

ORDINANCE NO. 20071018-088

AN ORDINANCE REPEALING AND REPLACING ARTICLE 12 OF CHAPTER 25-12 OF THE CITY CODE (ENERGY CODE) TO ADOPT THE 2006 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE AND LOCAL AMENDMENTS.

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

PART 1. Chapter 25-12 of the City Code is amended to repeal and replace Article 12 (*Energy Code*) to read:

ARTICLE 12. ENERGY CODE

§ 25-12-261 ENERGY CODE

(A) The International Energy and Conservation, 2006 Edition, published by the International Code Council, Inc. (2006 International Energy Code) is adopted and incorporated into this section with the deletions and amendments in Subsections (B) and (C) and Section 25-12-263 (*Local Amendments to the Energy Code*).

(B) The following provisions of the 2006 International Energy Code are deleted:

Section 201.3	Table 402.1.1
Section 301.1	Table 402.1.3
Figure 301.1	Section 402.5
Table 301.1	Section 403.2.1
Section 302.2	Section 505.2.4

(C) The following definition in Section 202 (*General Definitions*) of the 2006 International Energy Conservation Code is deleted:

VAPOR RETARDER

(D) The city clerk shall file a copy of the 2006 International Energy Conservation Code with the official ordinances of the City.

§ 25-12-242 CITATIONS TO THE ENERGY CODE

In the City Code, “Energy Code” means the International Energy Conservation Code adopted by Section 25-12-261 (*Energy Code*).

§ 25-12-263 LOCAL AMENDMENTS TO THE RESIDENTIAL CODE

The following provisions are local amendments to the 2006 International Energy Conservation Code. Each provision in this section is a substitute for an identically numbered provision deleted by Section 25-12-261(B) or (C) or an addition to the Energy Code.

Section 202. General Definitions.

Sealed Attic. An attic that has insulation applied to the underside/interior of the structural roof deck and to the inside of vertical exterior surfaces.

Vapor Barrier. A vapor resistant material, membrane, or covering such as foil, plastic sheeting, or insulation facing, having a permeance rating of one perm ($5.7 \times 10^{-11} \text{ kg/Pa} \cdot \text{s} \cdot \text{m}^2$) or less when tested in accordance with the desiccant method using Procedure A of ASTM E 96.

Vapor Retarder. A vapor resistant material, membrane or covering such as foil, plastic sheeting or insulation facing having a permeance rating greater than one perm ($5.7 \times 10^{-11} \text{ kg/Pa} \cdot \text{s} \cdot \text{m}^2$) when tested in accordance with the desiccant method using Procedure A of ASTM E 96.

301.1 General. Climate zones from Figure 301.1 (*Climate Zones – Texas*) or Table 301.1 (*Climate Zones by County – Texas*) shall be used in determining the applicable requirements from Chapters 4 (*Residential Energy Efficiency*) and 5 (*Commercial Energy Efficiency*). Locations not in Table 301.1 (*Climate Zones by County – Texas*) (outside the U.S.) shall be assigned a climate zone based on Section 301.3 (*International Climate Zones*). All references to Climate Zone 2 or 2A in Chapter 5 (*Commercial Energy Efficiency*) shall be interpreted as referring to Climate Zone 2.2 or 2.2A, as applicable, in this Code.

