

2015 International Energy Conservation Code

Significant Changes

Shirley Ellis

Energy Codes Specialist
Texas A&M Engineering Experiment Station
shirleyellis@tamu.edu



The Role of the ESL

- Mandated to review the latest ICC editions
 - Ensure stringency of the latest IRC and IECC compared to current adopted statewide energy codes
 - Provide SECO a written recommendation based on analysis and review of public comments
- Evaluate energy efficiency programs
- Report emission reductions to Texas
 Commission for Environmental Quality (TCEQ)



The Role of the ESL

- Develop home energy rating system (IC3)
- Provide technical assistance with code implementation
 - Code implementation materials for builders, designers, engineers and architects
 - Provide local jurisdictions with technical assistance concerning implementation and enforcement
 - Develop a self-certification form for builders outside of municipalities



Evaluate proposed local amendments

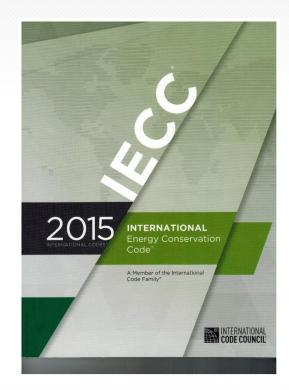


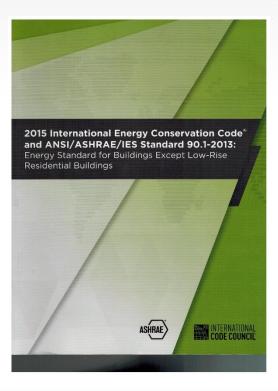
ENERGY SYSTEMS LABORATORY TEXAS A&M ENGINEERING EXPERIMENT STATION



Presentation Synopsis:

The significant changes to the 2015 IECC

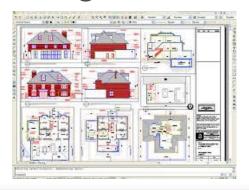


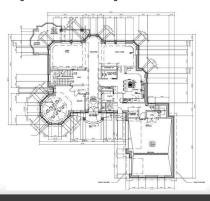




Chapter 1 – Scope and Administration

- New chapters on Existing Buildings
 - Relocated requirements from Chapter 1
- Information on construction documents
 - Additional details and clarification
 - Building thermal envelope depiction





Chapter 2 – Definitions - Commercial

- Air Curtain
- Alterations
- Approved agency
- Basement wall
- Boiler, modulating
- Boiler system
- Bubble point

- Circulating Hot Water System
- Climate zone
- Computer Room
- Condensing Unit
- Conditioned space
- Continuous insulation

- Daylight responsive control
- Daylight zone
- Demand recirculation water system
- Fan efficiency grade
- Fan system BHP

- Fan system motor nameplate
- Fenestration
- Floor area, net
- General purpose electric motor (I)
- General purpose electric motor (II)

- Greenhouse
- High speed door
- Historic building
- Insulated SheathingLiner system
- Low-sloped roof
- Low-voltage dry-type distribution

transformer

- Occupant sensor control
- Opaque door
- Powered roof/wall ventilators
- Radiant Heating system

- Refrigerant dew point
- Refrigerated warehouse cooler
- Refrigerated warehouse freezer
- Refrigerated warehouse freezer
- Refrigeration system,
 low temperature

- Refrigeration system, medium temperature
- Registered design professional
- Repair
- Reroofing
- Roof recover
- Roof repair

- Roof replacement
- Rooftop monitor
- Saturated condensing temperature
- Small electric motor
- Sunroom
- Time switch control

- Variable refrigerant flow system
 - Walk-in cooler
- Walk-in freezer
- Wall above-grade
- Wall below-grade
- Water heater

202 - General Definitions - Residential

- Alteration
- Approved Agency
- Circulating Hot Water
 System
- Conditioned Space
- Continuous Insulation
- Entrance Door
- ERI Reference Design

- Fenestration
- Historic Building
- Insulated Siding
- Reroofing
- Roof recover
- Roof repair
- Roof replacement
- Vertical fenestration

Chapter 3 Design Conditions

- Insulated Siding R-value
- Warm and Humid designation removed
 - Bandera, Dimmit, Edwards, Frio, Kinney
 - La Salle, Maverick, Medina, Real, Uvalde
 - Val Verde, Webb, Zapata, Zavalda
- Tropical Zone added

Commercial – Building Thermal Envelope

- Equipment Building exceptions added
- Table C402.1.3 R-value method
 - Changes to "Insulation entirely above roof deck" - all Texas climate zones
 - Removed swing doors
- Table 402.1.4 *U*-factor method
 - Changes to "Insulation entirely above roof deck" and "Mass walls" - all climate zones
 - Added swinging doors no changes in values

- Cold-formed steel walls
- Component performance alternative
- Roof assembly additional exceptions
- Mass wall added heat capacity
- Floors insulation placement
- Radiant heating systems insulation
- Roof solar reflectance and thermal emittance – exceptions expanded

Commercial - Fenestration

- Daylight responsive controls
- Added minimum skylight fenestration
 - Office, lobby, atrium, retail store, etc.
- Haze factor requirements added
- Skylight U-factor, SHGC increases
- Dynamic glazing added

Commercial

- Air leakage
 - Building envelope assemblies added
 - Fenestation exceptions added
- Rooms containing fuel-burning appliances
- Vestibules exceptions
 - Air curtains added
- Recessed lighting clarified



Commercial - Mechanical

- Minimum Efficiency Requirement Tables
- Requirements for economizer fault detection and diagnostics
- Enclosed parking garage ventilation controls
- Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers

- Economizers (Prescriptive) changes to requirements
- Demand controls for recirculation systems
- Requirements for hot water circulation and heat trace systems and controls
- Drain Water Heat Recovery option not included in the Performance path

- Minimum performance criteria were improved for the following applications to match ASHRAE 90.1-2013 standards:
 - AC/Heat pump
 - Energy recovery equipment
 - Kitchen exhaust flow
 - Refrigeration
 - Economizers, controls, and VAV fans
 - Heat rejection equipment
 - 1/12 1 hp fans

- Multi-zone VAV systems
- Hot water system controls
- Exterior lighting controls
- Lighting power densities
- Electric transformers
- Electrical motors
- People movers
- Lighting O&M manual



Commercial - Electrical

- Occupant sensor controls new requirements
- Daylight-responsive controls
- Electrical motors minimum efficiency requirements
- Vertical and horizontal transportation systems and equipment

Commercial

- Additional Efficiency Package Options
 - Lighting separated into power density and controls
 - Dedicated outdoor air system on some HVAC
 - High-efficiency service water heating

Commercial

- Total Building Performance added Exceptional calculation method
 - Where the simulation program does not model a proposed design, material or device
- Service water-heating systems add to Commissioning

Residential

- Duct reduces insulation from R-8 to R-6 on duct less than 3 inches in diameter
- Demand recirculation systems
- Lighting equipment increased to 75%
- Establishes criteria for compliance using an ERI analysis
- Performance path now requires a second report based on as-built conditions

Residential

- Appendix RA Recommended Procedure for Worst-Case Testing of Atmospheric Venting Systems Under R402.4 or R405 Conditions <5ACH₅₀
- Appendix RB Solar-Ready Provisions –
 Detached One- and Two-Family
 Dwellings, Multiple Single-Family
 Dwellings (Townhouses)



Questions????

Thank you for your time and attention