

## Regional Energy Efficiency Workshop with SPEER

### Wednesday, June 28, 2023, 10am-12pm

Location: WCTCOG Law Enforcement Training Facility

Speakers: Shaun Auckland, Local Government Program

Manager and Randy Plumlee, Code Program Manager

Topic: UTILIZING BUILDING CODES TO EXPANDING HAZARD MITIGATION

The West Central Texas COG partnered with the South-central Partnership for Energy Efficiency as a Resource (SPEER) to host a workshop for city and county employees interested in hazard mitigation, code enforcement, and energy efficiency. 14 people attended the workshop, and 2 speakers from SPEER presented. The workshop started at 10 am, and presentations took about an hour and a half. The last thirty minutes was dedicated to lunch, networking, and an open discussion about resources available.

The presentation by SPEER included an explanation of who the organization is, and then an explanation of codes and their importance. Mr. Plumlee discussed relevant legislative updates on energy codes, and practical applications for integrating codes into city plans.

Discussion topics attendees were interested in included:

- Code enforcement
- Which codes need to be in place and updated (from state and local perspectives)
- How to pass resolution for updating codes
- Funding
- Clarification that codes are typically enforced by a city, not county
- Clarification that typically there is no new construction in most rural cities that codes can apply to, but rather codes may be applied to remodeling projects.

Outcome: SPEER and WCTCOG relationship was developed further, and SPEER provided great knowledge and resources to communities in the WCTCOG region.

Attached materials:

1. West COG Workshop.pdf (presentation)
2. Sign in sheet workshop 6-28-23.pdf



# REGIONAL ENERGY EFFICIENCY WORKSHOP-

## UTILIZING BUILDING CODES TO EXPANDING HAZARD MITIGATION

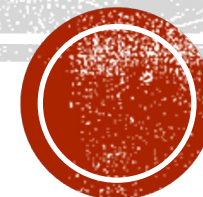
June 28th, 2023



## Agenda

- Welcome and Introductions
- Round Robin
- “Utilizing Building Codes to Expanding Hazard Mitigation” Randy Plumlee, Energy Codes Manager, South Central Partnership for Energy Efficiency as a Resource (SPEER)

- Workshop Discussion
- Wrap Up





# HOUSEKEEPING

- Questions are welcome
- Presentations will be posted on the SPEER website ([eepartnership.org](http://eepartnership.org))
- Survey will be provided in the follow-up email



# Introductions (Round Robin)



**Name, Title, and Organization**



## WHO IS SPEER?

- REEO – Regional Energy Efficiency Organization
- Member-based, non-profit 501(c)3 organization
- 50+ members from wide cross section of E.E. industries
- [www.eepartnership.org](http://www.eepartnership.org).



# PRESENTATION OVERVIEW

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## **Energy Code in State Law**



## **Residential Energy Code Overview**

Layout  
Compliance paths  
Other “IECC 101” items



## **Changes in the 2021 IECC (Res)**



## **Q&A**





## **THE HUMAN VALUE OF CODE ADOPTION. IT'S MORE THAN DOLLARS AND CENTS.**

- More lives saved and fewer people injured.
- Fewer people displaced and for shorter periods.
- More people can shelter in place while waiting for repairs.
- Wellness increases; mental trauma is reduced.
- Social and business disruption is reduced.
- Faster recovery from a disaster.
- Reduced loss of income.
- Continued public services, including to underserved communities.





# HAZARD MITIGATION

\*FEMA GUIDE TO EXPANDING MITIGATION MAKING THE CONNECTION TO CODES AND STANDARDS



**International Energy Conservation Code:** Can enhance social resilience through reducing monthly energy costs for vulnerable residents.



**International Plumbing Code:** Reduces the impacts of rain, snow and flooding by providing ways to convey stormwater away from the building and standards for subsoil drainage.



