Harker Heights
The Bright Star Of Central Texas

City of Harker Heights
September 11, 2024
Contractors Meeting

Building Department Staff

Harker Heights
The Bright Star Of Central Texas

Building Official Secretary: Sharronda Caston-Hill

Plans Examiner: Courtney Fye

Building Inspector: Eric Moree

Code Enforcement: Calvin Fleming, Alex McCoy, Fabian Brooks

Building Official: Michael Beard

Central Texas College Partnership with Industry

Dr. Carolyn Griego, CPP, MA.Ed, EdD

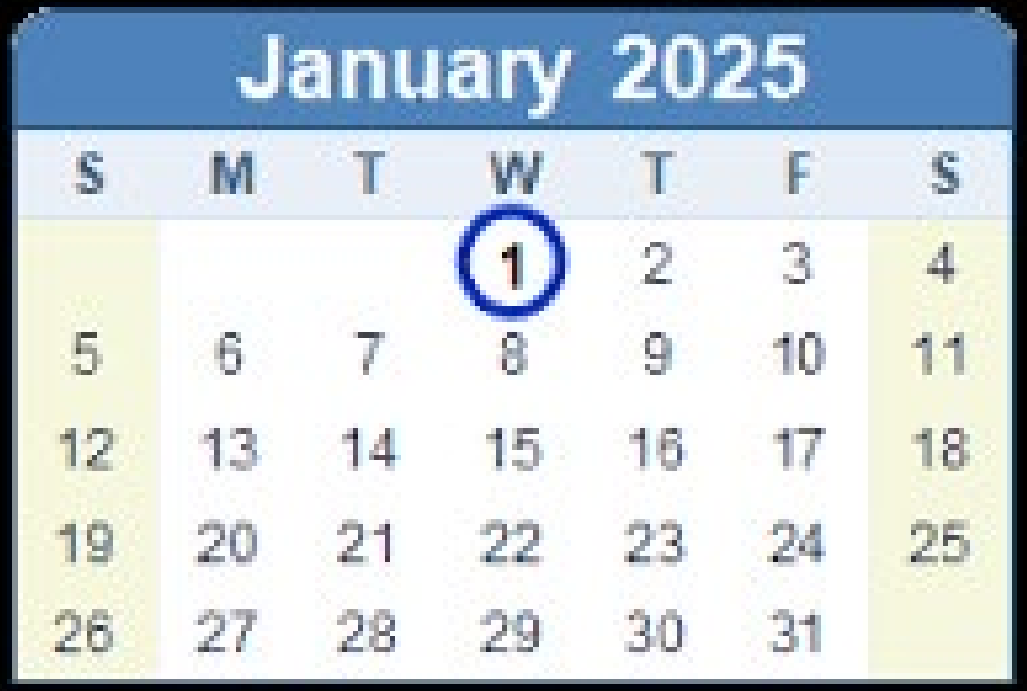
Associate Dean- Adult & Continuing Education/Service Area Campus

Jocelyn Larkin

Coordinator, Continuing Education

Introduction

Special Guests



The Bright Star Of Central Texas

Harker Heights

Effective Date:
January 1, 2025

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Future meeting Dates:

~~January 10, 2024~~

~~April 16, 2024~~

~~June 4, 2024~~

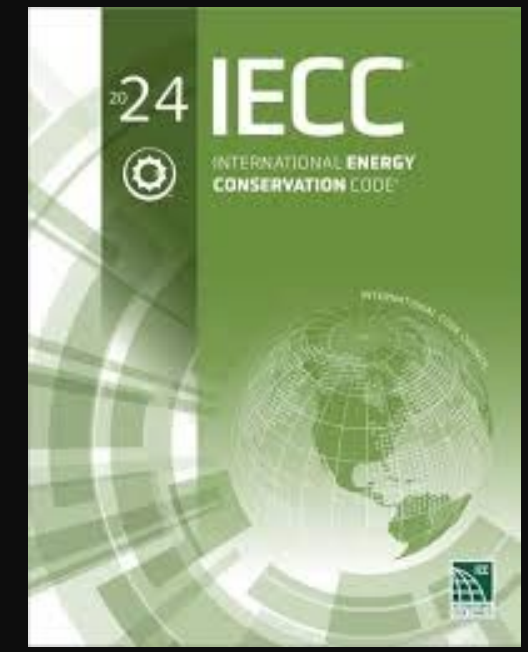
~~July 09, 2024~~ (Cancelled)

~~September 11, 2024~~

October 2, 2024 (Last meeting as it relates to code adoption)

2024 IECC

2024 International Energy Conservation Code



Harker Heights
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2024 IECC

The 2024 International Energy Conservation Code (IECC) builds on the 2021 edition and is expected to improve energy efficiency by about 6.5% for residential buildings and 10% for commercial buildings

This is a look at the **residential** significant changes only.

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2024 IECC (Residential)

Type of Change: Clarification.

R101.2 Scope.

This code applies **to the design and construction of detached one- and two-family dwellings and multiple single-family dwellings (townhouses) and Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.**

(R2 - Apartments, Hotels, Motels, Etc.)

(R3 - Care facilities, lodging 5 or fewer, etc.)

(R4 – Assisted living, Drug center, Halfway house, etc.)

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2024 IECC (Construction Documents)

Type of Change: New Addition for Solar ready system.

Description: Plans must include details for solar ready. If a solar ready system will be present.

R105.2.2 Solar-ready system.

Where a solar-ready zone is provided, the construction documents shall indicate details for a dedicated roof area for the solar-ready zone, roof dead load, roof live load, ground snow load and the routing of conduit or prewiring from the solar-ready zone to an electrical service panel or plumbing from the solar-ready zone to a service water heating system.

2024 IECC (Inspections)

Type of Change: Addition of existing

Description: Additional inspections required.

R107.2 Required inspections

- Footing and foundation
- Framing and air barrier rough in inspection
- Insulation and fenestration rough-in inspection
- Plumbing rough-in
- Mechanical rough-in
- Electrical rough-in inspection
- Final inspection.

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2024 IECC (Inspections)

Type of Change: Addition of existing (Cont.)

Description: Additional inspections required.

R107.2.2 Framing and air barrier rough-in inspection.

Air barrier inspections at framing and rough-in shall be made before the application of air permeable insulation and shall be used to verify compliance with this code and approved plans and specifications. Exterior air barriers shall be permitted to be inspected after insulation is installed.

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2024 IECC (Inspections)

Type of Change: Addition of existing (Cont.)

Air Barrier

2024 IECC (Inspections)

Type of Change: New

Description: Rename existing inspection and add clarifying information.

R107.2.5 Electrical rough-in inspection.

Inspections at electrical rough-in shall verify compliance as required by the code and the approved plans and specifications as to the locations, distribution and capacity of the electrical system. Where the solar-ready zone is installed for electricity generation, inspections shall verify conduit or prewiring from solar-ready zone to electrical panel.

2024 IECC (Inspections)

Type of Change: New

Description: Rename existing inspection type and add. (Previous inspection type Thermal Envelope)

R107.2.6 Insulation and fenestration rough-in inspection.

Inspections at insulation and fenestration rough-in shall be made before the application of interior finish and shall be used to verify compliance with this code as to types of insulation, corresponding R-values and their correct location and proper installation; and fenestration properties such as U-factors, SHGC and proper installation.

2024 IECC (Inspections)

Type of Change: New

Description: Addition to allow third-party inspection. (R107.4 through R107.4.2)

R107.4.1 Authorization of approved third-party inspection agency.

APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests furnishing inspection services, or furnishing product certification, where such agency has been approved by the code official.

2024 IECC (General)

Type of Change: New Exception added

Description: Exception added for insulation installed above the deck.

R303.1.2 Insulation mark installation.

Exception: For roof insulation installed above the deck, the R-value shall be labeled as specified by the material standards in Table 1508.2 of the International Building Code or Table R906.2 of the International Residential Code, as applicable.

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2024 IECC (General)

Type of Change: Addition to existing

Description: Added requirements for ERI certificate for additional efficiency used for compliance and solar-ready zones

R401.3 Certificate.

