First Reading
January 28, 2020
Item No. 7.15

Second Reading
February 11, 2020
Item No. 7.11

ORDINANCE NO. 2020-O0019

AN ORDINANCE AMENDING CHAPTER 28 OF THE CODE OF ORDINANCES OF THE CITY OF LUBBOCK, TEXAS WITH REGARD TO ADOPTION OF THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE AND PROVIDING FOR CERTAIN AMENDMENTS THERETO TO MEET LOCAL CONDITIONS; PROVIDING A PENALTY; PROVIDING A SAVINGS CLAUSE; AND PROVIDING FOR PUBLICATION.

WHEREAS the City Council of the City of Lubbock, Texas deems it in the best interest of the health, safety, and welfare of the citizens of Lubbock to adopt the 2015 International Energy Conservation Code for the City of Lubbock with certain amendments thereto to meet local conditions; NOW THEREFORE:

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LUBBOCK:

SECTION 1. THAT Chapter 28, Article 28.16 of the Code of Ordinances of the City of Lubbock is hereby amended as follows:

ARTICLE 28.16 INTERNATIONAL ENERGY CONSERVATION CODE

Sec. 28.16.001 Adopted

The 2015 edition of the International Energy Conservation Code, as published by the International Code Council, Inc., as hereinafter amended, is hereby adopted as the energy conservation code of the City of Lubbock, Texas. A copy of said code is attached hereto and incorporated herein as though set out herein in detail. References to the energy conservation code or the energy code in this chapter or to "this code" within this article shall mean and refer to the 2015 edition of the International Energy Conservation Code as amended herein. One copy of the 2015 International Energy Conservation Code shall be filed with the city secretary and a copy shall be maintained in the office of the city building official. All such copies, with the amendments thereto, shall be open to public inspection during the usual hours of business of the offices where they are maintained.

Sec. 28.16.002 Coordination of administrative provisions

The administrative provisions contained in chapter 28, articles 28.01 through 28.08 of this Code of Ordinances are applicable to this article; however, for purposes of administering provisions related more specifically to the regulation of energy conservation systems design and installation, these supplemental administrative provisions have been provided. Except as amended or supplemented within sections 28.16.002 and 28.16.003, the entire text of chapter 1 of the 2015 International Energy Conservation Code is deemed to be incorporated herein as though set out herein in detail. Where a conflict arises between a provision contained within sections 28.16.002 and

28.16.003 and articles 28.01 through 28.08 of this Code of Ordinances, it is the intent that the more specific govern, as determined by the building official.

Sec. 28.16.003 Supplemental administrative amendments

(a) Title. Sections C101.1 and R101.1 are hereby amended to read as follows:

C101.1 Title. This code shall be known as the International Energy Conservation Code of the City of Lubbock, Texas and shall be cited as such. It is referred to herein as "this code."

R101.1 Title. This code shall be known as the International Energy Conservation Code of the City of Lubbock, Texas and shall be cited as such. It is referred to herein as "this code."

(b) Administrative amendments and cross-references to articles 28.01 through 28.08.

The following administrative provisions within chapter 1 of the International Energy Conservation Code are hereby stricken, and the corresponding provisions within articles 28.01 through 28.08 of this Code of Ordinances shall govern, as indicated in table 28.16.003 below:

TABLE 28.16.003

ADMINISTRATIVE PROVISIONS CROSS-REFERENCE

2015 International Energy Code Section	**Section Heading/Subject**	**Refer to Lubbock Code of Ordinances Chapter Section**
C107.5 and R107.5	Fee refunds	28.05.109
C108.4 and R108.4	Violation penalties	28.02.006
C108 and R108	Stop work orders	28.02.007
C109.1 through C109.3 R109.1 through R109.3	Means of appeal	2.03.491 through 2.03.495

c) Exempt buildings. - Sections C501 and R501 are hereby amended to read as follows:

C501.6 and R501.6 Historic buildings. Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated

historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, are exempt from this code.

