

ORDINANCE NO. __19605-03-2011__

AN ORDINANCE AMENDING THE FORT WORTH ENERGY CODE, BY ADOPTING THE 2009 INTERNATIONAL ENERGY CONSERVATION CODE, WITH LOCAL AMENDMENTS; AMENDING SECTIONS 7-41, 7-42, 7-43 AND 7-44 OF THE CODE OF THE CITY OF FORT WORTH (1986); REGULATING THE EFFECTIVE USE OF ENERGY AS ASSOCIATED WITH THE ERECTION, CONSTRUCTION, ENLARGEMENT, ALTERATION, REPAIR, MOVING, REMOVAL, DEMOLITION, CONVERSION, OCCUPANCY, EQUIPMENT, USE, AND MAINTENANCE OF BUILDINGS AND STRUCTURES IN THE CITY OF FORT WORTH; DEFINING CERTAIN TERMS; PROVIDING FOR THE INSPECTION OF BUILDINGS; PROVIDING FOR A SEVERABILITY CLAUSE; PROVIDING FOR A SAVINGS CLAUSE; PROVIDING FOR A PENALTY CLAUSE; PROVIDING THAT THIS ORDINANCE SHALL BE CUMULATIVE; PROVIDING FOR PUBLICATION IN PAMPHLET FORM; PROVIDING FOR PUBLICATION IN THE OFFICIAL NEWSPAPER; AND PROVIDING AN EFFECTIVE DATE.

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

SECTION 1.

That Section 7-41 of the Code of the City of Fort Worth (1986) is hereby amended to read as follows:

Sec. 7-41. THE 2009 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE ADOPTED.

(a) The Energy Code of the City of Fort Worth is hereby revised and amended to conform, with certain exceptions as specified below, to the 2009 International Energy Conservation Code of the International Code Council (ICC), and the same as amended is hereby adopted as the City's Energy Code. One (1) copy of the 2009 International Energy Conservation Code, marked as Exhibit "A" is incorporated herein by reference and shall be filed in the Office of the City Secretary for permanent record and inspection.

(b) The provisions of the Building Code, Residential Code, Electrical Code, Mechanical Code and Plumbing Code, as adopted elsewhere, shall be used as part of this code for any provision, requirement or method that does not exist in this code.

(c) Any Errata corrections, as they are discovered, are considered as part of this code since the same would have been adopted had they been known at the time of adoption.

SECTION 2.

That Section 7-42 of the Code of the City of Fort Worth (1986) is hereby amended to read as follows:

Sec. 7-42. Amendments.

The 2009 International Energy Conservation Code is hereby amended as provided in this Section:

IECC SECTION 101

**IECC Section 101.1; changed to read as follows:*

101.1 Title. This code shall be known as the Fort Worth Energy Code ~~International Energy Conservation Code~~ of [NAME OF JURISDICTION], and shall be cited as such. It is referred to herein as “this code.”

**IECC Section 101.2; add an Exception to read as follows:*

Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses), as applicable in the Residential Code, may comply with Chapter 11 of that code.

**IECC Section 101.3; add a second and third paragraph to read as follows:*

Amendments made to this code that are determined to be appropriate to support safety, health or environmental requirements will be identified with the notation “(life safety).”

**IECC Section 101.4.2; changed to read as follows:*

101.4.2 Historic buildings. Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property, or identified by the Historic Officer as could be designated, 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~~ the following items, unless judged by the Building Official as a life safety hazard.

Exempted provisions are as follows:

1. Exterior envelope inclusive of vestibules in the exterior envelope.
2. Interior envelope, separating interior conditioned space from interior non-conditioned space, when considered historically significant.
3. Placement, design or installation of light fixtures considered to contribute to the historical significance or ambiance. However, non-historical fixtures shall comply.
4. Any other item determined to be historically significant.

*IECC Section 101.4.3, items 2 and 5; change to read as follows:

2. Glass only replacements in an existing sash and frame, provided the energy ratings are not reduced.
5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.

(life safety) When the insulation is on top of the roof deck and the insulation is removed, repaired or replaced, new insulation is required to be installed. If the new insulation is to be installed on top of the roof deck, the new insulation shall attempt to meet the R-value as required by this code unless doing so endangers the building by interfering with the roof drainage system. If compliance with this code does so endanger the building, at a minimum the insulation R-value shall be not less than what was removed.

*IECC Section 101.4.3; add a second paragraph after the exceptions to read as follows:

Compliance methods permitted by this code or former codes may include a variety of above code options. Such above code options may have been used to allow another design parameter to be reduced. In order to insure that such above code upgrades are not later remodeled away, unless it can be shown that the total building after remodel complies with code, all replacement material, equipment and/or systems shall meet the **most restrictive requirement** of:

1. having an equivalent reduction of energy usage as the replaced material, equipment and/or system; or,
2. comply with the prescriptive provisions of this code.

*IECC Section 101.4.4; add an exception to read as follows:

Exception: Historic buildings need not comply for the items exempted in Section 101.4.2.

*IECC Section 101.5.2; add an item 3 to read as follows:

3. (*life safety*) In order to provide a tenable work environment in unheated warehouses, heaters that exceed the energy limitations of item 1 or 2 above may be installed in the dock area without requiring the entire warehouse to comply with the envelope provisions, with the following stipulations:
 - a. This exemption shall not apply if heaters are installed throughout the entire warehouse, even if just to prevent pipe freezing.
 - b. This provision shall not apply to other conditioned spaces inside the warehouse, e.g. offices, restrooms, break rooms, etc. which must individually be separated from the warehouse with a compliant envelope.
 - c. Loading Dock weather seals of Section 502.4.6 must be installed.

*IECC Section 102.1.2; added to read as follows:

102.1.2 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 building 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.

*IECC Sections 103.1, 103.2, 103.3, 103.3.1, 103.3.2, 103.3.3, 103.4 and 103.5; delete and replace as follows:

103.1 General. Construction documents and other supporting data shall be submitted as required by the code under which the permit is issued (Building, Residential, Electrical, Mechanical, or Plumbing Codes) and as noted below.

103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to:

- Insulation materials and their *R*-values;
- Fenestration *U*-factors and SHGCs;
- Area-weighted *U*-factor and SHGC calculations;

- Mechanical system design criteria;
- Mechanical and service water heating system and equipment types, sizes and efficiencies;
- Economizer description;
- Equipment and systems controls;
- Fan motor horsepower (hp) and controls;
- Duct sealing, duct and pipe insulation and location;
- Lighting fixture schedule with wattage and control narrative;
- and air sealing details.

For Residential plans, either as an insert on the plans or as a separate attachment, a representation of the Energy Certificate required by Section 401.3 shall be depicted with the information inserted as follows:

<p><i>(Builder Name if desired)</i> Residential Energy Efficiency Certificate</p>
<p>This energy certificate shall be posted as required by City ordinance. This residential unit was built in accordance with the <u>2009 Fort Worth Energy Code</u> with the following energy compliance materials.</p>
<p>Insulation:</p> <p>Wall: _____</p> <p>Roof/Attic/Ceiling: _____</p> <p>Floor: _____</p> <p>Ducts: _____</p>
<p>Windows:</p> <p>U-factor _____</p> <p>SHGC _____</p>
<p>Doors: U-factor _____</p>
<p>Heating: _____</p>
<p>Cooling: _____</p>
<p>Water Heater: _____</p>
<p>Other: _____</p>

Where necessary, the certificate may be expanded to include other items. In order to allow mass production of labels for Master Home plans, no address is required to be specified. However, a builder may desire to add an address line or a house model number. Posting of the certificate shall be as specified in Section 401.3.

