



Building Energy Codes

2024 Update

International Energy Conservation Code (IECC)



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Speakers



Patricia Chawla

Energy Efficiency Services Manager
Green Building and Emerging Tech
Austin Energy



Mark Leger

Engineer
Green Building and Emerging Tech
Austin Energy

Agenda



Introduction



Significant Changes



New Appendices



Outreach and Impacts

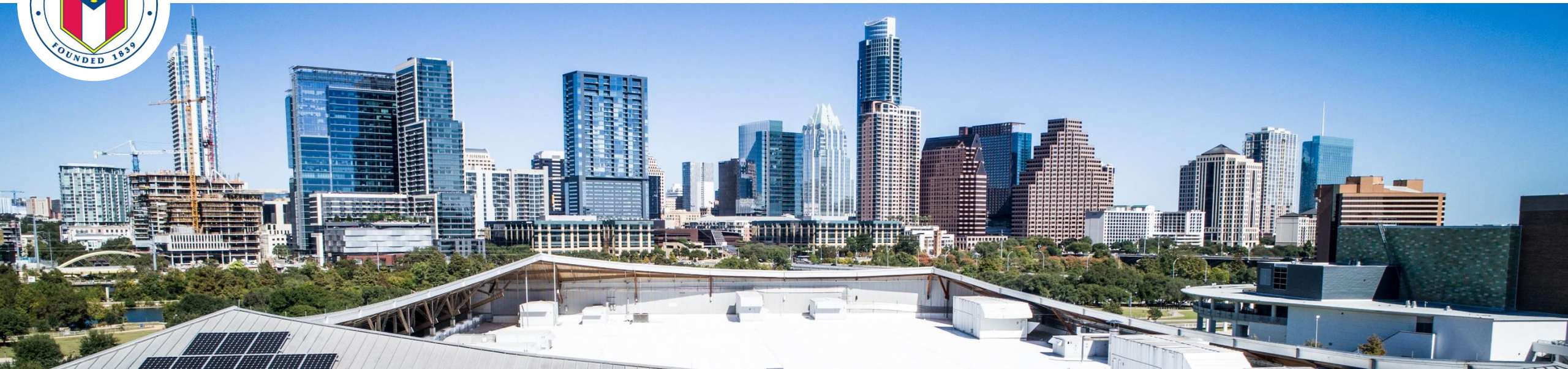


Next Steps and Q&A

Codes | Ordinances | Standards | Initiatives

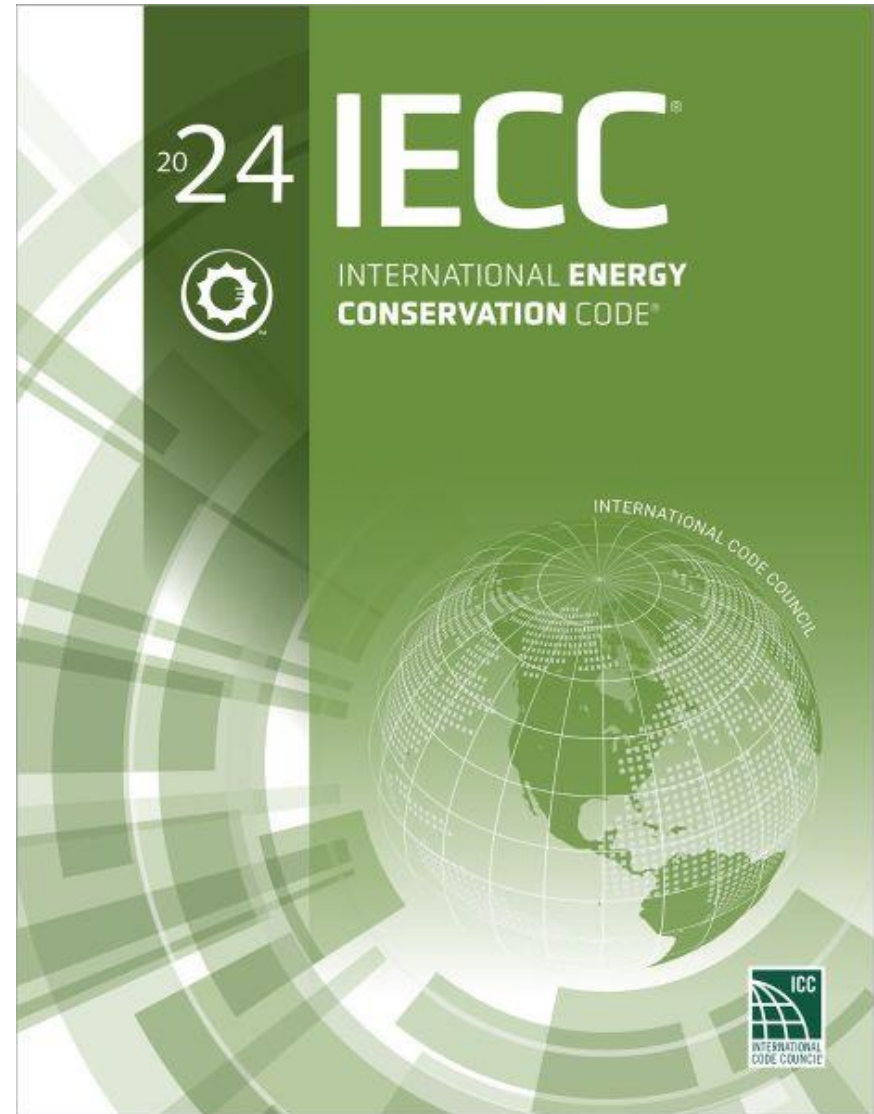
City Initiatives, Climate Protection Plan & Austin Energy Goals