1-6 no change

7. The code edition under which the structure was permitted, the compliance path used **and, where applicable, the additional efficiency measures selected for compliance with Section R408.**

8. The location and dimensions of a solar-ready zone where one is provided.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Addition of Chart

Description: Changes to how table is set up.

TABLE R402.1.2 MAXIMUM ASSEMBLY U-FACTORS AND FENESTRATION REQUIREMENTS

2024 International Energy Conservation Code (IECC)

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

TABLE R402.1.2

MAXIMUM ASSEMBLY *U*-FACTORS[a] AND FENESTRATION REQUIREMENTS

CLIMATE ZONE	0	1	2	3	4 EXCEPT MARINE	5 AND MARINE 4	6	7 AND 8
Vertical fenestration *U*-factor	0.50	0.50	0.40	0.30	0.30	0.28[d]	0.28[d]	0.27[d]
Skylight *U*-factor	0.60	0.60	0.60 (.65)	0.53	0.53	0.50	0.50	0.50
Glazed vertical fenestration SHGC	0.25	0.25	0.25	0.25	0.40	NR	NR	NR
Skylight SHGC (Added)	0.28	0.28	0.28	0.28	0.40	NR	NR	NR
Ceiling *U*-factor	0.035	0.035	0.030 (.26)	0.030	0.026	0.026	0.026	0.026
Insulation entirely above roof deck (added)	0.039	0.039	0.039	0.039	0.032	0.032	0.032	0.028
Wood-framed wall *U*-factor	0.084	0.084	0.084	0.060	0.045	0.045	0.045	0.045
Mass wall *U*-factor[b]	0.197	0.197	0.165	0.098	0.098	0.082	0.060	0.057
Floor *U*-factor	0.064	0.064	0.064	0.047	0.047	0.033	0.033	0.028
Basement wall *U*-factor	0.360	0.360	0.360	0.091[c]	0.059	0.050	0.050	0.050
Unheated slab *F*-factor[e]	0.73	0.73	0.73	0.54	0.51	0.51	0.48	0.48
Heated slab *F*-factor[e]	0.74	0.74	0.74	0.66	0.66	0.66	0.66	0.66
Crawl space wall *U*-factor	0.477	0.477	0.477	0.136	0.065	0.055	0.055	0.055

For SI: 1 foot = 304.8 mm.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Change of existing chart and values

2024 International Energy Conservation Code (IECC)

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

TABLE R402.1.3
INSULATION MINIMUM *R*-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	0	1	2	3	4 EXCEPT MARINE	5 AND MARINE 4	6	7 AND 8
Vertical fenestration *U*-factor	0.50	0.50	0.40	0.30	0.30	0.28[g]	0.28[g]	0.27[g]
Skylight *U*-factor	0.60	0.60	0.60 (.65)	0.53	0.53	0.50	0.50	0.50
Glazed vertical fenestration SHGC	0.25	0.25	0.25	0.25	0.40	NR	NR	NR
Skylight SHGC	0.28	0.28	0.28	0.28	0.40	NR	NR	NR
Ceiling *R*-value	30	30	38 (49)	38	49	49	49	49
Insulation entirely above roof deck	25ci	25ci	25ci	25ci	30ci	30ci	30ci	35ci
Wood-framed wall *R*-value[e]	13 or 0&10ci	13 or 0&10ci	13 or 0&10ci	20 or 13&5ci or 0&15ci	30 or 20&5ci or 13&10ci or 0&20ci	30 or 20&5ci or 13&10ci or 0&20ci	30 or 20&5ci or 13&10ci or 0&20ci	30 or 20&5ci or 13&10ci or 0&20ci
Mass wall *R*-value[f]	3/4	3/4	4/6	8/13	8/13	13/17	15/20	19/21
Floor *R*-value[h]	13 or 7+5ci or 10ci	13 or 7+5ci or 10ci	13 or 7+5ci or 10ci	19 or 13+5ci or 15ci	19 or 13+5ci or 15ci	30 or 19+7.5ci or 20ci	30 or 19+7.5ci or 20ci	38 or 19+10ci or 25ci
Basement wall *R*-value[b,e]	0	0	0	5ci or 13[d]	10ci or 13	15ci or 19 or 13&5ci	15ci or 19 or 13&5ci	15ci or 19 or 13&5ci
Unheated slab *R*-value & depth[c]	0	0	0	10ci, 2 ft	10ci, 3 ft	10ci, 3 ft	10ci, 4 ft	10ci, 4 ft
Heated slab *R*-value & depth[c]	R-5ci edge and R-5 full slab	R-5ci edge and R-5 full slab	R-5ci edge and R-5 full slab	R-10ci, 2 ft and R-5 full slab	R-10ci, 3 ft and R-5 full slab	R-10ci, 3 ft and R-5 full slab	R-10ci, 4 ft and R-5 full slab	R-10ci, 4 ft and R-5 full slab
Crawl space wall *R*-value[b,e]	0	0	0	5ci or 13[d]	10ci or 13	15ci or 19 or 13&5ci	15ci or 19 or 13&5ci	15ci or 19 or 13&5ci

For SI: 1 foot = 304.8 mm.

NR = Not Required, ci = Continuous Insulation.

a. *R*-values are minimums. *U*-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed *R*-value of the insulation shall be not less than the *R* value specified in the table.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Addition to existing

Description: Dropping R49 to R38 ceiling insulation

R402.2.1 Ceilings with attic

Where Section R402.1.3 requires R-38 insulation in the ceiling or attic, installing R-30 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-38 insulation wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Where Section R402.1.3 requires R-49 insulation in the ceiling or attic, installing R-38 over 100 percent of the ceiling or attic area requiring insulation shall satisfy the requirement for R-49 insulation wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the insulation and fenestration criteria in Section R402.1.2 and the component performance alternative in Section R402.1.5.

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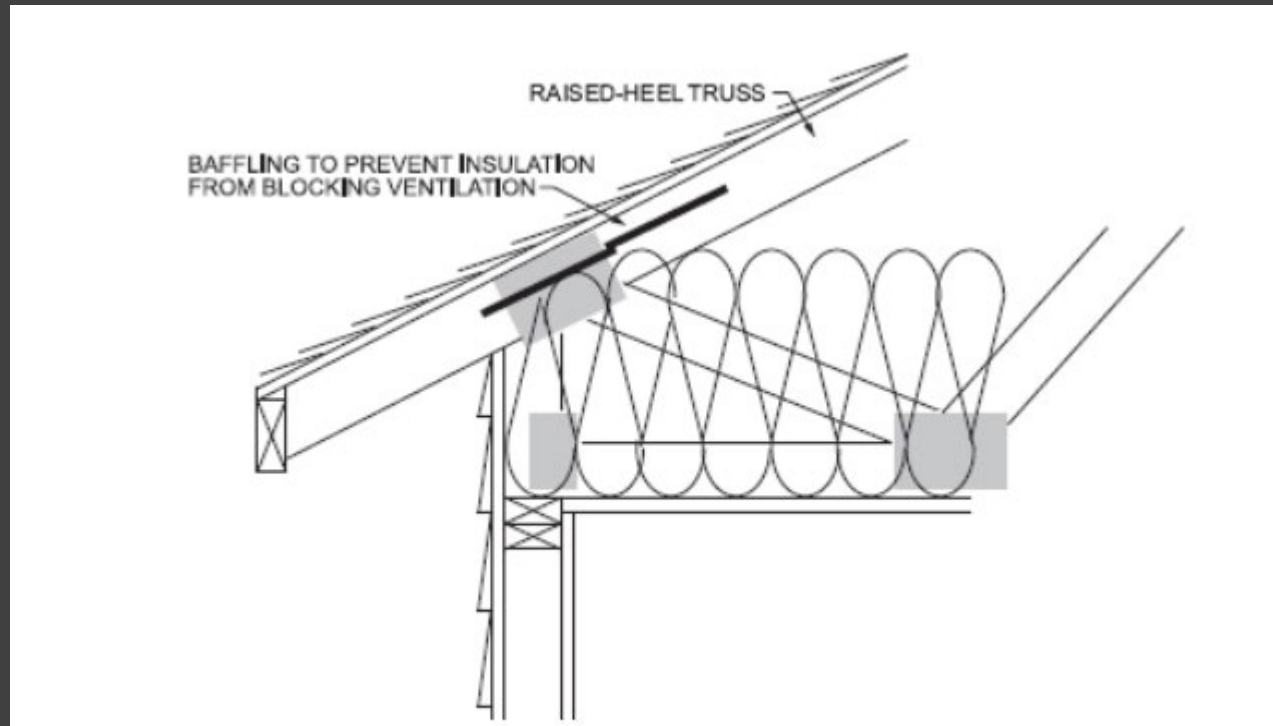
2024 IECC (Bldg. Thermal Envelope)

Type of Change: Addition to existing (Example)

R402.2.1 Ceilings with attics.



