhibit 2.

6. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Multifamily Projects and with the ~~on-site~~ inspection procedures for minimum rated features ~~of an EPA-recognized VOO in ANSI / RESNET / ICC Standard 301, Appendix B.~~⁷

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 (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, the ~~project-building~~ cannot earn the ENERGY STAR until the item is corrected. If correction of the item is not possible, the ~~project-building~~ cannot earn the ENERGY STAR and individual units in the multifamily ~~project-building~~ also cannot be certified. In the event that an item on a National Rater checklist cannot be inspected by the Rater, the ~~project-building~~ also cannot earn the ENERGY STAR. The only exceptions to this rule are in the Thermal Enclosure System Section of the National Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items and the sections ~~of~~ the National Rater Field Checklist where a Licensed Professional may assume responsibility for verifying the specified items. A Licensed Professional must be a Professional Engineer or Registered Architect in good standing and possess a current license. This option shall only be used at the discretion of the Rater. When exercised, the builder's and/or Licensed Professionals' responsibility will be formally acknowledged by the builder and/or Licensed Professional signing the checklist for the item(s) that they verified.

In the event that a Rater is not able to determine whether an item is consistent with the intent (e.g., an alternative method of meeting a checklist requirement has been proposed), then the Rater shall consult their Provider or MRO. If the Provider or MRO also cannot make this determination, then the Rater, Provider, or MRO shall report the issue to EPA prior to project completion at: energystarhomes@energystar.gov and will receive an initial response within 5 business days. If EPA believes the current program requirements are sufficiently clear to determine whether the intent has been met, then this guidance will be provided to the partner and



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enforced beginning with the building in question. In contrast, if EPA believes the program requirements require revisions to make the intent clear, then this guidance will be provided to the partner but only enforced for buildings permitted after a specified transition period after the release of the revised program requirements, typically 60 days in length.

This will allow EPA to make formal policy decisions as partner questions arise and to disseminate these policy decisions through the [Policy Record](#) and the periodic release of revised program documents to ensure consistent application of the program requirements.

7. Upon completion of construction, the Rater is required to keep electronic or hard copies of the completed and signed National Rater checklists, the National HVAC Design Report and, when the FT Agent is not a HVAC Credentialed Contractor, the National HVAC Functional Testing Checklist. Additionally, the following steps are required:
 - a. ERI Path: submit the building / project to the HCO for final certification and follow the HCO's certification and oversight procedures (e.g. quality assurance, recordkeeping, and reporting) register each unit in the building / project with the same EPA-recognized VOO.
 - b. ASHRAE and Prescriptive Path: specific documentation must be submitted based on as-built conditions to an MRO for their review and approval. These documents include the Multifamily Workbook; the Rater Field Checklist, unless included in the Multifamily Workbook; the HVAC Functional Testing Checklists; construction documents; photo documentation; and for ASHRAE projects, the ASHRAE Path Calculator and either the modeling file or input and output files. For PHIUS+ certified projects choosing the alternative modeling option in the ASHRAE Path, in lieu of submitting the APC and modeling files, documentation is instead provided that demonstrates achievement of the required source energy per person and certification from PHIUS. For multifamily projects with multiple buildings, each building must demonstrate compliance with the program requirements, but can be documented using one Multifamily Workbook per project. For ASHRAE Path projects, where buildings are identical, only one set of modeling files and ASHRAE Path Calculator are required to be submitted. At the discretion of the ASHRAE modeler, connected buildings may be modeled as one building or separate buildings.



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Exhibit 1: ENERGY STAR Multifamily Reference Design ¹⁰¹

The ENERGY STAR Multifamily Reference Design is the set of efficiency features modeled to determine the ENERGY STAR ERI Target for each unit pursuing certification. Therefore, while the features below are not mandatory in the units for projects pursuing the ERI Path, if they are not used then other measures will be needed to achieve the ENERGY STAR ERI Target. In addition, note that the Mandatory Requirements for All Certified Multifamily Projects, Exhibit 2, contain additional requirements such as total duct leakage limits, minimum allowed insulation levels, and minimum allowed fenestration performance. Therefore, EPA recommends that partners review the documents in Exhibit 2 prior to selecting measures.

For projects pursuing the Prescriptive Path, the following features are mandatory within the units and, as specified in the National Rater and Field Checklists, in the common spaces. For projects pursuing the ERI Path, the following features are mandatory within the common spaces as specified in the National Rater Design Review and Field Checklists.