- Zoning Overlays
- PUD Agreements
- SMART Housing
- Imagine Austin
- Zero Waste Plan
- Watershed Protection
- Water Conservation
- Vision Zero
- 800 MW Conservation Goal with 100 MW of DR
- 950 MW Solar Goal with 110 MW of Local Solar
- 55% Renewables Goal
- 10 MW Storage Goal
- 20% Emissions Reduction



Where to find?

- PDF (redlined) version available for purchase at shop.iccsafe.org/2024-international-energy-conservation-coder.html
- Free digital access version expected mid-July at codes.iccsafe.org/codes/i-codes/2024-icodes
- Print and PDF (non-redline) versions expected mid-July at shop.iccsafe.org/2024-international-energy-conservation-coder.html
- Proposed local amendments at publicinput.com/g4245



Significant 2024 Residential IECC Changes

Model and Local

Significant Changes – Residential

- Conversion of the current Additional Energy Efficiency requirement into a point system with envelope, mechanical, demand response and onsite solar options for prescriptive path users. Modeling path users to demonstrate up to 20% energy savings.
- Demand response controls must be included on electric water heaters.
- Bathrooms with intermittent exhaust fans must include controls to help remove excess moisture. Can include timers, occupant sensors, humidity control or contaminant control.
- Air leakage target reduction from 5 ACH50 to 4 ACH50 for this climate zone.
- Prescriptive attic insulation requirement decreased from R49 to R38.



Proposed Local Amendments – Residential

- Retained existing amendments where more stringent than model code
- Deleted amendments where now incorporated in model code or no longer needed
 - Footnote c to Table R402.1.3(1) & (2); R402.7 Attic Ventilation; R406.2 ERI Compliance; R406.3.2 On-site renewables are included; R406.4 Energy Rating Index; Table R406.5 Maximum Energy Rating index
- Deleted ‘R403.5.4 Demand Response of Electric Resistance Water Heating’ and Adopted Appendix RJ Demand Responsive Controls
 - Added exception for timers until Demand Response program for water heating is developed
- Adopted Appendices for Electric Vehicle (Appendix RE) and Electric Readiness (Appendix RK)
 - Added RK101.1.5 Water Heater Space
- Added wall space requirement to Ch 7 [RE] Residential Solar Ready in coordination with Austin Energy Solar team

Significant 2024 Commercial IECC Changes

Model and Local

Significant Changes - Commercial



- Air Leakage
 - Documentation/inspection option removed for Group R and I
 - Stringency increase from 0.4 cfm/ft² to 0.35 cfm/ft² and from 0.3 cfm/ft² to 0.27 cfm/ft² for Group R and I
- Updates to HVAC Efficiency Tables
 - Align with ASHRAE standard 90.1 2022 and federal standards
 - Increases in efficiency levels
- Total System Performance Ratio (TSPR) allows for trade-offs within HVAC system design (C409)
- Updates to Additional Efficiency Section C406 that provide additional credit paths that to align with ASHRAE standard 90.1 2022