FIGURE 301.1
CLIMATE ZONES - TEXAS

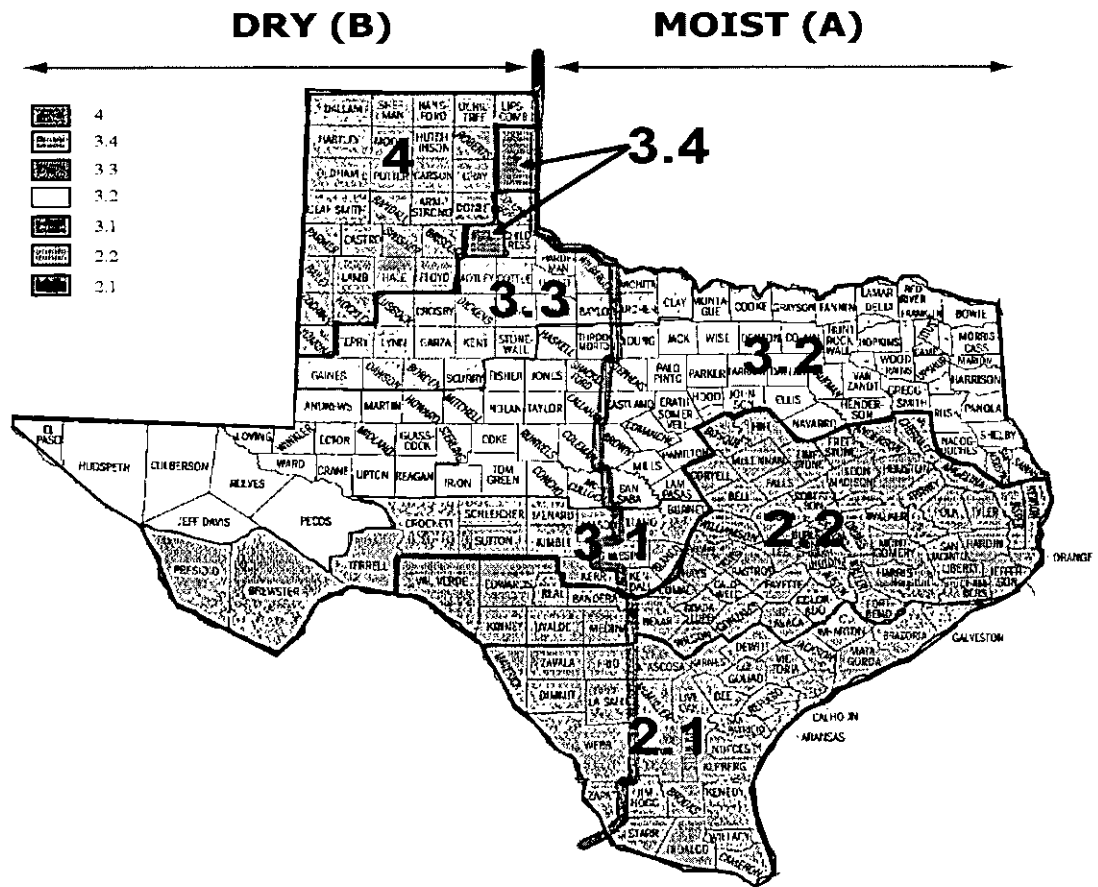


TABLE 301.1
CLIMATE ZONES BY COUNTY - TEXAS

Zone 2

ANDERSON	2.2	DE WITT	2.1	JIM HOGG	2.1	ORANGE	2.2
ANGELINA	2.2	DIMMIT	2.1	JIM WELLS	2.1	POLK	2.2
ARANSAS	2.1	DUVAL	2.1	KARNES	2.1	REAL	2.2
ATASCOSA	2.1	EDWARDS	2.2	KENEDY	2.1	REFUGIO	2.1
AUSTIN	2.2	FALLS	2.2	KINNEY	2.2	ROBERTSON	2.2
BANDERA	2.2	FAYETTE	2.2	KLEBERG	2.1	SAN JACINTO	2.2
BASTROP	2.2	FORT BEND	2.2	LA SALLE	2.1	SAN PATRICIO	2.1
BEE	2.1	FREESTONE	2.2	LAVACA	2.2	STARR	2.1
BELL	2.2	FRIO	2.1	LEE	2.2	TRAVIS	2.2
BEXAR	2.2	GALVESTON	2.1	LEON	2.2	TRINITY	2.2
BOSQUE	2.2	GOLIAD	2.1	LIBERTY	2.2	TYLER	2.2
BRAZORIA	2.1	GONZALES	2.2	LIMESTONE	2.2	UVALDE	2.2
BRAZOS	2.2	GRIMES	2.2	LIVE OAK	2.1	VAL VERDE	2.2
BROOKS	2.1	GUADALUPE	2.2	MADISON	2.2	VICTORIA	2.1
BURLESON	2.2	HARDIN	2.2	MATAGORDA	2.1	WALKER	2.2
CALDWELL	2.2	HARRIS	2.2	MAVERICK	2.1	WALLER	2.2
CALHOUN	2.1	HAYS	2.2	MCLENNAN	2.2	WASHINGTON	2.2