This Exhibit is not applicable for projects pursuing the ASHRAE Path.

Common Space Applicability Notes:

When using the Reference Design for common space measures as specified in the National Rater Design Review and Rater Field Checklist, the following notes apply.

- ~~1) Heating and Cooling efficiencies for additional equipment are available in the Exhibit X of the National Rater Field Checklist.~~
- ~~2)1~~ Insulation levels for common spaces in Version 1 and Version 1.1 are not the values shown in the Reference Design. They must instead meet or exceed the levels in the 2009 and 2012 IECC Commercial chapter, respectively. The required values should come from the "All Other" column and the row that corresponds to the building assembly (e.g., a building with steel-frame walls would use the value in the 'Metal framed' row).
- ~~3)2~~ Windows and glazed entrance doors are to meet or exceed the requirements specified for "Class AW" fenestration in the Reference Design.
- ~~4)3~~ All exterior and common space lighting fixtures are still subject to the efficiency requirements, even though they are not in 'ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations'. Therefore, 90% of all exterior and common space fixtures must be ENERGY STAR certified or meet the alternatives defined in the National Rater Field Checklist. This requirement applies to exterior lighting fixtures that are attached to the building, but does not apply to landscape or parking lot lighting fixtures.
- ~~5)4~~ Where an appliance type is not eligible for ENERGY STAR certification, ~~(e.g., commercial dryers)~~ the appliance is exempt from this requirement. Where a bathroom faucet or aerator is not eligible for WaterSense certification, (e.g., public use lavatory faucets) the fixture is exempt from this requirement.



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ENERGY STAR Multifamily Reference Design, Version 1 (See Exhibit 3 for where this is applicable)

Version 1: ENERGY STAR Multifamily Reference Design (See Exhibit 3 for where this is applicable)

Hot Climates (2009 IECC Zones 1,2,3) ^{12a}

Mixed and Cold Climates (2009 IECC Zones 4,5,6,7,8) ^{12a}

Residential Cooling Equipment (Where Provided) in Dwelling Units or Common Spaces. If not listed here, see Rater Field Checklist Exhibit X.

- Cooling equipment modeled at the applicable efficiency levels below: ¹²
 - 14.5 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.

- Heating equipment modeled at the applicable efficiency levels below, dependent on fuel and system type: ¹²
 - 80 AFUE gas furnace,
 - 80 AFUE oil furnace,
 - 80 AFUE boiler,
 - 8.2 HSPF / 14.5 SEER / 12 EER air-source heat pump with electric or dual-fuel backup.
- 90 AFUE gas furnace,
- 85 AFUE ENERGY STAR oil furnace,
- 85 AFUE boiler,
- Heat pump, with efficiency as follows:
 - CZ 4: 8.5 HSPF / 14.5 SEER / 12 EER air-source w/ electric or dual-fuel backup,
 - CZ 5: 9.25 HSPF / 14.5 SEER / 12 EER air-source w/ electric or dual-fuel backup,
 - CZ 6: 9.5 HSPF / 14.5 SEER / 12 EER air-source w/ electric or dual-fuel backup,
 - CZ 7-8: 3.5 COP / 16.1 EER ground-source w/ electric or dual-fuel backup.

Envelope, Windows, & Doors

- A radiant barrier modeled if more than 10 linear feet of ductwork are located in an unconditioned attic.
- No radiant barrier modeled.
- Dwelling unit insulation levels modeled to 2009 IECC levels (Commercial, wood-frame) and Grade I installation per ANSI / RESNET / ICC Standard 301. For all other spaces, refer to the Common Space Applicability Notes: on page 4 for insulation levels. ^{13a-13}

Climate Zone:	CZ 1	CZ 2	CZ 3	CZ 4	CZ 4 C & 5	CZ 6	CZ 7	CZ 8
Slab Insulation R-Value:	0	0	0	10	10	15	15	20
Slab Insulation Depth (ft):	0	0	0	2	2	2	2	2
Basement Wall Continuous Insulation R-Value:	0	0	0	7.5	7.5	7.5	10	12.5
Floor Assembly U-Factor:	0.282	0.052	0.033	0.033	0.033	0.033	0.033	0.033
Wall Assembly U-Factor:	0.089	0.089	0.089	0.089 64	0.054 64	0.051	0.051	0.036
Ceiling Assembly U-Factor:	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027

