

ORDINANCE NO. 3740

AN ORDINANCE OF THE CITY OF MESQUITE, TEXAS, AMENDING CHAPTER 5 OF THE CODE OF THE CITY OF MESQUITE BY DELETING SECTIONS 5-469 AND 5-470 OF ARTICLE XIV IN THEIR ENTIRETY AND ADDING NEW SECTION 5-469 AND 5-470 OF ARTICLE XIV THEREBY ADOPTING THE INTERNATIONAL ENERGY CONSERVATION CODE, 2003 EDITION, AND PROVIDING CERTAIN ADDITIONS AND DELETIONS THERETO; PROVIDING FOR A REPEALER CLAUSE; PROVIDING FOR A SEVERABILITY CLAUSE; PROVIDING FOR A PENALTY NOT TO EXCEED TWO THOUSAND (\$2,000.00) DOLLARS FOR EACH OFFENSE; AND DECLARING AN EFFECTIVE DATE.

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

SECTION 1: That Chapter 5 of the Code of the City of Mesquite, Texas, is hereby amended by deleting Sections 5-469 and 5-470 of Article XIV in their entirety and adding new Sections 5-469 and 5-470 of Article XIV to read as follows, in all other respects said Code and Chapter to remain in full force and effect:

ARTICLE XIV. ENERGY CODE

DIVISION 1. GENERAL

Sec. 5-469. Adopted.

The *International Energy Conservation Code*, 2003 Edition, a publication of the International Code Council (I.C.C.), is hereby adopted and designated as the official energy code of the City of Mesquite to the same extent as if such were copied verbatim in this Article subject to the amendments prescribed in this Article. The Code shall be applicable and shall regulate the design of building envelopes for adequate thermal resistance and low air leakage and the design and selection of mechanical, electrical, service water heating and illumination systems and equipment which will enable effective use of energy in new building construction. A copy of the *International Energy Conservation Code*, 2003 Edition, and amendments thereto shall be maintained in the office of the City Secretary as an original document and ordinance of the city.

DIVISION 2. AMENDMENTS

Sec. 5-470. Amendments and deletions.

The following amendments are made to the *International Energy Conservation Code*, 2003 Edition:

- (1) *Chapter 1, Administration.*
 - (a) *Section 101.4.* Amend by deleting the section in its entirety and adding a new Section 101.4 to read as follows:

Compliance. Compliance with this code shall be determined in accordance with Sections 101.4.1, 101.4.1.3 or 101.4.2.

- (b) *Section 101.4.1.3.* Amend by adding a new Section 101.4.1.3 to read as follows:

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.

- (2) *Chapter 3, Design Conditions.*

- (a) *Table 302.1.* Amend by deleting the table in its entirety and adding a new Table 302.1 to read as follows:

**TABLE 302.1
HEATING AND COOLING CRITERIA**

CONDITION	VALUE
Winter ^a Design dry-bulb (° F) (99.6%)	17
Summer ^a Design dry-bulb (° F) (0.4%)	100
Summer ^a Design wet-bulb (° F) (0.4%)	78
Degree days heating ^b	2407
Degree days cooling ^b	2603
Climate zone ^c	5B

- a. These values are from ASHRAE Handbook of Fundamentals for Dallas/Ft. Worth International Airport 99.6% Winter DB, 0.4% Summer DB and 0.4% Summer WB; and from Local Climatological Data for Dallas-Ft. Worth published by the National Climatic Data Center, National Oceanic and Atmospheric Administration. These values are for the purpose of providing a uniform basis of requirements for North Central Texas. This will not preclude licensed professionals from submitting design analyses based on site measurements or published data more specific to the building site. Adjustments shall be permitted to reflect local climates which differ from the tabulated values or local weather experience determined by the Code Official.
- b. The degree days heating (base 65°F) and cooling (base 65°F) shall be selected from NOAA “Annual Degree Days to Selected Bases Derived from the 1961-1990 Normals,” the ASHRAE *Handbook of Fundamentals*, data available from adjacent military installations, or other source of local weather data acceptable to the Code Official.
- c. The climate zone shall be selected from the applicable map provided in Figures 302.1(1) through 302.1(51) on the following pages.

- (b) *Figures 302.1(1 – 43, 45-51).* Amend by deleting Figures 302.1 (1 – 43, 45-51) in their entirety.
- (3) *Chapter 5, Residential Building Design by Component Performance Approach.*
 - (a) *Section 502.1.1.* Amend by deleting Exception 2 in Section 502.1.1 in its entirety and adding a new Exception 2 to Section 502.1.1 to read as follows:

Buildings located in Climate Zone 5b as indicated in Table 302.1.

