

EXHIBIT "H"
2015 International Energy Conservation Code
North Central Texas Council of Governments Amendments
(Climate Zone 3 of the IECC)

The following sections, paragraphs, and sentences of the *2015 International Energy Conservation Code* (IECC) are hereby amended as follows: Standard type is text from the IECC. Underlined type is text inserted. Lined through type is deleted text from IECC. A double (**) asterisk at the beginning of a section identifies an amendment carried over from the 2012 edition of the code and a triple (***) asterisk identifies a new or revised amendment with the 2015 code.

Note: Historically NCTCOG has limited Chapter 1 amendments in order to allow each city to insert their local policies and procedures. We now have suggested certain items to be brought to the attention of cities considering adoption of the code that may be of concern to several jurisdictions. **It is still intended to be discretionary to each city to determine which Chapter 1 amendments to include.**

The 2015 IECC contains separate provisions for commercial buildings and for residential buildings 3 stories or less. The provisions of the commercial buildings are preceded by "C" for Commercial. The provisions for residential buildings 3 stories or less are preceded by "R" for residential buildings. Each set of provisions are separately applied to buildings within their respective scope. Each set of provisions also contains a Scope and Administration chapter, a Definitions chapter, a General Requirements chapter and a chapter containing energy efficiency requirements applicable to building within their respective scope.

Recommended amendments that match sections in each of the respective provisions ("C" and "R") are written to represent both sections rather than duplicating the recommended amendment in this document.

Sections N1101.2 through N1105 of the *2015 International Residential Code* (IRC) are noted to be extracted from the 2015 IECC. The Building and Residential Advisory Board (BRAB) recommends amending Chapter 11 [RE] ENERGY EFFICIENCY of the 2015 IRC to refer to the residential provisions of the 2015 IECC.

The Governor signed HB1736 into law on June 16, 2015. HB1736 adopts energy efficiency chapter of the International Residential Code as it existing on May 1, 2015, as the energy code for single-family construction (as defined in Section 388.002 of the Health and Safety Code) effective September 1, 2016. The recommended amendments to the 2015 IECC have been analyzed by the Energy Systems Laboratory of the Texas A&M University for stringency with the current Texas Building Energy Performance Standards (TBEPS) which is the 2009 Edition of the IECC and the energy provisions of the 2009 IRC. Some amendments below are noted that effective September 1, 2016, the proposed amendment would be deemed less stringent than the provisions of the 2015 IECC and therefore would no longer be considered a recommended amendment.

****Section C102/R102; add Section C102.1.2 and R102.1.2 to read as follows:**

C102.1.2 Alternative compliance. A building certified by a national, state, or local accredited energy efficiency program and determined by the Energy Systems Laboratory to be in compliance with the energy efficiency requirements of this section may, at the option of the Code Official, be considered in compliance. The United States Environmental Protection Agency's Energy Star Program certification of energy code equivalency shall be considered in compliance.

R102.1.2 Alternative compliance. A building certified by a national, state, or local accredited energy efficiency program and determined by the Energy Systems Laboratory to be in compliance with the energy efficiency requirements of this section may, at the option of the Code Official, be considered in compliance. The United States Environmental Protection Agency's Energy Star Program certification of energy code equivalency shall be considered in compliance. Regardless of the program or the path to compliance, each 1- and 2-family dwelling shall be tested for air and duct leakage as prescribed in Section R402.4 and R403.3.3 respectively.

(Reason: This amendment is added to allow alternative compliance in accordance with Texas HB 1365, 78th Legislature. Codified in Chapter 388 Texas Building Energy Performance Standards: §388.003(i). The last sentence to Section R102.1.2 was added to insure that every house is tested in accordance with the mandatory provisions of the code.)

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Section C202 and R202; add the following definition:

*****PROJECTION FACTOR.** The ratio of the horizontal depth of the overhang, eave or permanently attached shading device, divided by the distance measured vertically from the bottom of the fenestration glazing to the underside of the overhang, eave or permanently attached shading device.

(Reason: The amendment to Section 402.3.2 Glazed fenestration SHGC was proposed by the TAB and ESL determined the proposal to be not less restrictive than the 2009, 2012 and 2015 IECC. This added definition is necessary as part of that amendment. The amendment will provide additional options for SHGC selection.)

Section R202; add the following definition:

*****DYNAMIC GLAZING.** Any fenestration product that has the fully reversible ability to change its performance properties, including *U*-factor, solar heat gain coefficient (SHGC), or visible transmittance (VT).

(Reason: This term is referenced in Section R402.3.2. This definition of DYNAMIC GLAZING is also found in the Commercial provisions of the code.)

**** Table R402.1.2 INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT; Amend by changing the WOOD FRAME WALL R-VALUE for CLIMATE ZONE 3 to read as follows:**

~~20 or 13+5^h~~ 13

(Reason: Retain the values in the 2009 code.)

NOTE: Effective September 1, 2016 this proposed amendment is deemed less stringent than the residential provisions of the 2015 IECC and therefore would not be considered a recommended amendment.

**** Table R402.1.4 EQUIVALENT U-FACTORS; Amend by changing the WOOD FRAME WALL U-FACTOR for CLIMATE ZONE 3 to read as follows:**

~~0.060~~ 0.082

(Reason: Retain the values in the 2009 code.)