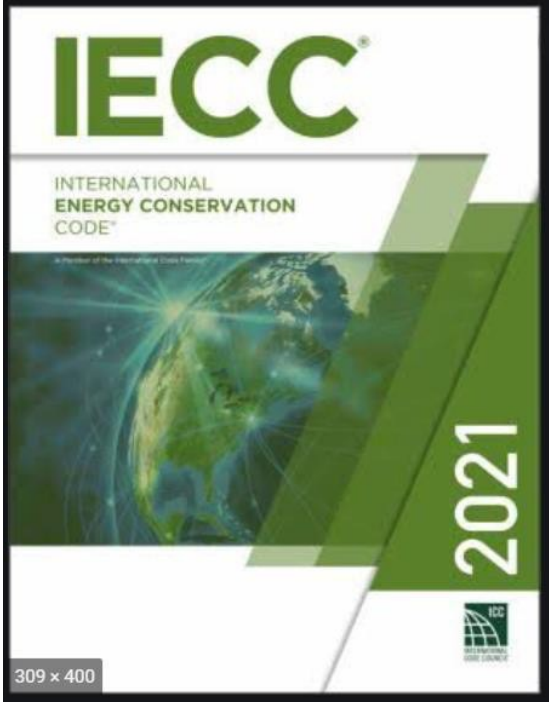
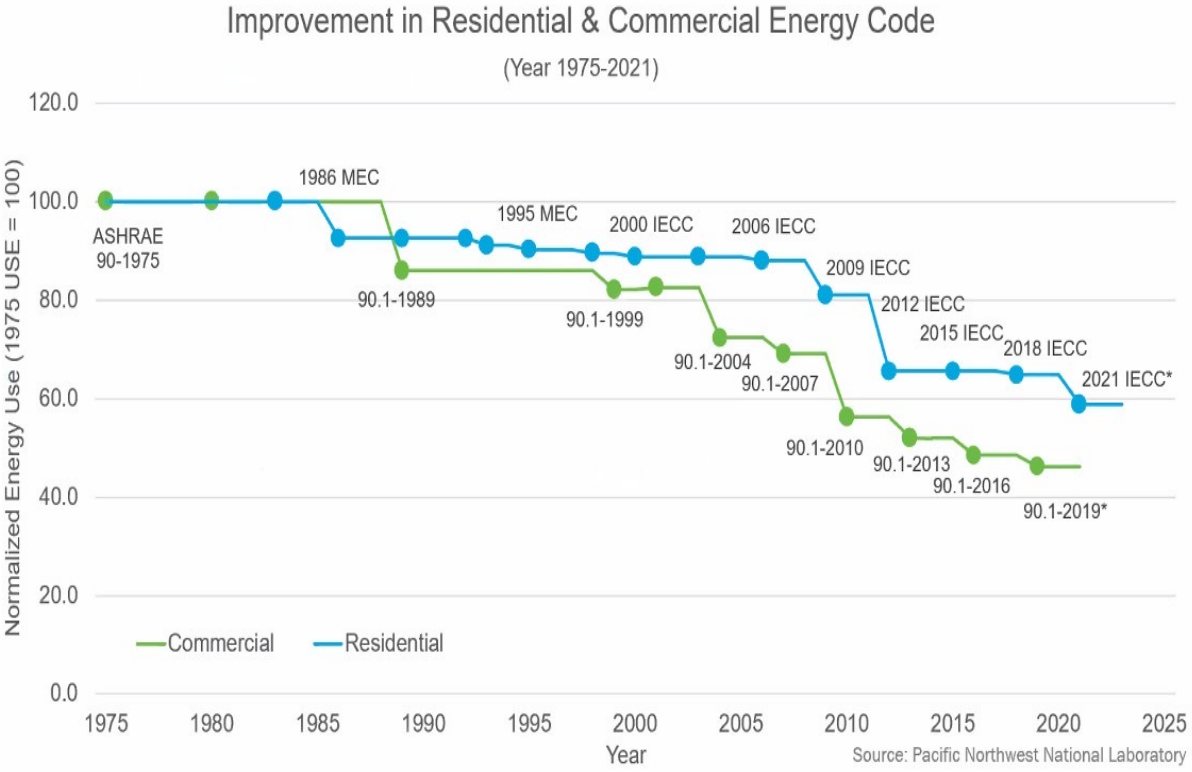
**International Wildland Urban Interface Code:** Reduces risks from wildfire to life and property by regulating structure density and location, building materials and construction, vegetation management, adequate water supply, and emergency vehicle access.



**International Zoning Code:** Encourages smart growth strategies that help communities adapt to climate change, including flooding and sea level rise.



# Historical Improvement: IECC and Standard 90.1



## Code Council releases new framework to address energy efficiency needs across the entire building industry

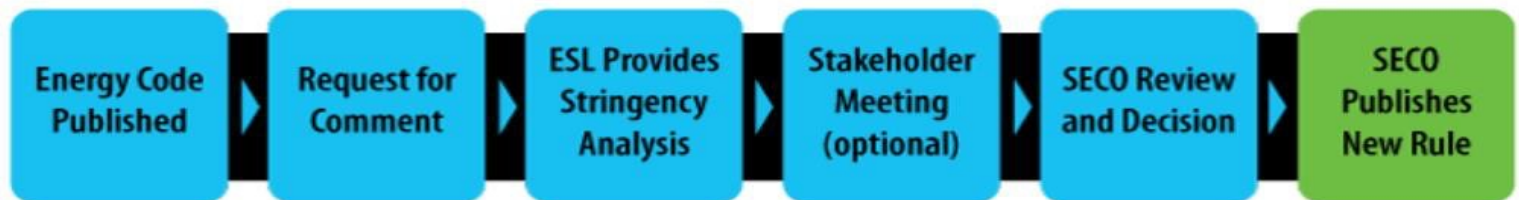


The International Code Council released a new framework — Leading the Way to Energy Efficiency: A Path Forward on Energy and Sustainability to Confront a Changing Climate — to assist in meeting energy efficiency goals. The framework includes using the Code Council’s ANSI-approved standards process to update the International Energy Conservation Code.

# ICC UPDATES



# Texas Adoption Process



- IECC was published in January 2021
- ESL will take until August to provide stringency analysis
- SECO will hold a stakeholder meeting and consider comments