02.2.1(2) RAISED-HEEL TRUSS

2024 IECC (Bldg. Thermal Envelope)

Type of Change: New addition

Description: Added to clarify the requirement for R-value of knee wall when separating conditioned from non-conditioned.

R402.2.3 Attic knee wall.

Wood attic knee wall assemblies that separate conditioned space from unconditioned attic spaces shall comply with Table *R402.1.3 for wood-framed walls. Steel attic knee wall assemblies shall comply with Section R402.2.7. Such knee walls shall have an air barrier between conditioned and unconditioned space.

*(TABLE R402.1.3INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT)

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: New Addition

Description: Added to clarify R-values when separating conditioned and non-condition.

R402.2.3.1 Roof truss framing separating conditioned and unconditioned space.

Where wood vertical roof truss framing members are used to separate conditioned space and unconditioned space, they shall comply with Table R402.1.3 for wood-framed walls. Steel frame vertical roof truss framing members used to separate conditioned space and unconditioned space shall comply with Section R402.2.7.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: New Addition (Cont.)

R402.2.3.1 Roof truss framing separating conditioned and unconditioned space.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Addition to existing

R402.2.8 Floors.

Floor insulation shall be installed in accordance with all of the following:

1. Table R402.1.2 or R402.1.3 and manufacturer's instructions.

2. Floor framing members that are part of the building thermal envelope shall be air sealed to maintain a continuous air barrier.

3. One of the following methods:

3.1. Cavity insulation shall be installed to maintain permanent contact with the underside of the subfloor decking.

3.2. Cavity insulation shall be installed to maintain contact with the top side of sheathing separating the cavity and the unconditioned space below. Insulation shall extend from the bottom to the top of all perimeter floor framing members.

3.3. A combination of cavity insulation and continuous insulation shall be installed such that the cavity insulation maintains contact with the top side of the continuous insulation and the continuous insulation maintains contact with the underside of the structural floor system. Insulation shall extend from the bottom to the top of all perimeter floor framing members.

3.4. **Continuous insulation shall be installed to maintain contact with the underside of the structural floor system. Insulation shall extend from the bottom to the top of all perimeter floor framing members.**

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Addition to existing

R402.2.8 Floors. (cont.)

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Addition to existing

R402.2.8 Floors. (cont.)

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: New Addition

Description: Radiant barriers have not been addressed in code until now. It gives compliance requirement

R402.3 Radiant barriers.

Where installed, radiant barriers shall be installed in accordance with **ASTM C1743.**

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Changes to existing
Description: Several added requirements in table.

TABLE R402.5.1.1AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION

2024 International Energy Conservation Code (IECC)

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

TABLE R402.5.1.1
AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION[a]

COMPONENT	AIR BARRIER, AIR SEALING CRITERIA	INSULATION INSTALLATION CRITERIA
General requirements	A continuous air barrier shall be installed in the building thermal envelope. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.
Ceiling/attic	An air barrier shall be installed in any dropped ceiling or soffit to separate it from unconditioned space.. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed with gasketing materials that allow for repeated entrance over time.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier. Access hatches and doors shall be installed and insulated in accordance with Section R402.2.5. Eave baffles shall be installed in accordance with Section R402.2.4.
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance, *R*-value, of not less than R-3 per inch. Exterior building thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.
Knee wall	Knee walls shall have an air barrier between conditioned and unconditioned space	Insulation installed in a knee wall assembly shall be installed in accordance with Section R402.2.3. Air-permeable insulation shall be enclosed inside an air barrier assembly.
Windows, skylights and doors	The rough opening gap between framing and the frames of skylights, windows and doors, shall be sealed in accordance with fenestration manufacturer's instructions.	Insulation shall not be required in the rough opening gap except as required by the fenestration manufacturer's instructions.
Rim joists	Rim joists shall include anair barrier. The junctions of the rim board to the sill plate and the rim board and the subfloor shall be air sealed.	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board.[b]
Floors, including cantilevered floors and floors above garages	Floor framing members that are part of the building thermal envelope shall be air sealed to maintain a continuous air barrier. Air permeable floor cavity insulation shall be enclosed.	Floor insulation shall be installed in accordance with the requirements of Section R402.2.8.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Cont. Access Hatches

R402.2.5 Access hatches and doors.

Access hatches and doors from conditioned to unconditioned spaces such as attics and crawl spaces shall be insulated to the same R-value required

2.Horizontal pull-down, stair-type access hatches in ceiling in Climate Zones 0 through 4 shall not be required to comply with the insulation level of the surrounding surfaces provided the hatch meets all of the following:

2.1.The average U-factor of the hatch shall be less than or equal to U-0.10 or have an average insulation R-value of R-10 or greater.

2.2.Not less than 75 percent of the panel area shall have an insulation R-value of R-13 or greater.

2.3.The net area of the framed opening shall be less than or equal to **13.5 square feet** (1.25 m2).

2.4.The perimeter of the hatch edge shall be weather-stripped.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Changes to existing (Cont.)

TABLE R402.5.1.1AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION

Basement, crawl space and slab foundations	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder/air barrier in accordance with Section R402.2.11. Penetrations through concrete foundation walls and slabs shall be air sealed. Class 1 vapor retarders shall not be used as an air barrier on below-grade walls and shall be installed in accordance with Section R702.7 of the *International Residential Code*.	Crawl space insulation, where provided instead of floor insulation, shall be installed in accordance with Section R402.2.11. Conditioned basement foundation wall insulation shall be installed in accordance with Section R402.2.9.1. Slab-on-grade floor insulation shall be installed in accordance with Section R402.2.10.
Shafts, penetrations	Duct and flue shafts to exterior or unconditioned space shall be sealed. Utility penetrations of the air barrier shall be caulked, gasketed or otherwise sealed and shall allow for expansion, contraction of materials and mechanical vibration.	Insulation shall be fitted tightly around utilities passing through shafts and penetrations in the building thermal envelope to maintain required *R*-value.
Narrow cavities	Narrow cavities of 1 inch or less that are not able to be insulated shall be air sealed.	Batts to be installed in narrow cavities shall be cut to fit or narrow cavities shall be filled with insulation that on installation readily conforms to the available cavity space.
Garage separation	*Air sealing shall be provided between the garage and conditioned spaces.*	*Insulated portions of the garage separation assembly shall be installed in accordance with Sections R303 and R402.2.8.*
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be air sealed in accordance with Section R402.5.4.	Recessed light fixtures installed in the building thermal envelope shall be airtight and IC rated, and shall be buried in or surrounded with insulation.
Plumbing, wiring or other obstructions	All holes created by wiring, plumbing or other obstructions in the air barrier assembly shall be air sealed.	Insulation shall be installed to fill the available space and surround wiring, plumbing, or other obstructions, unless the required *R*-value can be met by installing insulation and air barrier systems completely to the exterior side of the obstructions.

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2024 IECC (Bldg. Thermal Envelope)

Type of Change: Changes to existing (Cont.)