103.2.1 Daylight Zones. A duplicate lighting floor plan shall be provided which identifies the various daylight zones required under Section 505.2.2.3. Such plan shall identify the lights designated for each zone and how they will be grouped or independently switched.

103.3 Examination of documents. See the applicable code under which the permit is issued. (Building, Residential, Electrical, Mechanical or Plumbing Codes)

103.3.1 Approval of construction documents. See the applicable code under which the permit is issued. (Building, Residential, Electrical, Mechanical or Plumbing Codes)

103.3.2 Previous approvals. See the applicable code under which the permit is issued. (Building, Residential, Electrical, Mechanical or Plumbing Codes)

103.3.3 Phased approval. See the applicable code under which the permit is issued. (Building, Residential, Electrical, Mechanical or Plumbing Codes)

103.4 Amended construction documents. Changes made during construction that are not in compliance with the *approved* construction documents shall be resubmitted for approval as an amended set of construction documents.

103.5 Retention of construction documents. See the applicable code under which the permit is issued. (Building, Residential, Electrical, Mechanical or Plumbing Codes)

IECC SECTION 104

IECC Section 104.1, 104.2, 104.3, 104.4, 104.5, 104.6, 104.7, 104.8 and 104.8.1; deleted and replace as follows:

SECTION 104 – INSPECTIONS

104.1 General. All construction or work for which a permit is required shall be subject to inspection by the Building Official and all such construction or work shall remain accessible and exposed for inspection purposes until approved by the Building Official.

Inspections shall be performed in the manner as specified by the code under which the permit was obtained. (Building, Residential, Electrical, Mechanical or Plumbing Codes)

104.2 Required Inspections. Along with the mandatory inspections required under the code which the permit was obtained, inspections shall be made to determine compliance with this code and shall include, but not be limited to, inspections for: envelope insulation *R*- and *U*-values, fenestration *U*-value, duct system *R*-value, and HVAC and water-heating equipment efficiency. (See IECC Energy Inspection Check List as provided by the department.)

104.3 Other Inspections. In addition to the called inspections specified above, the Building Official may make or require other inspections of any construction work to

ascertain compliance with the provisions of this code and other laws which are enforced by the code enforcement agency.

IECC SECTION 106

**IECC Section 106.1; changed to read as follows:*

106.1 General. The codes and standards referenced in this code shall be those listed in Chapter 6, and such codes, when specifically adopted, and standards shall be considered part of the requirements of this code to the extent of such reference.

Whenever amendments have been adopted to the referenced codes and standards, each reference to said code and standard shall be considered to reference the amendments as well. Any reference to NFPA 70 or the ICC *Electrical Code* shall mean the Electrical Code as adopted.

The provisions of the Building Code, Residential Code, Electrical Code, Mechanical Code and Plumbing Code, as adopted elsewhere, shall be used as part of this code for any provision, requirement or method that does not exist in this code.

IECC SECTION 107

**IECC Section 107, 107.1, 107.2, 107.3, 107.4 and 107.5; deleted and replaced to read as follows:*

107.1 Fees. For Permits, Fees, Inspections, Certificates of Occupancy and Third Party, see the applicable Building Code, Residential Code, Electrical Code, Mechanical Code and Plumbing Code, adopted elsewhere.

IECC SECTION 108

**IECC Section 108.4; changed to read as follows:*

108.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be considered in violation of this code and liable to a fine as specified in Section 111 ~~of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.~~

IECC SECTION 109

*IECC Section 109; deleted and replaced to read as follows:

SECTION 109 – CONSTRUCTION AND FIRE PREVENTION BOARD OF APPEALS

109.1 Applications for appeals shall be made to the Construction and Fire Prevention Board of Appeals as authorized and provided for in the Building Code. (See the Building Code.) All references to the “Board” shall be deemed to refer to the Construction and Fire Prevention Board of Appeals.

The Board shall have no authority to waive provisions required by State Law. The *building official* shall be the deciding individual as to whether a variance to the Energy Code would be a violation of State Law.

IECC SECTION 110

*IECC Section 110; added to read as follows:

SECTION 110 – ORGANIZATION AND ENFORCEMENT

110.1 Creation of enforcement agency. The Department of Planning and Development is hereby created as specified in the City Code and shall be referred to as “the department.”

110.2 Powers and Duties of Building Official.

110.2.1 General. Whenever the term “code official” is used in this code, it shall be construed to mean the Building Official or his authorized representative(s). The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official* shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

110.2.2 Deputies. In accordance with prescribed procedures and with the approval of the appointing authority, the Building Official may appoint such number of technical officers and inspectors and other employees as shall be authorized from time to time. The Building Official may deputize such inspectors or employees as may be necessary to carry out the functions of the code enforcement agency.

For the purpose of this code, the regularly authorized deputy officials shall be per work as follows:

- Provisions involving Mechanical** – Chief Mechanical Inspector
- Provisions involving Fuel Gas** – Chief Plumbing Inspector
- Provisions involving Plumbing** – Chief Plumbing Inspector
- Provisions involving Electrical** – Chief Electrical Inspector

For all other parts, the Assistant Building Official(s) shall be the deputy official.

110.2.3 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of this code which makes the structure or premises unsafe, dangerous or hazardous, the *building official* or designee is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises be unoccupied, the *building official* shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall have recourse to the remedies provided by law to secure entry.

An application for a permit shall be considered as permission from an authorized representative to inspect the premises.

When the code official shall have first obtained a proper inspection warrant or other remedy provided by law to secure entry, no owner, occupant, or person having charge, care of control of any building or premises shall fail or neglect, after proper request is made as herein provided, to promptly permit entry therein by the code official for the purpose of inspection and examination pursuant to this code.

It shall be unlawful for any person to hinder or interfere with the code official, deputy or any of the inspectors in the discharge of their duties under this code.

110.2.4 Occupancy violations. Whenever any site, building, structure or equipment therein regulated by this code or any other code is being used contrary to the provisions of this code or any other code, the *building official* may order such use discontinued and the structure, or portion thereof, vacated by notice served on any person causing such use to be continued.

Such person shall discontinue the use within the time prescribed by the *building official* after receipt of such notice to make the site, building, structure, or portion thereof, or equipment comply with the requirements of this code.

110.2.5 Liability. The *building official*, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties. Any suit instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representative of the jurisdiction until the final termination of the proceedings. The *building official* or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code. Any judgment resulting therefrom shall be assumed by this jurisdiction.

110.2.5.1 The liability exemption and defense protection provided in this section are not extended to Third Party Companies, or their employees, agents or assignees.

110.2.5.2 This code shall not be construed to relieve from or lessen the responsibility of any person owning, operating or controlling any building or structure for any damages to persons or property caused by defects, nor shall the code enforcement agency or its parent jurisdiction be held as assuming any such liability by reason of the inspections authorized by this code or any permits or certificates issued under this code.

110.2.6 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of any action granting modifications shall be recorded and entered in the files of the department.

110.2.7 Alternate materials, alternate design and methods of construction. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, *fire resistance*, durability and safety.

110.2.8 Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

110.2.9 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made at no expense to this jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an *approved agency*. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

110.2.10 Material and equipment reuse. Materials, equipment and devices shall not be reused unless such elements have been reconditioned, tested, placed in good and proper working condition, and approved.