C501.6.1 Hospitals and research laboratories. Hospitals licensed by the State Department of Health Services and research laboratories containing fume hoods and other HVAC systems for the protection of occupants shall be exempt from the provisions of this code.

Exception: Non-residential buildings otherwise exempted by Sections C501.6 or C501.6.1 above are not exempt from the service water heating and electrical lighting provisions of this code.

Sec. 28.16.004 Technical amendments - Commercial

(a) Interior design conditions. - C302.1 is hereby deleted in its entirety.

(b) Minimum skylight fenestration area. - C402.4.2 is hereby amended with additional text that reads:

The minimum skylight fenestration area is not a mandatory guideline but more as a recommendation. Decisions for use shall be determined by the design professional or acting representative.

(c) Deadband. - C403.2.4.1.2 is hereby amended to read:

Where used to control both heating and cooling, zone thermostatic controls shall be capable of providing a temperature range or deadband of at least 2°F (2.8°C) within which the supply of heating and cooling energy to the zone is capable of being shut off or reduced to a minimum.

(d) Economizer fault detection and diagnostics (FDD). - C403.2.4.7 is hereby deleted in its entirety.

(e) Energy recovery ventilation systems. - C403.2.7 is hereby amended to read:

Where the supply airflow rate of a fan system exceeds the values specified in Tables C403.2.7(1) and C403.2.7(2), the system shall include an energy recovery system. The energy recovery system shall have the capability to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies, at design conditions. Where an air economizer is installed, the energy recovery

system shall include a bypass or controls which permit operation of the economizer as required by Section C403.3.

(f) Duct and plenum insulation and sealing. - C403.2.9 is hereby amended to read:

Supply and return air ducts and plenums shall be insulated with a minimum of R-6 insulation where located in unconditioned spaces and where located outside the building.

Exceptions:

1. Where located within equipment.

2. Where the design temperature difference between the interior and exterior of the duct or plenum is not greater than 15°F (8°C).

Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the International Mechanical Code

(g) Protection of piping insulation. - C403.2.10.1 is hereby deleted in its entirety.

(h) Mechanical systems commissioning and completion requirements. - C403.2.11 is hereby deleted in its entirety.

(i) Economizers (Prescriptive). - C403.3 is hereby amended to read:

If a cooling system includes either an air or water economizer it shall comply with Sections C403.3.1 through C403.3.4

Table C403.3(1) and Table C403.3(2) are hereby deleted in their entirety.

(j) Fan control. - C403.4.1 is hereby amended to read:

Controls shall be provided for fans in accordance with Sections C403.4.1.2 through C403.4.1.3.

Section C403.4.1.1 Fan airflow control and Table C403.4.1.1 are hereby deleted in their entirety.

(k) Maximum allowable pipe length method. - C404.5.1 is hereby deleted in its entirety.

(l) Maximum allowable pipe volume method. - C404.5.2 is hereby amended to read:

The water volume in the piping shall be calculated in accordance with Section C404.5.2.1. Water heaters, circulating water systems and heat trace temperature maintenance systems shall be considered sources of heated water.

The volume from the nearest source of heated water to the termination of the fixture supply pipe shall be as follows:

1. For all plumbing fixtures or plumbing appliances; not more than 0.5 gallon (1.89 L).

(m) Circulation systems. - C404.6.1 is hereby amended to read:

Heated-water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-syphon circulation systems shall be prohibited. Circulation pump shall be controlled by a seven-day time clock, aqua stat, or a combination of both devices.

(n) Lighting controls (Mandatory). - C405.2 is hereby amended to read:

Lighting systems shall be provided with controls as specified in Sections C405.2.1, C405.2.2, C405.2.3, C405.2.4 and C405.2.5.