CAMERON	2.1	HIDALGO	2.1	MCMULLEN	2.1	WEBB	2.1
CHAMBERS	2.2	HILL	2.2	MEDINA	2.2	WHARTON	2.1
CHEROKEE	2.2	HOUSTON	2.2	MILAM	2.2	WILLACY	2.1
COLORADO	2.2	JACKSON	2.1	MONTGOMERY	2.2	WILLIAMSON	2.2
COMAL	2.2	JASPER	2.2	NEWTON	2.2	WILSON	2.2
CORYELL	2.2	JEFFERSON	2.2	NUECES	2.1	ZAPATA	2.1

302.2 Exterior Design Conditions. The design parameters in Table 302.2 shall be used for calculations under this code.

TABLE 302.2

CONDITION	VALUE
Winter^a, Design Dry-bulb (°F)	28
Summer^a, Design Dry-bulb (°F)	99
Summer^a, Design Wet-bulb (°F)	74
Degree days heating^b	1735
Degree days cooling^b	2862
Climate Zone^c	2.2
For SI: deg C=[(deg F)-32]/1.8.	

- The outdoor design temperature shall be selected from the columns of 0.4 percent values for winter and 0.4 percent values for summer from tables in the 2005 Handbook of Fundamentals published by ASHRAE. Adjustments shall be permitted to reflect local climates, which differ from the tabulated temperatures, or local weather experience determined by the building official.
- The degree-days heating (base 65°F) and cooling (base 65°F) shall be selected from the Energy Conservation Design Standards for New State Buildings, State Energy Conservation Office, State of Texas (effective June 1, 1989, as revised May 10, 1990 and February 1, 1993).
- The climate zone shall be selected from Figure 302.1 (*Climate Zones- Texas*) of this Code.

**TABLE 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a**

CLIMATE SUB CLIMATE ZONE	MAXIMUM WINDOW TO WALL AREA RATIO	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR ^b	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE ^d	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH ^e	CRAWL SPACE WALL R-VALUE
2.1	15	0.80	0.80	0.35	19	11	11	0	0	5
	20	0.75	0.75	0.35	30	13	11	0	0	5
	25	0.65	0.65	0.35	30	13	11	0	0	5
	30	0.51	0.51	0.35	38	13	11	0	0	5
2.2	15	0.65	0.65	0.40	30	13	11	5	0	6
	20	0.55	0.55	0.40	38	13	11	6	0	6
	25	0.51	0.51	0.35	38	13	19	8	0	10
	30	0.46	0.46	0.35	38	16	19	8	0	10
3.1	15	0.65	0.65	0.40	30	13	19	5	0	6
	20	0.55	0.55	0.40	38	13	19	6	0	6
	25	0.51	0.51	0.35	38	13	19	8	0	10
	30	0.46	0.46	0.35	38	16	19	8	0	10
3.2	15	0.60	0.60	0.40	30	13	19	6	0	7
	20	0.51	0.51	0.40	38	13	19	6	0	7

	25	0.45	0.45	0.40	38	16	19	6	0	7
	30	0.40	0.40	0.35	38	16	19	6	0	7
3.3	15	0.51	0.51	0.40	30	13	19	7	0	8
	20	0.45	0.45	0.40	38	13	19	7	0	8
	25	0.40	0.40	0.40	38	16	19	7	0	8
	30	0.40	0.40	0.40	38	19	19	7	0	8
3.4	15	0.45	0.45	NR	38	13	19	8	5.2 ft	11
	20	0.37	0.37	NR	38	13	19	8	6.2 ft	13
	25	0.37	0.37	NR	38	19	19	8	6.2 ft	13
	30	0.37	0.37	NR	38	19	30	13	6.2 ft	20
4	15	0.45	0.45	NR	38	13	19	8	5.2 ft	11
	20	0.37	0.37	NR	38	13	19	8	6.2 ft	13
	25	0.37	0.37	NR	38	19	19	8	6.2 ft	13
	30	0.37	0.37	NR	38	19	30	13	6.2 ft	20

For SI: 1 foot = 304.8 mm.

- R*-values are minimums. *U*-factors and SHGC are maximums. R-19 shall be permitted to be compressed into a 2 x 6 cavity.
- The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- R-5 shall be added to the required slab edge *R*-values for heated slabs.
- The total *R*-value may be achieved with a combination of cavity and insulating sheathing that covers 100% of the exterior wall.
- The wall insulation may be the sum of the two values where the first value is the cavity insulation and the second value is insulating sheathing. The combination of cavity insulation plus insulating sheathing may be used where structural sheathing covers not more than 25% of the exterior wall area and insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25% of exterior wall area then the wall insulation requirement may only be satisfied with the single insulation value.