TABLE R402.5.1.1AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION

Showers, tubs and fireplaces adjacent to the building thermal envelope	An air barrier shall separate insulation in the building thermal envelope from the shower, tub or fireplace assemblies.	Exterior framed walls adjacent to showers, tubs and fireplaces shall be insulated.
Electrical, communication and other equipment boxes, housings and enclosures	Boxes, housing and enclosures that penetrate the air barrier shall be caulked, taped, gasketed or otherwise sealed to the air barrier element being penetrated. All concealed openings into the box, housing or enclosure shall be sealed. Alternatively, air-sealed boxes shall be installed in accordance with Section R402.5.5.	Boxes, housing and enclosures shall be buried in or surrounded by insulation.
HVAC register boots	HVAC supply and return register boots shall be sealed to the subfloor, wall covering or ceiling penetrated by the boot.	HVAC supply and return register boots located within a building thermal envelope assembly shall be buried in or surrounded by insulation.
Concealed sprinklers	Where required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.	—
Common walls or double walls separating attached single-family dwellings or townhouses	An interior air barrier shall be provided. Air sealing at the intersections with building thermal envelope shall be provided. Where installed in a fire-resistance-rated wall assembly, air sealing materials shall comply with one of the following: 1. Be in accordance with an approved design for the fire-resistance-rated assembly. 2. Be supported by approved data that shows the assembly as installed complies with the required fire-resistance rating.	Insulation materials recognized in the approved common wall or double-wall design and installed in accordance with the approved design shall be permitted to be used.

a. Inspection of log walls shall be in accordance with the provisions of ICC 400.

b. Insulation full enclosure is not required in unconditioned/ventilated attic spaces and at rim joists.

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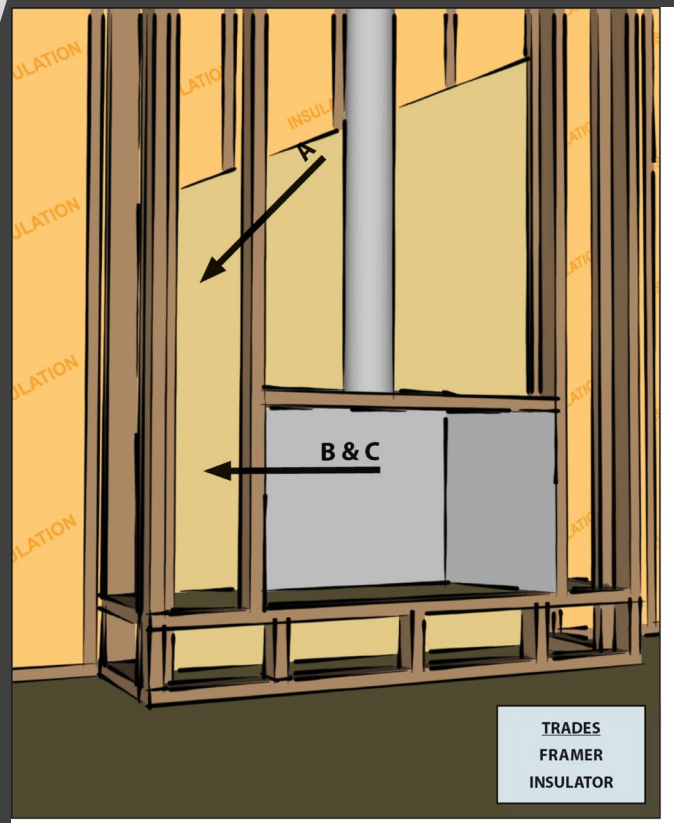
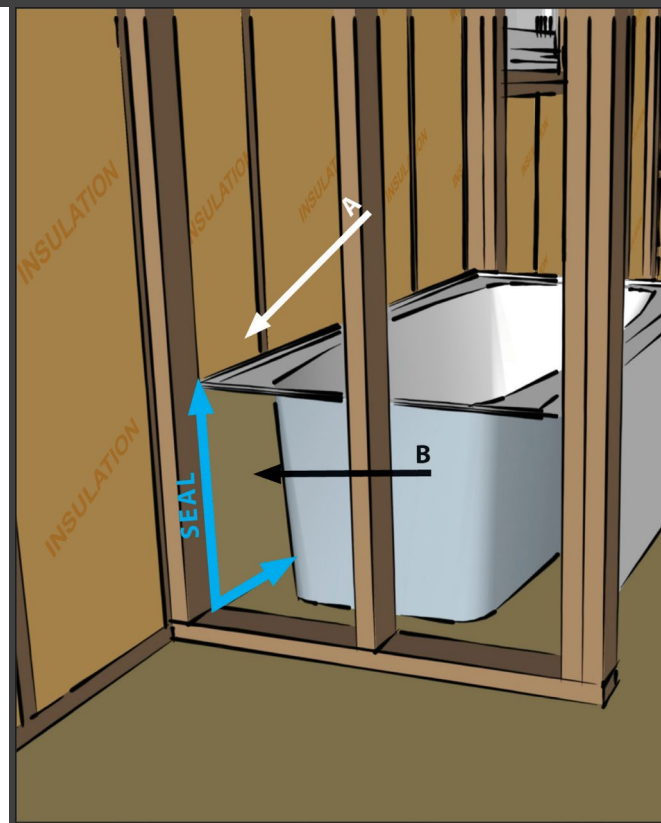
2024 IECC (Bldg. Thermal Envelope)

Type of Change: Cont. Shower, tubs, fireplaces





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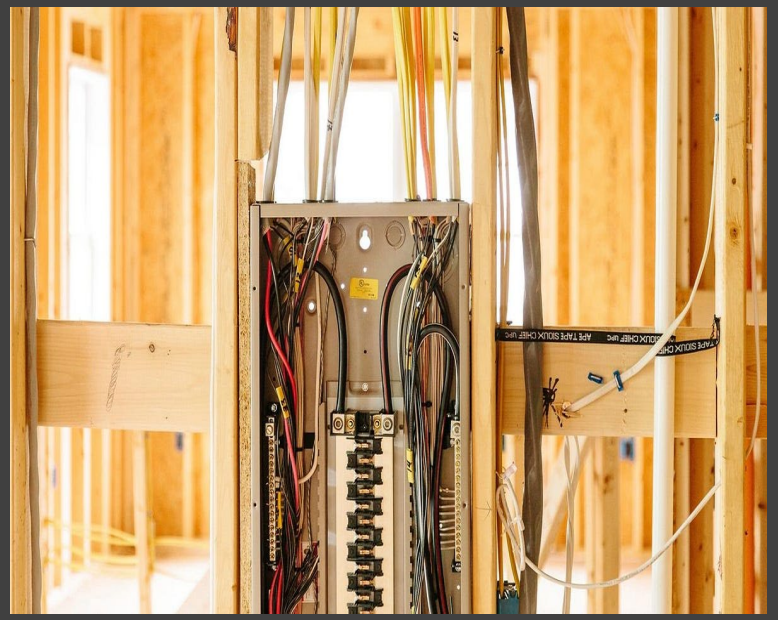
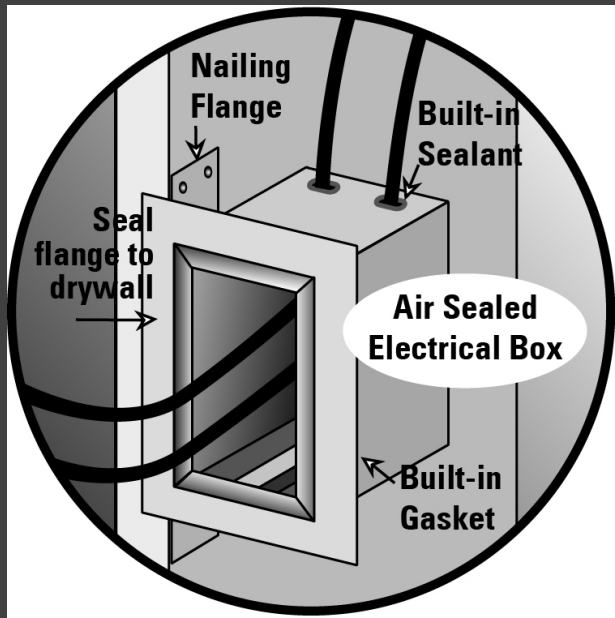
2024 IECC (Bldg. Thermal Envelope)