110.2.11 Cooperation of other officials and officers. The Building Official may request, and shall receive, the assistance and cooperation of other officials of this jurisdiction so far as is required in the discharge of the duties required by this code or other pertinent law or ordinance.

IECC SECTION 111

**IECC Section 111; added to read as follows:*

111 Violations. It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the same to be done in violation of this code.

Any violation cited under the Building Code, Residential Code, Electrical Code, Mechanical Code and Plumbing Code, as adopted elsewhere, that is also associated with energy-efficient provisions of this code, may also be cited as a violation of this code.

Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the *approved construction documents* or directive of the *building official*, or of a *permit* or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law.

Each day or any portion thereof during which any violation of this ordinance occurs or continues shall be deemed a separate offense and upon conviction thereof shall be punishable as prescribed by law.

IECC SECTION 202

*IECC Section 202; the following definitions are changed or are added to read as follows:

BUILDING CODE. Building Code shall mean the *International Building Code* as adopted by this jurisdiction.

CHANGE OF OCCUPANCY. A change in the purpose or level of activity within a building that involves a change in application of the requirements of this code. The definition shall also apply to the usage of the surrounding site and access to and from the building, structure or site, as necessary to achieve the purpose of this code, and to obtain compliance with other codes and ordinances of this jurisdiction.

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. For the purpose of this code, the Code Official shall be the Building Official, and his regularly authorized deputy shall be as listed in 110.2.2.

ELECTRICAL CODE. Electrical Code shall mean the *National Electrical Code* as adopted by this jurisdiction. For the purpose of this code, all references to NFPA 70 and the *ICC Electrical Code* shall be assumed to mean the Electrical Code as defined herein.

ENERGY CODE. Energy Code shall mean the *International Energy Code* as adopted by this jurisdiction.

ENTRANCE DOOR. Fenestration products used for ingress, egress and access in nonresidential buildings, including, but not limited to, exterior entrances that utilize latching hardware and automatic closers ~~and contain over 50 percent glass specifically designed to withstand heavy use and possibly abuse.~~

FIRE PREVENTION CODE (FIRE CODE). Fire Prevention Code, or Fire Code, shall mean the *International Fire Code* as adopted by this jurisdiction.

FUEL GAS CODE. Fuel Gas code shall mean the *International Fuel Gas Code* as adopted by this jurisdiction and shall be considered as part of the Plumbing Code. (See Plumbing Code.)

MECHANICAL CODE. Mechanical Code shall mean the *International Mechanical Code* as adopted by this jurisdiction.

PLUMBING.

For the purpose of using the *International Plumbing Code*, or the Plumbing Section of the *International Residential Code*, as adopted, shall mean:

The practice, materials and fixtures utilized in the installation, maintenance, extension and alteration of all piping, fixtures, plumbing appliances and plumbing appurtenances, within or adjacent to any structure, in connection with sanitary drainage or storm drainage facilities; venting systems, and public or private water supply systems.

For the purpose of complying with the Texas State Plumbing License Law, shall mean:

All piping, fixtures, appurtenances, and appliances, including disposal systems, drain or waste pipes, or any combination of these that:
supply, recirculate, drain, or eliminate water, gas, medical gasses and vacuum, liquids, and sewage for all personal or domestic purposes in and about buildings where persons live, work, or assemble; connect the building on its outside with the source of water, gas, or other liquid supply, or combinations of these, on the premises, or the water main on public property; and carry waste water or sewage from or within a building to the sewer service lateral on public property or the disposal or septic terminal that holds private or domestic sewage.

The installation, repair, service, maintenance, alteration, or renovation of all piping, fixtures, appurtenances, and appliances on premises where persons live, work, or assemble that supply gas, medical gasses and vacuum, water, liquids, or any combination of these, or dispose of waste water or sewage.

PLUMBING CODE. Plumbing Code shall mean the *International Plumbing Code* and the *International Fuel Gas Code* as adopted by this jurisdiction. The term “Plumbing Code” applies to both codes as one combined code.

PLUMBING SYSTEM.

For the purpose of using this code, as adopted, shall mean:

Includes the water supply and distribution pipes, plumbing fixtures and traps, supports and appurtenances; water-treating or water-using equipment; soil, waste and vent pipes; sanitary drains, storm sewers and building sewers to an approved point of disposal, in addition to their respective connections, devices and appurtenances within a structure or premise.

RESIDENTIAL BUILDING. For this code, includes R-3 buildings, as well as R-2 and R-4 buildings three stories or less in height above grade. Residential buildings on a Podium building, not exceeding three stories in height above the podium level, may also be considered as Residential Buildings if constructed the same as they would be if on grade with no elevator shafts, interior stair shafts, etc. that would connect conditioned residential space above with the podium level below.

RESIDENTIAL CODE. Residential Code shall mean the *International Residential Code* as adopted by this jurisdiction.

VEHICLE ACCESS DOOR. A door that is used primarily for vehicular traffic at entrances of buildings such as garages and parking lots, and that is not generally used for pedestrian traffic.

IECC SECTION 301

**IECC Section 301.1.1; added to read as follows:*

301.1.1 Climate designation. For the purposes of this code, the Climate Zone shall be:

Climate Zone 3A (Moist) and Warm-Humid.

Very Heavy Termite Infestation

IECC SECTION 303

**IECC Section 303.2.1; deleted and replaced to read as follows:*

303.2.1 Protection of exposed foundation insulation. Because of “very heavy” termite classification, designs employing exterior insulation of basements or slabs shall not be utilized.

IECC SECTION 401

**IECC Section 401.3; add a sentence to read as follows:*

For multi-family residential buildings, certificates may either be installed per dwelling unit, or one on the master electrical panel for the building.

**IECC Section 401.3.1; added to read as follows:*

401.3.1 Alternate certificate locations. In lieu of locating at the electrical panel, the certificate may be inserted in a clear plastic slip cover when the slip cover is firmly attached or adhered in one of the following accessible locations:

- a. The inside of the door of an HVAC closet.
- b. The inside of the door of an electrical water heater closet.
- c. The inside of a kitchen pantry door, kitchen cabinet door, or an inside wall of either.

For multi-family residential buildings, certificates may be placed on file in the manager’s office. Such certificates shall be identified with each building address.

IECC SECTION 402

*IECC Section 402.1.1; add the following exception:

Exception: Any glazing facing within 45 degrees of true north need not meet the SHGC.

*IECC 402.2.1.1; added to read as follows:

402.2.1.1 Attic equipment. Where equipment installed in the attic is required a working area and access pathway in accordance with this or other codes, as applicable, the insulation under such walkway or platform shall not be reduced unless compensated for through an approved method such as the usage of a performance (computer) energy review compliance report.

*IECC Table 402.4.2; change first component “Air barrier and thermal barrier” to read as follows:

Air barrier and thermal barrier	<u>Exterior thermal envelope contains a continuous air barrier.</u> Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier. Breaks or joints in the air barrier are filled or repaired. Air-permeable insulation is not used as a sealing material. Air permeable insulation is inside of an air barrier.
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*IECC 402.2.12; added to read as follows:

402.2.12 Insulation installed in walls. Insulation batts installed in walls shall be encapsulated on all sides with framing lumber, gypsum, sheathing, wood structural panel sheathing or other equivalent material to prevent sagging and/or potential draft entry points.

*IECC Section 402.4.2.1; add a second paragraph to read as follows:

Approved parties for testing must already be certified by another program such as Energy Star or HERS, or must obtain independent certification from a recognized source such as Texas A&M Energy Systems Laboratory or Texas Home Energy Rating Organization (HERO), or as approved by the Building Official.

