

ORDINANCE 18-11

AN ORDINANCE TO AMEND TITLE 12, CHAPTER 4, SECTION 12-402, RESIDENTIAL CODE, AND CHAPTER 6, SECTION 12-601, ENERGY CODE

WHEREAS, the Board of Mayor and Aldermen adopted Ordinance 13-19 in October 2013 to adopt the 2012 International Building Code and other related codes published by the International Code Council in 2012 including the International Residential Code, 2012 Edition, with local amendments, as well as the International Energy Code, 2009 Edition; and

WHEREAS, pursuant to Tennessee rules and regulations, Chapter 0780-02-23-.12(4)(a), which became effective on June 25, 2010, the State Fire Marshal's Office is required to conduct a review of local governments authorization to conduct building inspections to determine whether the local government is adequately enforcing the adopted building codes and is properly performing inspections; and

WHEREAS, the State of Tennessee requires that all exempt jurisdictions adopt and enforce codes that are within 7 years of the most recently published codes being the 2018 set of codes published by the International Code Council; and

WHEREAS, the City of Spring Hill adopted and is currently following the International Energy Code, 2009 edition; and

WHEREAS, to be in compliance with notification received from the State Fire Marshal's Office, the City of Spring Hill is required to adopt a minimum of the 2012 Energy Code; and

WHEREAS, City staff conducted a detailed analysis of the model energy codes published in 2012, 2015, and 2018 and determined that International Energy Code, 2018 Edition, provides a broader range of prescriptive methods for compliance with energy rating requirements; and

WHEREAS, City staff recommends to the Board of Mayor and Aldermen that to be in compliance with the findings of the State Fire Marshal's Office the City should adopt by reference the International Energy Code, 2018 edition; and

WHEREAS, City staff recommends to the Board of Mayor and Aldermen that Title 12, Chapter 4, Section 12-402, (N), be amended to delete reference to the "The 2009 International Energy Conservation Code" and replace same with "International Energy Code, 2018 edition"; and

WHEREAS, City staff recommends to the Board of Mayor and Aldermen that Title 12, Chapter 6, Section 12-601, be amended to delete reference to the "International Energy Code, 2009 edition" and replace same with "International Energy Code, 2018 edition".

NOW THEREFORE BE IT ORDAINED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF SPRING HILL, TENNESSEE the following amendments to Title 12, Chapter 4 and Chapter 6, be enacted:

- 1) Title 12, Chapter 4, Section 12-402, (N), be amended to delete reference to the “The 2009 International Energy Conservation Code” and adopt in its place by reference in its entirety the “International Energy Code, 2018 edition”.
- 2) Title 12, Chapter 6, Section 12-601, be amended to delete reference to the “International Energy Code, 2009 edition” and adopt in its place by reference in its entirety the “International Energy Code, 2018 edition”.

BE IT FUTHER ENACTED by the Board of Mayor and Aldermen of the City of Spring Hill that ordinance shall take effect from and after its final passage, the public welfare requiring it.

Passed First Reading May 21, 2018

Passed Second Reading August 20, 2018

ATTEST:



April Goad, City Recorder



Rick Graham, Mayor

LEGAL FORM APPROVED:



Patrick Carter, City Attorney

CHAPTER 4

RESIDENTIAL ENERGY EFFICIENCY

SECTION 401
GENERAL

401.1 Scope. This chapter applies to residential buildings.

401.2 Compliance. Projects shall comply with Sections 401, 402.4, 402.5, and 403.1, 403.2.2, 403.2.3, and 403.3 through 403.9 (referred to as the mandatory provisions) and either:

1. Sections 402.1 through 402.3, 403.2.1 and 404.1 (prescriptive); or
2. Section 405 (performance).

401.3 Certificate. A permanent certificate shall be posted on or in the electrical distribution panel. The certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall be completed by the builder or registered design professional. The certificate shall list the predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, *basement wall*, crawlspace wall and/or floor) and ducts outside conditioned spaces; U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficien-

cies of heating, cooling and service water heating equipment. Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be *listed* for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters.

SECTION 402
BUILDING THERMAL ENVELOPE

402.1 General (Prescriptive).

402.1.1 Insulation and fenestration criteria. The *building thermal envelope* shall meet the requirements of Table 402.1.1 based on the climate *zone* specified in Chapter 3.