- (b) *Section 502.1.5.* Amend by adding exceptions to Section 502.1.5 to read as follows:

Exceptions:

- 1. Any glazing facing within 45 degrees of true north.
 - 2. Any glazing facing within 45 degrees of true south which is shaded along its full width by a permanent overhang with a projection factor of 0.3 or greater.
 - 3. Any fenestration with attached screens where the screens have a rated shading coefficient of 0.6 or less.
- (c) *Table 502.2.* Amend by deleting the table in its entirety and adding a new Table 502.2 to read as follows:

TABLE 502.2^{a-g}
HEATING AND COOLING CRITERIA
ELEMENT MODE TYPE A-1 RESIDENTIAL

Element	Mode	Type A-1 Residential Buildings	Type A-2 Residential Buildings
		U _o	U _o
Walls	Heating or cooling	0.15	0.22
Roof/ceiling	Heating or cooling	0.03	0.03
Floors over unheated spaces	Heating or cooling	0.05	0.05
Heated slab on grade	Heating	R-value = 6	R-value = 6
Unheated slab on grade	Heating	R-value = 0	R-value = 0
Basement wall	Heating or Cooling	U-factor = 0.15	U-factor = 0.15
Crawl space wall	Heating or Cooling	U-factor = 0.15	U-factor = 0.15

- a. The above values have been determined for all counties in the North Central Texas Council of Governments region.
 - b. There are no insulation requirements for heated slabs in locations having less than 500 Fahrenheit HDD.
 - c. There are no insulation requirements for unheated slabs in locations having less than 2,500 Fahrenheit HDD.
 - d. Slab edge insulation is not required for unheated slabs in areas of very heavy termite infestation probability in accordance with Section 502.2.1.4, and as shown in Figure 502.2(7).
 - e. Basement and crawl space wall U-factors shall be based on the wall components and surface air films. Adjacent soil shall not be considered in the determination of the U-factor.
 - f. Typical foundation insulation techniques can be found in the DOE *Building Foundation Design Handbook*.
 - g. These requirements apply only to the boundaries of conditioned space. Air conditioning equipment and ductwork are recommended, but not required, to be located within the conditioned space in North Central Texas zones.
- (d) *Figures 502.2 (1 - 6)*. Amend by deleting Figures 502.2 (1 - 6) in their entirety.
- (e) *Figure 502.2 (7)*. Amend by adding a note to Figure 502.2 (7) to read as follows:
- All counties within the North Central Texas Council of Governments region are designated as within the area of very heavy termite infestation probability for purpose of uniform interpretation of this requirement.
- (f) *Section 502.2.2*. Amend by adding a second paragraph to Section 502.2.2 to read as follows:
- A building demonstrating envelope compliance at least 10% better than code may utilize R-6 duct insulation in both supply and return air ducts in lieu of the insulation required by Table 503.3.3.3.
- (g) *Tables 502.4 (1 - 6)*. Amend by deleting Tables 502.4 (1 - 6) in their entirety and adding a new Table 502.2.4 (1) to read as follows:

TABLE 502.2.4(1)
PRESCRIPTIVE BUILDING ENVELOPE REQUIREMENTS, TYPE A-1
RESIDENTIAL BUILDINGS, BASED ON WINDOW AREA AS A PERCENT OF
GROSS EXTERIOR WALL AREA (FOR ZONES 5b and 6b)

% Glazing	Maximum Glazing U-factor	Ceiling R-value	Exterior Wall R-value	Floor R-value	Basement Wall R-value	Slab Perimeter R-value And Depth	Crawl Space Wall R-value
<8%	0.70	R-26	R-11	R-11	R-5	R-0	R-6
<12%	0.65	R-26	R-13	R-11	R-5	R-0	R-5
<15%	0.65	R-30	R-13	R-11	R-6	R-0	R-7
<18%	0.52	R-30	R-13	R-19	R-6	R-0	R-7
<20%	0.50	R-38	R-13	R-19	R-6	R-0	R-7
<25%	0.46	R-38	R-16	R-19	R-6	R-0	R-7

- (h) *Tables 502.4 (7 – 9).* Amend by deleting Tables 502.4 (7 - 9) in their entirety and adding a new Table 502.2.4 (2) to read as follows:

TABLE 502.2.4(2)
PRESCRIPTIVE BUILDING ENVELOPE REQUIREMENTS, TYPE A-2
RESIDENTIAL BUILDINGS, BASED ON WINDOW AREA AS A PERCENT OF
GROSS EXTERIOR WALL AREA

% Glazing	Maximum Glazing U-factor	Ceiling R-value	Exterior Wall R-value	Floor R-value	Basement Wall R-value	Slab Perimeter R-value And depth	Crawl Space Wall R-value
<20%	0.55	R-30	R-13	R-11	R-5	R-0	R-6
<25%	0.55	R-30	R-13	R-11	R-5	R-0	R-5
<30%	0.47	R-38	R-13	R-19	R-7	R-0	R-8

- (i) *Table 503.3.3.1.* Amend by deleting *Footnote a* to Table 503.3.3.1 in its entirety and adding a new *Footnote a* to read as follows:

For piping lengths in excess of five feet exposed to outdoor air, increase the insulation thickness by 0.5 inch.

- (j) *Table 503.3.3.3.* Amend by adding *Footnote e* to read as follows:

See Section 502.2.2.

- (k) *Section 503.3.3.4.3.* Amend by deleting the first sentence in the section in its entirety and adding a new first sentence to Section 503.3.3.4.3 to read as follows:

Sealing required. All joints, longitudinal and transverse seams, and connections in ductwork shall be made substantially airtight by means of welds, gaskets, mastics (adhesives), mastic-plus-imbedded-fabric systems or tapes or other approved closure systems.

(4) *Chapter 6, Simplified Prescriptive Requirements for Detached One- and Two-Family Dwellings and Group R-2, R-4 or Townhouse Residential Buildings.*

- (a) *Section 602.1.6.* Amend by deleting the last sentence of the exception in Section 602.1.6.
- (b) *Section 602.2.* Amend by adding exceptions to Section 602.2 to read as follows:

Exceptions:

- 1. Any glazing facing within 45 degrees of true north.
- 2. Any glazing facing within 45 degrees of true south which is shaded along its full width by a permanent overhang with a projection factor of 0.3 or greater.
- 3. Any fenestration with attached screens where the screens have a rated shading coefficient of 0.6 or less.

(5) *Chapter 8, Design by Acceptable Practice for Commercial Buildings.*

- (a) *Table 802.2 (1).* Amend by deleting the table in its entirety and adding a new Table 802.2 (1) to read as follows:

**TABLE 802.2(1)
BUILDING ENVELOPE REQUIREMENTS
WINDOW AND GLAZED DOOR AREA**

Windows and Glazed Door Area 10 Percent or Less of Above-Grade Wall Area			
ELEMENT	CONDITION / VALUE		
Skylight (U-factor)	1		
Slab or below-grade wall (R-value)	R-0		
Windows and glass doors	SHGC	U-factor	
PF < 0.25	Any	Any	
0.25 < PF < 0.50	Any	Any	
PF > 0.50	Any	Any	
Roof assemblies (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-19	R-16	
Metal joist/truss	R-25	R-17	
Concrete slab or deck	NA	R-16	
Metal purlin with thermal block	R-25	R-17	
Metal purlin without thermal block	X	R-17	
Floors over outdoor air or unconditioned space (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-11	R-6	
Metal joist/truss	R-11	R-6	
Concrete slab or deck	NA	R-6	
Above-grade walls (R-value)	No framing	Metal framing	Wood framing
R-value cavity	NA	R-11	R-11
R-value continuous	NA	R-0	R-0
CMU > 8 in. with integral insulation			
R-value cavity	NA	R-0	R-0
R-value continuous	R-0	R-0	R-0
Other masonry walls			
R-value cavity	NA	R-0	R-0
R-value continuous	R-0	R-0	R-0

- a. Values shall be determined from Tables 802.2(5) through 802.2(37) using the climate zone(s) specified in Table 302.1 (Note: The tables begin on page 116.)
- b. "NA" indicates the condition is not applicable.
- c. An R-value of zero indicates no insulation is required.
- d. "Any" indicates any available product will comply.
- e. "X" indicates no complying option exists for this condition.
- f. Minimum SHGC requirements do not apply to glazing as follows:
 1. Any glazing facing within 45 degrees of true north.
 2. Any glazing within 45 degrees of true south which is shaded along its full width by a permanent overhang with a projection factor of 0.3 or greater.
 3. Any glazing with permanent attached screens where the screens have a rated shading coefficient of 0.6 or less.