NOTE: Effective September 1, 2016 this proposed amendment is deemed less stringent than the residential provisions of the 2015 IECC and therefore would not be considered a recommended amendment.

*****Section R402.3.2 Glazed fenestration SHGC; amend by adding a paragraph and table following the exception to read as follows:**

Where vertical fenestration is shaded by an overhang, eave, or permanently attached shading device, the SHGC required in Table R402.1.2 shall be reduced by using the multipliers in Table R402.3.2 SHGC Multipliers for Permanent Projections.

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Table R402.3.2 SHGC Multipliers for Permanent Projections ^a

Projection Factor	SHGC Multiplier (all Other Orientation)	SHGC Multiplier (North Oriented)
0 - 0.10	1.00	1.00
>0.10 – 0.20	0.91	0.95
>0.20 – 0.30	0.82	0.91
>0.30 – 0.40	0.74	0.87
>0.40 – 0.50	0.67	0.84
>0.50 – 0.60	0.61	0.81
>0.60 – 0.70	0.56	0.78
>0.70 – 0.80	0.51	0.76
>0.80 – 0.90	0.47	0.75
>0.90 – 1.00	0.44	0.73

^a North oriented means within 45 degrees of true north.

*(Reason: The amendment to **Section 402.3.2 Glazed fenestration SHGC** was proposed by the TAB and ESL determined the proposal to be not less restrictive than the 2009 and 2015 IECC. This added definition is necessary as part of that amendment. The amendment will provide additional options for SHGC selection.)*

****Section R402.4.1.2 Testing; modify the first paragraph to read as follows:**

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour in ~~Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8.~~ {Remainder of text unchanged}

(Reason: The 2015 IECC requires mandatory door blower testing on each dwelling unit. The visual inspection is no longer an option to performance testing. This change will give some additional time for those builders not currently using a performance approach to adapt construction practices.)

NOTE: Effective September 1, 2016 this proposed amendment is deemed less stringent than the residential provisions of the 2015 IECC and therefore would not be considered a recommended amendment.

*****R402.4.1.2 Testing; Add a last paragraph to read as follows:**

Mandatory testing shall only be performed by individuals that are certified to perform air infiltration testing certified by national or state organizations as approved by the building official. The certified individuals must be an independent third-party entity, and may not be employed; or have any financial interest in the company that constructs the structure.

(Reason: The 2012/15 International Residential Code (IRC) and International Energy Conservation Code (IECC) includes enhanced emphasis on envelope infiltration and duct leakage. Significant changes in the residential energy requirements include more frequent requirement of performance testing for leakage. Residential Duct systems must be tested unless all ducts and equipment are located within the conditioned space. Envelope testing is required to demonstrate compliance with maximum allowable leakage rate. This language puts the regulatory authority on notice that the testing requires specialized credentials and establishes a conflict of interest baseline).

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***** R403.3.3 Duct Testing (Mandatory) Add a last paragraph to read as follows:**

Mandatory testing shall only be performed by individuals that are certified to perform duct testing leakage testing certified by national or state organizations as approved by the building official. The certified individuals must be an independent third-party entity, and may not be employed; or have any financial interest in the company that constructs the structure.

(Reason: The 2015 International Residential Code (IRC) and International Energy Conservation Code (IECC) includes enhanced emphasis on envelope infiltration and duct leakage. Significant changes in the residential energy requirements include more frequent requirement of performance testing for leakage. Residential Duct systems must be tested unless all ducts and equipment are located within the conditioned space. Envelope testing is required to demonstrate compliance with maximum allowable leakage rate. This language puts the regulatory authority on notice that the testing requires specialized credentials and establishes a conflict of interest baseline).

****Section C402.2.7/R402.2; Add Section C402.2.9 and R402.2.14 to read as follows:**

Section C402.2.7/R402.2.14 Insulation installed in walls. To insure that insulation remains in place, insulation installed in walls shall be totally enclosed on all sides consisting of framing lumber, gypsum sheathing, wood structural panel sheathing, netting or other equivalent material approved by the building official.

(Reason: This will increase the performance of the insulation by ensuring that the insulation stays in place.)

*****Section R405.6.2; add the following sentence to the end of paragraph:**

Acceptable performance software simulation tools may include, but are not limited to, REM Rate™, Energy Gauge and IC3. Other performance software programs accredited by RESNET BESTEST and having the ability to provide a report as outlined in R405.4.2 may also be deemed acceptable performance simulation programs and may be considered by the building official.

(Reason: These performance software tools are accredited by RESNET at the time of recommendation.)

*****TABLE R406.4 MAXIMUM ENERGY RATING INDEX; amend to read as follows:**

TABLE R406.4¹
MAXIMUM ENERGY RATING INDEX

CLIMATE ZONE	ENERGY RATING INDEX
3	65

¹ This table is effective until August 31, 2019.

TABLE R406.4²
MAXIMUM ENERGY RATING INDEX

CLIMATE ZONE	ENERGY RATING INDEX
3	63

² The table is effective from September 1, 2019 to August 31, 2022.

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TABLE R406.4³
MAXIMUM ENERGY RATING INDEX

CLIMATE ZONE	ENERGY RATING INDEX
3	59

³ This table is effective on or after September 1, 2022.

(Reason: The tables reflect the values and time table set forth in HB1736.)

END