IECC SECTION 403

*IECC Section 403.2.2; changed to read as follows:

403.2.2 Sealing (Mandatory). All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4.1 of the *International Residential Code* or Section 603.9 of the International Mechanical Code, as applicable.

Duct tightness . . (bulk of section unchanged).

Exceptions: 1. Duct tightness test is not required if the air handler and all ducts of that air handler are located within conditioned space.

2. Duct tightness test is not required for framing cavities used for return air, if all sides of the cavity are within the conditioned space.

Approved parties for testing must already be certified by another program such as Energy Star or HERS, or must obtain independent certification from a recognized source such as Texas A&M Energy Systems Laboratory or Texas Home Energy Rating Organization (HERO), or as approved by the Building Official.

*IECC Section 403.6; changed to read as follows:

403.6 Equipment sizing (Mandatory). Heating and cooling equipment shall be sized in accordance with Section M1401.3 of the *International Residential Code* (ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies).

*IECC Section 403.9.1; changed to read as follows:

403.9.1 Pool heaters. All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.

IECC SECTION 501

*IBC Section 501.2.1 and 502.2.2; added after the exception to read as follows:

501.2.1 Podium buildings. A podium building, in accordance with Section 509 of the Building Code, may be considered as a single story building if it can be shown that there are no shared HVAC systems or stairways and elevators connecting with conditioned areas of the upper floors.

501.2.2 Circuit Analysis. When using ASHRAE in any form, a branch circuit analysis shall be performed and submitted for review. (See ASHRAE, Section 8.4.1.2.) Feeder circuit analysis may be required depending on the distance. (See ASHRAE, Section 8.4.1.1)

IECC SECTION 502

**IECC Section 502.1.1; last sentence is changed and an exception is added to read as follows:*

Buildings with a vertical fenestration area or skylight area that exceeds that allowed in Table 502.3 (maximum vertical fenestration \leq 40%, maximum skylight \leq 3%) shall comply with the building envelope provisions of ASHRAE/IESNA 90.1.

Exception: *(life safety)* When installing the minimum smoke and heat vents (1:30) required under Fire Code Table 910.3, the area of such vents (skylights) may exceed 3%, but only by the amount to meet the requirement of that section.

**IECC 502.1.1.1; added to read as follows:*

502.1.1.1 Attic equipment. Where equipment installed in the attic is required a working area and access pathway in accordance with this or other codes, as applicable, the insulation under such walkway or platform shall not be reduced unless compensated for through an approved method such as the usage of a performance (computer) energy review compliance report.

**IECC Section 502.3.1; changed and 502.3.1.1 added to read as follows:*

502.3.1 Maximum area. The vertical fenestration area (not including opaque doors) shall not exceed the percentage of the gross wall area specified in Table 502.3 (40%). The skylight area shall not exceed the percentage of the gross roof area specified in Table 502.3 (3%).

502.3.1.1 Roll up or roll away wall sections. Roll up or roll away walls, doors or windows, or bi-fold doors and windows providing access for the interior atmosphere, conditioned air and/or noise to flow to the outside, usually associated with interior assemblies connecting to outside dining, patio or sidewalk area, will not be accepted.

Exception: Such openings may be accepted when all of the following conditions are met:

1. A kill switch is associated with each opening such that the air conditioning and/or heat is deactivated when the door/window is open. Fresh air and fans are allowed to be operational. This deactivation does not apply to the kitchen area.
2. In the following zonings (H, NS, TU, MU-1, MU-2, and any new form based zoning adopted by Council), as defined in the Zoning Code, such openings may be used for any size tenant space.
3. In other zonings, such openings are only permitted in tenant spaces less than 3,000 sq.ft. or in a portion of the tenant space that has been subdivided with a partition and doors to be less than 3,000 sq.ft.

**IECC 502.4.3.1; added to read as follows:*

502.4.3.1 Insulation installed in walls. Insulation batts installed in walls shall be encapsulated on all sides with framing lumber, gypsum, sheathing, wood structural panel sheathing or other equivalent material to prevent sagging and/or potential draft entry points.

IECC SECTION 502.4.7

**IECC Section 502.4.7; changed to read as follows:*

502.4.7 Vestibules. A door that separates *conditioned space* from the exterior shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time.

Exceptions: A vestibule is not required in the following situations:

1. Buildings in climate Zones 1 and 2 as indicated in Figure 301.1 and Table 301.1.
2. Doors not intended to be used as building *entrance door*, such as doors to mechanical or electrical equipment rooms. This exception does not apply to doors from the generally occupied area, even if marked as exit only doors. (See definition of Entrance Door.)
3. Doors opening directly from a *sleeping unit* or dwelling unit.
4. Doors that open directly from a space less than 3,000 square feet (298 m²) in area. For the purpose of this exception, the 3,000 square feet shall be not be just the first

is associated with this door.

5. Revolving doors. This exception does not apply to the side personnel doors.
6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.
7. Doors to outside dining when the total aggregate area of all outside dining associated with one individual tenant space does not exceed 3,000 square feet.
8. (life safety) Doors provided for and only used as Fire Access openings in accordance with Fire Code Section 903.2.11.1 or 2306.6.1.

The vestibule should be as small as possible and still comply with this section and the Building Code (See Building Code Section 1008.1.8). There shall be no occupancy in the vestibule, including but not limited to, building lobby, elevator lobby, reception area, security area, furniture other than the occasional seat/chair, etc.

The area shall be an unoccupied space used to separate *conditioned space* from the exterior. Providing conditioned air to the vestibule is not prohibited, but the designer may consider limiting such conditioned air only to heating as necessary to avoid freezing or moisture buildup.

IECC SECTION 505

**IECC Section 505.2.1; changed to read as follows:*

505.2.1 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.

Exceptions: The following areas need not have lighting controls:

1. Areas designated as security or emergency areas that must be continuously lighted, inclusive of areas of incarceration.
2. Lighting in stairways or corridors that are elements of the means of egress.

**IECC Section 505.2.2.3; changed to read as follows:*

505.2.2.3 Daylight zone control. Daylight zones, as defined by this code, are clarified as follows:

1. Under skylights. The area created by the width of the skylight, plus drawing a 45 degree angle down to the floor below, or if the angle is blocked by an opaque wall the distance to the wall. The area shall include squaring off the outside edges at the corners. When skylight areas overlap, the overlap area shall be divided in half between the skylights.

2. Adjacent to vertical fenestration. The area created by the width of the fenestration plus 2 feet on each side and the depth to the next opaque wall but not more than 15 feet. Adjacent vertical fenestration areas along the same cardinal orientation may be considered as one contiguous area unless receiving daylight from two different angles such as in a building corner. When vertical fenestration areas overlap skylight areas, the overlap area shall be divided in half between the fenestration sources.

Daylight zones shall be provided with individual controls that control the lights independent of general area lighting. Light fixtures shall be installed such that those dedicated to the daylight zone shall be separate from those dedicated to the non-daylight zones. An appropriate design method would be as though they were independent rooms, inclusive of light reduction controls of Section 505.2.2.1. Contiguous daylight zones adjacent to vertical fenestration are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e., north, east, south, west). Daylight zones under skylights more than 15 feet (4572 mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration.

Exception: Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixture are not required to have a separate switch for general area lighting.