- (b) *Tables 802.2 (2).* Amend by deleting the table in its entirety and adding a new Table 802.2 (2) to read as follows:

**Table 802.2 (2)
BUILDING ENVELOPE REQUIREMENTS**

Windows and Glazed Door Area Over 10 Percent But Not Greater Than 25 Percent of Above-Grade Wall Area			
ELEMENT	CONDITION / VALUE		
Skylight (U-factor)	1		
Slab or below-grade wall (R-value)	R-0		
Windows and glass doors	SHGC	U-factor	
PF < 0.25	0.6	Any	
0.25 < PF < 0.50	0.7	Any	
PF > 0.50	Any	Any	
Roof assemblies (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-25	R-19	
Metal joist/truss	R-25	R-20	
Concrete slab or deck	NA	R-19	
Metal purlin with thermal block	R-30	R-20	
Metal purlin without thermal block	X	R-20	
Floors over outdoor air or unconditioned space (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-11	R-6	
Metal joist/truss	R-11	R-6	
Concrete slab or deck	NA	R-6	
Above-grade walls (R-value)	No framing	Metal framing	Wood framing
R-value cavity	NA	R-11	R-11
R-value continuous	NA	R-0	R-0
CMU > 8 in. with integral insulation			
R-value cavity	NA	R-11	R-11
R-value continuous	R-5	R-0	R-0
Other masonry walls			
R-value cavity	NA	R-11	R-11
R-value continuous	R-5	R-0	R-0

- a. Values shall be determined from Tables 802.2(5) through 802.2(37) using the climate zone(s) specified in Table 302.1 (Note: The tables begin on page 116.)
- b. "NA" indicates the condition is not applicable.
- c. An R-value of zero indicates no insulation is required.
- d. "Any" indicates any available product will comply.
- e. "X" indicates no complying option exists for this condition.
- f. Minimum SHGC requirements do not apply to glazing as follows:
 1. Any glazing facing within 45 degrees of true north.
 2. Any glazing within 45 degrees of true south which is shaded along its full width by a permanent overhang with a projection factor of 0.3 or greater.
 3. Any glazing with permanent attached screens where the screens have a rated shading coefficient of 0.6 or less.

- (c) *Tables 802.2 (3).* Amend by deleting the table in its entirety and adding a new Table 802.2 (3) to read as follows:

**Table 802.2(3)
BUILDING ENVELOPE REQUIREMENTS**

Windows and Glazed Door Area Over 25 Percent But Not Greater Than 40 Percent of Above-Grade Wall Area			
ELEMENT	CONDITION / VALUE		
Skylight (U-factor)	1		
Slab or below-grade wall (R-value)	R-0		
Windows and glass doors	SHGC	U-factor	
PF < 0.25	0.4	0.7	
0.25 < PF < 0.50	0.5	0.7	
PF > 0.50	0.6	0.7	
Roof assemblies (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-25	R-19	
Metal joist/truss	R-25	R-20	
Concrete slab or deck	NA	R-19	
Metal purlin with thermal block	R-30	R-20	
Metal purlin without thermal block	X	R-20	
Floors over outdoor air or unconditioned space (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-11	R-6	
Metal joist/truss	R-11	R-6	
Concrete slab or deck	NA	R-6	
Above-grade walls (R-value)	No framing	Metal framing	Wood framing
R-value cavity	NA	R-11	R-11
R-value continuous	NA	R-0	R-0
CMU > 8 in. with integral insulation			
R-value cavity	NA	R-11	R-11
R-value continuous	R-5	R-0	R-0
Other masonry walls			
R-value cavity	NA	R-11	R-11
R-value continuous	R-5	R-0	R-0

- a. Values shall be determined from Tables 802.2(5) through 802.2(37) using the climate zone(s) specified in Table 302.1 (Note: The tables begin on page 116.)
- b. "NA" indicates the condition is not applicable.
- c. An R-value of zero indicates no insulation is required.
- d. "Any" indicates any available product will comply.
- e. "X" indicates no complying option exists for this condition.
- f. Minimum SHGC requirements do not apply to glazing as follows:
 1. Any glazing facing within 45 degrees of true north.
 2. Any glazing within 45 degrees of true south which is shaded along its full width by a permanent overhang with a projection factor of 0.3 or greater.
 3. Any glazing with permanent attached screens where the screens have a rated shading coefficient of 0.6 or less.