TABLE 402.1.3
EQUIVALENT U-FACTORS^a

CLIMATE - SUB CLIMATE ZONE	MAX GLAZED AREA TO WALL AREA RATIO	MAX GLAZED FENESTRATION U-FACTOR	MAX SKYLIGHT U-FACTOR ^b	MAX GLAZED FENESTRATION SHGC	MIN CEILING R-VALUE	MIN WOOD FRAME WALL R-VALUE ^d	MIN FLOOR R-VALUE	MIN BASEMENT WALL R-VALUE
2.1	15	0.80	0.75	0.055	0.086	0.069	0.360	0.135
	20	0.75	0.75	0.035	0.082	0.069	0.360	0.135
	25	0.65	0.75	0.035	0.082	0.069	0.360	0.135
	30	0.51	0.75	0.030	0.082	0.069	0.360	0.135
2.2	15	0.65	0.75	0.035	0.082	0.069	0.122	0.106
	20	0.55	0.75	0.030	0.082	0.069	0.096	0.106
	25	0.51	0.75	0.030	0.082	0.047	0.087	0.075
	30	0.46	0.75	0.030	0.071	0.047	0.087	0.075
3.1	15	0.65	0.65	0.035	0.082	0.069	0.122	0.106
	20	0.55	0.55	0.030	0.082	0.069	0.096	0.106
	25	0.51	0.51	0.030	0.082	0.047	0.087	0.075
	30	0.46	0.46	0.030	0.071	0.047	0.087	0.075
3.2	15	0.60	0.65	0.035	0.082	0.047	0.096	0.101
	20	0.51	0.65	0.030	0.082	0.047	0.096	0.101
	25	0.45	0.65	0.030	0.071	0.047	0.096	0.101
	30	0.40	0.65	0.030	0.071	0.047	0.096	0.101
3.3	15	0.51	0.65	0.035	0.082	0.047	0.092	0.096
	20	0.45	0.65	0.030	0.082	0.047	0.092	0.096
	25	0.40	0.65	0.030	0.071	0.047	0.092	0.096
	30	0.40	0.65	0.030	0.060	0.047	0.092	0.096

3.4	15	0.45	0.60	0.030	0.082	0.047	0.087	0.075
	20	0.37	0.60	0.030	0.082	0.047	0.087	0.065
	25	0.37	0.60	0.030	0.060	0.047	0.087	0.065
	30	0.37	0.60	0.030	0.060	0.034	0.059	0.058
4	15	0.45	0.60	0.030	0.082	0.047	0.087	0.075
	20	0.37	0.60	0.030	0.082	0.047	0.087	0.065
	25	0.37	0.60	0.030	0.060	0.047	0.087	0.065
	30	0.37	0.60	0.030	0.060	0.034	0.059	0.065

- a. Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.

402.4.4 Testing of the Building Thermal Envelope for Infiltration. Leakage of the building thermal envelope shall not exceed .50 Air Changes per Hour (ACH) as measured by the blower door test. The testing procedure shall be based on ASTM E779 (*Standard Test Method for Determining Air Leakage Rate by Fan Pressurization*) or ANSI/ASHRAE 136 (*A Method of Determining Air Change Rates in Detached Dwellings*).

Testing shall be performed by an independent third-party technician approved by the building official. Batch testing shall be allowed in accordance with Section 405 (*Batch Testing Procedures*). The standards for approval of third-party technicians shall be established by administrative rule.

Documentation verifying that thermal envelope air leakage is equal to or less than .50 ACH shall be submitted with the final Mechanical Code compliance package on the jobsite and include the following information:

1. Address of residence
2. Name and company of technician performing testing
3. Date of final test
4. Test results as a percentage ACH

Exceptions:

1. Existing construction where the volume of the conditioned space is unchanged.
2. An addition of 200 square feet or less of conditioned space to existing construction.

402.5 Moisture Control. The building design shall not create conditions of accelerated deterioration from moisture condensation. Above-grade frame walls, floors and ceilings, not ventilated to allow moisture to escape, shall be provided with an approved vapor retarder. The vapor retarder shall be installed on the exterior side of the framing. A vapor barrier shall not be installed.