*IECC Section 505.5.1.4; change item 3 to read as follows:

3. The wattage limit of other permanent current limiting devices(s) on the system. Such devices shall not incorporate a method of bypassing or adjusting the limiting device.

*IECC Table 505.5.2, footnote b; add a sentence to read as follows:

When using the additional lighting, only **floor area** shall be used. Wall area is not part of the calculation. Such additional lighting power allowance may be shared between the various retail areas but cannot be used outside of the retail floor area.

*IECC Section 505.6.2; changed to read as follows:

505.6.2 Exterior building lighting power. The total exterior lighting power allowance for all exterior building applications is the sum of the base site allowance plus the individual allowances for areas that are to be illuminated and are permitted in Table 505.6.2(2) for the applicable lighting *zone*. Tradeoffs area allowed only among exterior lighting applications listed in Table 505.6.2(2), Tradable Surfaces section. The lighting zone for the building exterior is determined from Table 505.6.2(1), and as further detailed in Tables 505.6.2(3) and 505.6.2(4) unless otherwise specified by the local jurisdiction. Exterior lighting for all applications (except those included in the exceptions to Section 505.6.2) shall comply with the requirements of Section 505.6.1.

{*Exceptions unchanged.*}

*IECC Table 505.6.2(1); changed and Table 505.6.2(3) and (4) added to read as follows:

**Table 505.6.2(1)¹
Exterior Lighting Zones**

Lighting Zone	Description
1	Developed areas of national parks, state parks, forest land, and rural areas
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed use areas.
3	All other areas
4	High-activity commercial districts in major metropolitan areas as designated by the local land use planning authority.

1. Enforcement of this table shall be accomplished through the use of Table 505.6.2(3) and (4).

Table 505.6.2(3)^{1,2,3,4}
Exterior Lighting Zones

Lighting Zones	Description	Equivalent Fort Worth Zoning Classification
1	Developed areas of national parks, state parks, forest land, and rural areas.	Developed areas of city parks.
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed use areas.	All uses in MU-1, MU-1G, MU-2, MU-2G
3	All other areas.	
4	High-activity commercial districts in major metropolitan areas as designated by the local land use planning authority.	All uses in H

1. All PD's shall be as the main use or zoning identified in the PD
2. When more than one use on the property vertically, the use of the lowest floor shall determine the zone.
3. When more than one use across the property horizontally, the highest zone classification shall be permitted.
4. Except for **H** or **MU** zonings, all other categories shall be designated by use as specified in Table 505.6.2(4).

Table 505.6.2(4)¹

USES – As classified by the Zoning Code		A, AR, B, R-1, R-2, CR, C, D, UR, MH	ER, E	FR, F, G	I	J, K	AG	CF	TU	NS/T 4R	NS/T4	NS/T5
Household Living	All dwellings, inclusive of: One-family and two-family dwellings, townhouse, rowhouse, multifamily apartment, manufactured housing, mobile home, cluster housing, etc.	2	2	2	2	2	1	2	2	2	2	2
Group Living	Boarding or lodging house, community home, fraternity or sorority house, Group Homes I, Halfway House, Shelter, etc.	2	2	2	2	2	1	2	2	2	2	2
	Group Home II	2	2	3	3	3	1	3	3	3	3	3
Education	College or University, Day care center (child or adult) Kindergarten, School, elementary or secondary (public or private), etc.	2	2	3	3	3	2	3	3	3	3	3
Government	Animal Shelter, governmental office facility, probation or parole office	2	2	2	2	2	2	2	2	2	2	2
	Correctional Facility	3	3	3	4	4	3	3	3	3	3	3
	Government maintenance facility, governmental vehicle storage/junkyard	2	2	2	3	3	2	2	3	3	3	3
	Museum, library or fine art center (govt. operated or controlled)	2	2	2	2	2	2	2	2	2	2	2
Health Care Facilities	Assisted living facility, blood bank, care facility, hospice, massage therapy and spa, health services facility (including doctor's office or medical clinic)	2	2	2	2	2	1	2	2	2	2	2
	Ambulance dispatch station, hospital, nursing home with full medical services	2	2	3	3	3	1	3	3	3	3	3
Recreation	Center (community recreation or welfare), country club, neighborhood recreation center	2	2	3	3	3	2	2	3	3	3	3
	Golf course, park or playground	1	1	1	1	1	1	1	1	1	1	1
	Golf driving range	2	2	3	3	3	2	2	3	3	3	3
Religious	Place of worship and auxiliary use	2	2	2	2	2	2	2	2	2	2	2
Utilities	Electric power substation, power plant or central station light, wastewater (sewage) treatment facility, water supply, treatment or storage facility.	3	3	4	4	4	3	4	4	4	4	4
	Gas lift compressor, gas line compressor stations, telecommunications towers and antennas, utility transmission or distribution line	2	2	3	3	3	2	3	3	3	3	3

	USES	A, AR, B, R-1, R-2, CR, C, D, UR, MH	ER, E	FR, F, G	I	J, K	AG	CF	TU	NS/T 4R	NS/T 4	NS/T 5
Entertainment and Eating	Amusement (indoor and outdoor), baseball/softball facility (commercial), bowling alley, bar, tavern, cocktail lounge, club (private or teen), circus, drive-in restaurant or business, Gambling facility (including bingo), indoor recreation, racing (horse, dog or automotive), shooting or weapons firing range, stable (commercial), riding, boarding or rodeo arena, sexually oriented business, swimming pool (commercial), theater (drive-in, movie theater or auditorium)	2	2	3	3	3	2	3	3	3	3	3
	Health or recreation club, lodge or civic club, massage parlor, museum/cultural facility, restaurant, café, cafeteria.	2	2	2	2	2	1	2	2	2	2	2
Lodging	Bed and breakfast home and inn, hotel, motel or inn, Recreational vehicle park	2	2	2	2	2	1	2	2	2	2	2
Office	Bank, financial institution, offices	2	2	2	2	2	1	2	2	2	2	2
Retail sales and service	Business college or commercial school, Home improvement store, Large retail store, Mini-warehouses,	2	2	3	3	3	2	3	3	3	3	3
	All other "Retail sales and service" uses as listed in the Zoning Code	2	2	2	2	2	1	2	2	2	2	2
	All other "Vehicle sales & service" as listed in the Zoning Code	2	2	3	3	3	2	3	3	3	3	3
Light Industrial Services	Assaying, Blacksmithing or wagon shop, carpet and rug cleaning, furniture sales, with outside storage/display (new/used), outdoor sales and storage, pattern shop, rubber stamping, shearing/punching, rubber stamp manufacture.	2	2	2	2	2	1	2	2	2	2	2
	All other "Light Industrial Services" as listed in the Zoning Code.	2	2	3	3	3	2	3	3	3	3	3
Heavy Industrial Manufacturing	All "Heavy Industrial Manufacturing" as listed in the Zoning Code	2	2	3	3	3	2	3	3	3	3	3

	USES	A, AR, B, R-1, R-2, CR, C, D, UR, MH	ER, E	FR, F, G	I	J, K	AG	CF	TU	NS/T 4R	NS/T4	NS/T5
Transportation	Airport, aviation field, helistop or landing area, passenger station, railroad freight or classification yard, railroad roundhouse or RR car repair shop, railroad tracks: team, spur, loading or storage, terminal: truck, freight, rail or water	2	2	3	3	3	2	3	3	3	3	3
Waste Related	Landfill, recycling center, household hazardous waste or waste tire facility, recycling collection facility, salvage yard (other than automotive)	2	2	3	3	3	3	3	3	3	3	3
	Pet cemetery	2	2	2	2	2	1	2	2	2	2	2
Wholesale	Wholesale: bakery, produce market or wholesale house, wholesale office or sample room	2	2	3	3	3	2	3	3	3	3	3
Agriculture	Agriculture, stockyards or feeding pens (commercial), green house or plant nursery	2	2	2	2	2	1	2	2	2	2	2
Gas wells	Fresh Water Fracture Ponds & Production, gas drilling & production, oil drilling & production	2	2	2	2	2	1	2	2	2	2	2

1. This table was created using the following parameters:
 - a. All parks are protected with Zone 1.
 - b. All nocturnal areas, golf courses and AG zoning are reduced in lighting zone from the other zonings for each use.
 - c. All H zoning is Zone 4.
 - d. All MU zoning is Zone 2.
 - e. All estimated 8 a.m. to 5 p.m. businesses that might occur next to residential are assigned Zone 2.
 - f. A zone increase was permitted for uses that might require extra security, e.g. correctional facilities, power plants, etc.