- (d) *Tables 802.2 (4).* Amend by deleting the table in its entirety and adding a new Table 802.2 (4) to read as follows:

Table 802.2(4)
BUILDING ENVELOPE REQUIREMENTS

Windows and Glazed Door Area Over 40 Percent But Not Greater Than 50 Percent of Above-Grade Wall Area			
ELEMENT	CONDITION / VALUE		
Skylight (U-factor)	1		
Slab or below-grade wall (R-value)	R-0		
Windows and glass doors	SHGC	U-factor	
PF < 0.25	0.4	0.7	
0.25 < PF < 0.50	0.5	0.7	
PF > 0.50	0.6	0.7	
Roof assemblies (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-25	R-19	
Metal joist/truss	R-25	R-20	
Concrete slab or deck	NA	R-19	
Metal purlin with thermal block	R-30	R-20	
Metal purlin without thermal block	R-38	R-20	
Floors over outdoor air or unconditioned space (R-value)	Insulation between framing	Continuous insulation	
All-wood joist/truss	R-11	R-6	
Metal joist/truss	R-11	R-6	
Concrete slab or deck	NA	R-6	
Above-grade walls (R-value)	No framing	Metal framing	Wood framing
R-value cavity	NA	R-13	R-11
R-value continuous	NA	R-3	R-0
CMU > 8 in. with integral insulation			
R-value cavity	NA	R-11	R-11
R-value continuous	R-5	R-0	R-0
Other masonry walls			
R-value cavity	NA	R-11	R-11
R-value continuous	R-5	R-0	R-0

- a. Values shall be determined from Tables 802.2(5) through 802.2(37) using the climate zone(s) specified in Table 302.1 (Note: The tables begin on page 116.)
- b. "NA" indicates the condition is not applicable.
- c. An R-value of zero indicates no insulation is required.
- d. "Any" indicates any available product will comply.
- e. "X" indicates no complying option exists for this condition.
- f. Minimum SHGC requirements do not apply to glazing as follows:
 1. Any glazing facing within 45 degrees of true north.
 2. Any glazing within 45 degrees of true south which is shaded along its full width by a permanent overhang with a projection factor of 0.3 or greater.
 3. Any glazing with permanent attached screens where the screens have a rated shading coefficient of 0.6 or less.

- (e) *Section 805.2.1.* Amend by deleting the section in its entirety and adding a new Section 805.2.1 to read as follows:

Interior lighting controls. Each area enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting serving that area. The required controls shall be located within the area served by the controls or be a remote switch that identifies the lights served and indicates their status. Large spaces shall have a separate switch or control for each 2500 square-foot area.

- (6) *Chapter 9, Climate Maps.*

- (a) *Figures 902.1 (1-43, 45-51).* Amend by deleting Figures 902.1 (1-43, 45-51) in their entirety.

- (7) *Chapter 10, Referenced Standards.*

- (a) *ASHRAE/IES-93.* Amend by deleting the referenced standard in its entirety and adding a new referenced standard “ASHRAE/IES-99” to read as follows:

ASHRAE/IES – 99. Energy Efficient Design of New Buildings Except Low Rise Residential Buildings – 1999 Edition.

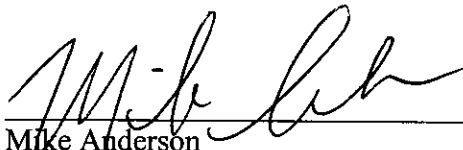
SECTION 2. That all ordinances or portions thereof in conflict with the provisions of this ordinance, to the extent of such conflict, are hereby repealed. To the extent that such ordinances or portions thereof are not in conflict herewith, the same shall remain in full force and effect.

SECTION 3. That should any word, sentence, clause, paragraph or provision of this ordinance be held to be invalid or unconstitutional, the validity of the remaining provisions of this ordinance shall not be affected and shall remain in full force and effect.

SECTION 4. That any person, firm or corporation violating any of the provisions or terms of this ordinance shall be deemed to be guilty of a Class C Misdemeanor and upon conviction in the Municipal Court shall be punished by a fine not to exceed Two Thousand (\$2,000.00) Dollars for each offense.

SECTION 5. That this ordinance shall take effect on August 1, 2005.

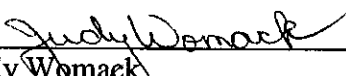
DULY PASSED AND APPROVED by the City Council of the City of Mesquite, Texas,
on the 20th day of June, 2005.

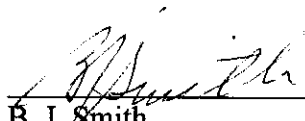


Mike Anderson
Mayor

ATTEST:

APPROVED:



Judy Womack
City Secretary

B. J. Smith
City Attorney