- Infiltration rates modeled as follows: <0.30 CFM50/ft² of enclosure.
- Non-Class AW dwelling unit windows and doors modeled, as illustrated below:

Window U-Factor:	0.60 in CZs 1,2	0.35 in CZ 3	0.32 in CZ 4	0.30 in CZs 4 C,5,6,7,8
Window SHGC:	0.27 in CZs 1,2	0.30 in CZ 3	0.40 in CZ 4	Any in CZs 4 C,5,6,7,8
Door U-Factor:	Opaque: 0.21	≤½ lite: 0.27	>½ lite: 0.32	
Door SHGC:	Opaque: Any	≤½ lite: 0.30	>½ lite: 0.30	

Exception: Class AW and all common space fenestration modeled to 2012 IECC levels (Commercial fenestration U-Factor requirements). ¹³

Climate Zone:	CZ 1	CZ 2	CZ 3	CZ 4	CZ 4 C & 5	CZ 6	CZ 7	CZ 8
Fixed Window U-Factor:	0.50	0.50	0.46	0.38	0.38	0.36	0.29	0.29
Operable Window U-Factor:	0.65	0.65	0.60	0.45	0.45	0.43	0.37	0.37
Glazed Entrance Door U-Factor:	1.10	0.83	0.77	0.77	0.77	0.77	0.77	0.77
SHGC	0.27	0.27	0.30	0.40	0.40	0.40	any	any

Water Heater

- DHW equipment modeled with the following efficiency levels as applicable:

Gas:	≤55 Gal = 0.67 EF (0.64 UEF, medium; 0.68 UEF, high-draw)			>55 Gal = 0.77 EF (0.78 UEF, medium; 0.80 UEF, high-draw)			
Electric:	≤55 Gal = 0.95 EF (0.93 UEF)						
	>55 Gal = 2.0 EF or UEF						
Oil:	30 Gal = 0.64 EF	40 Gal = 0.62 EF	50 Gal = 0.60 EF	60 Gal = 0.58 EF	70 Gal = 0.56 EF	80 Gal = 0.54 EF	

Thermostat & Ductwork

- Programmable thermostat modeled.
- Supply ducts in unconditioned attics modeled with R-8 insulation; all other ducts in unconditioned space modeled with R-6 insulation.
- Duct leakage to outdoors modeled at the greater of ≤ 4 CFM25 per 100 ft² of conditioned floor area or ≤ 40 CFM25.

Lighting, Appliances & Fixtures

- ENERGY STAR refrigerators and dishwashers, ~~clothes washers, and clothes dryers~~ modeled. ¹²
- ENERGY STAR light bulbs or fixtures modeled in 90% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations. For all



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other spaces, refer to the Common Space Applicability Notes: on page 4. ¹³²⁻⁴³

- WaterSense bathroom faucets, bathroom aerators, and showerheads. ¹²³



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ENERGY STAR Multifamily Reference Design, Version 1.1 (See Exhibit 3 for where this is applicable)

Version 1.1: ENERGY STAR Multifamily Reference Design (See Exhibit 3 for where this is applicable)

Hot Climates (2009 IECC Zones 1,2,3) ¹²⁺

Mixed and Cold Climates (2009 IECC Zones 4,5,6,7,8) ¹⁴²

Residential Cooling Equipment (Where Provided) in Dwelling Units or Common Spaces. If not listed here, see Rater Field Checklist Exhibit X.

• Cooling equipment modeled at the applicable efficiency levels below: ⁴²

- | | |
|---|--|
| <ul style="list-style-type: none"> • 15 SEER / 12 EER AC, • Heat pump (See Residential Heating Equipment) | <ul style="list-style-type: none"> • CZ 4-8: 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.

• Heating equipment modeled at the applicable efficiency levels below, dependent on fuel and system type: ⁴²

- | | |
|--|---|
| <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • 95 AFUE ENERGY STAR gas furnace, • 85 AFUE ENERGY STAR oil furnace, • 90 AFUE ENERGY STAR gas boiler, • 86 AFUE oil boiler, • Heat pump, with efficiency as follows: <ul style="list-style-type: none"> • 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: 3.6 COP / 17.1 EER ground-source w/ electric or dual-fuel backup. |
|--|---|

Envelope, Windows, & Doors

• [Dwelling unit](#) insulation levels modeled to 2012 IECC levels (Commercial, wood-frame) and Grade I installation per ANSI / RESNET / ICC Standard 301. [For all other spaces, refer to the Common Space Applicability Notes: on page 4 for insulation levels.](#) ¹³²⁻⁴³