*IECC Table 505.6.2; deleted.

<p>must be performed by an approved Project Team. Certification paperwork and team identification must be submitted with the permit and final certification must be submitted within 2 years after job completion. The building purchaser must be made aware that certification is pending for final approval.</p> <p>Item 3 does not apply when this option is used.</p>	
<p><u>Mandatory</u> When using this rating system, except for items 1 and 2 above, this provision is mandatory:</p> <p>3. Limit the conditioned floor area of each dwelling unit, to <u>one</u> of the following options as follows:</p> <ul style="list-style-type: none"> a. $0 \leq 1,000$ square feet (93 m²) b. $1,000 \leq 1,500$ square feet (139 m²) c. $1,500 \leq 2,000$ square feet (186 m²) d. $2,000 \leq 2,500$ square feet (232 m²) e. $> 2,500$ square feet <p>also, for every 5,000 square feet, or fraction thereof, over 3,000. (These are penalty points that must be made up with other options.)</p> <p>When the building contains more than one dwelling unit, the worst case unit is used for this calculation for the entire structure. When doing an addition, the entire dwelling unit is used in this calculation.</p>	<p>15 10 5 0 -5, -5 points</p>
<p>Plans</p>	
<p>4. Permit plans include the following cut drawings and/or design notes for the following items:</p> <p>Thermal Envelope All penetrations in the thermal envelope, including but not limited to, electrical boxes, air duct grills, light fixtures, ceiling fans, (with ceiling items such as light fixtures and ceiling fans specifically identified on the plans) are noted as fully sealed around the edges and through the electrical cord entry points.</p> <p>(All such items must be sealed around the exterior in the space between the item and the gypboard. Electrical boxes must have the wiring entry hole sealed with approved material. Utility penetrations through the envelope, including but not limited to, the exterior wall, top and bottom plates, floor and ceilings must be sealed. Seals must also be installed around electrical wiring through studs to separate opposite facing</p>	<p>3</p>

electrical boxes in an envelope wall such as the wall separating the garage and the conditioned space.)	
Floors	
a. Insulation installed to maintain permanent contact with the underside of the subfloor decking, enveloping any attached ductwork within the thermal envelope without compression or air gaps in the insulation.	2
b. Batt and loose insulation is held in place by permanent attachments or systems in accordance with the manufacturer's instructions.	
Crawl space	
Where insulated, insulation details noting wall insulation is permanently attached to the walls. Exposed earth in unvented crawlspaces is covered with continuous vapor retarder with overlapping joints that are taped or masticed.	2
Windows and doors	
Caulking, gasketing, adhesive flashing tape, foam sealant, or weather stripping is installed forming a complete air barrier.	2
Band and rim joists	
Band and rim joists are insulated and air sealed.	2
Between foundation and sill plate bottom plate	
Sill sealer or other material that will expand and contract is installed between foundation and sill plate. Caulk or the equivalent is installed to seal the bottom plate of exterior walls.	2
Attic access (except conditioned attics)	
Attic access, knee wall door, or drop-down stair is covered with insulation and gasketed. Knee wall door is an insulated unit or is covered with insulation. Attic access doors are considered exterior envelope doors. Attic access hatches shall be encapsulated with an insulated cover.	2
Recessed lighting	
Recessed light fixtures that penetrate the thermal envelope are noted on the plans and are airtight, IC-rated, and sealed with gasket, caulk, or foam.	2
Eave vents	
Where ceiling/attic assemblies or designs have eave vents, baffles or other means are implemented to minimize air movement into or under	2

<p>the insulation.</p> <p>Ducts. Ducts are sealed with tape complying with UL 181, mastic, gaskets, or an approved system.</p> <p>Skylight and knee walls Skylight shafts and knee walls are insulated to the same level as the exterior walls.</p> <p>Tubs and showers Walls behind tubs and showers shall be sealed as other walls with gypsum board or equivalent as the remainder of the dwelling unit.</p> <p>Common walls between dwelling units shall be sealed to prevent air exchanges through the wall. This includes sealing opposing electrical outlets in which air might flow through.</p> <p>Note on plans indicating where the Energy Certification will be installed.</p>	<p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>
5. Calculations for heating and cooling equipment sizing in accordance with ACCA Manual J is submitted with Energy Report	3
6. HVAC duct system is sized, designed, and installed in accordance with ACCA Manual D. Sizing calculations must be submitted with Energy Report.	5
Heat Island	
7. For buildings with one- or two-family, provide canopy coverage that, at maturity as determined by the Tree Ordinance, will provide shading for a minimum of 20% of the area on the same lot within 25' of the structure. Shading over the roof top does not count.	10
For buildings with more than two-family dwellings, provide canopy coverage that, at maturity as determined by the Tree Ordinance, will provide shading for a minimum of 25% of the area on the same lot within 50' of the structure. Shading over the roof top does not count.	15
Envelope	
8. Exceed the provisions of this code by 15%. Options: a. Use an approved program, the latest version based on 2009 IECC, report designating a score of 15% above code; or,	25