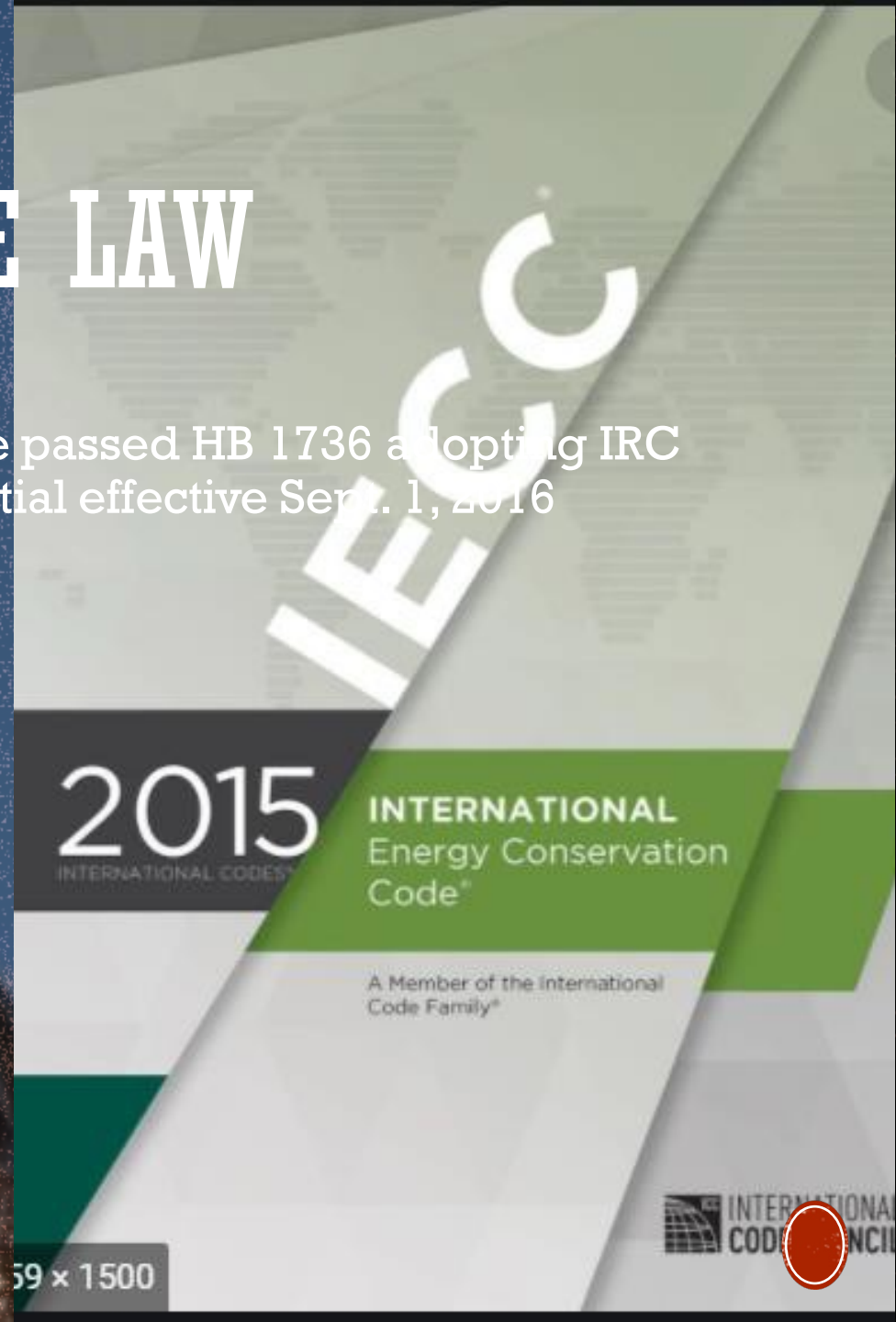


# ENERGY BURDEN:

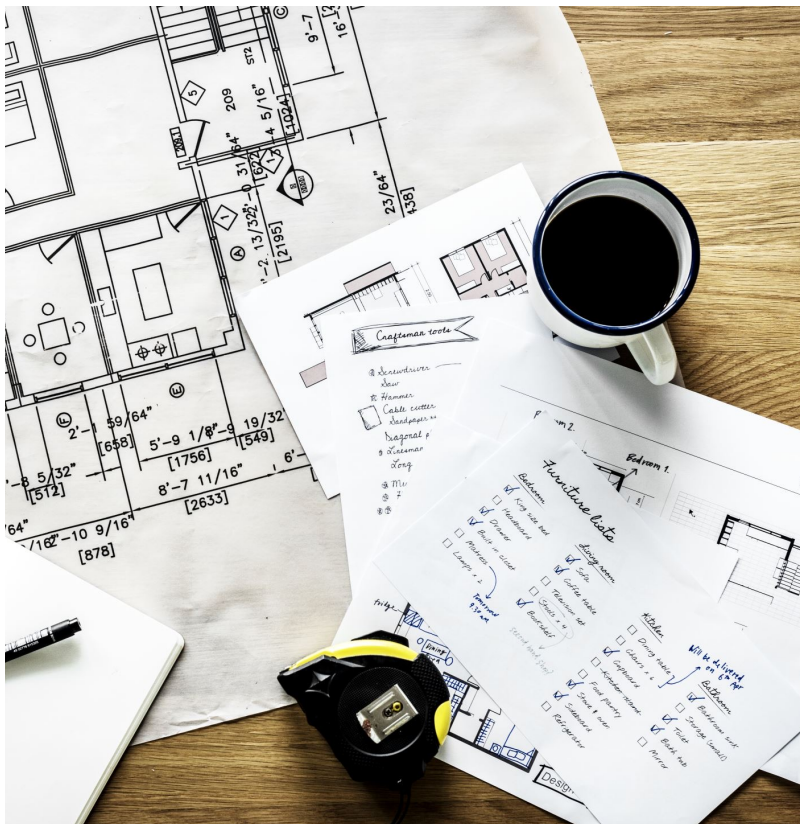
ENERGY BURDEN IS DEFINED AS THE PERCENTAGE OF GROSS HOUSEHOLD INCOME SPENT ON ENERGY COSTS. ACCORDING TO DOE'S LOW-INCOME ENERGY AFFORDABILITY DATA (LEAD) TOOL THE NATIONAL AVERAGE ENERGY BURDEN FOR LOW-INCOME HOUSEHOLDS IS 8.6%, THREE TIMES HIGHER THAN FOR NON-LOW-INCOME HOUSEHOLDS WHICH IS ESTIMATED AT 3%.