Exceptions: Lighting controls are not required for the following:

1. Areas designated as security or emergency areas that are required to be continuously lighted.

2. Interior exit stairways, interior exit ramps and exit passageways.

3. Emergency egress lighting that is normally off.

4. Areas deemed by owner/operator to be a potential health, safety or security issue.

(o) Occupant sensor controls. - C405.2.1 is hereby deleted in its entirety.

(p) Commissioning plan. - C408.2.1 is hereby deleted in its entirety.

(q) Preliminary commissioning report. - C408.2.4 is hereby deleted in its entirety.

(r) Acceptance of report. - C408.2.4.1 is hereby deleted in its entirety.

(s) Copy of report. - C408.2.4.2 is hereby deleted in its entirety.

(t) Functional testing. - C408.3.1 is hereby amended to read:

Prior to passing final inspection provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's instructions. Functional testing shall be in accordance with Sections C408.3.1.1 and C408.3.1.2 for the applicable control type.

Sec. 28.16.005 Technical amendments – Residential

(a) Above code programs. - R102.1.1 is hereby amended to read:

The code official or other authority having jurisdiction shall be permitted to deem a national, state or local energy-efficiency program to exceed the energy efficiency required by this code. Buildings approved in writing by such an energy-efficiency program shall be considered in compliance with this code.

(b) Information on construction documents. - R103.2 is hereby deleted in its entirety.

(c) Interior design conditions. - R302.1 is hereby deleted in its entirety.

(d) Table R402.1.2 Insulation and Fenestration Requirements by Component[a] - amend subject portions of table relative to Climate Zone 3 to read:

Fenestration U-Factor[b]	0.50[j]
Skylight[b] U-Factor	0.65
Glazed Fenesration SHGC[b,e]	0.30
Ceiling R-Value	30
Wood Frame Wall R-Value	13
Mass Wall R-Value[i]	5/8
Floor R-Value	19
Basement[c] Wall R-Value	0
Slab[d] R-Value & Depth	0
Crawl Space[c] Wall R-Value	5/13

j. For impact rated fenestration complying with Section R301.2.1.2 of the International Residential Code or Section 1609.1.2 of the International Building Code, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.

(e) Table R402.1.4 Equivalent U-Factors[a] - amend subject portions of table relative to Climate Zone 3 to read:

Fenestration U-Factor	0.50
Skylight U-Factor	0.65
Ceiling U-Factor	0.035
Frame Wall U-Factor	0.082
Mass Wall U-Factor[b]	0.141

Floor U-Factor	0.047
Basement Wall U-Factor	0.360
Crawl Space Wall U-Factor	0.136

(f) Glazed fenestration SHGC exception. - R402.3.2.1 is hereby drafted to read:

In Climate Zones 1 through 4, permanently shaded vertical fenestration shall be permitted to satisfy the SHGC requirements. The projection factor of an overhang, eave, or permanently attached shading device shall be greater than or equal to the value listed in Table 402.3.2.1 for the appropriate orientation. The minimum projection shall extend beyond each side of the glazing a minimum of 12 inches (0.3m). Each orientation shall be rounded to the nearest cardinal orientation (+/- 45 degrees or 0.79 rad) for purposes of calculations and demonstrating compliance.

Table R402.3.2.1
Minimum Projection Factor Required by Orientation for SHGC Exception

ORIENTATION	PROJECTION FACTOR
North	>=0.40[a]
South	>=0.20
East	>=0.50
West	>=0.50

a. For the north orientation, a vertical projection located on the west-edge of the fenestration with equivalent PF >=0.15 shall also satisfy the minimum projection factor requirement.

Projection Factor - The ratio of the horizontal depth of an 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.

(g) Air leakage. - R402.4 is hereby amended to read:

Air leakage. – The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

Exception: Dwelling units of R-2 occupancies and multiple single family dwellings shall be permitted to comply with IECC Section C402.5.

(h) Testing. - R402.4.1.2 is hereby amended to read:

The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding 5 air changes per hour in Climate Zones 1 through

8. Testing shall be conducted in accordance with ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weather stripping or other infiltration control measures.