Climate Zone:	CZ 1	CZ 2	CZ 3	CZ 4	CZ 4 C & 5	CZ 6	CZ 7	CZ 8
Slab Insulation R-Value:	0	0	0	10	10	15	15	20
Slab Insulation Depth (ft):	0	0	0	2	2	2	2	2
Basement Wall Continuous Insulation R-Value:	0	0	0	7.5	7.5	7.5	10	12.5
Floor Assembly U-Factor:	0.066	0.033	0.033	0.033	0.033	0.033	0.033	0.033
Wall Assembly U-Factor:	0.064	0.064	0.064	0.064	0.064	0.051	0.051	0.036
Ceiling Assembly U-Factor:	0.027	0.027	0.027	0.027	0.021	0.021	0.021	0.021

• Infiltration rates modeled as follows: <0.30 CFM50/ft² of enclosure.

• [Dwelling unit](#) ENERGY STAR windows and doors modeled, [unless Class AW](#), as illustrated below:

Window U-Factor:	0.40 in CZs 1,2	0.30 in CZ 3	0.30 in CZ 4	0.27 in CZs 5,6,7,8
Window SHGC:	0.25 in CZs 1,2	0.25 in CZ 3	0.40 in CZ 4	Any in CZs 5,6,7,8
Door U-Factor:	Opaque: 0.17	≤½ lite: 0.25	>½ lite: 0.30	
Door SHGC:	Opaque: Any	≤½ lite: 0.25	>½ lite: 0.25 in CZs 1,2,3; 0.40 in CZs 4,5,6,7,8	

Exception: Class AW fenestration [and common spaces](#) modeled to 2015 IgCC levels (Commercial fenestration U-Factor requirements). ¹³

Climate Zone:	CZ 1	CZ 2	CZ 3	CZ 4	CZ 4 C & 5	CZ 6	CZ 7	CZ 8
Fixed Window U-Factor:	0.48	0.48	0.44	0.36	0.36	0.34	0.28	0.28
Operable Window U-Factor:	0.62	0.62	0.57	0.43	0.43	0.41	0.35	0.35
Glazed Entrance Door U-Factor:	1.05	0.79	0.73	0.73	0.73	0.73	0.73	0.73
SHGC	0.25	0.25	0.25	0.40	0.40	0.40	any	any

Water Heater

• DHW equipment modeled with the following efficiency levels as applicable:

Gas:	≤55 Gal = 0.67 EF (0.64 UEF, medium; 0.68 UEF, high-draw)		>55 Gal = 0.77 EF (0.78 UEF, medium; 0.80 UEF, high-draw)			
Electric:	≤55 Gal = 0.95 EF (0.93 UEF) >55 Gal = 2.0 EF or UEF					
Oil:	30 Gal = 0.64 EF	40 Gal = 0.62 EF	50 Gal = 0.60 EF	60 Gal = 0.58 EF	70 Gal = 0.56 EF	80 Gal = 0.54 EF

Thermostat & Ductwork

- Programmable thermostat modeled.
- All ducts and air handlers modeled within conditioned space.

Lighting, Appliances, & Fixtures

- ENERGY STAR refrigerators ~~and~~ dishwashers, ~~clothes washers, and clothes dryers~~ modeled. ⁴²
- ENERGY STAR light bulbs or fixtures modeled in 90% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations. [For all other spaces, refer to the Common Space Applicability Notes: on page 4.](#) ¹³²⁻⁴³
- WaterSense bathroom faucets, bathroom aerators, and showerheads. ¹²³



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ENERGY STAR Multifamily Reference Design, Oregon and Washington Version 1.2

Oregon and Washington Version 1.2: ENERGY STAR Multifamily Reference Design (See Exhibit 3 for where this is applicable)

2012 IECC Climate Zone 4C, 5, & 6 ¹²⁴

Residential Cooling Equipment (Where Provided) in Dwelling Units or Common Spaces. If not listed here, see Rater Field Checklist Exhibit X.

- Cooling equipment modeled at the applicable efficiency levels below: ⁴²
- 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.

- Heating equipment modeled at the applicable efficiency levels below, dependent on fuel and system type: ⁴²
- 95 AFUE ENERGY STAR gas furnace,
- 85 AFUE ENERGY STAR oil furnace,
- 90 AFUE ENERGY STAR gas boiler,
- 86 AFUE oil boiler,
- 9.5 HSPF / 15 SEER / 12 EER air-source with electric or dual-fuel backup.

