

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF PLANO, TEXAS, REPEALING CITY OF PLANO ORDINANCE NO. 2001-9-11, CODIFIED AS ARTICLE XVIII, ENERGY CONSERVATION CODE, OF CHAPTER 6 OF THE CODE OF ORDINANCES; ADOPTING THE 2003 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE, WITH CERTAIN ADDITIONS, DELETIONS AND AMENDMENTS, AS THE ENERGY CONSERVATION CODE OF THE CITY OF PLANO; AND PROVIDING A REPEALER CLAUSE, A SEVERABILITY CLAUSE, A SAVINGS CLAUSE, A PENALTY CLAUSE, AND AN EFFECTIVE DATE.

WHEREAS, On September 10, 2001, by Ordinance No. 2001-9-11, the City Council of the City of Plano established an Energy Conservation Code and provided regulations thereunder, and such Ordinances were codified as Article XVIII, Energy Conservation Code, of Chapter 6 of the Code of Ordinances of the City of Plano; and

WHEREAS, on June 15, 2004, the Building Standards Commission held a public hearing to discuss the adoption of the 2003 Edition of the International Energy Conservation Code, a publication of the International Code Council (I.C.C.), along with the Appendices of such Code, and to receive input from the general public and all persons who may be affected by the proposed adoption; and

WHEREAS, upon recommendation of the Building Standards Commission and upon full review and consideration of all matters attendant and related thereto, the City Council is of the opinion that the 2003 Edition of the International Energy Conservation Code, along with the Appendices of such Code and the local amendments thereto, should be approved and adopted as the Energy Conservation Code of the City.

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

Section I. The following ordinances or sections thereof, all of which are codified as Article XVIII, Energy Conservation Code, of Chapter 6 of the Code or Ordinances of the City of Plano, are hereby repealed:

Ordinance No. 2001-9-11, duly passed and approved by the City Council of the City of Plano on September 10, 2001

Section II. A new Article XVIII, Energy Conservation Code, of Chapter 6 of the Code of Ordinances of City of Plano is hereby adopted and shall read in its entirety as follows:

ARTICLE XVIII. ENERGY CONSERVATION CODE

DIVISION 1. GENERALLY

Sec. 6-684. Penalty.

Any person, firm or corporation found to be violating any term or provision of this Ordinance, shall be subject to a fine in accordance with Section 1-4(a) of the City Code of Ordinances for each offense. Every day a violation continues shall constitute a separate offense.

Sec. 6-685 Adopted.

The 2003 Edition of the International Energy Conservation Code, a publication of the International Code Council (I.C.C.), along with the Appendices of such Code, is hereby adopted and designated as the Energy Conservation Code of the City to the same extent as if such Code were copied verbatim in this Article, subject to deletions, additions, and amendments prescribed in this Article. A copy of the 2003 Edition of the International Energy Conservation Code is on file in the office of the City Secretary.

DIVISION 2. AMENDMENTS

.Sec. 6-686. Deletions, Additions, Amendments.

The following deletions, additions, and amendments to the International Energy Conservation Code adopted herein are hereby approved and adopted:

(1) *Chapter 1, Administration*

Section 101.4 Compliance; is amended by the addition of the following:

101.4.1.3 Alternative compliance. The Following alternatives shall constitute compliance:

A. 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 at the option of the Code Official.

B. The United States Environmental Protection Agency's Energy Star Program certification of energy code equivalency.

(2) *Chapter 3, Design Conditions*

Section 302.1 Exterior Design Conditions; replace Table with the following:

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

Delete note "a" and replace with the following:

a. These values are from the ASHRAE Handbook of Fundamentals for Dallas/Fort Worth International Airport: 99.6% Winter DB; 0.4% Summer DB; and 0.4% Summer WB; and from Local Climatological Data for Dallas-Fort 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.

Chapter 5, Residential Building Design by Component Performance Approach.

Section 502.1.1 Moisture control; Delete exception 2 and substitute the following:

2) Buildings located in Climate Zones 1 through 9 as indicated in Table 302.1.

Section 502.1.5, Fenestration solar heat gain coefficient; add the following exceptions:

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 .6 or less.

Section 502.2 Heating and Cooling Criteria; replace blank Table with the following:

**Table 502.2^{a,g}
HEATING AND COOLING CRITERIA**

Element	Mode	<u>Detached 1 & 2 Family Dwellings</u> U_o	<u>Groups R-2, R-4 or Townhouses</u> 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

Delete Note "a" and replace with the following:

- a. The above values have been determined for all counties in the North Central Texas Council of Governments region.

And add Note "g":

- g. These requirements apply only to the boundaries of conditioned space. Air conditioning equipment is recommended, but not required, to be located within the conditioned space in North Central Texas zones.

Section 502.2; delete Figures 502.2 (1-6)

Section 502.2; Figure 7, Termite Infestation Probability Map; add note to Fig. 502.2(7):

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.