Type of Change: Cont. Electrical box





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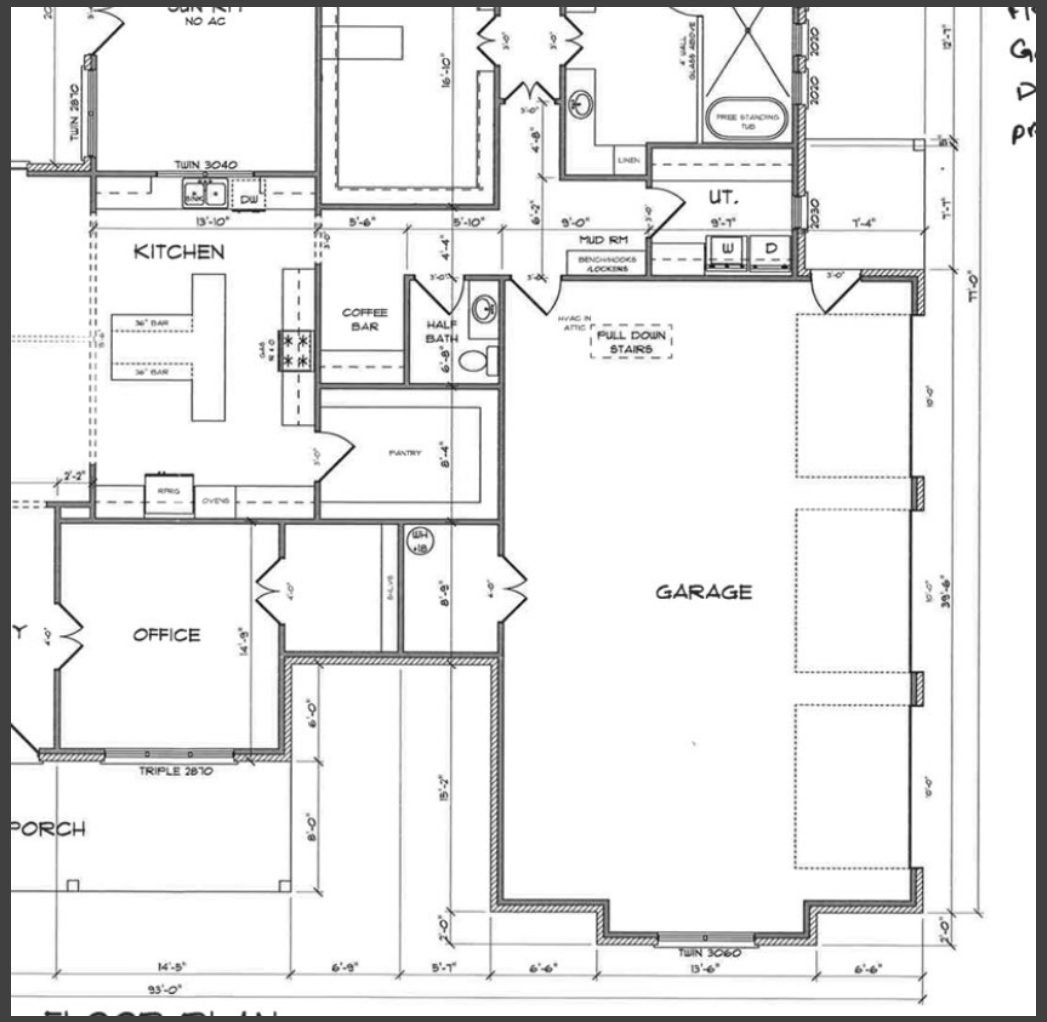
2024 IECC (Bldg. Thermal Envelope)

Type of Change: Cont. Electrical box



Harker Heights
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2024 IECC (Air Leakage)

Type of Change: Addition to existing

Change: 5 ACH to 4 ACH for blower door.

R402.5.1.3 Maximum air leakage rate.

Where tested in accordance with Section R402.5.1.2, the air leakage rate for buildings, dwelling units or sleeping units shall be as follows:

1. Where complying with Section R401.2.1, the building or the dwelling units or sleeping units in the building shall have an air leakage rate **not greater than 4.0 air changes per hour in Climate Zones 0, 1 and 2**; 3.0 air changes per hour in Climate Zones 3 through 5; and 2.5 air changes per hour in Climate Zones 6 through 8.

2. Where complying with Section R401.2.2 or R401.2.3, the building or the dwelling units or sleeping units in the building shall have an air leakage rate not greater than 4.0 air changes per hour, or 0.22 cubic feet per minute per square foot [1.1 L/(s × m2)] of the building thermal envelope area or the dwelling testing unit enclosure area, as applicable.

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2024 IECC (Air Leakage)

Type of Change: Change to existing

R402.5.5 Air-sealed electrical and communication outlet boxes.

Air-sealed electrical and communication outlet boxes that **penetrated the air barrier of the** building thermal envelope shall be **caulked, taped, gasketed or otherwise sealed to the air barrier element being penetrated. Air-sealed boxes shall be buried in or surrounded by insulation.** Air-sealed boxes shall be tested and marked in accordance with NEMA OS 4. Air-sealed boxes shall be installed in accordance with the manufacturer's instructions.

(Must be tested and stamped or sealed as below. Ref table 402.5.1.1)

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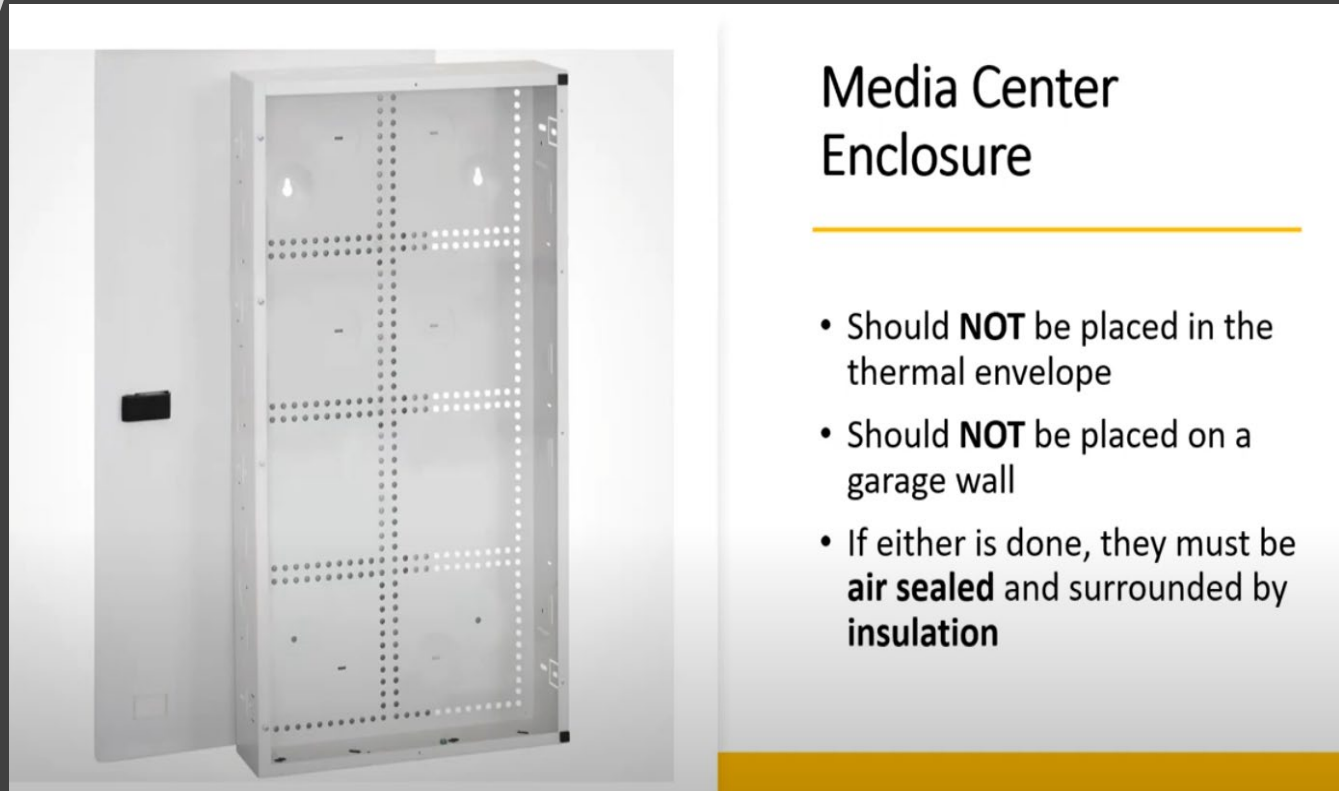
2024 IECC (Air Leakage)

Type of Change: Changes to existing (Cont.)