2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.

3. Interior doors, if installed at the time of the test, shall be open.

4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.

5. Heating and cooling systems, if installed at the time of the test, shall be turned off.

6. Supply and return registers, if installed at the time of the test, shall be fully open.

(i) Fireplaces. - R402.4.2 is hereby deleted in its entirety.

(j) Rooms containing fuel-burning appliances. - R402.4.4 is hereby deleted in its entirety.

(k) Insulation (Prescriptive). - R403.3.1 is hereby amended to read:

Supply and return ducts in attics shall be insulated to a minimum of R-6. Supply and return ducts in other portions of the building shall be insulated to a minimum of R-6.

(l) Duct testing (Mandatory). - R403.3.3 is hereby deleted in its entirety.

(m) Duct leakage (Prescriptive). - R403.3.4 is hereby deleted in its entirety.

(n) Circulation systems. - R403.5.1.1 is herby amended to read:

Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosyphon circulation systems shall be prohibited. Circulation pump shall be controlled by a seven-day time clock, aqua stat, or a combination of both devices.

(o) Covers. - R403.10.3 is hereby deleted in its entirety.

(p) Table R405.5.2(1) Specifications for the Standard Reference and Proposed Designs – amend subject portions of table relative to referenced building components to read:

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Vertical fenestration other than opaque doors	Total area[b] = 15 percent of the conditioned floor area	As proposed
	Orientation: equally distributed to four cardinal compass orientations (N, E, S & W).	As proposed
	U-factor: as specified in Table R402.1.4	As proposed
	SHGC: as specified in Table R402.1.2 except that for climates with no requirement (NR) SHGC = 0.40 shall be used.	As proposed
	Interior shade fraction: 0.92-(0.21×SHGC for the standard reference design)	
	External shading: none	

Air exchange rate	Air leakage rate of 5 air changes per hour in climate zones 1 through 8 at a pressure of 0.2 inches w.g (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than $0.01 \times CFA + 7.5 \times (N_{br} + 1)$ where: CFA = conditioned floor area N_{br} = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.	For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate[a]. The mechanical ventilation rate[b] shall be in addition to the air leakage rate and shall be as proposed.

Heating systems[d, e]	Fuel type: same as proposed design Efficiencies: Electric: air-source heat pump with prevailing federal minimum standards Nonelectric furnaces: natural gas furnace with prevailing federal minimum standards Nonelectric boilers: natural gas boiler with prevailing federal minimum standards Capacity: sized in accordance with Section R403.6	As proposed As proposed As proposed As proposed
Cooling systems[d, f]	Fuel type: Electric Efficiency: In accordance with prevailing federal minimum standards Capacity: sized in accordance with section R403.6	As proposed As proposed

Service water heating[d, e, f, g]	Fuel type: same as proposed design Efficiency: In accordance with prevailing federal minimum standards Use: gal/day = 30 + 10 x N_{br} Tank temperature: 120°F	As proposed Same as standard reference Same as standard reference

SECTION 2. THAT violation of any provision of this ordinance shall be deemed a misdemeanor punishable as provided by Section 1.01.004 of the Code of Ordinances of the City of Lubbock, Texas.

SECTION 3. THAT should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected thereby.

SECTION 4. THAT the City Secretary of the City of Lubbock, Texas, is hereby authorized and directed to cause publication of the descriptive caption of this Ordinance as an alternative means of publication provided by law.

AND IT IS SO ORDERED.

Passed by the City Council on first reading this 28th day of January, 2020.

Passed by the City Council on second reading this 11th day of February, 2020.

DAN POPE, MAYOR

ATTEST:

Rebecca Garza, City Secretary

APPROVED AS TO CONTENT:

Greg Zielinski, Chief Building Official

APPROVED AS TO FORM:

Amy Sims, Assistant City Attorney