Section 502.2.2; add a second paragraph as follows:

A building demonstrating envelope compliance at least 10% better than code may utilize R6 duct insulation in both supply and return air ducts in lieu of the insulation required by Table 503.3.3.3.

Section 502.2.4 Compliance by prescriptive specification on an individual component basis; delete prescriptive Tables 502.2.4(1-9) and substitute the following:

Replace Tables 502.2.4 (1-6) with:

Table 502.2.4(1)

Prescriptive Building Envelope Requirements, Detached one and two Family dwellings,
Based on Window Area as a Percent of Gross Exterior Wall Area (for zones 5b and 6b)

% Glazing	Maximum	Minimum					
	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

Replace Tables 502.2.4 (7-9) with the following table:

Table 502.2.4(2)

Prescriptive Building Envelope Requirements, Type Group R-2, R-4 or Townhouse
Residential Buildings, Based on Window Area as a Percent of Gross Exterior Wall Area

% Glazing	Maximum	Minimum					
	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

Table 503.3.3.1 MINIMUM PIPE INSULATION. Amend footnote “a” to read as follows:

- a. For piping lengths in excess of five (5) feet exposed to outdoor air, increase the insulation thickness by 0.5 inch.

Table 503.3.3.3; add footnote “e” as follows:

- e. See Section 502.2.2

Section 503.3.3.4.3; change first sentence to read as follows:

503.3.3.4.3 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-embedded-fabric systems or tapes or other approved closure systems. Tapes and mastics used to seal ductwork shall be listed and labeled in accordance with UL 181A or UL 181B. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Unlisted duct tape is not permitted as a sealant on any metal ducts.

Chapter 6

Section 602.1.6; delete last sentence of exception.

Section 602.2 Maximum solar heat gain coefficient for fenestration products. Add the following exceptions:

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 .6 or less.

Chapter 8

Section 802.2; replace blank tables 802.2 (1-4) with the completed tables provided. Delete tables 802.2 (5-37).

TABLE 802.2(1)
BUILDING ENVELOPE REQUIREMENTS ^a through ^f

WINDOW AND GLAZED DOOR AREA 10 PERCENT OR LESS OF ABOVE-GRADE WALL AREA			
ELEMENT	CONDITION/VALUE (Zones 5B,6B)		
Skylights (<i>U</i>-factor)	1		
Slab or below-grade wall (<i>R</i>-value)	R-0		
Windows and glass doors PF < 0.25 0.25 ≤ PF < 0.50 PF ≥ 0.50	SHGC		<i>U</i>-factor
	Any		Any
	Any		Any
Roof assemblies (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck Metal purlin with thermal block Metal purlin without thermal block	Insulation between framing		Continuous insulation
	R-19		R-16
	R-25		R-17
	NA		R-16
	R-25		R-17
Floors over outdoor air or unconditioned space (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck	Insulation between framing		Continuous insulation
	R-11		R-6
	R-11		R-6
	NA		R-6
	NA		R-6
Above-grade walls (<i>R</i>-value) Framed R-value cavity R-value continuous CMU, ≥ 8 in., with integral insulation R-value cavity R-value continuous Other masonry walls R-value cavity	No framing	Metal framing	Wood framing
	NA	R-11	R-11
	NA	R-0	R-0
	NA	R-0	R-0
	R-0	R-0	R-0
	NA	R-0	R-0

R-value continuous	R-0	R-0	R-0
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TABLE 802.2(2)
BUILDING ENVELOPE REQUIREMENTS^{a through f}

WINDOW AND GLAZED DOOR AREA OVER 10 PERCENT BUT NOT GREATER THAN 25 PERCENT OF ABOVE-GRADE WALL AREA			
ELEMENT	CONDITION/VALUE		
Skylights (<i>U</i>-factor)	1		
Slab or below-grade wall (<i>R</i>-value)	R-0		
Windows and glass doors PF < 0.25 0.25 ≤ PF < 0.50 PF ≥ 0.50	SHGC		<i>U</i>-factor
	0.6		Any
	0.7		Any
	Any		Any
Roof assemblies (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck Metal purlin with thermal block Metal purlin without thermal block	Insulation between framing		Continuous insulation
	R-25		R-19
	R-25		R-20
	NA		R-19
	R-30		R-20
	X		R-20
Floors over outdoor air or unconditioned space (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck	Insulation between framing		Continuous insulation
	R-11		R-6
	R-11		R-6
	NA		R-6
Above-grade walls (<i>R</i>-value) Framed R-value cavity R-value continuous CMU, ≥ 8 in., with integral insulation R-value cavity R-value continuous Other masonry walls R-value cavity R-value continuous	No framing	Metal framing	Wood framing
	NA	R-11	R-11
	NA	R-0	R-0
	NA	R-11	R-11
	R-5	R-0	R-0
	NA	R-11	R-11
	R-5	R-0	R-0
	NA	R-11	R-11
	R-5	R-0	R-0