b. Obtain Energy Star rating, inspection and certification (This option cannot be used in conjunction with options 9 or 10)	25																											
9. Implement energy efficiency features to achieve energy cost performance that exceeds this code. A documented analysis using software in accordance with Section 405. a. by 15% b. by 30% c. by 50% d. by 60% (This option cannot be used in conjunction with options 8 or 10)	30 60 100 120																											
10. Reduce total building thermal envelop UA as follows: a. by 10% b. by 20% For the purpose of this point system, the following shall be considered as compliant: <table border="0" style="margin-left: 40px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>10%</u></th> <th style="text-align: center;"><u>20%</u></th> </tr> </thead> <tbody> <tr> <td>Fenestration U-factor</td> <td style="text-align: center;">0.45</td> <td style="text-align: center;">0.40</td> </tr> <tr> <td>Skylight U-factor</td> <td style="text-align: center;">0.58</td> <td style="text-align: center;">0.52</td> </tr> <tr> <td>Ceiling R-value</td> <td style="text-align: center;">33</td> <td style="text-align: center;">36</td> </tr> <tr> <td>Frame Wall R-value</td> <td style="text-align: center;">14</td> <td style="text-align: center;">16</td> </tr> <tr> <td>Mass Wall R-value</td> <td style="text-align: center;">8/9*</td> <td style="text-align: center;">9/10*</td> </tr> <tr> <td>Floor R-value</td> <td style="text-align: center;">24**</td> <td style="text-align: center;">27**</td> </tr> <tr> <td>Basement Wall R-value</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>Crawl Space R-value</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> </tr> </tbody> </table> * - see Table 402.1.1, footnote i ** - see Table 402.1.1, footnote g The glazed fenestration and opaque door exemptions of Sections 402.3.3 and 402.3.4 are still permitted. (This option cannot be used in conjunction with options 8 or 9)		<u>10%</u>	<u>20%</u>	Fenestration U-factor	0.45	0.40	Skylight U-factor	0.58	0.52	Ceiling R-value	33	36	Frame Wall R-value	14	16	Mass Wall R-value	8/9*	9/10*	Floor R-value	24**	27**	Basement Wall R-value	3	4	Crawl Space R-value	8	9	15 30
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Crawl Space R-value	8	9																										
11. Exterior wall is a minimum 2 x 8 studs or double stud wall with minimum of R-19 insulation.	10																											
12. Enhanced Fenestration (windows and doors) is installed to meet the following ratings: U-factor of 0.35 or less and SHGC of 0.25 or less (both required) The glazed fenestration and opaque door exemptions of Sections 402.3.3 and 402.3.4 are still permitted.	10																											
13. Glazing on walls that face less than 45 degrees of East and West compass points is limited to less than 5% of the total Envelope wall surface. Must be both walls.	5																											
14. All windows facing South, and within 45 degrees of south, have a Projection Factor of .40 or larger. (See equation 5-1 for Projection Factor.)	5																											
15. A minimum of 90% of the roof surface is constructed of any one or																												

<p>combination of the following:</p> <ul style="list-style-type: none"> a. products that are in accordance with the Energy Star cool roof certification. b. a green (landscaped) roof system c. a solar reflective roof is installed that achieves a 3-year aged criteria of 0.50 or better. Documentation showing testing in accordance with ASTM C1549-04 and ASTM E1918-1997 must be submitted. 	5
16. Roofing material is installed with a minimum 0.75 inch (19 mm) continuous air space offset from the roof deck from eave to ridge.	5
17. Radiant barrier is installed in attic, under roof decking or over attic insulation	5
18. Attic ventilation is installed that provides air flow from lower attic (eaves) to and out upper attic (ridge vents or equivalent)	5
19. Batt insulation installed in attic walls is encapsulated with gypboard on the attic side.	5
20. Building tightness is blower door tested to insure that air leakage is less than seven air changes per hour (ACH) at a pressure of 33.5 psf (50 Pa) in accordance with Section 402.4.2.1.	5
This provision cannot not be used with item 8b, Energy Star.	
Mechanical	
21. Limit HVAC flex duct to only be used as last 5' of duct length.	35
22. All HVAC duct is installed within the Envelope or within a conditioned attic.	5
23. HVAC system only uses ducts. Wall cavities are not used as return air. (Section 403.2.3)	5
24. Except for bathrooms, kitchens, closets, pantries, and laundry rooms, return ducts or transfer grilles are installed in every room with a door.	5
25. Electric resistant heating is not used except for supplemental heating associated with heat pumps.	15
26. Install 7-day programmable thermostat	5
Plumbing	
27. Install water heaters, tank or tankless, in locations such that no hot water pipe run to fixture exceeds 40'	5
28. Insulate all hot water piping, including under slab, with minimum of R-4. Insulation may be removed for the portion that penetrates the slab if another approved pipe wrapping is preferred by the installer/designer.	5
29. Solar Water heating system is installed for all or any portion of hot water supply.	5
30. Except for outside hose bibs using as short of pipe as needed, water piping is not installed in Envelope walls.	5

Electrical	
31. Builder installs a minimum of 50% of the light bulbs in the light fixtures with high–efficacy lamps. Bulbs must be present at Final Inspection.	5
32. Each unit is served by an individual electrical meter, either utility meter or sub-meter.	5
Other	
33. Fireplace systems do not have continuously burning pilot lights.	5
Any Energy related item from other nationally recognized Sustainability or Green building program that is considered applicable and assigned a point grade as determined by the Building Official.	As determined by Building Official

Commercial

Those projects desiring to be recognized as above code per the Fort Worth Energy Sustainability Program, may use the following point system.

<u>Rating desired</u>	<u>Score</u>	<u>Approx. % above code</u>
1. Bronze	50	unknown
2. Silver	65	unknown
3. Gold	80	unknown
4. Platinum	95	unknown

Options	Points
<p>1. Obtain LEED for New Construction certification based on the latest version</p> <p>Certified 75 Silver 90 Gold 120 Platinum 150</p> <p>In order to qualify for this item, LEED application documents must be submitted along with the permit, and final certification must be obtained and submitted within 2 years after job completion. The building purchaser must be made aware that certification is pending for final approval.</p>	
<p>2. Compliance with the minimum requirements of the International Green Construction Code, and as a minimum the following electives:</p> <p>a. Site Development – 0 75 Material Resource Conservation and Efficiency – 0 Energy Conservation – 0 Water Resource Conservation and Efficiency – 0 Indoor Environmental Quality and Comfort – 0</p> <p>b. Site Development - 1 90 Material Resource Conservation and Efficiency – 0 Energy Conservation – 2 Water Resource Conservation and Efficiency – 1 Indoor Environmental Quality and Comfort – 0</p> <p>c. Site Development – 2 120 Material Resource Conservation and Efficiency – 2 Energy Conservation – 2 Water Resource Conservation and Efficiency – 2 Indoor Environmental Quality and Comfort – 0</p>	

<p>d. Site Development – 3 Material Resource Conservation and Efficiency – 2 Energy Conservation – 3 Water Resource Conservation and Efficiency – 3 Indoor Environmental Quality and Comfort – 1</p>	<p>150</p>
<p>3. Comply with ASHRAE/USGBC/IES Standard 189.1-2009.</p>	<p>90</p>
<p>Plans</p>	
<p>4. Permit plans include the following cut drawings and/or design notes for the following items:</p> <p>Mandatory items: (No points allocated for these items.) Plans must contain the following items, either marked item by item or contained in a table:</p> <ul style="list-style-type: none"> - Insulation materials and their <i>R</i>-values; - Fenestration <i>U</i>-factors and SHGCs; - Area-weighted <i>U</i>-factor and SHGC calculations; - Mechanical system design criteria; - Mechanical and service water heating system and equipment types, sizes and efficiencies; - Economizer description; - Equipment and systems controls; - Fan motor horsepower (hp) and controls; - Duct sealing, duct and pipe insulation and location; - Lighting fixture schedule with wattage and control narrative; - and air sealing details. <p>Optional notes. Points will be allocated when the plans also contain the following notes:</p> <p>Thermal Envelope All penetrations in the thermal envelope, including but not limited to, electrical boxes, air duct grills, light fixtures, ceiling fans, (with ceiling items such as light fixtures and ceiling fans specifically identified on the plans) are noted as fully sealed around the edges and through the electrical cord entry points.</p> <p>(All such items must be sealed around the exterior in the space between the item and the gypboard. Electrical boxes must have the wiring entry hole sealed with approved material. Utility penetrations through the envelope, including but not limited to, the exterior wall, top and bottom plates, floor and ceilings must be sealed. Seals must also be installed</p>	<p>20</p>

around electrical wiring through studs to separate opposite facing electrical boxes in an envelope wall such as the wall separating the garage and the conditioned space.)