# CURRENT STATE LAW

- 2015 session of TX Legislature passed HB 1736 adopting IRC energy provisions for residential effective Sept. 1, 2016



# LAYOUT OF THE IECC



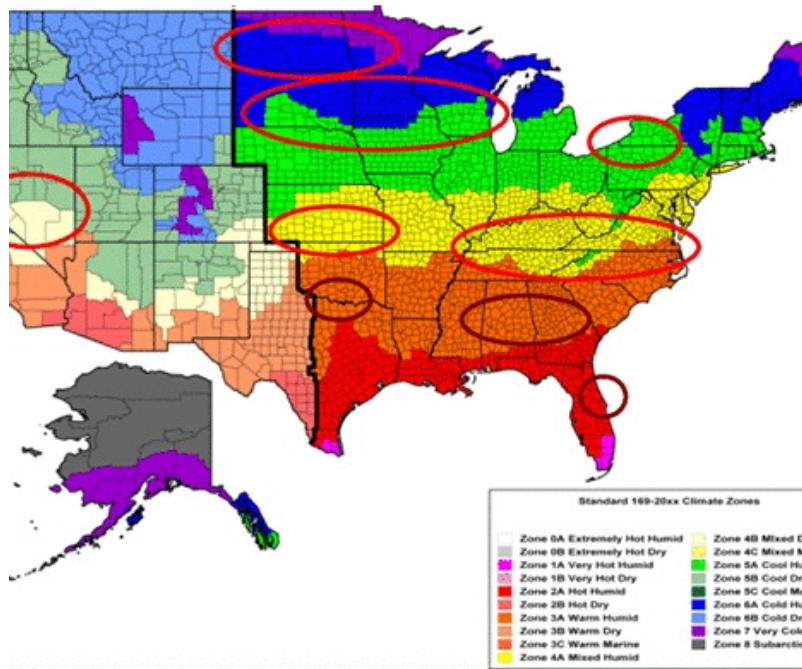
- Chapter 1 – Scope and Administration
- Chapter 2 – Definitions
- Chapter 3 – General Requirements
- Chapter 4 – Residential Energy Efficiency
- Chapter 5 – Existing Buildings
- Chapter 6 – Referenced Standards Appendices



# CLIMATE ZONE

## WHAT EXACTLY IS A CLIMATE ZONE?

the zone map, with areas that will change zone in 20



- Found in Chapter 3
- Listed by county

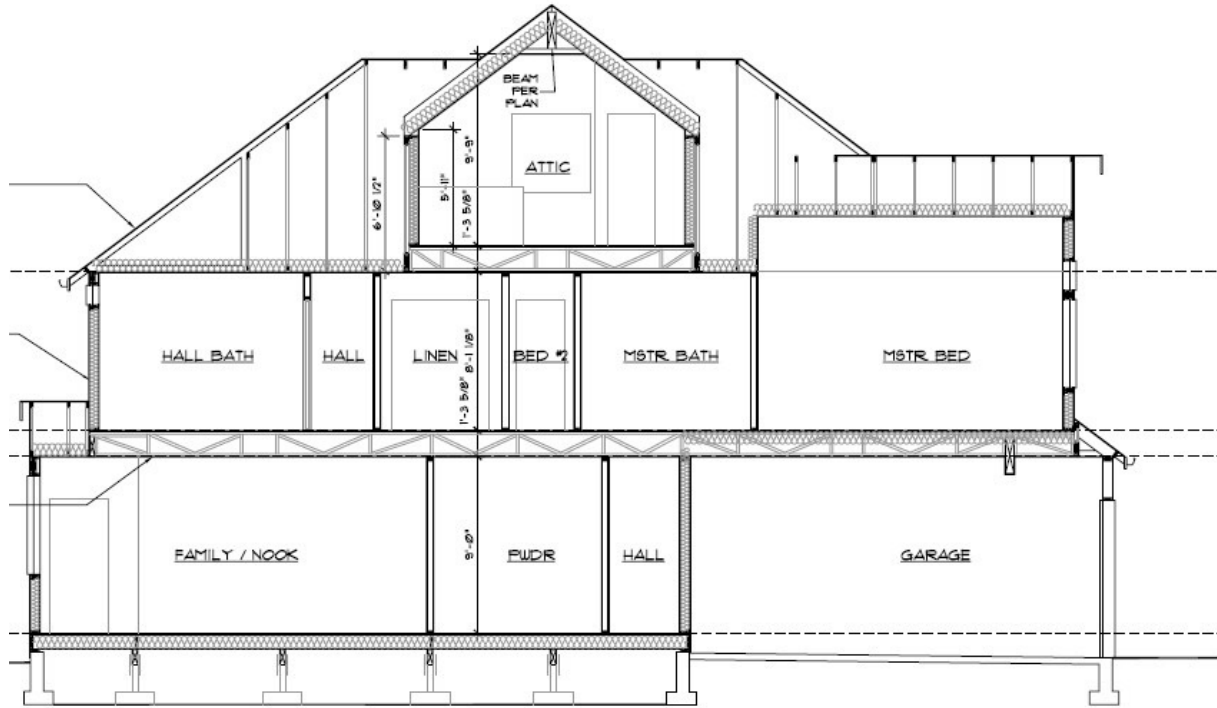




# REQUIRED INSPECTIONS- ENERGY RELATED

- Footing and Foundation Inspection
- Framing and Air Barrier Rough-in Inspection
- Insulation and Fenestration Rough-in Inspection
- Plumbing Rough-in Inspection
- Mechanical rough-in inspection
- Final inspection