Proposed Local Amendments - Commercial

- Retained existing amendments where more stringent than model code
- Deleted amendments where now incorporated in model code
 - C403.15 Demand response, C404.10 Electric water heater timers and C405.2 Lighting controls now all considered under Appendix CI – Demand Responsive Controls
- Adopted items from optional appendices with additional local amendments
 - Appendix CG – Electric Vehicle Charging Infrastructure
 - Table CG101.2.1. Amendment modifies EV space percentages to support local market conditions
 - CG101.2.1 Quantity. Amendment modifies the EV space percentages to accommodate long term parking garages.
 - CG101.2.5 System and circuit capacity. New local amendment adds separate requirements for long term parking garages.
 - CG101.2.5.4 Long term parking garages system and circuit capacity. Amendment allows Level 1 charging infrastructure.
 - Appendix CH – Electric-Ready Commercial Building Provisions
 - Appendix CI – Demand Responsive Controls
 - CI101.1 Demand responsive controls. Adds an exception for special occupancies and special applications.
 - CI102.1 Demand responsive water heating. Adds exceptions for water heater timers and special occupancy or special applications.
 - Appendix CJ – Electrical Energy Storage System

New Appendices

Model and Local

ESS and Renewable Energy

Commercial Only

- Prescriptive requirements for renewable energy systems were introduced
 - Provide system with 0.75 W/ft² based on the combined gross conditioned floor area of the three largest floors
 - Provisions for off-site renewables and procurement are given, including RECs and green retail tariff
- Requirements to either provide an Energy Storage System (ESS) or to have a space that is ESS ready were moved to optional Appendix CJ by the ICC board
- Worked with solar team to determine whether to adjust renewable energy systems and/or adopt ESS requirements



Demand Response (DR)



Residential – Appendix RJ

- DR controls required on electric storage water heaters
 - Timer allowed in exceptions
- Demand responsive thermostat option in R408
- Coordinated with Austin Energy DR team for their recommendations



Commercial – Appendix CI

- DR requirements were included in the City of Austin energy code through amendments
- DR provisions are now included in the 2024 IECC, though they have been moved to optional appendices
- Coordinated with Austin Energy DR team for their recommendations

Electric Vehicle Readiness

Residential – Appendix RE

- One- and two-family dwellings and townhouses = one EV-capable, EV-ready or EVSE per dwelling unit
- R-2 occupancies = EV-capable, EV-ready or EVSE space for 40% of dwelling units or automobile parking spaces, whichever is less

Commercial – Appendix CG

EV-capable and EV-ready quantities required determined by building occupancy type(s)

Commercial Required EV Power Transfer Infrastructure

OCCUPANCY	EV READY SPACES	EV CAPABLE SPACES
Group A	0%	10%
Group B	0%	30%
Group E	0%	30%
Group F	0%	5%
Group H	0%	0%
Group I	0%	30%
Group M	0%	30%
Group R-1	5%	35%
Group R-2	5%	35%
Group R-3 and R-4	0%	5%
Group S exclusive of parking garages	0%	0%
Group S-2 parking garages	0%	30%

Definitions

EV-Capable - Capacity and conduit

EV-Ready - Capacity, conduit, wiring and outlet

EVSE - Capacity, conduit, wiring and charging station

Electric Readiness



Residential – Appendix RK

- Capacity to be included in load calculations
- Dedicated branch circuit outlets shall be installed and terminate within three feet of and with a rating not less than
 - Cooking appliances: 240-volts, 40-amps
 - Clothes dryers: 240-volts, 30-amps
 - Water heaters: either 240-volts, 30-amps or 120V, 20-amps
- Exceptions allowed for equipment not installed or serving multiple dwelling units



Commercial – Appendix CH

- Combustion space heating
- Combustion service water heating
- Combustion cooking/clothes drying
- Hydronic systems
- Reserved space for future electric equipment
- Dedicated branch circuits

Outreach

Outreach

Who did we engage?

- A diverse set of stakeholder groups were selected and included internal city staff from various departments, contractors, custom builders, production builders, multifamily builder, Home Builder's Association, architects, affordable developer, energy code testers/HERS rater, commissioning agents, engineering firms, HVAC contractor, manufacturer, academia and interest groups such as Texas Gas, AIA, SPEER and local activists.
- The 2024 stakeholder list was based on the 2021 stakeholder list and an Office of Sustainability Grant Community Coordination stakeholder list, then updated to include a current, more diverse set of stakeholders.
- An estimated 157 organizations with 235 stakeholders were included.

Outreach - Preliminary

How did we communicate?

- Speak Up Austin
- Announcements at AEGB seminar
- Presentations
- Emails
- Newsletters

How many did we engage?