A vapor retarder is not required where other approved means to avoid condensation are provided.

402.7 Radiant Barrier. A roof radiant barrier with an emittance of 0.05 or less as tested in accordance with ASTM C-1371 (*Standard Method of Determination of Emittance of Materials Near Room Temperature Using Portable Emissionmeters*) or ASTM E-408 (*Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques*) is required. The radiant barrier shall be installed according to the manufacturer's instructions.

A roof radiant barrier is not required for:

1. Roofs covered with clay or concrete tile having a solar reflectance of .40 or greater.
2. Roofs covered with other materials having a solar reflectance of .50 or greater.
3. Houses with sealed attics.
4. Houses with mechanical equipment and all duct work located wholly within the conditioned space.
5. Existing construction where there is no modification to the roof framing structure.

402.8 Attic Ventilation. Attic ventilation shall be installed in accordance with the Residential Code. Ventilation shall not be provided where it introduces unconditioned air into the thermal envelope of the building.

403.2.1 Insulation. Supply and return ducts located outside the thermal envelope shall be insulated to a minimum of R-8.

Exceptions:

1. Ducts or portions thereof located within the building thermal envelope shall comply with the Mechanical Code.
2. Supply and return boots and plenums may be insulated to a minimum of R-6 if the efficiency of the cooling equipment is SEER-14 or greater.

403.2.2.1 Testing of Duct Systems for Leakage. Leakage of supply ducts and return plenum/ducts shall not exceed 10 percent of total design airflow. The testing procedure shall be based on ASTM E1554 (*Standard Test Methods for Determining External Air Leakage of Air Distribution Systems by Fan Pressurization*), ASHRAE 152-2004 (*Method of Test for Determining the Design and Seasonal Efficiencies of Residential Thermal Distribution Systems*), or a generally accepted equivalent method.

Testing shall be performed by an independent third-party technician approved by the building official. Documentation verifying duct leakage of less than 10 percent shall be submitted with the final Mechanical Code compliance package on the jobsite. Batch

testing shall be allowed in accordance with Section 405 (*Batch Testing Procedures*). Documentation shall include the following:

1. Address of residence
2. Date of final test
3. Name and company of technician performing duct testing
4. Type of test performed (duct pressurization method or blower door subtraction method).
5. Test results in percentage of airflow CFM.

Exceptions:

1. Existing construction with no modification of or addition to the existing ductwork.
2. An addition of 200 square feet or less of conditioned space to existing construction.

403.6.1 Documentation of Heating and Cooling Equipment Sizing. Documentation verifying the methodology and accuracy of heating and cooling equipment sizing shall be submitted with the final Mechanical Code compliance package on the jobsite. Documentation shall include the following information:

1. Address of residence
2. Name of individual performing load calculations.
3. Name and version of load calculation software.
4. Design temperatures (outdoor and indoor) according to the Air Conditioning Contractors of America's (ACCA) Manual J, ACCA Manual N, American Society of Heating, Refrigeration and Air-Conditioning Engineers, U.S Department of Energy standards, or other methodology approved by the building official as established by administrative rule.
5. Area of walls, windows, skylights and doors within +/- 10 percent of architectural plans or actual building.
6. Orientation of windows and glass doors, infiltration rate, duct loads, internal gains, insulation values, and Solar Heat Gain Coefficient of windows.
7. Heating and cooling load calculations.

403.7 Filtration for Ventilation Systems. Filters installed in ventilation systems shall have a minimum efficiency reporting value (MERV) rating of 6 or greater.

403.8 Air Balancing of Ventilation System. Volumetric airflow in cubic feet per minute (CFM) shall meet the design/application requirements. Airflow testing shall be performed by an independent third party technician approved by the building official, with all interior doors closed and all blowers turned on at cooling speed.