# BUILDING THERMAL ENVELOPE

- Verify the buildings envelope complies with the energy code





**IECC  
COMPLIANCE  
- FOUR  
OPTIONS**

**Prescriptive**

- R Value No trade-offs

**PRESCRIPTIVE (REcheck)**

- UA (tradeoffs between components)

**SIMULATED PERFORMANCE**

- Simulated Performance Alternative R405

**ENERGY RATING INDEX (ERI)**

- ERI Compliance Alternative R406

**ENERGY STAR**

- Current Version 3.1

# YOU NEED SOFTWARE!

Prescriptive – Total UA



Performance R405



**REM/Rate**<sup>TM</sup>



Energy Rating Index R406



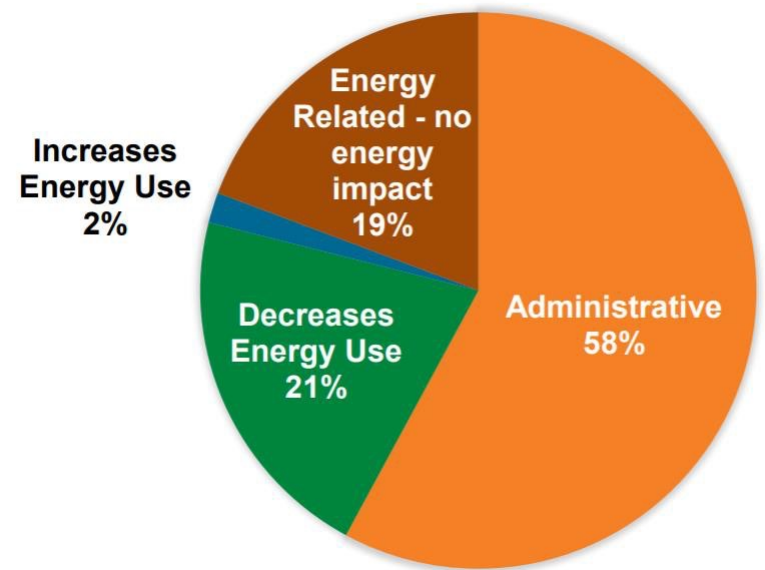
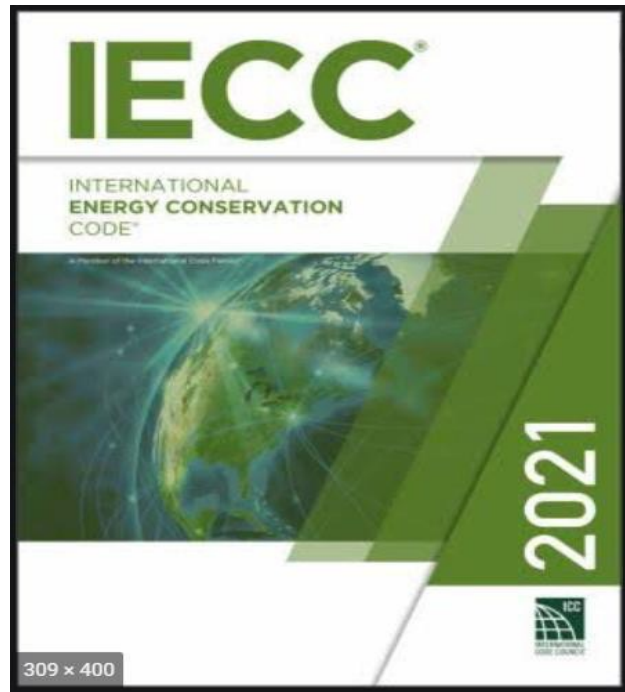
# ALL MANDATORY MEASURES MUST BE COMPLETED REGARDLESS OF COMPLIANCE PATH!

## 2015 Residential Mandatory Requirements

- R401.3 Certificate
- R402.4 Air leakage – Basically installation table and testing
- R402.5 Max U-factor and SHGC
- R403.1 Controls
- R403.3.2 Sealing & R403.3.3 Duct testing
- R403.3.5 Building cavities
- R403.4 Mechanical system piping insulation
- R403.5.1 Heated water circ and temp maintenance systems
- R403.6 Mechanical ventilation
- R403.7 Equipment sizing and efficiency rating
- R403.8 Systems serving multiple units & R403.9 Snow melt
- R403.10 Pool and spa energy consumption. 403.11 Spas
- R404.1 Lighting equipment



# 2021 IECC DISCUSSION – 114 CHANGES



# ADDITIONAL EFFICIENCY REQUIRED — 5 OPTIONS

- **R401.2.5 Additional energy efficiency.**
- For buildings complying with [Section R401.2.1](#), (prescriptive) one of the additional efficiency package options shall be installed according to [Section R408.2](#).
- For buildings complying under with [Section R401.2.2](#) , (performance) the building shall meet one of the following:
  - One of the additional efficiency package Options in [Section R408.2](#) shall be installed without including such measures in the proposed design under [Section R405](#); or
  - The proposed design of the building under [Section R405.3](#) shall have an annual energy cost that is less than or equal to 95 percent of the annual energy cost of the standard reference design.
- For buildings complying with the Energy Rating Index alternative (ERI) [Section R401.2.3](#), the Energy Rating Index value shall be at least 5 percent less than the Energy Rating Index target specified in [Table R406.5](#).
- [The option selected for compliance shall be identified in the certificate required by Section R401.3.](#)



**R8 ONLY,  
DUCTS IN  
ATTICS  
+  
BURIED  
DUCTS**

- Supply and return ducts located outside *conditioned space* shall be insulated to an *R*-value of not less than R-8 for ducts 3 inches (76 mm) in diameter and larger and not less than R-6 for ducts smaller than 3 inches (76 mm) in diameter. Ducts buried beneath a building shall be insulated as required per this section or have an equivalent thermal distribution efficiency.
- Underground ducts utilizing the thermal distribution efficiency method shall be listed and *labeled* to indicate the *R*-value equivalency.