R402.5.5 Air-sealed electrical and communication outlet boxes.



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2024 IECC (Duct Systems)

Type of Change: Change in existing

R403.3.7 Duct system testing.

Description: Addition of exceptions to the duct testing requirements and reference the new table R403.3.8

Each duct system shall be tested for air leakage in accordance with ANSI/RESNET/ICC 380 or ASTM E1554. Total leakage shall be measured with a pressure differential of 0.1 inch water gauge (25 Pa) across the duct system and shall include the measured leakage from the supply and return ductwork. A written report of the test results shall be signed by the party conducting the test and provided to the code official. Duct system leakage testing at either rough-in or post construction shall be permitted with or without the installation of registers or grilles. Where installed, registers and grilles shall be sealed during the test. Where registers and grilles are not installed, the face of the register boots shall be sealed during the test.

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2024 IECC (Duct Systems)

Type of Change: Change in existing

R403.3.7 Duct system testing. (Cont)

Exceptions:

1.Testing shall not be required for duct systems serving ventilation systems that are not integrated with duct systems serving heating or cooling systems.

2.Testing shall not be required where there is not more than 10 feet (3048 mm) of total ductwork external to the space conditioning equipment and both the following are met:

2.1.The duct system is located entirely within conditioned space.

2.2.The ductwork does not include plenums constructed of building cavities or gypsum board.

3.Where the space conditioning equipment is not installed, testing shall be permitted. The total measured leakage of the supply and return ductwork shall be less than or equal to 3.0 cubic feet per minute (85 L/min) per 100 square feet (9.29 m2) of conditioned floor area. (Rough-in testing spec)

4.Where tested in accordance with Section R403.3.9, testing of each duct system is not required. (Unit sampling)

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2024 IECC (Duct Systems)

Type of Change: (Cont.)

New is the < 1,000 ftsq

The total measured duct system leakage shall not be greater than the values in Table R403.3.8,

TABLE R403.3.8 MAXIMUM TOTAL DUCT SYSTEM LEAKAGE

EQUIPMENT AND DUCT CONFIGURATION	DUCT SYSTEMS SERVING MORE THAN 1,000 FT^2 OF CONDITIONED FLOOR AREA		DUCT SYSTEMS SERVING 1,000 FT^2 OR LESS OF CONDITIONED FLOOR AREA
	cfm/100 ft^2		cfm
	Number of ducted returns[a]		
	< 3	≥ 3	Any
Space conditioning equipment is not installed[b, c]	3	4	30
All components of the duct system are installed[c]	4	6	40
Space conditioning equipment is not installed, but the ductwork is located entirely in conditioned space[c, d]	6	8	60
All components of the duct system are installed and entirely located in conditoned space[c]	8	12	80

For SI: 1 cubic foot per minute per square foot = 0.0033 LPM/m^2, 1 cubic foot per minute = 28.3 LPM.

a. A ducted return is a duct made of sheet metal or flexible duct that connects one or more return grilles to the return-side inlet of the air-handling unit. Any other method to convey air from return or transfer grilles to the air-handling unit does not constitute a ducted return for the purpose of determining maximum total duct system leakage allowance.

b. Duct system testing is permitted where space conditioning equipment is not installed, provided that the return ductwork is installed and the measured leakage from the supply and return ductwork is included.

c. For duct systems to be considered inside a conditioned space, where the ductwork is located in ventilated attic spaces or unvented attics with vapor diffusion ports, duct system leakage to outside must comply with Item 2.1 ofSection R403.3.4.

d. Prior to the issuance of a certificate of occupancy, where the air-handling unit is not verified as being located in conditioned space, the total duct system leakage must be retested.

2024 IECC (Mech System Pipe Insul)

Type of Change: Change for clarification

Description: Pipe insulation requirements for Mechanical Systems.

R403.4.1 Protection of piping insulation.

Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, physical contact and wind. The protection shall provide shielding from solar radiation that can cause degradation of the **material and shall be removable not less than 6 feet (1828 mm) from the equipment for maintenance**. Adhesive tape shall be prohibited.

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2024 IECC (Mech System Pipe Insul)

Type of Change: Change for clarification

Description: Pipe insulation requirements for Mechanical Systems.

R403.4.1 Protection of piping insulation.

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2024 IECC (Mech Ventilation)

Type of Change: New Table

TABLE R403.6.2FAN EFFICACY FOR WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS AND OUTDOOR AIR VENTILATON SYSTEMS

TABLE R403.6.2
WHOLE-DWELLING MECHANICAL VENTILATION SYSTEM FAN EFFICACY[a]

~~FAN LOCATION~~SYSTEM TYPE	AIRFLOW RATE ~~MINIMUM~~ (CFM)	MINIMUM EFFICACY (CFM/ WATT)	TEST PROCEDURE
HRV, ERV, or balanced	Any	1.2 ~~cfm/ watt~~	HRV or ERV: CAN/CSA 439; Balanced without heat or energy recovery: ASHRAE Standard 51 (ANSI/AMCA Standard 210)
Range hood	Any	2.8	ASHRAE 51 (ANSI/AMCA Standard 210)
In-line supply or exhaust fan	Any	3.8 ~~cfm/ watt~~	
Other exhaust fan	< 90	2.8 ~~cfm/ watt~~	
	≥ 90 and < 200	3.5	
	≥ 200	4.0	
Air-handler that is integrated to tested and *listed* HVAC equipment	Any	1.2 ~~cfm/ watt~~	Outdoor airflow as specified. Air-handler fan power determined in accordance with the HVAC appliance's test method referenced by Section C403.3.2 of the IECC-Commercial Provisions.

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2024 IECC (Controls Bathroom)

Type of Change: New Addition

R403.6.5 Intermittent exhaust control for bathrooms and toilet rooms.

Change: Exhaust control requirements for bathroom exhaust.

Where an exhaust system serving a bathroom or toilet room is designed for intermittent operation, the exhaust system controls shall include **one or more of the following**:

1.**A timer control** with one or more delay setpoints that automatically turns off exhaust fans when the selected setpoint is reached. Not fewer than one delay-off setpoint shall be 30 minutes or less.

2.**An occupant sensor control** with one or more delay setpoints that automatically turns off exhaust fans in accordance with the selected delay setpoint after all occupants have vacated the space. Not fewer than one delay-off setpoint shall be 30 minutes or less.

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2024 IECC (Controls Bathroom)

Type of Change: New Addition (Cont.)

R403.6.5 Intermittent exhaust control for bathrooms and toilet rooms.

3.**A humidity control** with an adjustable setpoint ranging between 50 percent or more and 80 percent or less relative humidity that automatically turns off exhaust fans when the selected setpoint is reached.

4.**A contaminant control** that responds to a particle or gaseous concentration and automatically turns off exhaust fans when a design setpoint is reached.

Manual off functionality shall not be used in lieu of the minimum setpoint functionality required by this section.

Exception: Bathroom and toilet room exhaust systems serving as an integral component of an outdoor air ventilation system or a whole-house mechanical ventilation system.

2024 IECC (Gas Fireplaces)

Type of Change: New

R403.13 Gas fireplaces.

Description: Restrict the use of continuous pilot lights for fireplaces.

