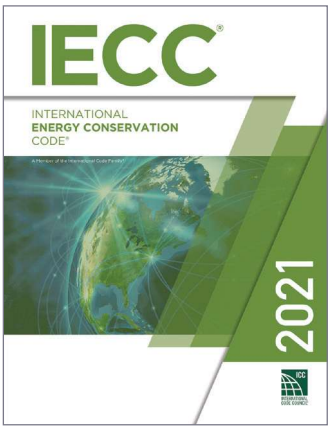
What's New in the 2021 International Energy Conservation Code® (IECC®)



The IECC addresses energy efficiency on several fronts including cost savings, reduced energy usage, conservation of natural resources and the impact of energy usage on the environment. Key changes to the 2021 IECC improve efficiency by 9.4 percent and reduce greenhouse gases by 8.7 percent over the 2018 IECC; these changes include new provisions that increase efficiency and encourage greater flexibility in design and construction as well as changes to existing requirements that provide clarification and improve useability of the code.

The following are key changes in the 2021 IECC by building type and system:

IECC, Commercial

Building Envelope

- Increased insulation requirements and reduced fenestration U-factors and solar heat gain coefficients.
- Extended requirements for envelope air leakage testing and verification.
- New provisions for operable openings interlocking and mandatory controls.

Mechanical Systems

- Updated equipment efficiency requirements.
- Refinement of energy recovery ventilation requirements.
- Updated fan efficiency metric.

Electrical Power and Lighting Systems

- Increased lighting efficacy and decreased lighting power density requirements.
- New provisions for plant growth lighting.
- New provisions for automatic receptacle control.
- New provisions for energy metering and monitoring.

Additional Efficiency Requirements

- Increased number of additional efficiency options and revised structure of Section C406.

Appendices

- New Board of Appeals appendix.
- New provision for system-ready area for electrical energy storage added to Solar-Ready Zone appendix.
- New Zero Energy Commercial Building Provisions appendix.

IECC, Residential

Building Envelope

- Increased insulation requirements and reduced fenestration U-factors and solar heat gain coefficients.
- Revised air leakage requirements.
- Revised duct testing requirements.

Mechanical Systems

- Clarification on duct location and insulation requirements.
- Removed exception for duct testing in conditioned spaces.
- New mechanical ventilation system testing requirements.

Electrical Power and Lighting Systems

- New exterior lighting requirements for limited residential buildings.
- New interior lighting controls requirements.

Energy Rating Index Compliance Alternative

- ERI values have been lowered and an additional 5 percent energy reduction is applied.

Additional Efficiency Package Options

- New section requiring additional efficiency in residential buildings is added. Five options for achieving compliance with this section are included: enhanced envelope performance, more efficient HVAC equipment performance, reduced energy used in service water heating, more efficient duct thermal distribution system, and improved air sealing and efficiency ventilation system.

Appendices

- New Board of Appeals appendix.
- New Zero Energy Residential Building Provisions appendix.

In addition to these changes, the useability of the code has been improved in two ways.

- First, the 2021 IECC removes the terms “prescriptive” and “mandatory” in provision labels throughout Chapter 4 of both the Commercial and Residential IECC.
- Second, the compliance paths available to commercial and residential code users are now provided a name and the requirements of each path are clearly outlined. The code has been restructured such that each compliance path has its own section and the mandatory provisions for each are clearly identified within these sections. All requirements needed to comply with the Total Building Performance (for commercial and residential), Energy Rating Index, and Tropical Climate Region compliance paths are included in user-friendly tables separate from prescriptive code requirements.

These two changes work in tandem to clarify when code provisions are required.

Finally, the climate zone provisions have been comprehensively updated and now include a new Climate Zone 0. Ten percent of U.S. counties have been assigned a new climate zone.

Learn more about significant changes in the forthcoming 2021 International Energy Conservation Code Significant Changes and the 2021 IECC Code and Commentary at shop.iccsafe.org