- Speak Up Austin
 - Main page = 834 views
 - COM = 138 views
 - RES = 118 views
 - RES + COM = 41 comments
- Newsletters = gathering metrics
- Presentations = 227 participants
- Total engagements = 266 participants

Projected Code Impacts

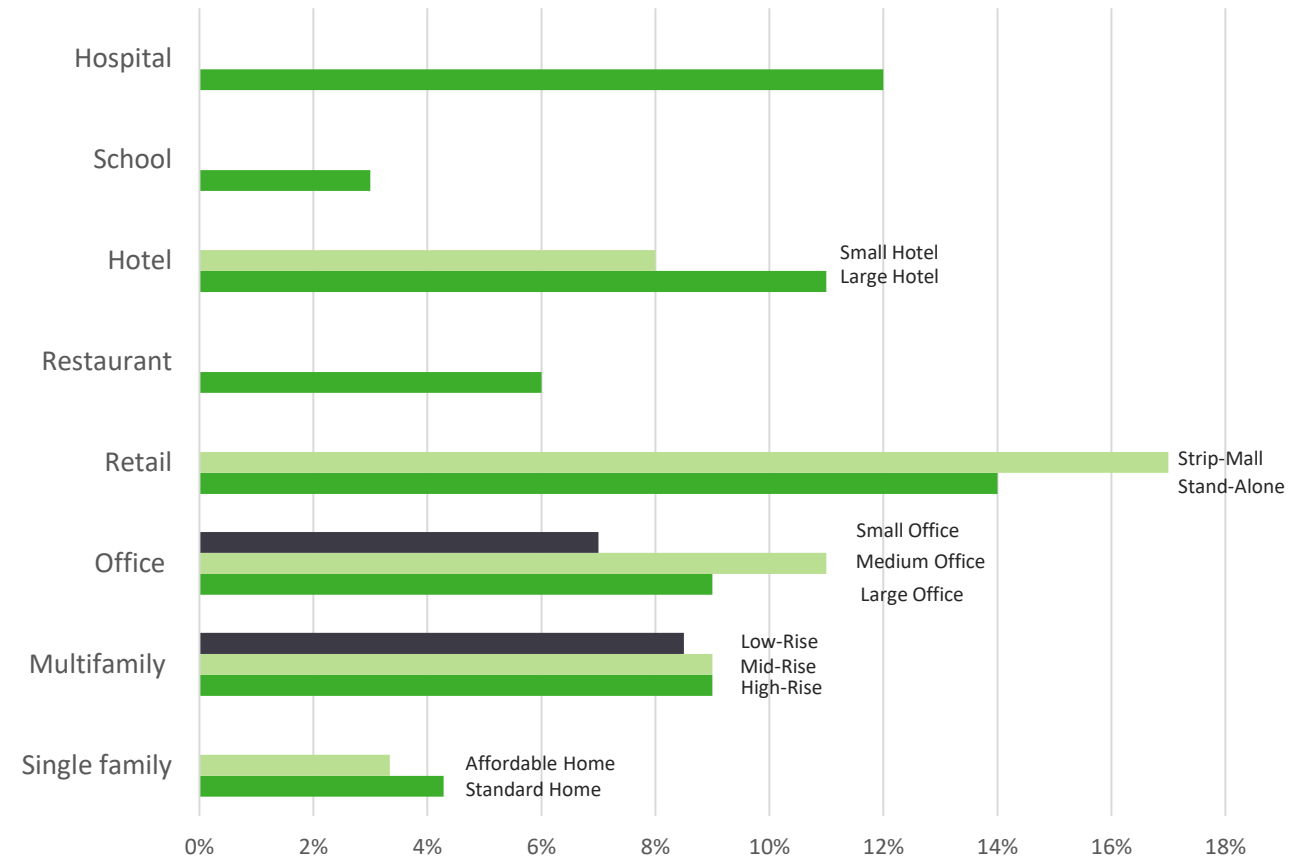
Projected Energy Savings Over 2021 COA Energy Code

Preliminary

Savings Percentage by Building Type

Projected Savings by Sector
Commercial 15,910 MWh | **8.3%**
Residential 7,298 MWh | **7.8%**

*Based on FY2024 building permits
Includes transmission & distribution factor*



Next Steps

Schedule

Board & Commission Presentations

- ~~4/16 RMC~~
- 7/11 Building & Fire Board
- 7/23 Mechanical & Plumbing Board
- 8/12 EUC
- 8/20 RMC

City Council

- 8/29 Set Hearing
- 9/12 Conduct Hearing

Implementation

- 1/1 Code becomes effective for new permit applications