402.1.2 R-value computation. Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component R-value. The manufacturer's settled R-value shall be used for blown insulation. Computed R-values shall not include an R-value for other building materials or air films.

TABLE 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b,e}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^e WALL R-VALUE
1	1.2	0.75	0.30	30	13	3/4	13	0	0	0
2	0.65 ^j	0.75	0.30	30	13	4/6	13	0	0	0
3	0.50 ^j	0.65	0.30	30	13	5/8	19	5/13 ^f	0	5/13
4 except Marine	0.35	0.60	NR	38	13	5/10	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13+5 ^h	13/17	30 ^g	10/13	10, 2 ft	10/13
6	0.35	0.60	NR	49	20 or 13+5 ^h	15/19	30 ^g	15/19	10, 4 ft	10/13
7 and 8	0.35	0.60	NR	49	21	19/21	38 ^g	15/19	10, 4 ft	10/13

For SI: 1 foot = 304.8 mm.

- a. R-values are minimums. U-factors and SHGC are maximums. R-19 batts compressed into a nominal 2 x 6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value.
- b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- c. "15/19" means R-15 continuous insulated sheathing on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulated sheathing on the interior or exterior of the home. "10/13" means R-10 continuous insulated sheathing on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.
- d. R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Zones 1 through 3 for heated slabs.
- e. There are no SHGC requirements in the Marine Zone.
- f. Basement wall insulation is not required in warm-humid locations as defined by Figure 301.1 and Table 301.1.
- g. Or insulation sufficient to fill the framing cavity, R-19 minimum.
- h. "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- i. The second R-value applies when more than half the insulation is on the interior of the mass wall.
- j. For impact rated fenestration complying with Section R301.2.1.2 of the *International Residential Code* or Section 1608.1.2 of the *International Building Code*, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.

2018 International Energy Conservation Code

R402.1.1 Vapor retarder. Wall assemblies in the *building thermal envelope* shall comply with the vapor retarder requirements of Section R702.7 of the *International Residential Code* or Section 1405.3 of the *International Building Code*, as applicable.

R402.1.2 Insulation and fenestration criteria. The *building thermal envelope* shall meet the requirements of Table R402.1.2, based on the *climate zone* specified in Chapter 3.

R402.1.3 R-value computation. Insulation material used in layers, such as framing *cavity insulation* or continuous

insulation, shall be summed to compute the corresponding component *R*-value. The manufacturer's settled *R*-value shall be used for blown-in insulation. Computed *R*-values shall not include an *R*-value for other building materials or air films. Where insulated siding is used for the purpose of complying with the continuous insulation requirements of Table R402.1.2, the manufacturer's labeled *R*-value for the insulated siding shall be reduced by R-0.6.

R402.1.4 U-factor alternative. An assembly with a *U*-factor equal to or less than that specified in Table R402.1.4 shall be an alternative to the *R*-value in Table R402.1.2.

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b, c}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^e	FLOOR R-VALUE	BASEMENT ^o WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^o WALL R-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.32	0.55	0.25	38	20 or 13+5 ^h	8/13	19	5/13 ^f	0	5/13
4 except Marine	0.32	0.55	0.40	49	20 or 13+5 ^h	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.30	0.55	NR	49	20 or 13+5 ^h	13/17	30 ^g	15/19	10, 2 ft	15/19
6	0.30	0.55	NR	49	20+5 ^h or 13+10 ^h	15/20	30 ^g	15/19	10, 4 ft	15/19
7 and 8	0.30	0.55	NR	49	20+5 ^h or 13+10 ^h	19/21	38 ^g	15/19	10, 4 ft	15/19

NR = Not Required.

For SI: 1 foot = 304.8 mm.

- 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.
- The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
Exception: In Climate Zones 1 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such skylights does not exceed 0.30.
- "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation on the interior of the basement wall.
"15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. Alternatively, compliance with "15/19" shall be R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home.
- R-5 insulation shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation *R*-value for slabs, as indicated in the table. The slab edge insulation for heated slabs shall not be required to extend below the slab.
- There are no SHGC requirements in the Marine Zone.
- Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.
- Alternatively, insulation sufficient to fill the framing cavity and providing not less than an *R*-value of R-19.
- The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "13+5" means R-13 cavity insulation plus R-5 continuous insulation.
- Mass walls shall be in accordance with Section R402.2.5. The second *R*-value applies where more than half of the insulation is on the interior of the mass wall.

