

2024 IECC Residential Model Code and Proposed Local Amendment Summary

This guide, relevant to the City of Austin, covers what are considered, at this time, to be the major changes to the published Residential provisions to the International Energy Conservation Code (IECC). It should be considered a roadmap for the community to better understand what to expect when the new energy codes become effective.

Many more changes than are represented here have been made. Some of those have been requirements in Austin for some time and are now part of the national code. Others are considered clerical or clarifying or are not applicable to Austin's climate zone. Each change, whether summarized below or not, will have differing impacts on each project so it is encouraged that practitioners become familiar with the published code.

The Department of Energy's (DOE) Pacific Northwest National Lab (PNNL) has preliminarily estimated 5.16% energy savings, 7.10% energy cost savings, and 7.07% carbon emissions savings for the residential provisions of the 2024 IECC over the 2021 IECC for climate zone 2. AEGB is currently energy modeling to also determine these metrics when updating to the 2024 IECC with local amendments.

Below is a summary of the higher impact items and those that would impact Austin, as they relate to the different sections of code.

Prescriptive Envelope

- Most changes to the prescriptive table apply to other climate zones. The most applicable change for Austin would be a reduction of the attic insulation from R49 to R38.
- Insulation entirely above roof deck was included in the model code at R25ci. Austin amendments currently include an R20ci option for insulation above roof deck. Austin proposes to align amendments to new model code requirements.
- Austin proposes to delete prescriptive table footnote that allowed total-fill cavity insulation deemed as meeting the R15 requirement as no longer needed.
- Model code updated table format for the prescriptive table from horizontal to vertical. Austin proposes to align amendments to new model code requirements.

Testing

- Model code has added sampling air leakage (blower door), duct leakage (duct blaster), and mechanical ventilation testing for multifamily dwellings. Austin amendments already allow sampling. Austin proposes to align amendments to new model code requirements.
- Model code has reduced the building envelope air leakage target from 5 to 4 ACH50 for Climate Zone 2. Austin proposes to align amendments to new model code requirements. Note, due to the mechanical ventilation testing requirement introduced in the 2021 IECC, many projects in Austin have transitioned to inline fans. This change in whole dwelling mechanical ventilation makes the reduction in ACH smarter. Work would still need to be done to educate and train local contractors and builders to avoid potential mold/mildew issues that can occur in our hot, humid climate.
- Model code has updated duct leakage testing targets into a table format to account for house floor area and number of ducted returns. Austin amendments for duct leakage testing have been in place for more than a decade. Austin proposes to keep duct leakage testing targets as currently amended.

Mechanical/Electrical

- Model code clarified many code provisions regarding interior and exterior lighting and lighting controls. Multifamily projects no longer need to reference the Commercial IECC for lighting and lighting control requirements. They were copied with some clarifications to the residential section. Interior lighting controls code language was clarified to be actually enforceable.
- Model code included requirements for duct systems are to be designed using ANSI/ACCA Manual D. This is in alignment with existing Manual J and S requirements.

- Model code now requires exhaust fans operating intermittently for bathroom or toilet rooms to include a timer control, occupant sensor control, humidity control or contaminant control. Many stakeholders may be already familiar as this has been required by the AEGB Single Family rating for a long time.
- Model code includes new code provisions related to solar ready such as the definition for solar-ready zone and what to include in construction documents for solar ready. Locally amended Chapter 7 Residential Solar Ready requirements were updated to align to new the model code requirements. Wall space for future PV meters is added as a local amendment.
- Model code added two new readiness codes, Electric Vehicle Readiness and Electric Readiness, as appendices. Austin proposes to adopt both appendices to align with the Austin Climate Equity Plan. The Electric Readiness code is amended to require additional space to accommodate future technology changes in water heater sizes.
- Demand responsive water heating requirements were added to the model code as an appendix. Austin proposes to delete the current amendment, R403.5.4 Demand Response of Electric Resistance Water Heating and adopt Appendix RJ to align with model code language. An exception is proposed for the installation of timers, similar to the 2021 IECC amendment.

Performance/ERI

- The prescriptive table backstop for the performance and ERI paths were updated to be within 8% of the current code prescriptive table. This moves away from referencing previous codes and gives more flexibility in envelope tradeoffs when prescriptive values haven't changed over code cycles.
- Projects complying through the performance path must reduce annual energy by 15-20% below the standard reference design, depending on fuel type. Austin proposes to continue with the energy use metric.
- Dwelling units over 5,000 sq ft must meet an additional 5% annual energy reduction below the standard reference design.
- Model code updated to include mechanical tradeoffs in the standard reference design. This is one reason why the performance path now requires more annual energy savings. Austin amendments already allows this type of tradeoff.

Chapter 5/Existing Construction

- Since the greater percentage of housing is existing building, code language was revised to better ensure that additions, alterations, and repairs meet new construction energy code standards as applicable to the work scope. It would **not** require portions of the home **not** included in the work scope to be brought up to code.
- Additional energy efficiency requirements were added to the model code in Chapter 5 for additions and alterations. Projects are to reference Table R408.2 for potential options within the scope of work.

Extras

- Additional energy efficiency requirements were introduced in the 2021 Residential IECC. The 2024 IECC has updated the requirement from a pick-a-package system to a points system that includes many new options for additional energy efficiency such as ENERGY STAR appliances, demand response for thermostats, and onsite renewable energy sources. Projects much choose at least 10 points from not less than two items. The Additional energy efficiency requirements in R408 only apply to prescriptive path projects. Performance path projects would be required to achieve annual energy reductions as outlined above.
- Austin proposes to adopt Appendix RF provide expanded R-value options for determining compliance with the U-factor criteria prescribed in Section R402.1.2. It also supplements the limited selection of common insulation conditions addressed in the R-value approach of Table R402.1.3.

Overall model code and local amendment changes that would most affect Austin would be the reduction in the air leakage requirement, large reductions in annual energy for users of the performance path, addition of demand response functionality to electric water heaters, update to the additional energy efficiency requirements structure to a points system for users of the prescriptive path, timer requirements in bathrooms, addition of additional energy efficiency requirements concept to existing construction and addition of readiness requirements (EV, Electric, Solar) in the code.