Gas fireplace systems shall not be equipped with a continuous pilot and shall be equipped with an on-demand pilot, intermittent ignition or interrupted ignition, as defined by ANSI Z21.20.

Exception: Gas-fired appliances using pilots within a listed combustion safety device.

2024 IECC (Lighting Equipment)

Type of Change: Addition of exemptions

R404.1 Lighting equipment.

Description: Listing exceptions to the 100% energy efficiency lighting.

All permanently installed luminaires shall be capable of operation with an efficacy of not less than 45 lumens per watt or shall contain lamps capable of operation with an efficacy of not less than 65 lumens per watt.

Exceptions:

1. Appliance lamps

2. Antimicrobial lighting used for the sole purpose of disinfecting.

3. General service lamps complying with DOE 10 CFR, Part 430.32.

4. Luminaires with a rated electric input of not greater than 3.0 watts.

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2024 IECC (Interior lighting control)

Type of Change: New addition

Description: New requirement to require all lighting inside to be either manual dimmer or auto shut-off with in 20 minutes.

R404.2.1 Habitable spaces.

All permanently installed luminaires in habitable spaces shall be controlled with **a manual dimmer or with an automatic shutoff control that automatically turns off lights** within 20 minutes after all occupants have left the space and shall incorporate a manual control to allow occupants to turn the lights on or off.

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2024 IECC (Spec insulation require.)

Type of Change: New addition

Description: New requirement to install automatic shutoff lights (within 20 min) in all garages, unfinished basements, laundry rooms and utility.

R404.2.2 Specific locations.

All permanently installed luminaires in garages, unfinished basements, laundry rooms and utility rooms shall be controlled by an automatic shutoff control that automatically turns off lights within 20 minutes after all occupants have left the space and shall incorporate a manual control to allow occupants to turn the lights on or off.

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2024 IECC (Renewable energy Cert)

Type of Change: New addition

Description: addition to be able to use renewable energy to comply with the requirements of the code.

R404.4 Renewable energy certificate (REC) documentation.

Where renewable energy generation is used to comply with this code, documentation shall be provided to the code official by the property owner or owner's authorized agent demonstrating that where renewable energy certificates (RECs) or energy attributable certificates (EACs) are associated with that portion of renewable energy used to comply with this code, the RECs or EACs shall be retained, or retired, on behalf of the property owner.

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2024 IECC (Residential)

Type of Change: **Proposed but not added as a requirement.**

Was added as an appendix giving the AHJ authority to adopt or not.

R404.5 – Electric Readiness

Systems using fossil fuels: water heaters, household clothes dryers, conventional cooking tops or conventional ovens must have individual branch circuit outlets rated as follows:

Cooking products: 250V / 40 amps

Household dryers: 240V / 30 amps

Water heaters: 240V / 30 amps or 120V / 30 amps

All outlets must terminate within 3 feet of the appliance

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2024 IECC (Existing Building)

Type of Change: New Addition

Description: New addition to clarify that change in space conditioning would need to be in compliance with chapter 502. (Addition)

R501.6 Change in space conditioning.

Any unconditioned or low-energy space that is altered to become conditioned space shall be required to be brought into full compliance with Section R502. (502 is Additions)

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2024 IECC (Existing Building)

Type of Change: Change to existing

Description: Change to clarify which section to apply for alteration of building thermal envelope.

Existing – 503. This section

New – 402. Same as new construction.

R503.1.1 Building thermal envelope.

Alterations of existing building thermal envelope assemblies shall comply with this section. New building thermal envelope assemblies that are part of the alteration shall comply with Section R402. **The R-value of insulation shall not be reduced, nor the U-factor of a building thermal envelope assembly increased** as part of a building thermal envelope alteration except where the building after the alteration complies with Section R405 or R406.

2024 IECC (Existing Building)

Type of Change: New addition

Description: Several changes have been made to require upgrade to current standard during remodel.

- R503.1.1.2 Roof, ceiling and attic alterations.
- R503.1.1.3 Above-grade wall alterations.
- R503.1.1.4 Floor alterations.
- R503.1.1.5 Below-grade wall alterations.
- R503.1.1.6 Air barrier.

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2024 IECC (Existing Building)

Type of Change: New addition

Description: To require equipment sizing in HVAC change outs.

R503.1.2 Heating and cooling systems.

New heating and cooling systems and ductwork that are part of the alteration shall comply with Section R403 (403 is Systems) and this section. Alterations to existing heating and cooling systems and ductwork shall comply with this section.

Exception: Where ductwork from an existing heating and cooling system is extended.

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2024 IECC (Existing Building)

Type of Change: New addition

Description: New addition to clarify when duct testing is required for newly installed duct in an alteration.

R503.1.2.1 Ductwork.

HVAC ductwork newly installed as part of an alteration shall comply with Section R403. (403 is systems)

Exception: Where ductwork from an existing heating and cooling system is extended.

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2024 IECC (Existing Building)

Type of Change: New addition

Description: New addition to clarify that a Manual J or Manual S or both will be required for alteration. (See Exception)

R503.1.2.2 System sizing.

New heating and cooling equipment that is part of an alteration shall be sized in accordance with Section R403.7 (Manual J and S) based on the existing building features as modified by the alteration.

Exception: Where it has been demonstrated to the code official that compliance with this section would result in heating or cooling equipment that is incompatible with the remaining portions of the existing heating or cooling system.

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2024 IECC (Existing Building)

Type of Change: New addition

Description: Newly added section requiring duct leakage test in an alteration. Has less stringent requirements. 12 CFM vs 3 CFM.

R503.1.2.3 Duct system leakage.

Where an alteration includes any of the following, duct systems shall be tested in accordance with Section R403.3.7 and shall have a total leakage less than or equal to 12.0 cubic feet per minute (rather than 4) per 100 square feet of conditioned floor area:

1.Twenty-five percent or more of the registers that are part of the duct system are relocated.

2.Twenty-five percent or more of the total length of all ductwork in the duct system is relocated.

3.The total length of all ductwork in the duct system is increased by 25 percent or more.

Exception: Duct systems located entirely inside a conditioned space in accordance with Section R403.3.4.

2024 IECC (Existing Building)

Type of Change: New addition

R503.1.2.4 Controls.

New heating and cooling equipment that is part of the alteration shall comply with Sections R403.1 and R403.2.

(403.1 - Controls for programable thermostat)

(403.2 – Water boiler temperature control)

2024 IECC (Appendix)

Type of Change: Adopted appendix

- APPENDIX RF ALTERNATIVE BUILDING THERMAL ENVELOPE INSULATION R-VALUE OPTIONS
- APPENDIX RG 2024 IECC STRETCH CODE

2024 IECC (Appendix)

Type of Change: Not adopted

- APPENDIX RA BOARD OF APPEALS—RESIDENTIAL
- APPENDIX RH OPERATIONAL CARBON RATING AND ENERGY REPORTING
- APPENDIX RI ON-SITE RENEWABLE ENERGY
- APPENDIX RK ELECTRIC-READY RESIDENTIAL BUILDING PROVISIONS
- APPENDIX RL RENEWABLE ENERGY INFRASTRUCTURE

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2024 IECC (Appendix)

Type of Change: Not sure.

- APPENDIX RB SOLAR-READY PROVISIONS—DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES
- APPENDIX RC ZERO NET ENERGY RESIDENTIAL BUILDING PROVISIONS
- APPENDIX RD ELECTRIC ENERGY STORAGE PROVISIONS
- APPENDIX RE ELECTRIC VEHICLE CHARGING INFRASTRUCTURE
- APPENDIX RJ DEMAND RESPONSIVE CONTROLS

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Revcord Remote inspections

- Flatwork
- C-final
- Electric water heaters
- T-pole
- Certain re-inspections
- HVAC change outs
- Windows
- Solar Finals
- Water and sewer yard lines
- Roof

Update on the MGO/Revcord merge.