TABLE 802.2(3)
BUILDING ENVELOPE REQUIREMENTS ^{a through f}

WINDOW AND GLAZED DOOR AREA OVER 25 PERCENT BUT NOT GREATER THAN 40 PERCENT OF ABOVE-GRADE WALL AREA				
ELEMENT	CONDITION/VALUE			
Skylights (<i>U</i>-factor)	1			
Slab or below-grade wall (<i>R</i>-value)	R-0			
Windows and glass doors PF < 0.25 0.25 ≤ PF < 0.50 PF ≥ 0.50	SHGC		<i>U</i>-factor	
	0.4		0.7	
	0.5		0.7	
	0.6		0.7	
Roof assemblies (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck Metal purlin with thermal block Metal purlin without thermal block	Insulation between framing		Continuous insulation	
	R-25		R-19	
	R-25		R-20	
	NA		R-19	
	R-30		R-20	
	X		R-20	
	X		R-20	
Floors over outdoor air or unconditioned space (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck	Insulation between framing		Continuous insulation	
	R-11		R-6	
	R-11		R-6	
	NA		R-6	
Above-grade walls (<i>R</i>-value)	No framing	Metal framing	Wood framing	
	Framed			
	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

TABLE 802.2(4)
BUILDING ENVELOPE REQUIREMENTS ^{a through f}

WINDOW AND GLAZED DOOR AREA OVER 40 PERCENT BUT NOT GREATER THAN 50 PERCENT OF ABOVE-GRADE WALL AREA			
ELEMENT	CONDITION/VALUE		
Skylights (<i>U</i>-factor)	1		
Slab or below-grade wall (<i>R</i>-value)	R-0		
Windows and glass doors PF < 0.25 0.25 ≤ PF < 0.50 PF ≥ 0.50	SHGC		<i>U</i>-factor
	0.4		0.7
	0.5		0.7
	0.6		0.7
Roof assemblies (<i>R</i>-value) All-wood joist/truss Metal joist/truss Concrete slab or deck	Insulation between framing		Continuous insulation
	R-25		R-19
	R-25		R-20
	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) All-wood joist/truss Metal joist/truss Concrete slab or deck	Insulation between framing		Continuous insulation
	R-11		R-6
	R-11		R-6
	NA		R-6
Above-grade walls (R-value)	No framing	Metal framing	Wood framing
Framed			
R-value cavity	NA	R-13	R-11
R-value continuous	NA	R-3	R-0
CMU, \geq 8 in., with integral insulation			
R-value cavity	NA, 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

Add footnote “f” to SHGC column heading in Tables 802.2 (1) 802.2 (2), 802.2 (3) and 802.2 (4) to read as follows:

- f. Minimum SHGC requirements do not apply to glazing as follows:
 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 0.30 or greater.
 3. Any glazing with permanent attached screens where the screens have a rated shading coefficient of 0.60 or less.

Section 805.2.1 Interior Lighting Controls; is amended by the addition of the following sentence:

Group B occupancies shall have a separate switch or control for each 2500 square feet of floor area.

Chapter 9; Climate Maps

Delete Figures 902.1 (1-43, 45-51).

Chapter 10; Referenced Standards

Delete ASHRAE/IES – 93 and replace referenced standard as follows:

ASHRAE/IES -- 99 Energy Efficient Designs of New Buildings Except Low-Rise Residential Buildings -- 1999 Edition

Section II. All provisions of the Code of Ordinances of the City of Plano in conflict with the provisions of this Ordinance are hereby repealed, and all other

provisions of the Code of Ordinances of the City of Plano, not in conflict with the provisions of this Ordinance, shall remain in full force and effect.

Section III. It is the intention of the City Council that this Ordinance, and every provision thereof, shall be considered severable, and the invalidity or unconstitutionality of any section, clause, provision or portion of this Ordinance shall not affect the validity or constitutionality of any other portion of this Ordinance.

Section IV. The repeal of any Ordinance or part of Ordinances effectuated by the enactment of this Ordinance shall not be construed as abandoning any action now pending under or by virtue of such Ordinance or as discontinuing, abating, modifying or altering any penalty accruing or to accrue, or as affecting any rights of the municipality under any section or provisions of any Ordinances at the time of passage of this Ordinance.

Section V. Any person, firm or corporation found to be violating any term or provision of this Ordinance, shall be subject to a fine in accordance with Section 1-4(a) of the City Code of Ordinance for each offense. Every day a violation continues shall constitute a separate offense.

Section VI. This Ordinance shall become effective from and after its passage and publication as required by law.

DULY PASSED AND APPROVED this the _____ day of _____, 2004.

Pat Evans, MAYOR

ATTEST:

Elaine Bealke, CITY SECRETARY

APPROVED AS TO FORM:

Diane C. Wetherbee, CITY ATTORNEY