Envelope, Windows, & Doors

- Dwelling unit insulation levels modeled at the levels below and Grade I installation per ANSI / RESNET / ICC Standard 301. For all other spaces, refer to the Common Space Applicability Notes: on page 4 for insulation levels. ¹³

Above-Grade Wall	Ceiling	Floor	Basement Wall	On-Grade & Below-Grade Slab
R-21	R-49	R-38	R-15 continuous or R-21 cavity	R-10 at perimeter for entire depth of slab and under entire slab area

- Infiltration rates modeled as follows: <0.30 CFM50/ft² of enclosure.
- Non-Class AW dwelling unit windows and doors modeled, as illustrated below:

Window U-Factor:	0.27
Window SHGC:	0.30

Door U-Factor:	Opaque: 0.17	≤½ lite: 0.25	>½ lite: 0.30
Door SHGC:	Opaque: Any	≤½ lite: 0.25	>½ lite: 0.30

Exception: Class AW and all common space fenestration modeled to 2015 IgCC levels (Commercial fenestration U-Factor requirements). ¹³

Climate Zone:	CZ 4 C & 5	CZ 6
Fixed Window U-Factor:	0.36	0.34
Operable Window U-Factor:	0.43	0.41
Glazed Entrance Door U-Factor:	0.73	0.73
SHGC (same as above)	0.30	0.30

Water Heater

- DHW equipment modeled with the following efficiency levels and types as applicable:
- For a home with gas or propane DHW fuel type: Tankless 0.91 EF.
- For a home with other DHW fuel type: In CZ 4C & 5 ¹⁴²: Electric heat pump with 2.5 EF or 2.57 UEF; In CZ 6 ¹⁴²: Electric heat pump with 2.0 EF / UEF.
- DHW piping insulation modeled: R-3.

Thermostat & Ductwork

- Programmable thermostat modeled.
- All ducts located in unconditioned space modeled with R-8 insulation.
- Duct leakage to outdoors modeled as the greater of 4 CFM25 per 100 ft² or 40 CFM25.

Lighting, Appliances, & Fixtures

- ENERGY STAR refrigerators, and dishwashers, ~~clothes washers, and clothes dryers~~ modeled. ⁴²
- ENERGY STAR light bulbs or fixtures modeled in 90% of ANSI / RESNET / ICC Standard 301-defined Qualifying Light Fixture Locations. For all other spaces, refer to the Common Space Applicability Notes: on page 4. ¹³²⁻¹⁴³
- WaterSense bathroom faucets, bathroom aerators, and showerheads modeled with 2.0 gallons per minute. ¹²³



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Two paths are provided for satisfying the mandatory requirements for all certified projects, Exhibit 2. ~~Path Track A – Dwelling Unit~~ HVAC Grading ~~by Rater~~ allows a Rater to utilize ANSI / RESNET / ACCA Std. 310 ¹³⁴, a standard for grading the installation of residential HVAC systems serving individual ~~spaces Dwelling Units~~ and a Functional Testing Agent to verify ~~common space~~ ~~commercial~~s and central systems. ~~Track Path B – Dwelling Unit~~ HVAC ~~Testing by FT Agent~~ ~~Commissioning~~ utilizes a Functional Testing Agent for all systems. Either path may be selected, but all requirements within that path must be satisfied for the building to be certified.

Exhibit 2: Mandatory Requirements for All Certified Multifamily Projects

Party Responsible	Mandatory Requirements
Requirements Applicable to Track Path A & B	
Rater	<ul style="list-style-type: none"> • Completion of National Rater Design Review Checklist • Completion of National Rater Field Checklist
Builder or Developer	<ul style="list-style-type: none"> • Completion of National Water Management System Requirements
Requirements Only Applicable to Track Path A – Dwelling Unit HVAC Grading by Rater ¹³⁴	
HVAC System Designer	<ul style="list-style-type: none"> • Completion of an HVAC design report compliant with ANSI / ACCA / RESNET Std. 310, plus the ENERGY STAR MFNC Supplement
Functional Testing Agent	<ul style="list-style-type: none"> • Completion of applicable sections of the National HVAC Functional Testing Checklist. Exempt from Sections 2 and 3 for Dwelling Unit HVAC as the Rater is the party responsible for assessing these systems installation quality in accordance with ANSI / RESNET / ACCA Std. 310
Requirements Only Applicable to Track Path B – Dwelling Unit HVAC Testing by FT Agent Commissioning	
HVAC System Designer	<ul style="list-style-type: none"> • Completion of National HVAC Design Report
Functional Testing Agent	<ul style="list-style-type: none"> • Completion of National HVAC Functional Testing Checklist

