

Topic Area 1: Qualified Building Energy Codes and Amendments Checklist

Applicant Jurisdiction: _____

Application Title: _____

Local governments with the authority to adopt building energy codes may use this form to submit their selected qualified codes and eligible amendments as part of applications for Topic Area 1 in the DOE FOA: Assistance for the Adoption of the Latest and Zero Building Energy Codes. Appendix C in the FOA lists the qualified building energy codes for Topic Area 1. DOE has determined that the following list of building energy codes and zero energy codes are qualified as eligible under this program. Submit one checklist per proposed code; applications may contain up to two checklists.

Part I: Qualified Building Energy Codes and Zero Energy Codes

Applicants may select *one* of the qualified building energy codes or building energy code pathways, below. The qualified amendments selected in Part 2 will apply to the qualified code identified below.

Residential Qualified Building Energy Codes and Building Energy Code Pathways

- 2021 IECC Residential, unamended
- A successor edition of IECC Residential for which the Secretary has published in the Federal Register an affirmative determination that the updated code will improve energy efficiency compared to the previous edition of the corresponding standard or code
- 2021 IECC, or a qualified successor edition, amended with one or more of the provisions detailed under Appendix C of the FOA
- The zero energy code provisions in the 2021 IECC-Appendix RC, unamended
- The zero energy code provisions in the 2021 IECC-Appendix RC, amended with any of the provisions as detailed under Appendix C of the FOA

Commercial Qualified Building Energy Codes and Building Energy Code Pathways

- ASHRAE Standard 90.1-2019, unamended
- A successor edition of ASHRAE Standard 90.1 for which the Secretary has published in the Federal Register an affirmative determination that the updated code will improve energy efficiency compared to the previous edition of the corresponding standard or code

- ❑ ASHRAE Standard 90.1-2019, or a qualified successor edition, amended with one or more of the provisions as detailed under Appendix C of the FOA
- ❑ 2021 IECC Commercial (ASHRAE Standard 90.1-2019 as a compliance pathway), unamended
- ❑ 2021 IECC Commercial (ASHRAE Standard 90.1-2019 as a compliance pathway), amended with one or more of the provisions detailed under Appendix C of the FOA
- ❑ The zero energy code provisions in 2021 IECC-Appendix CC, unamended
- ❑ The zero energy code provisions in 2021 IECC-Appendix CC, amended with any of the provisions as detailed under Appendix C of the FOA

DOE has determined that the following lists of amendments to those qualified building energy codes and zero energy codes will not reduce the energy savings of those building energy codes when adopted by eligible applicants. Only these amendments may be included with a qualifying code for an applicant's code adoption proposal to be considered eligible for this competitive funding in Topic Area 1.

Part II: Qualified Building Energy Code Amendments

Applicants may select any of the following strengthening amendments to be applied to the qualified building energy code or building energy code pathway selected in Part I.

Strengthening Amendments relative to Qualified Residential Codes

- ❑ Require higher R-values or lower U-factors for building components (ceilings, walls, floors, foundation or fenestration) than the values in the prescriptive compliance tables
- ❑ Require larger homes over a certain square footage to meet a higher number of "Additional Efficiency Packages" or a lower energy usage compared to smaller homes
- ❑ Require all supply and return registers to be sealed
- ❑ Reduce allowable whole building maximum air leakage rate
- ❑ Require cool roofs in warm climate zones
- ❑ Require increased pipe insulation levels
- ❑ Extend requirement for Heat Recovery Ventilation (HRV) to additional climate zones
- ❑ Require buildings using the "Total Building Performance Path" to meet a lower thermal envelope UA backstop (UA backstop is the area (A) multiplied by the U-factor (U))
- ❑ Require lower energy rating index (ERI) targets than the levels in section R406
- ❑ Require additions and alterations to meet "Additional Efficiency Packages" requirements