Documentation shall be provided to verify that: (1) individual room supply airflows are within +/-20 percent of the design/application requirements; (2) the pressure difference between each room and open area adjacent to that room does not exceed 3 Pascals; and (3) the pressure difference between the open area and the outside does not exceed -3 Pascals. Documentation shall also verify that total system CFM airflow is within +/- 1 percent of 360 CFM airflow per ton of air conditioning installed. All documentation shall be submitted with the final Mechanical Code compliance package on the jobsite. Batch testing shall be allowed in accordance with Section 405 (*Batch Testing Procedures*). Documentation shall include the following:

1. Address of building
2. Name and company of technician performing the testing
3. Date of final test
4. Procedure used for the test
5. Results of room-by-room airflow tests, including design/application CFM airflow required, design/application CFM airflow required as a percentage of total CFM airflow required, actual measured CFM airflow, actual percentage of total CFM airflow measured, and percentage of design/application CFM airflow required actually attained
6. Results of room-by- room pressure tests, including Pascal difference between room and open area adjacent to room and between open area and the outside
7. Results of static pressure test (see Section 403.8.1, *System Static Pressure*) and manufacturers' blower data table identifying total rated CFM airflow

Measurement of room airflow may be by one of the following procedures:

1. Flow hood used in accordance with the manufacturer's instructions
2. Traverse with anemometer (hotwire or rotary) used in accordance with the manufacturer's instructions
3. Pitot tube and slant manometer procedure as specified by the Associated Air Balance Council, National Environmental Balancing Bureau, or the American Society of Heating, Refrigeration and Air Conditioning Engineers.

Exceptions:

1. Existing construction with no modification of or addition to the existing ductwork.
2. An addition of 200 square feet or less of conditioned space to existing construction.

403.8.1 System static pressure. Total system static pressure (with filters in place) shall not exceed 0.8" water column on gas furnaces and 0.6" water column on electric air

handlers. Static pressure testing using a digital manometer or magnehelic shall be performed by an independent third party technician approved by the building official. Documentation verifying static pressure testing results within the allowed ranges shall be submitted with the final Mechanical Code compliance package on the jobsite. Batch testing shall be allowed in accordance with Section 405 (*Batch Testing Procedures*). Documentation shall include the following:

1. Address of building
2. Name and company of technician performing the testing
3. Date of final test
4. Procedure used for the test
5. Results of the test listing static pressure for applications tested

Exception:

1. Existing construction with no modification of or addition to the existing ductwork.
2. An addition of 200 square feet or less of conditioned space to existing construction.

403.9 Water Heating. A residential building that has an existing or planned (or equivalent district) gas service located within the adjacent right-of-way shall not use electric resistance water heating as the primary source for hot water. In all instances, an electric resistance water heater may be used as a secondary heater in series with a primary heater that is not electric resistance.

A residential building that does not have gas service located within the adjacent right-of-way may install electric resistance water heaters having a minimum efficiency of 93 percent in conjunction with a preprogrammed water heater timer in lieu of gas fired water heating. The timer shall be preprogrammed to turn the water heater off between the hours of 3:00 p.m. and 7:00 p.m. from June 1 to September 30 and from 12:00 a.m. to 4:00 a.m. throughout the year. The timer shall have a readily accessible override, as defined by the building official administrative rule, capable of restoring power to the water heater for one hour when activated. In this section, "readily accessible" means capable of being reached safely and quickly for operation, repair, or inspection without the need to climb over or remove obstacles or to resort to a ladder or other portable access equipment.

Exception:

An additional electric resistance stand alone water heater that meets the requirements of Section 403.9 (*Water Heating*) may be installed to provide

adequate hot water to approved appliances or fixtures if one or more of the following conditions apply:

1. the gas piping or vent piping for the additional gas water heater would require structural alteration;
2. the gas piping or vent piping for the additional gas water heater would require penetration of a fire resistive assembly;
3. the gas water heater would require an increase in the size of the gas piping system; or
4. in an existing building, the existing gas water heater or gas or water piping is located in an inaccessible concealed space.

403.10 Space Heating. In all residential buildings and mixed-use buildings with units in excess of 500 square feet, the primary source of space heating may not be electric resistance.

403.11 Lighting. A minimum of 25 percent of indoor lamps must be Energy Star-compliant high efficacy lamps. Lamps in closets shall be excluded from the 25 percent calculation. Outdoor luminaires that are permanently attached to a structure must be high efficacy or controlled by an integral photocell.

**TABLE 403.1
High Efficacy Lamps**

Lamp Power	Required Lamp Efficacy
< 15 watt	40 lumens/watt
15 – 40 watts	50 lumens/watt
> 40 watts	60 lumens/watt

Section 405. Batch Testing Procedures

1. Eligibility

A builder is eligible for batch testing if:

1. the builder has built at least 85 homes or dwelling units in the 12 month period immediately preceding the batch test; or
2. the batch of residences to be tested is within the same subdivision using the same subcontractors.