TABLE R402.1.4
EQUIVALENT U-FACTORS^a

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.32	0.55	0.030	0.060	0.098	0.047	0.091 ^c	0.136
4 except Marine	0.32	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.30	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.30	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.30	0.55	0.026	0.045	0.057	0.028	0.050	0.055

- Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.
- Mass walls shall be in accordance with Section R402.2.5. Where more than half the insulation is on the interior, the mass wall *U*-factors shall not exceed 0.17 in Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.
- In warm-humid locations as defined by Figure R301.1 and Table R301.1, the basement wall *U*-factor shall not exceed 0.360.



DEPARTMENT: Building Codes
SUBMITTED BY: Chris Brooks, Building Codes Director
DATE: July 30, 2018
RE: Amended Adoption of 2018 International Energy Conservation Code

OVERVIEW:

The State Fire Marshal's through Gary Farley Assistant Commissioner has granted the City of Spring Hill authority to adopt the 2009 International Energy Conservation Code Table 402.1.1 Insulation and Fenestration Requirements by Component.

Highlights:

Staff has been working with the State Fire Marshal's office to address the concern raised by local builders regarding the adoption of the 2018 IECC and the potential impact the new code would have upon construction costs in adhering to the new code requirements. The City received notification from the State Fire Marshal's office authorizing the ability of the City to adopt Table 402.1.1 of the 2009 IECC in place of Table 402.1.2 of the 2018 IECC which would allow the current standards being administered by the City to remain in place until such time as the State Fire Marshal's office adopts a more current standard. Adoption of the 2018 IECC along with adoption of the 2009 IECC provisions will allow the City Spring Hill to keep the same insulation values in the walls and attic with no additional cost to the contractors.

Staff Recommendation:

Staff recommends approval of the amended Ordinance reflecting the adoption of Table 402.1.1 of the 2009 IECC in place of Table 402.1.2 of the 2018 IECC.

Additional Information

- Request by Email to Gary Farley to adopt 2009 IECC Table 402.1.1
- Approval by Email from Gary Farley to adopt 2009 IECC Table 402.1.1
- 2009 International Energy Conservation Code Table 402.1.1(Climate zone 4)
- 2018 International Energy Conservation Code Table 402.1.2(Climate zone 4)

Chris Brooks

From: Gary Farley <gary.farley@tn.gov>
Sent: Monday, July 16, 2018 4:30 PM
To: Chris Brooks
Cc: Leigh J. Ferguson; Alexis Braun; Tim Planer
Subject: 2018 Energy Adopted with 2009 tables.

Chris

I am approving your request to adopt the 2018 IECC with the 2009 tables as requested. However if the state adopts something more stringent than this you will be required to adopt a more stringent energy code too. I am coping this email to Tim Planer for reference in your jurisdiction file. Thanks.

Gary Farley Assistant Commissioner
Department of Commerce and Insurance
Fire Prevention Division – TN State Fire Marshal’s Office
Davy Crockett Tower, 9th Floor
[500 James Robertson Parkway](#)
[Nashville, TN 37243-0565](#)
p. [615-532-6391](#) d. [615-532-5805](#)
Gary.farley@tn.gov | www.tn.gov/fire

Help us serve you better. Please take a few moments to let us know how we are doing and what we can do better by filling out the following survey https://www.research.net/r/SFMO_ElectricalandResidential

Chris Brooks

From: Chris Brooks
Sent: Friday, June 22, 2018 7:30 AM
To: 'Tim Planer'
Cc: Chuck Downham
Subject: 2018 Energy Code Adoption.

Tim

As per our conversation on the phone 6-21-18 the City of Spring Hill would like to request the amendment to the 2018 International Energy Conservation Code Chapter 4 by replacing Table 402.1.2 with the 2009 IECC Table 402.1.1 as the State had adopted.

Also for the Board of Mayor an Alderman I would like the breakdown explaining Rule 0780-02-23-12 (3) . What we have ran into is that the Home Building Association has stated that the State does not have the Authority to require the City to be with in 7 years.

Best Regards

Chris Brooks
Director of Building Codes
City of Spring Hill, TN 37174
Office Hours, 8:00 to 4:30