

ORDINANCE NO. 15-041

AN ORDINANCE OF THE CITY OF GALVESTON, TEXAS, AMENDING CHAPTER 10, "BUILDING CODE" OF "THE CODE OF THE CITY OF GALVESTON, 1982, AS AMENDED", BY ADOPTING THE "2012 INTERNATIONAL ENERGY CONSERVATION CODE"; PROVIDING FOR LOCAL AMENDMENTS TO "CLIMATE ZONE 2 EXTERIOR DESIGN CONDITIONS", TABLE 402.1.1 AND TABLE 402.1.3; PROVIDING FOR AN EFFECTIVE DATE OF JULY 1, 2015; MAKING VARIOUS FINDINGS AND PROVISIONS RELATED TO THE SUBJECT.

WHEREAS, the City of Galveston is currently operating under the 2009 edition of the "International Energy Conservation Code ("Energy Code") as amended and after reviewing this code, the Building Department (staff) has noticed important differences between the contents of the 2009 edition and the 2012 edition; and,

WHEREAS, staff desires to keep the City of Galveston current with recent codes pertaining to construction and development. By adopting the "2012 International Energy Conservation Code", with local amendments, the City of Galveston will automatically adopt the energy conservation regulations by reference; and,

WHEREAS, the Energy Conservation Code addresses the need for a contemporary energy conservation code addressing the design of energy efficiency building envelopes and installation of energy efficient mechanical, lighting and power systems through requirements emphasizing performance; and,

WHEREAS, the Texas A&M University Energy System Laboratory stated that the 2012 IECC does not conform to the Texas Building Energy Performance Standards adopted into State law by the 78th Legislature. However, in order to achieve compliance, the 2012 IECC can be amended with a modified Climate Zone 3, Table 402.1.1; and,

WHEREAS, staff recommends amending Chapter 10, "The Building Code" of "The Code of the City of Galveston 1982, as amended" by adopting the "2012 International Energy Conservation Code" with local amendments; and,

WHEREAS, the City Council of the City of Galveston deems it to be in the public interest to adopt the "2012 International Energy Conservation Code" with amendments as provided below.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GALVESTON, TEXAS:

SECTION 1. The findings and recitations set out in the preamble to this Ordinance are found to be true and correct and they are hereby adopted by the City Council and made a part hereof for all purposes.

SECTION 2. The Code of the City of Galveston 1982, as amended”, Chapter 10, “Building Code”, Article IV, “International Energy Conservation Code” is hereby amended to read and provide as follows:

Sec. 10-50. Adopted.

The ~~2009~~ 2012 edition of the "International Energy Conservation Code", hereinafter referred to as the "Energy Code of the City of Galveston" (Energy Code) copies of which have this day been exhibited to and approved by the city council and certified copies of which are on file in the respective offices of the city secretary and the building official of the city, is hereby adopted by reference and declared to be the code for regulating the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of the building envelope, mechanical, lighting and power systems in the city and providing for the issuance of permits and collection of fees therefore, save and except such portions as are hereinafter deleted, amended, varied or modified.

Sec. 10-52. Energy Code – Amendments, additions.

Tables 402.1.1 contain data that is only necessary for climate zone 3. All other requirements remain the same.

Residential Energy Efficiency”: Table 402.1.1 climate Zone 3 shall be amended to read as and provide as follows:

<u>Path</u>	<u>Glazing Requirements</u>					<u>Foundation Type</u>			
<u>Climate Zone</u>	<u>Area %</u>	<u>U-Factor</u>	<u>SHGC</u>	<u>Ceiling</u>	<u>Wall</u>	<u>Floor</u>	<u>Basement Wall</u>	<u>Slab Perimeter</u>	<u>Crawl Space wall</u>
<u>1</u>	15	.75	<u>.25</u>	<u>R-30</u>	<u>R-13</u>	<u>R-13</u>	R-0	R-0	R-5
<u>2</u>	20	.70	<u>.25</u>	<u>R-38</u>	R-13	<u>R-13</u>	R-0	R-0	R-5
<u>3</u>	25	.55	<u>.25</u>	<u>R-38</u>	R-13	<u>R-19</u>	<u>R-13</u>	R-0	<u>R-5/13</u>

TABLE 402.1.1										
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT (See note a)										
Climate Zone	Fenestration U-Factor	Skylight U-Factor	Glazed Fenestration SHGC	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value & Depth	Crawl Space Wall R-Value
	See Note b	See Note b	Note b, e	Note i			See note i		Note c	Note d

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2	0.65j	0.75	0.30	30	13	4/6	13	0	0	0

SECTION 3. It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses and phrases of this Ordinance are severable and, if any phrase, clause, sentence, paragraph or section of this Ordinance should be declared invalid by the final judgment or decree of any court of competent jurisdiction, such invalidity shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Ordinance.

SECTION 4. All Ordinances or parts thereof in conflict herewith are repealed to the extent of such conflict only.

SECTION 5. In accordance with the provisions of Sections 12 and 13 of Article II of the City Charter this Ordinance has been publicly available in the office of the City Secretary for not less than 72 hours prior to its adoption; that this Ordinance may be read and published by descriptive caption only.

SECTION 6. This Ordinance shall be and become effective on July 1, 2015 after its adoption and publication in accordance with the provisions of the Charter of the City of Galveston.

APPROVED AS TO FORM:

DONNA M. FAIRWEATHER
ASSISTANT CITY ATTORNEY

I, Janelle Williams, Secretary of the City Council of the City of Galveston, do hereby certify that the foregoing is a true and correct copy of an Ordinance adopted by the City Council of the City of Galveston at its regular meeting held on June 11, 2015 as the same appears in records of this office.