2. Initial Testing

During initial testing, a third-party testing contractor performs all required tests on at least three consecutive houses or dwelling units. Batch testing is only allowed if test results meet Code requirements.

Initial testing is required for each new subdivision if there is a change in subcontractors. Houses must be of a substantially similar floor plan. Multifamily dwelling units must be within the same building to qualify for inclusion in a batch.

3. Batch Identification and Sampling

The builder identifies a “batch” which is a group of homes or dwelling units ready for testing. A group of homes is ready for testing if the drywall is complete, interior door jams are installed, the HVAC system installed, and final air sealing is completed.

The third-party testing contractor randomly selects at least 15 percent of the homes from a batch for testing and inspecting. For multifamily structures, a minimum of 15 percent of the dwelling units in each building must be tested. At least one of each type of dwelling unit must be tested.

If each tested home or dwelling unit within the batch meets Code requirements, the remaining homes or dwelling units in the batch shall be identified as meeting Code requirements.

4. Failure to Comply with Code Requirements

1. If any home or dwelling unit within the identified batch fails to meet a Code requirement, the builder will be directed to fix the cause or causes of the failure and 30 percent of the remaining homes or dwelling units in the batch will be randomly selected for inspection and testing by the third-party technician regarding the specific cause or causes of failure.
2. If any failures occur in the additional tested homes or dwelling units, all remaining homes or dwelling units in the batch must be individually tested for Code compliance.
3. A subdivision or multifamily project with three failures within a 6-month period is no longer eligible to use the sampling protocol in that community or project until successfully repeating an initial test. Sampling can be reinstated after an inspector finds that at least three consecutive homes or dwelling units meet code all requirements.

4. The building official may not issue a certificate of occupancy for a home or dwelling unit in a batch until testing has been performed and passed on the homes or dwelling units selected for testing.

501.3 Climate Zones. All references to Climate Zone 2 or 2A in this chapter shall be interpreted as referring to Climate Zone 2.2 or 2.2A, as applicable, in this Code.

502.7 Reflective Roofing. Roof surfaces with an incline of two inches or less of rise per each 12 inches of horizontal run shall incorporate a roof material having a minimum reflectance of 0.70 or a minimum solar reflective index (SRI) of 78. Roof surfaces with an incline greater than two inches of rise per each 12 inches of horizontal run shall incorporate a roof material having a minimum reflectance of 0.35 or a minimum SRI of 29.

The reflectance measurement will correspond to ASTM E903-96 (*Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres*), ASTM 1918-97 (*Standard Test Method for Measuring Solar Reflectance of Horizontal and Low Sloped Surfaces in the Field*), or ASTM 1549-04 (*Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer*).

Exception: Vegetated roofs or roof top pools.

503.2.10 Ventilation Filtration. All ventilation systems shall incorporate filtration having a minimum efficiency reporting value (MERV) rating of 6 or greater.

505.2.4 Exterior Lighting Controls. Lighting for all exterior applications shall have automatic controls that turn off exterior lighting when sufficient daylight is available or when the lighting is not required during nighttime hours. Sufficient daylight shall be determined in accordance with recommended IESNA RP-33-99 (*Lighting for Exterior Environments*) illuminance levels.

Lighting not required or designated for dusk-to-dawn operation shall be controlled by an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or in series with a photo sensor. Astronomical time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

Exception:

Lighting for covered vehicle entrances or exits from buildings or parking structures when required for safety, security, or eye adaptation.

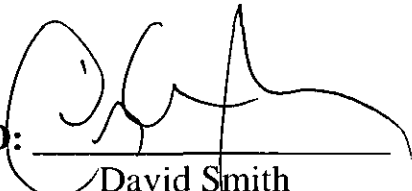
PART 2. This ordinance takes effect on January 1, 2008.

PASSED AND APPROVED

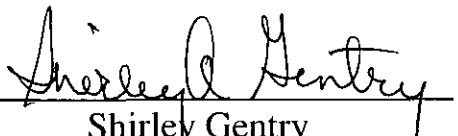
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Betty Dunbarley for

Will Wynn
Mayor

APPROVED: 

David Smith
City Attorney

ATTEST: 

Shirley Gentry
City Clerk