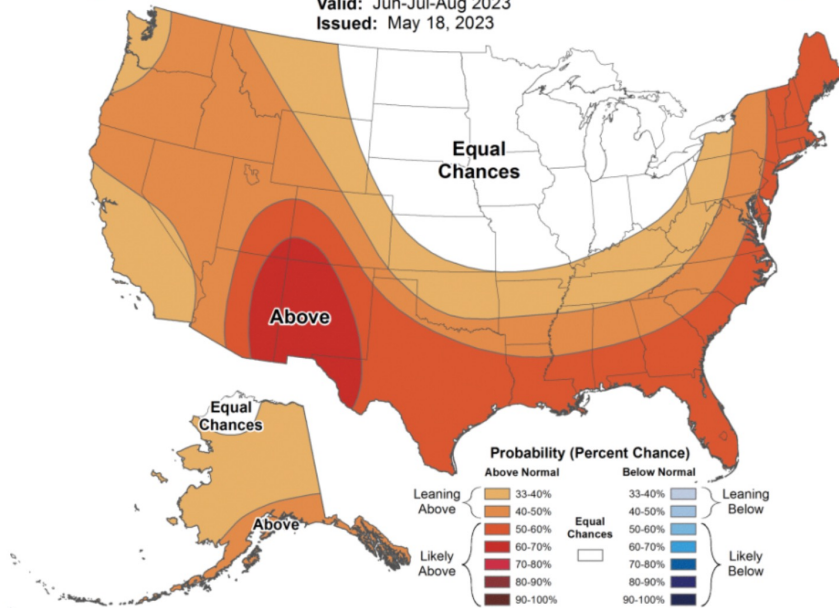
KXAN



## Seasonal Temperature Outlook



Valid: Jun-Jul-Aug 2023  
Issued: May 18, 2023



NOAA releases Texas summer weather predictions | KXAN Austin

[Visit](#)

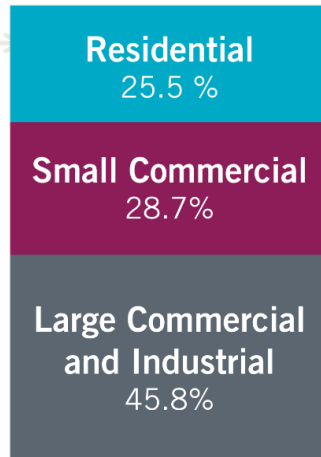
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# SUMMER IMPACTS

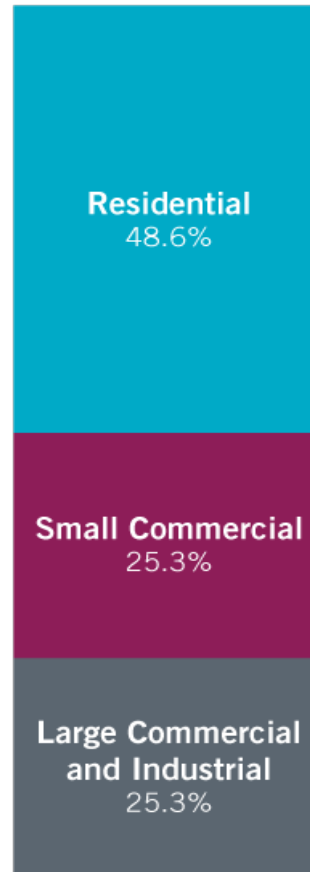
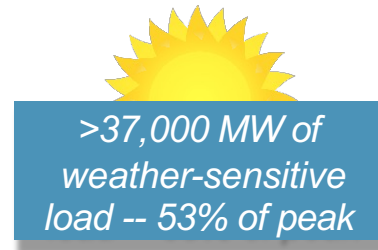


# SUMMER WEATHER IMPACTS ON LOAD BY CUSTOMER TYPE

Thursday, March 24, 2016  
 5:00 p.m.  
 ERCOT Load: 33,597 MW  
 Temperature in Dallas: 62°