Effective Mandatory Compliance Date

For the ERI and Prescriptive Paths, to determine the program Version that a multifamily building is required to be certified under, look up the location and permit date of the building in Exhibit 3. Note that the National Version 1.1 program requirements are being implemented in states that have adopted the residential 2012, 2015, or 2018 IECC, or an equivalent code. Note, as well, that regional program requirements, and associated implementation timelines, have been developed for buildings in CA, ~~PR~~ and ~~USVI~~. The regional program requirements can be found at www.energystar.gov/mfncrequirements.

Multifamily buildings permitted prior to ~~January~~ ~~July~~ 1, 2021 are permitted to participate in any of the following programs, as long as the project meets the Eligibility Requirements defined within that program: the ENERGY STAR ~~Certified Single-Family New~~ Homes program, the ENERGY STAR Multifamily High Rise program, or this ENERGY STAR Multifamily New Construction Program.

Exhibit 3: ENERGY STAR Multifamily New Construction Implementation Timeline

State / Territory	Buildings Permitted ⁴ On or After This Date Must Meet the Adjacent Version	Multifamily New Construction Program Version	Revision ¹⁴⁵
AL, AK, AZ, AR, CO, GA, GU, HI, IN, ID, KS, KY, LA, ME, MS, MO, NE , NH, NM, NMI, NC, ND, OH, OK, PA , PR , SC, SD, TN, USVI , UT, VA, WV, WI, WY	07-01-2020	National Version 1	Rev. 01
	<u>07-01-2021</u>	<u>National Version 1</u>	<u>Rev 02</u>
CT, DC, DE, FL, IA, IL, MA, MD, MI, MN, MT, NJ, NV, NY, RI, TX, VT	07-01-2020	National Version 1.1	Rev. 01
	<u>07-01-2021</u>	<u>National Version 1.1</u>	<u>Rev. 02</u>
<u>PA</u>	<u>07-01-2020</u>	<u>National Version 1</u>	<u>Rev. 01</u>
	<u>04-01-2021</u>	<u>National Version 1.1</u>	<u>Rev. 01</u>
	<u>07-01-2021</u>	<u>National Version 1.1</u>	<u>Rev. 02</u>



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<u>NE</u>	<u>07-01-2020</u>	<u>National Version 1</u>	<u>Rev. 01</u>
	<u>07-01-2021</u>	<u>National Version 1.1</u>	<u>Rev. 02</u>
OR, WA	07-01-2020	Oregon and Washington Version 1.2	Rev. 01
	<u>07-01-2021</u>	<u>Oregon and Washington Version 1.2</u>	<u>Rev. 02</u>
<u>PR, USVI</u>	<u>07-01-2020</u>	<u>National Version 1</u>	<u>Rev. 01</u>
	<u>07-01-2021</u>	<u>Caribbean Version 1.0</u>	<u>Rev. 02</u>



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Exhibit 4: ASHRAE Path Performance Targets

Projects using the ASHRAE Path in states that have adopted as the commercial code the 2012 IECC, 2015 IECC, 2018 IECC, ASHRAE 90.1-2010, ASHRAE 90.1-2013, ASHRAE 90.1-2016, or equivalent, will be required to meet a Performance Target of 15% energy cost savings when compared to the energy code under which the building is permitted (unless otherwise noted below). All other projects must meet the national requirement of 15% over ASHRAE 90.1- 2007. ~~The Performance Target is based on the units of energy cost unless specific EPA guidance approves alternate units for use.~~

Notes and Exceptions:

- **Local Code Exception:** While local city or town codes may differ from the state code, the determination for the ENERGY STAR program is based on the commercial code adopted by the state, not the local jurisdiction. In an instance where the building is permitted under a local code that is not the same as the state code, the Performance Target is based on the state code in place. The permit application or issue date will be used to determine what state code was in place in the state. To determine the code adopted by the state and its effective date, please visit www.energycodes.gov.
- **Modeling options:** To reduce the burden of applying two different codes to a given project, projects are allowed to use alternate targets of 20% savings over ASHRAE 90.1-2007 as equivalent to 15% over ASHRAE 90.1-2010; and 25% savings over ASHRAE 90.1-2007 and 20% savings over ASHRAE 90.1-2010, as equivalent alternatives to 15% savings over ASHRAE 90.1-2013.
- **Appendix G version:** For projects pursuing performance targets based on ASHRAE 90.1-2007 or ASHRAE 90.1-2010, the project must use the Appendix G of the code corresponding to their Performance Target or Appendix G from ASHRAE 90.1-2016. Projects pursuing targets based on ASHRAE 90.1-2013 or later must use Appendix G from ASHRAE 90.1-2016. Projects using Appendix G from ASHRAE 90.1-2016 must use the ASHRAE Path Calculator_AppG2016 and Simulation Guidelines_AppG2016 available on the Guidance Documents page which can be found at www.energystar.gov/mfguidance. Projects may not use Appendix G from ASHRAE 90.1-2016 if they are using the 20% or 25% Performance Target Options. Note: Addendum bm from ASHRAE 90.1-2013 is not referenced since its content and the related excerpts that followed have been incorporated into Appendix G from ASHRAE 90.1-2016.
- **Performance Target for Projects Modeling using Appendix G from ASHRAE 90.1-2016:** Projects using this approach to meet a performance target above ASHRAE 90.1-2013 or later, must meet a target of 15% energy cost savings OR 15% source energy savings when compared to the energy code under which the building is permitted.

	Performance Target Options: Savings (%) above varying ASHRAE 90.1 Baselines			
State Code (IECC)	90.1-2007	90.1-2010	90.1-2013	90.1-2016
2009 IECC	15% ¹⁶⁵	N/A	N/A	<u>N/A</u>
2012 IECC	20% ¹⁷⁶	15% ¹⁶⁵	N/A	<u>N/A</u>
2015 IECC	25% ¹⁷⁶	20% ¹⁷⁶	15% ¹⁸⁷	<u>N/A</u>
2018 IECC	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>15%¹⁸</u>



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Footnotes:

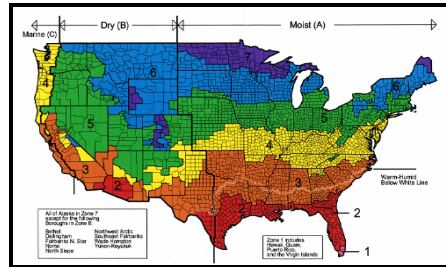
1. The term 'building' refers to a structure utilized or intended for supporting or sheltering any occupancy for a residential purpose; a structure with no dwelling or sleeping units connected to a structure with dwelling or sleeping units by less than 10% of its exterior wall area is not to be included in the 'building'. A dwelling unit, as defined by the 2012 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation. The term 'sleeping unit' refers to a room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. The term 'two-family' dwelling refers to a detached building with 2 dwelling units. For the purposes of eligibility, hotels, motels, and senior care facilities are not considered multifamily buildings. For more information visit: https://www.energystar.gov/partner_resources/residential_new/program_reqs/mfnc_building_eligibility.
2. The term 'common space' refers to any spaces in the building being certified that serve a function in support of the residential part of the building that is not part of a dwelling or sleeping unit. This includes spaces used by residents, such as corridors, stairs, lobbies, laundry rooms, exercise rooms, residential recreation rooms, and dining halls, as well as offices and other spaces used by building management, administration or maintenance in support of the residents.
3. The term 'townhouse' refers to a single-family dwelling unit constructed in a group of three or more attached units in which each unit extends from the foundation to roof and with open space on at least two sides. Townhouses earning the ENERGY STAR through the Multifamily New Construction program must use the program documents described in Exhibit 2. They also must use the ERI Path of the Multifamily New Construction program as they are not eligible to use the Prescriptive Path or ASHRAE Path. However, the ENERGY STAR ERI Target for townhouses must be determined using Exhibit 1 of the relevant ENERGY STAR Certified Single-Family New Homes National Program Requirements.
4. The Rater⁷ may define the 'permit date' as either the date that the permit was issued or the application date of the permit. In cases where permit or application dates are not available, Providers² or Multifamily Oversight Organizations have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented.
5. While certification will result in compliance with many code requirements, a Rater is not responsible for ensuring that all code requirements have been met prior to certification. For more information about how these program requirements help satisfy code requirements, visit: www.energystar.gov/newhomesguidance. In the event that a code requirement, a manufacturer's installation instructions, or an engineering document conflicts with a requirement of the ENERGY STAR program (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these program requirements shall not be met. Certification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement (e.g., switching from exterior to interior slab edge insulation). Note that a home-dwelling unit must still meet its ENERGY STAR ERI Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.
6. The term 'Provider' refers to an Approved Rating Provider as defined by ANSI / RESNET / IECC Standard 301 that is a designee of an VOO-HCO such as RESNET.
7. The term 'Rater' refers to the person(s) completing the third-party verification required for certification. The person(s) shall: a) be a Certified Rater, Approved Inspector, as defined by ANSI / RESNET / IECC Standard 301, or an equivalent designation as determined by a Verification Oversight HCO Organization or Multifamily Review Organization MRO; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/mfrtraining.
Raters who operate under an MRO or an HCO Sampling Provider Protocol are permitted to verify the minimum rated features of the building and to verify any Checklist Item designated "Rater Verified" using an VOO-HCO-approved sampling protocol. Where a sampling protocol does not sufficiently describe methodology for multifamily projects, use the RESNET Guidelines for Multifamily Energy Ratings, available at www.resnet.us/blog/resnet-adopts-guidelines-for-multifamily-energy-ratings/. No parties other than Raters are permitted to use sampling, with the exception of the Functional Testing Checklist. Functional Testing Agents, except the installing contractor, may follow the sampling protocol described in the MFNC HVAC Functional Testing Checklist Sampling Protocols. All other items shall be verified for each certified building. For example, no items on the National HVAC Functional Testing Checklist builder verified items are permitted to be verified using a sampling protocol.
8. These requirements apply to all dwelling units, sleeping units, common spaces², and garages (open or enclosed) in the building being certified, and where specified, parking lots. These requirements do not apply to commercial or retail spaces. These requirements do not apply to common spaces that are located in buildings on the property without any dwelling or sleeping units. These requirements do not apply to parking garages or lots where the cost of the energy use of the parking garage or lot is not the responsibility of the Builder/Developer, Building Owner or Property Manager.
9. The software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Multifamily Reference Design) this target for each rated unit by following the National Multifamily ERI Target Procedure, Version 1, 1.1 or Oregon and Washington Version 1.2, based on location, available at www.energystar.gov/mfncrequirements.
- 9-10. Home Certification Organizations (HCOs) are independent organizations recognized by EPA to implement an ENERGY STAR certification program for single-family and multifamily homes and apartments using an Energy Rating Index (ERI) compliance path. Learn more and find a current list of HCOs at www.energystar.gov/partner_resources/residential_new/working/other_participants/hco.
- 40-11. Note that the efficiency levels of ENERGY STAR certified products aligned with these product specifications when this Version was first released. These efficiency features form the basis of the ENERGY STAR ERI target, regardless of any subsequent revisions to ENERGY STAR certified product specifications. EPA recommends, but does not require, that current ENERGY STAR products be included in ENERGY STAR buildings. For current ENERGY STAR products, visit www.energystar.gov/products.



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~~44-12.~~ The following map illustrates the Climate Zone boundaries as defined by the 2009 and 2012 IECC Figure R301.1.



~~42-13.~~ When using the Reference Design for common space measures as specified in the National Rater Design Review and Rater Field Checklist, first review the Common Space Applicability Notes that are included in Exhibit 1.

~~43-14.~~ ~~TrackPath A – Dwelling Unit HVAC Grading by Rater~~ shall not be used until an ~~Effective Date implementation schedule~~ has been defined by RESNET for ANSI / RESNET / ACCA Std. 310 by the HCO or MRO that the building is being certified under. ~~TrackPath A – Dwelling Unit HVAC Grading by Rater~~ shall then use ANSI / RESNET / ACCA Std. 310 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~~ Effective Date and Transition Period End Date defined by RESNET. RESNET interpretations of Standard 310 shall also be followed.

~~44-15.~~ Buildings certified under Rev. 01 and Rev. 02 of the program requirements are permitted to use any version of the MFNC National HVAC Design Report.

~~45-16.~~ Appendix G from the referenced code or from ASHRAE 90.1-2016 or may be used.

~~46-17.~~ These Performance Target options may not be used for projects using Appendix G from ASHRAE 90.1-2016.

~~47-18.~~ Appendix G from ASHRAE 90.1-2016 must be used.