IN TESTIMONY WHEREOF, I subscribe my name hereto officially under the corporate seal of the City of Galveston this ____ day of _____, 2015.

Secretary for the City Council
of the City of Galveston

City of Galveston 2009 2012 IECC Amendments

Chapter 1 “Administration” shall be amended to read and provide as follows:

101.1. Title. This code shall be known as the International Energy Conservation Code of City of Galveston and shall be cited as such. It is referred to herein as “this code”.

Section 109 “Board of Appeals” shall be deleted in its entirety and amended to read:

Refer to Chapter 10, Article II. Building Board of Adjustments and Appeals, of the Code of the City of Galveston.

Chapter 3 “General Requirements” shall be amended to read and provide as follows:

301.2 Warm humid counties. Warm humid counties climates are identified in Table 301.1 by an asterisk. This jurisdiction shall be considered warm-humid for the purposes of this code.

302.2 Exterior Design Conditions. When using the total building performance compliance method or when completing Air Conditioning Heat Load Calculations the criteria shall be as set forth in Table 302.2

Table 302.2

Exterior Design Conditions

<u>Condition</u>	<u>Value</u>
<u>Winter Design Dry-bulb</u>	<u>36°F</u>
<u>Summer Design Dry-bulb</u>	<u>89°F</u>
<u>Summer Design Wet-bulb</u>	<u>79°F</u>
<u>Degree days heating</u>	<u>1008</u>
<u>Degree days cooling</u>	<u>3268</u>
<u>Climate Zone</u>	<u>2 moist warm humid</u>

Chapter 4 “Residential Energy Efficiency” shall be amended to read and provide as follows:

Table 402.1.1 Insulation and Fenestration requirements by component. Table 402.1.1 shall be deleted in its entirety and replaced with the following table restricting data to only that necessary for Climate Zone 2.

TABLE 402.1.1										
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT (See note a)										
CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
	See Note b	See Note b	Note b, e	Note i		See note i		Note c	Note d	Note c
2	0.65	0.75	0.30	30	13	4/6	13	0	0	0

For SI: 1 foot = 304.88 mm

- 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.
- The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- "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.
- 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.
- There are no SHGC requirements in the Marine Zone.
- Basement wall insulation is not required in warm-humid locations as defined by Figure 301.1 and Table 301.1.
- Or insulation sufficient to fill the framing cavity, R-19 minimum.
- "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- The second R-value applies when more than half the insulation is on the interior of the mass wall.
- 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.

Table 402.1.3 "Equivalent U-Factors" shall be deleted in its entirety and replaced with the following table restricting data to only that necessary for Climate Zone 2.

TABLE 402.1.3								
EQUIVALENT U-FACTORS (See note a)								
CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
					See note b			
2	0.65	0.75	0.035	0.082	0.165	0.064	0.360	0.477

- Non-fenestration U-factors shall be obtained from measurement, calculation or an approved source.
- When more than half the insulation is on the interior, the mass wall U-factors shall be a maximum of 0.14 in Zone 2.

402.4.2.1 Testing Option. Building envelope tightness and insulation installation shall be considered acceptable when test air leakage is less than ~~seven air changes per hour (ACH)~~ **.35 ACH_n** when tested with a blower door at a pressure of **33.5 psf (50 pascals)** ~~(1 psf)~~. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. **NOTE: 7 ACH = .35 ACH_n**

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed;
2. Dampers shall be closed, but not sealed; including exhaust, intake, makeup air, back draft, and flue dampers;
3. Interior doors shall be open;
4. Exterior openings for continuous ventilation systems and heat recovery ventilators shall be closed sealed;
5. Heating and cooling system(s) shall be turned off;
6. HVAC ducts shall not be sealed; and
7. Supply and return registers shall not be sealed.

A certified independent third-party technician approved by the building official shall perform testing.

Documentation verifying thermal envelope air leakage equal to or less than .35 ACHn shall be submitted with the final mechanical code compliance package on the jobsite and shall include the following information.

1. Address of residence
2. Name and company of technician performing testing
3. Date of final test

Test results as percentage of ACH

402.4.2.2 Visual inspection option shall be deleted in its entirety.

403.2.1 Insulation (Prescriptive). Supply and return ducts in attics and other non-conditioned spaces shall be insulated to a minimum of R-8. ~~All other other ducts shall be insulated to a minimum of R-6.~~

Exception: Ducts or portions thereof located completely inside the building thermal envelope shall be insulated to a minimum of R-6.

403.2.2 Sealing (Mandatory). All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joint and seams shall comply with Section M1601.4.1 of the 2009 International Residential Code.

Duct tightness shall be verified by either of the following:

1. Post construction test: Leakage to outdoors shall be less than or equal to 8 cfm (226.5 L/min) per 100 ft² (9.29 m²) of conditioned floor area or a total leakage less than or equal to 12 cfm (12 L/min) per 100 ft² (9.29 m²) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.
2. Rough-in test: Total leakage shall be less than or equal to 6 cfm (169.9 L/min) per 100 ft² (9.29 m²) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the roughed in system, including the

manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 ft² (9.29 m²) of conditioned floor area.

Duct tightness test shall be accomplished on all new construction dwellings and all remodels where the duct system is to be replaced and is accessible for testing.

A certified independent third-party technician approved by the building official shall perform testing.

Exceptions: Duct tightness test is not required if the air handler and all ducts are located within conditioned space.

405.2 Mandatory requirements. Compliance with this section requires that the mandatory provisions identified in Section 401.2 be met. All supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6
R-8