

City of Colleyville

Energy Conservation Code (Through Ord. 0-05-1509)



DIVISION 4. INTERNATIONAL ENERGY CONSERVATION CODE

Section 18-18. International Energy Conservation Code adopted; conflicting provisions; local amendments.

- (a) *Adopted.* The International Energy Conservation Code, 2003 edition, as recommended by the International Code Council, one copy of which is on file in the Office of the City Secretary, is hereby adopted and incorporated by reference and made a part of this article as the building code of the City, subject to and including by reference such amendments, corrections, and additions as shall appear in this article.
- (b) *Conflicting provisions.* In the event of a conflict between the provisions of the residential code adopted and incorporated in subsection (a) of this section and this Code of Ordinances, the provisions of this division shall prevail.
- (c) *Amendments.* The International Energy Conservation Code, 2003 edition, as recommended by the International Code Council is hereby amended to include the recommendations of the Regional Codes Committee of the North Central Texas Council of Governments for buildings and structures in the City of Colleyville, Texas, which are as follows:

1. Add the following section:

101.4.1.3 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. Section 302.1; Replace blank Table 302.1 Exterior Design Conditions 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

3. Delete note "a" and replace with the following:
 - 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.

4. Section 502.1.1; delete exception 2 and substitute the following:
 2. Buildings located in Climate Zones 5b.

5. Section 502.1.5; 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.

6. Section 502.2; Replace blank Table 502.2 Heating & Cooling Criteria with the following:

Table 502.2 ^{a,g} HEATING AND COOLING CRITERIA			
Element	Mode	Type A-1 Residential Buildings U _o	Type A-2 Residential Buildings 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

7. 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.
8. Add Note "g":
 - g. These requirements apply only to the boundaries of conditioned space. Air conditioning equipment and ductwork is recommended, but not required, to be located within the conditioned space in North Central Texas zones.
9. Delete Figures 502.2(1-6)
10. Section 502.2; 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.
11. 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.
12. Section 502.2.4; 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-Family Dwellings, 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
≤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%	0.60	R-30	R-13	R-19	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:

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	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

13. 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.

14. Table 503.3.3.3; add footnote “e” as follows:

- e. See Section 502.2.2

15. 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. *{Remainder to remain unchanged}*

16. Section 602.1.6; delete last sentence of exception.

17. 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 0.30 or greater.
- 3. Any fenestration with attached screens where the screens have a rated shading coefficient of 0.6 or less.

18. Section 802.2; Replace blank tables 802.2 (1-4) with the completed tables provided on the following four pages. Delete tables 802.2 (5-37).

TABLE 802.2(1) BUILDING ENVELOPE REQUIREMENTS WINDOW AND GLAZED DOOR AREA 10 PERCENT OR LESS 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	
	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	
	X	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	
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-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

TABLE 802.2(2) BUILDING ENVELOPE REQUIREMENTS			
WINDOW AND GLAZED DOOR AREA 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)	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 (<i>R</i> -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 (<i>R</i> -value)	No framing	Metal Framing	Wood framing
Framed			
<i>R</i> -value cavity	NA	R-11	R-11
<i>R</i> -value continuous	NA	R-0	R-0
CMU, ≥ 8 in., with integral insulation			
<i>R</i> -value cavity	NA	R-11	R-11
<i>R</i> -value continuous	R-5	R-0	R-0
Other masonry walls			
<i>R</i> -value cavity	NA	R-11	R-11
<i>R</i> -value continuous	R-5	R-0	R-0

TABLE 802.2(3) BUILDING ENVELOPE REQUIREMENTS			
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	
Roof assemblies (<i>R</i> -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
Floors over outdoor air or Unconditioned space (<i>R</i> -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 (<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 WINDOW AND GLAZED DOOR AREA OVER 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	
Roof assemblies (<i>R</i> -value)	Insulation between framing	Continuous insulation	
	All-wood joist/truss	R-25	R-19
	Metal joist/truss	R-25	R-20
Floors over outdoor air or Unconditioned space (<i>R</i> -value)	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
All-wood joist/truss Metal joist/truss Concrete slab or deck	Insulation between framing	Continuous insulation	
		R-11	R-6
		R-11	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,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

19. Add footnote “f” to SHGC column heading in Tables 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.

20. Section 805.2.1 Interior Lighting Controls; add a third sentence to read:

Large spaces shall have a separate switch or control for each 2500 square feet of floor area.

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

22. Chapter 10; Replace referenced standard as follows:

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