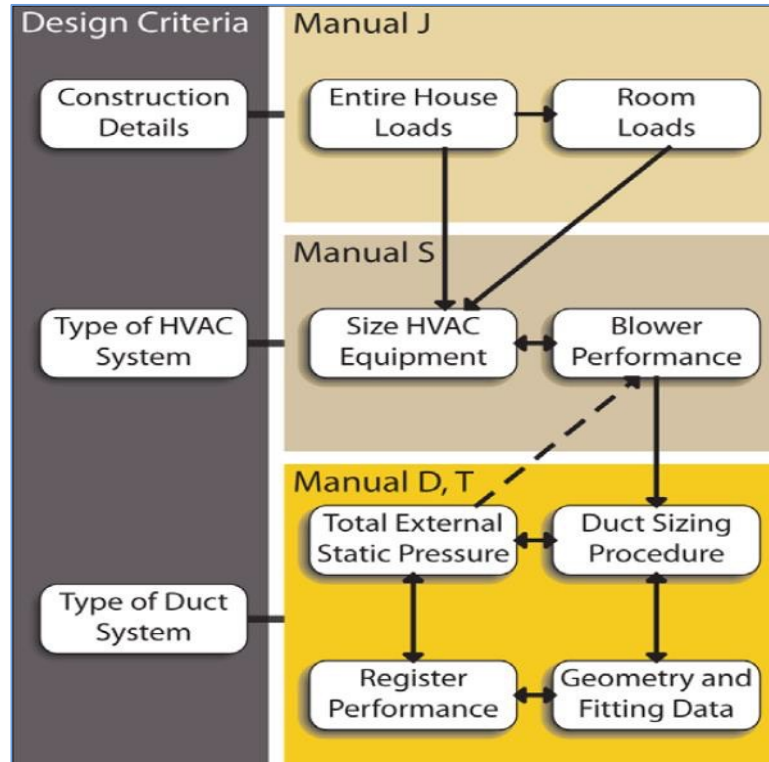
Thursday, Aug. 11, 2016  
 5:00 p.m.  
 ERCOT Load: 71,093 MW  
 Temperature in Dallas: 106°



- customer class breakdown is for competitive choice areas; percentages are extrapolated for municipals and co-ops to achieve region-wide estimate
- Large C&I are IDR Meter Required (>700kW)
- Hourly integrated demand values



# ACCA MANUAL J & S AND MANUAL D - REQUIRED



**Required- IECC/IRC**  
Manual J & Manual S or other  
approved method  
2015 R403.7  
2009 & '12 403.6

**Required – IRC 1601.1**  
Design the ductwork according to  
Manual D or other approved  
method



**TABLE M1507.3.3(1) - 2015  
IRC**

Dwelling unit Floor Area (sq <sup>ft</sup> )	NUMBER OF BEDROOMS				
	0 - 1	2 - 3	4 - 5	6 - 7	> 7
	AIRFLOW IN CFM				
< 1,500	30	45	60	75	90
1,501 - 3,000	45	60	75	90	105
3,001 - 4,500	60	75	90	105	120
4,501 - 6,000	75	90	105	120	135
6,001 - 7,500	90	105	120	135	150
> 7,501	105	120	135	150	165

Table M1507.3.3(1): Continuous Whole-House Mechanical Ventilation System Airflow Rate Requirements  
For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s.

**Intermittent Run-Time Multiplication Factors**

Run- Time Percentage In Each 4-Hour Segment	25%	33%	50%	66%	75%	100%
Factor <sup>a</sup>	4	3	2	1.5	1.3	1.0

Table M1507.3.3(2): Intermittent Whole-House Mechanical Ventilation Rate Factors<sup>a, b</sup>

<sup>a</sup> For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.

<sup>b</sup> Extrapolation beyond the table is prohibited.

**Ventilation  
Airflow  
Requirements  
2021 IECC...  
TESTING  
NOW  
REQUIRED!**



“...builders who go ahead and move to the 2021 code now are likely to qualify for the \$2,000 Section 45 New Home builder tax credit and get an Energy Star label on the home” Curt Rich - NAIMA

### Currently Proposed Legislation:

° Homes labeled by the EPA ENERGY STAR Homes Program. The credit for meeting ENERGY STAR would be \$2,500.

° Homes labeled by the DOE Zero Energy Ready Homes Program. The credit for meeting Zero Energy Ready Homes Program would be \$5,000.

**DON'T FORGET  
ABOUT THE 45L  
TAX CREDIT...**



# BUILDING TECH OPTIMIZATION

Promoting code compliance across Texas and Oklahoma through education and outreach. We aim to optimize energy efficiency, durability, and affordability.

## CODE PROGRAM

- Code Ambassadors
- Code Training Webinars- Call for Presenters
- Texas Energy Code Compliance Collaborative (TECCC)
- Onsite Field Training

### TRAINING

Adoption and enforcement of new energy codes can be difficult. Our goal is

### CODES

We compile the most up-to-date code information across Texas and



the wa  
can be

# LOCAL GOVERNMENTS

Local governments are demonstrating leadership through energy efficiency. Energy management programs and efficiency projects enable cities to better maintain their buildings and equipment while saving public monies in utility expenses. SPEER's Local Governments Program support city energy management by facilitating sharing of best practices in energy efficiency, while strengthening relationships among local governments.

## YouTube Page

Local Government webinar archive

### City Efficiency Leadership Council (CELC)

The City Efficiency Leadership Council (CELC), part of SPEER'S Local Government Program, is a collaborative network of Texas cities, school districts, and other public entities engaged in partnership and resource exchange to expand the adoption of energy management best practices in the public sector. The City Efficiency Leadership Council supports cities of all sizes and school district energy management best practices. This membership is FREE and sponsored by State Energy Conservation Office (SECO).

### Local Government Energy Reporting Outreach

We provide education and technical assistance with local government energy efficiency and reporting requirements.

### Statewide TX Public Sector Engagement & Survey Group

SPEER in partnership with the Texas State Energy Conservation Office (SECO) has launched a statewide Texas Energy Engagement Group to assess local government and public sector energy needs. Come participate with us and provide valuable insight into important issues such as Texas' energy equity, resiliency, and sustainability to produce an understanding of what cities and local governments find essential for efficiency and energy strategies and programs.