- Require alterations to meet duct testing and maximum allowable leakage requirement, unless all ducts are located in a conditioned space
- Require lower ERI targets (without on-site power production (OPP)) than the levels in Appendix RC
- More stringent efficiency backstop

Strengthening Amendments relative to Qualified Commercial Codes

- Require "Additional Efficiency Credits" for complying with code
- Require lower interior Lighting Power Density (LPD) values for the space-by-space calculation
- Require lower exterior LPD values than those included in the prescriptive table
- Require manual dimming or automatic occupant-based lighting controls for dwelling units
- Require dimming lighting systems with central and zonal controls for increased percentage of building floor area
- Require centralized master switch for apartments
- Remove or lower "additional lighting power allowance" for decorative and retail sales categories in 90.1-2019
- Extend requirement for cool roofs or increased ceiling insulation beyond minimum prescriptive levels to climate zone 4
- Require full under slab insulation in additional building types and in more climate zones beyond just climate zone 8
- Require air leakage testing for additional buildings (i.e., greater than 10,000 ft²)
- Reduce allowable whole building maximum air leakage rate
- Require Demand Controlled Ventilation (DCV) in more building spaces with fewer exceptions, including exceptions for Energy Recovery Ventilation (ERV)
- Require ERV for smaller system sizes
- Higher enthalpy recovery ratios for ERVs
- Require increased pipe insulation levels, which results in increased R-value
- Require increased duct insulation levels, which results in increased R-value
- Increase requirements for automatic off-hour, setback, and shutdown HVAC controls
- Lower fan power allowance in terms of W/CFM

- Add economizer requirements for small systems
- Add minimum efficiency requirements for heat pump and heat recovery chillers
- Require more efficient cooling towers
- Require more efficient elevators
- Require more efficient elevator cab lighting and ventilation
- Bring building performance path up to the level of the prescriptive requirements including "additional efficiency credits"
- Reduce the system size thresholds for when condenser heat recovery for service water heating is required
- Reduce the system size thresholds for when condenser heat recovery for space heating and/or reheat is required

Part III: Neutral Amendments

Applicants may select any of the following neutral amendments to be applied to the qualified building energy code or building energy code pathway selected in Part I. These neutral amendments may not affect the energy performance outcome of the code(s), but are often included for complementary reasons, such as enabling electric vehicle charging.

Residential Neutral Amendments

- EV Charging: Plug-in for EV Charging Infrastructure¹
- Electric-ready: Plug-in for electric-readiness²
- Grid interactive/demand response controls requirements
- Editorial, clarifying or formatting changes intended to improve the readability of the code would be considered neutral as long as the changes do not alter the stringency of code requirements
- Amendments that set a major renovation trigger or percentage serviced square footage trigger for energy code compliance in existing buildings
- On-site renewable energy requirements

¹ https://www.energycodes.gov/sites/default/files/2021-07/TechBrief_EV_Charging_July2021.pdf

² https://www.energycodes.gov/sites/default/files/2021-10/TechBrief_Electric_Readiness_Oct2021.pdf

Commercial Neutral Amendments

- ❑ EV Charging: Plug-in for EV Charging Infrastructure³
- ❑ Grid interactive/demand response controls requirements
- ❑ Editorial, clarifying or formatting changes intended to improve the readability of the code would be considered neutral as long as the changes do not alter the stringency of code requirements
- ❑ Amendments that set a major renovation trigger or percentage serviced square footage trigger for energy code compliance in existing buildings
- ❑ On-site renewable energy requirements

Proposals to Topic Area 1 may not include combinations of strengthening and weakening amendments. Due to the complex nature of such combinations in both commercial and residential building energy codes, additional analysis would be required to determine whether each proposal meets the “equivalent or greater energy savings” threshold. Such proposals are not eligible under Topic Area 1.

³ https://www.energycodes.gov/sites/default/files/2021-07/TechBrief_EV_Charging_July2021.pdf