- Request can be made in MGO
- All records are kept in MGO
- Effective date? ASAP

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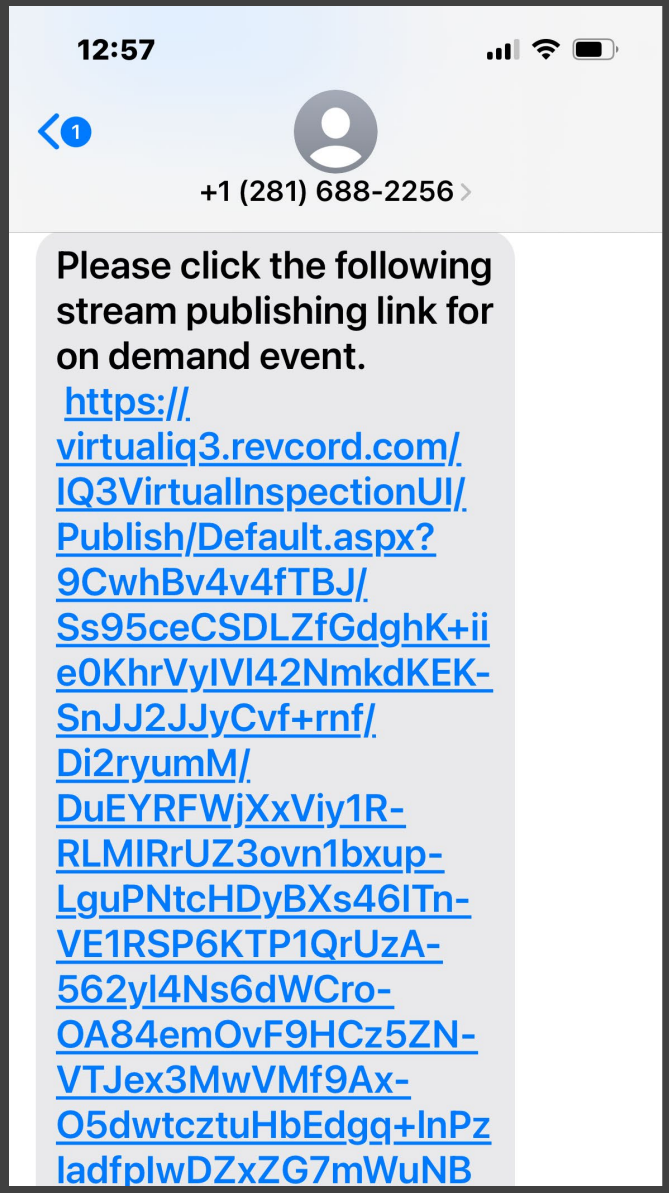
Revcord Remote inspections



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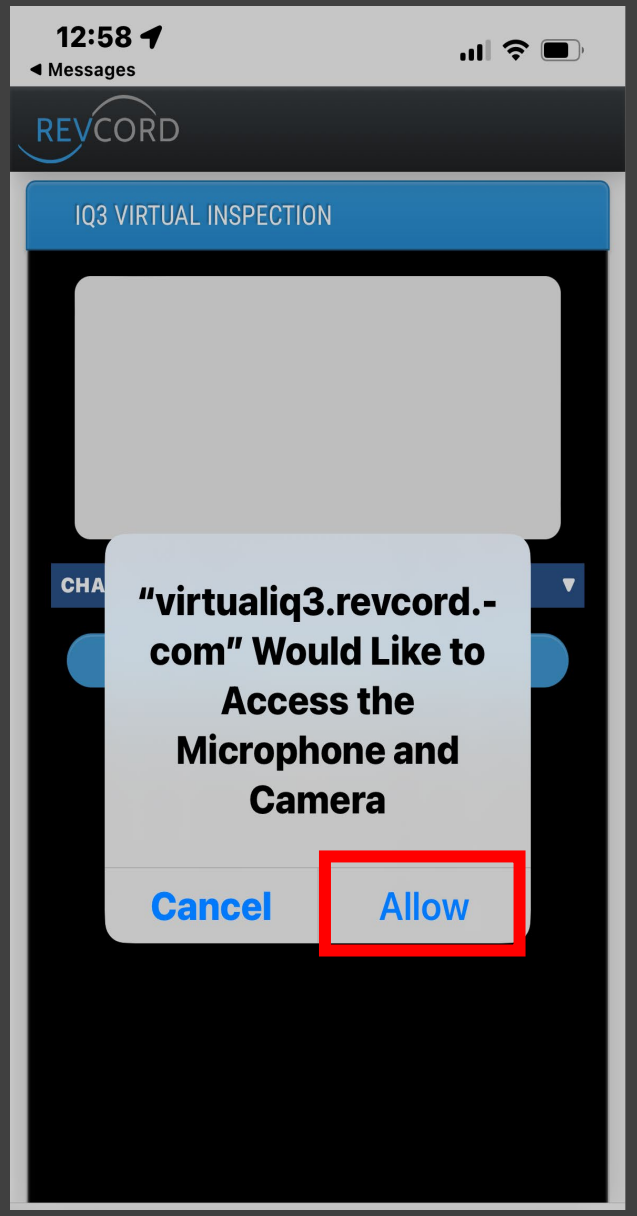
Revcord Remote inspections



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Revcord Remote inspections

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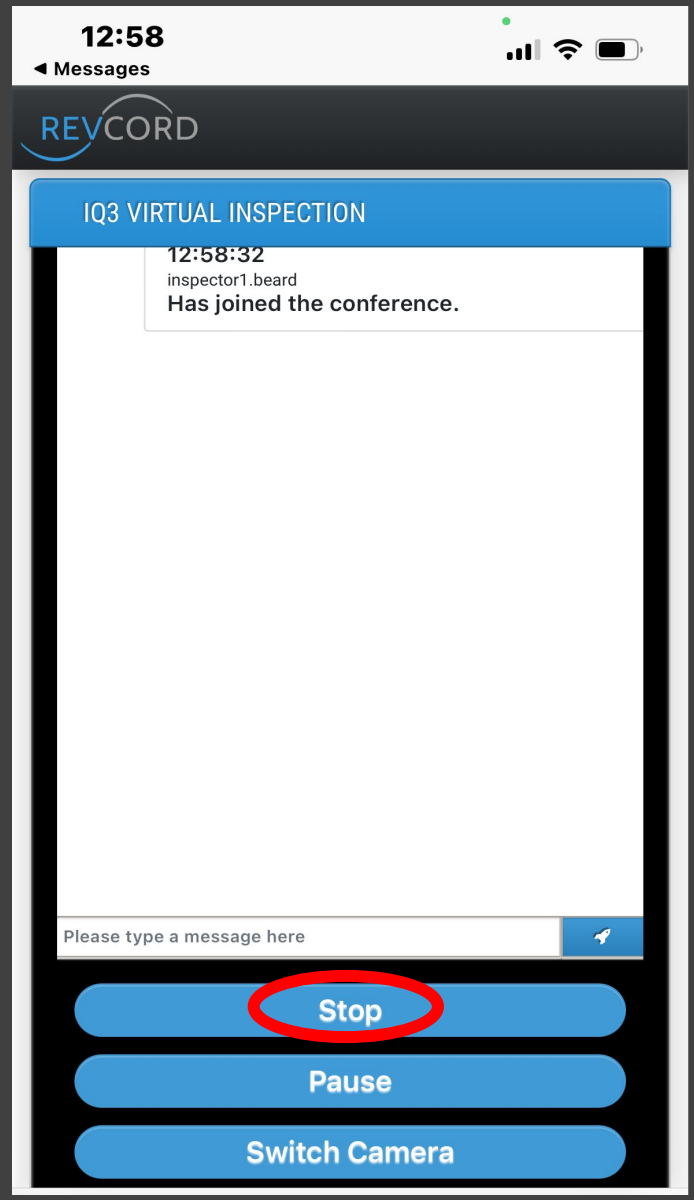
Revcord Remote inspections



Next Meetings.

Tentative agenda for next meeting on 10/2/2024:

1. Overview of 2024 I-Code changes.
2. Overview of 2024 Fire Code
3. Overview of adopted ordinance.
4. Other items.

Open discussion-Questions and Answer

Harker Heights

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Thank you for Attending!

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