### City Efficiency Toolkit

Dive into this how-to and resource guide for establishing or building energy efficiency programs and initiatives. SPEER worked with CELC member cities to consolidate relevant resources in ten toolkit modules. We will continue to update the toolkit as resources and module topics emerge from the network.

# FUNDING OPPORTUNITIES



- Office of Energy Efficiency and Renewable Energy (EERE)
  - [EERE Exchange](#)
- [Federal and State Incentives for Renewables and Efficiency](#)  
[State Energy Conservation Office](#)
  - Cool Chillers HVAC Loan Program (Aug 31, 2023)
  - LoanStar Program
  - PACE
  - Financing Energy Upgrades for K-12 School Districts





# INVESTING IN COMMUNITIES

## Energy Efficiency and Conservation Block Grants

- **Overview:** Flexible-use grants for planning and deployment of energy efficient practices and technologies
- **Funding:** \$550 million
- **Eligible Entities:** States, local gov'ts, and Tribes
- **Status:** Applications are open for \$430M in formula grants. Submit [Pre-Award Information Sheet](#) by July 31.

State of Texas allocation: **\$4,848,610**

Local government allocation: **\$24,102,500**

105 local governments are eligible for funds in TX.

[All eligible local governments and allocations can be found here.](#)



# CELC City Efficiency Leadership Council



## **What is the City Efficiency Leadership Council (CELC)?**

A collaborative network of Texas cities, school districts, and other government entities engaged in partnership and resource exchange in an effort to expand the adoption of energy management best practices in the public sector.

## **How can CELC support energy management in my city?**

Regional Roundtable Luncheons, Webinars, City Best Practices Case Studies, City Efficiency Toolkit, Local Government Energy Reporting Assistance, Portfolio Baseline and Benchmarking, Technical Support

## **How can my city get involved?**

Contact SPEER to set up a brief intake interview OR Attend a regional roundtable luncheon

## **Who can join CELC?**

Open to staff of any public jurisdiction including city and county governments, public school districts, and other publically funded entities.

# TEXAS STATEWIDE ENERGY SURVEY



**ENERGY EFFICIENCY,  
SUSTAINABILITY, and  
PARTNERSHIP**



## Texas Statewide Focus Group



## Participate in the Texas Statewide Energy & Sustainability Focus Group!



# STATEWIDE FOCUS GROUP

valuable insight into important issues such as Texas' energy equity, resiliency, and sustainability

# Webinar Archives

our previous City Efficiency Leadership Council and Energy Code [page](#). This is a great resource for topics and presentations presented by experts on energy code and local government-related issues such as best practices of duct sealing, envelope sealing, benchmarking with peers, and so much more.

[YOUTUBE PAGE](#) →



## RESOURCES

- [SPEER YouTube Channel](#) (over 100 videos)
- [Monthly Webinars](#)
- In-person trainings, workshops, networking events
- [Monthly Newsletters](#)

Br  
by **OUR SPEAKERS**

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# RESOURCES

- [Guide to Expanding Mitigation- FEMA](#)
- [Local Hazard Mitigation Plans Program \(LHMPP\)](#)
- [Hazard Mitigation Assistance Grants](#)
- [Bipartisan Infrastructure Law Grant Programs](#)
- [Using Low Impact Development and Green Infrastructure to Get Benefits From FEMA Programs](#)
- [Green Infrastructure Funding Opportunities](#)
- [Energy Code Training](#)
- [SPEER YouTube Channel](#)



# CLOSING

- Codes reduce energy consumption
- Support Hazard Mitigation
- Only effective if they are enforced



# DISCUSSION



- Discussion Topics:
- Slido.com 2144756
  - What is your organizations interest in hazard mitigation?
  - What are your thoughts about utilizing building codes as mechanism for hazard mitigation
  - What are some challenges for adopting updated building codes?
  - Challenges driving public engagement?







# What are your current challenges with hazard mitigation? (code, staff, funding, etc)

Wordcloud Poll 10 responses 7 participants





## What are your current challenges with hazard mitigation? (code, staff, funding, etc)

Wordcloud Poll 10 responses 7 participants

Emergency Management

Public safety

To learn about Mitigation

**Knowledge !**

Ideas

Safety

Work

Preparedness





# ANNOUNCEMENTS:

- [Webinar: Understanding and evaluating Manual J and S reports](#)
  - June 29<sup>th</sup> 11:30 am -1:00 pm
- [Statewide Focus Group](#)
  - July 27<sup>th</sup> 10:00 am -11:30 am
- [CELC Webinar: Plug loads management for commercial buildings](#)
  - July 11<sup>th</sup> 12:30 pm-1:30 pm
- [SPEER Industry & Policy Workshop Austin, TX](#)
  - September 14 & 15





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**Shaun Auckland**

Local Government Program  
Manager

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# Building Code Workshop

Wednesday, June 28, 2023 at 10:00am-12:00pm

Name	Agency Represented	Telephone #	E-Mail Address
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Wesley Turner	Breckenridge	(806) 759-1492	RTurner@breckenridgetx.gov
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Dennis Jobe	" " "	325-625-4116	Dennis.Jobe@cityofcolemanTX.us
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KEITH COLLOM	WCTCOG HS	325-794-6285	KCollom@WESTCENTRALTEXAS.ORG
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Ferra New	WCTCOG		
Kristen McKinney	WCTCOG		

Name	Agency Represented	Telephone #	E-Mail Address
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