What's in the Residential Draft of the 2024 IECC?

Background

After a year of numerous International Code Council (ICC) 2024 International Energy Conservation Code (IECC) Consensus Committee meetings, the ICC published the first draft of the 2024 IECC for Residential Buildings on October 24, 2022. The 2024 IECC residential code public comment period is open from October 24, 2022 through December 16, 2022. See NEEP's 2024 IECC website for additional information and instructions on how to participate in current and future second-round commercial and residential comments opportunities.

We are currently waiting for Pacific Northwest National Laboratories (PNNL) to estimate the energy savings of the 2024 Residential IECC, which will become available at a later time.

Key Takeaways

The provisions discussed in this document only present a snapshot of the overall changes and updates in this draft code. This list is not exhaustive and there are other proposals that are not included in this document. The intent of this document is to focus on proposals that have a significant impact on energy use. A full list of updates may be found in the draft here. In addition, the proposals discussed sometimes refer to new provisions within a section that update the language, while other times refer to a new section entirely (delineated in **red**).

- **Building Thermal Envelope (R402)**
  - **Table R402.1.2 Maximum Assembly U-Factors and Fenestration Requirements:** Updated window and skylight efficiencies, decreased ceiling insulation requirements, and updated guidance for unheated and heated slabs.
  - **Table R402.1.3 Insulation Minimum R-Values and Fenestration Requirements by Component**: Updated window and skylight efficiencies, decreased ceiling insulation requirements, and added option to use continuous insulation for framed floors.
  - ***NEW* R402.2.3 Attic Knee Walls:** Added new specific insulation requirements to address attic knee walls, which historically have been difficult to air seal.
  - ***NEW* R402.3 Radiant Barriers:** New requirements on how to install radiant barriers.
  - **Table R402.5.1.1 Air Barrier, Air Sealing, and Insulation Installation:** Updated insulation installation criteria for several areas, including windows, fireplaces, and common/double walls.
  - **R402.5.1.3 Prescriptive Air Leakage Rate:** Improved air tightness to 2.5 ACH50 for cold climates (Climate Zone 6-8).
- **Systems (R403)**
  - ***NEW* Table R403.3.6 Maximum Total Duct System Leakage:** Updated total duct leakage requirements, clarifying metric used for different sized floor areas and alters the duct leakage rate depending on whether the air handler is installed or not and whether the ducts are in conditioned space.
  - ***NEW* R403.5.5 Demand Responsive Water Heating:** New requirement for demand responsive controls for electric storage water heaters.

- **R403.6.1 Heat or Energy Recovery Ventilation:** Added Climate Zone 6 to areas where energy- or heat recovery ventilators are required for whole home ventilation.

- **Electrical Power, Lighting, and Renewable Energy Systems (R404)**
  - **R404.1 Lighting Equipment:** Added new requirements for exterior lighting controls and power allowance.
  - ***NEW*** **R404.4 Renewable Energy Certificate Documentation:** Documentation of an installed renewable energy system is required if the system is being used for code compliance.
  - ***NEW*** **R404.5 Electric Readiness:** Installation of new electrical plugs are required near cooking products, household clothes dryers, and water heaters that are currently using fossil fuels for future electric appliance installation.
  - ***NEW*** **R404.6 Renewable Energy Infrastructure:** New requirement for a solar ready zone.
  - ***NEW*** **R404.7 Electric Vehicle Power Transfer Infrastructure:** New requirement for an electric vehicle (EV)-capable, EV-ready, or supply equipment (EVSE) installed space per home.
- **Simulated Building Performance (R405)**
  - **Table R405.2 Requirements for Simulated Building Performance:** Updated requirements for the Simulated Building Performance path to code compliance.
  - **Table R405.4.2(1) Specifications for the Standard Reference and Proposed Designs**. Updated specifications for the standard reference and proposed design model.
- **Energy Rating Index Compliance Alternative (R406)**
  - **Table R406.2 Requirements for Energy Rating Index:** Updated requirements for the Energy Rating Index (ERI) path to code compliance.
  - **Table R406.5 Maximum Energy Rating Index:** Adjusted the maximum ERI without on-site power production (OPP), lowering it by one point compared to 2021 IECC, and added a new lower ERI requirement of 40 if OPP is used.
- **Additional Efficiency Requirements (R408)**
  - This section has been significantly altered to reflect a new point-based credit system of required additional efficiency measures, providing building and design professionals more choice and flexibility in their options for compliance. The potential efficiency measures include improved insulation, window, HVAC, water heating, air sealing, ventilation, and ductwork options.
- ***NEW*** **Additional Efficiency Package Options for Existing Buildings (R506)**
  - Additions and alterations of existing buildings must now comply with a selection of additional efficiency measures in section R408 of the builders choosing, providing more flexibility in the design process.

Appendices

- **Appendix RC: Zero Net Energy Residential Buildings Provisions:** Reduced the ERI from the 2021 IECC to a 42 without including renewable energy and to a 0 using OPP. It also added requirements for Climate Zone 0.
- ***NEW*** **Appendix RD: Electric Energy Storage Provisions:** Added new requirements for energy storage system (ESS) readiness for new construction where solar-ready measures or onsite solar PV are also required.
- ***NEW*** **Appendix RE: All-Electric Residential Buildings:** This provision does not permit combustion equipment in buildings, requiring them to be all-electric.
- ***NEW*** **Appendix RF: Alternative Building Thermal Envelope Insulation R-Value Options:** This provision requires improved insulation for every part of the building's thermal envelope.

Proposals Not Accepted in Current Draft Subject to Public Comments

- **Residential Decarbonization**
- **Testing of Gas Piping in Alterations**

Disclaimer: The information presented in this document is subject to change based on the public comment period and further committee updates. A final draft of the 2024 IECC is expected to be published mid- to late 2023.

Updated 12/1/22

Sources

- https://www.iccsafe.org/wp-content/uploads/IECC2024-PCD1-102022.pdf
- https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-31437.pdf
- https://codes.iccsafe.org/content/IECC2021P2
- https://newbuildings.org/code_policy/2024-iecc-national-model-energy-code-base-codes/2024-iecc-code-change-proposal-synopsis/