Floors

- a. Insulation installed to maintain permanent contact with the underside of the subfloor decking, enveloping any attached ductwork within the thermal envelope without compression or air gaps in the insulation.
- b. Batt and loose insulation is held in place by permanent attachments or systems in accordance with the manufacturer's instructions.

Crawl space

Where insulated, insulation details noting wall insulation is permanently attached to the walls. Exposed earth in unvented crawlspaces is covered with continuous vapor retarder with overlapping joints that are taped or masticed.

Windows and doors

Caulking, gasketing, adhesive flashing tape, foam sealant, or weather stripping is installed forming a complete air barrier.

Band and rim joists

Band and rim joists are insulated and air sealed.

Between foundation and sill plate bottom plate

Sill sealer or other material that will expand and contract is installed between foundation and sill plate. Caulk or the equivalent is installed to seal the bottom plate of exterior walls.

Attic access (except conditioned attics)

Attic access, knee wall door, or drop-down stair is covered with insulation and gasketed. Knee wall door is an insulated unit or is covered with insulation. Attic access doors are considered exterior envelope doors. Attic access hatches shall be encapsulated with an insulated cover.

Recessed lighting

Recessed light fixtures that penetrate the thermal envelope are noted on the plans and are airtight, IC-rated, and sealed with gasket, caulk, or foam.

Eave vents

Where ceiling/attic assemblies or designs have eave vents, baffles or

<p>other means are implemented to minimize air movement into or under the insulation.</p> <p>Ducts. Ducts are sealed with tape complying with UL 181, mastic, gaskets, or an approved system.</p> <p>Skylight and knee walls Skylight shafts and knee walls are insulated to the same level as the exterior walls.</p> <p>Tubs and showers Walls behind tubs and showers shall be sealed as other walls with gypsum board or equivalent as the remainder of the dwelling unit.</p> <p>Common walls between dwelling units shall be sealed to prevent air exchanges through the wall. This includes sealing opposing electrical outlets in which air might flow through.</p>	
5. Indicate the areas of floor used for mandatory “Daylight Zone Control” per Section 505.2.2.3.	10
6. Calculations for heating and cooling equipment sizing in accordance with ASHRAE ACCA Standard 183, and reductions in accordance with the ASHRAE <i>HVAC Systems and Equipment Handbook</i> , is submitted with Energy Report	10
7. HVAC duct system is sized, designed, and installed in accordance with ACCA Manual D. Sizing calculations must be submitted with Energy Report.	5
Heat Island	
8. For buildings with over 5,000 sq.ft. footprint area, provide canopy coverage that, at maturity as determined by the Tree Ordinance, will provide shading for a minimum of 25% of the area on the same lot within 50’ of the structure. Shading over the roof top does not count.	15
Envelope	
9. Exceed the provisions of this code by 15%. Options:	
a. Use an approved program, the latest version based on 2009 IECC, report designating a score of 15% above code; or,	25
b. ASHRAE ComCheck, latest version based on 90.1-2007, report designating a score of 15% above code. (This option cannot be used in conjunction with options 10 or 11)	25

10. Implement energy efficiency features to achieve energy cost performance that exceeds this code. A documented analysis using software in accordance with Section 506.	
a. by 15%	30
b. by 30%	60
c. by 50%	100
d. by 60%	120
(This option cannot be used in conjunction with options 9 or 11)	
11. Reduce total building thermal envelop UA as follows:	
a. by 10%	15
b. by 20%	30
(Using Table 502.1.2)	
(This option cannot be used in conjunction with options 9 or 10)	
12. Exterior wall is a minimum 2 x 8 studs or double stud wall with minimum R-19 insulation.	10
13. Enhanced Fenestration (windows and doors) is installed to meet the following ratings: U-factor of 0.35 or less and SHGC of 0.25 or less (both required)	10
14. Glazing on walls that face less than 45 degrees of East and West compass points is limited to less than 5% of the total wall surface. Must be both walls.	5
15. All windows facing South, and within 45 degrees of south, have a Projection Factor of .40 or larger	5
16. A minimum of 90% of the roof surface is constructed of any one or combination of the following:	5
a. products that are in accordance with the Energy Star cool roof certification.	
b. a green (landscaped) roof system	
c. a solar reflective roof is installed that achieves a 3-year aged criteria of 0.50 or better. Documentation showing testing in accordance with ASTM C1549-04 and ASTM E1918-1997 must be submitted.	
17. Roofing material is installed with a minimum 0.75 inch (19 mm) continuous air space offset from the roof deck from eave to ridge.	5
18. Radiant barrier is installed in attic, under roof decking or over attic insulation	5
19. Attic ventilation is installed that provides air flow from lower attic (eaves) to and out upper attic (ridge vents or equivalent)	5
Mechanical	
20. Limit HVAC flex duct to only be used as last 5' of duct length.	35
21. All HVAC duct is installed within the Envelope or within a conditioned attic.	5
22. Except for bathrooms, kitchens, closets, pantries, and laundry rooms, return ducts or transfer grilles are installed in every room with a door.	5
23. Electric resistant heating is not used except for supplemental heating	15

associated with heat pumps.	
24. Install 7-day programmable thermostat	5
Plumbing	
25. Install water heaters, tank or tankless, in locations such that no hot water pipe run to fixture exceeds 40’.	5
26. Insulate all hot water piping, including under slab, with minimum of R-4. Insulation may be removed for the portion that penetrates the slab if another approved pipe wrapping is preferred by the installer/designer.	5
27. Solar Water heating system is installed for all or any portion of hot water supply.	5
28. Except for outside hose bibs using as short of pipe as needed, water piping is not installed in Envelope walls.	5
29. For buildings with roof area over 10,000 sq.ft., rain water harvesting methods are installed to provide for or supplement water usage as follows:	
a. landscape irrigation	5
b. toilet and urinal usage	5
Electrical	
30. Builder installs a minimum of 50% of the light bulbs in the light fixtures with high–efficacy lamps. Bulbs must be present at Final Inspection.	5
31. Each dwelling unit is served by an individual electrical meter, either utility meter or sub-meter.	5
32. Use of on-site renewable electrical generation with either solar or wind as follows:	
a. minimum of 10% of total electrical demand	15
b. 20% or more of total electrical demand	25
33. Automatic sensors are installed to control Daylight zones as required by Section 505.2.2.3.	15
Other	
Any Energy related item from other nationally recognized Sustainability or Green building program that is considered applicable and assigned a point grade as determined by the Building Official.	As determined by Building Official

SECTION 3.

Section 7-43 of the Code of the City of Fort Worth (1986) is amended to read as follows:

Sec. 7-43. Effect of conflict with other ordinances.

This article shall be cumulative of all provisions of ordinances of the Code of the City of Fort Worth, Texas (1986), affecting Energy Code provisions, as amended, and shall not repeal any of the provisions of such ordinances, except in those instances where provisions of such ordinances are in direct conflict with the provisions of this ordinance.

SECTION 4.

Section 7-44 of the Code of the City of Fort Worth (1986) is amended to read as follows:

Sec. 7-44. Penalty for violation.

Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine not to exceed Two Thousand Dollars (\$2,000.00) for all violations involving fire safety, or public health and sanitation and shall be fined not more than Five Hundred Dollars (\$500.00) for all other violations of this ordinance. Each day or any portion thereof during which any violation of this ordinance occurs or continues shall be deemed a separate offense and upon conviction thereof shall be punishable as herein provided.

SECTION 5.

This article shall be cumulative of all provisions of ordinances of the Code of the City of Fort Worth, Texas (1986), affecting Energy Code provisions, as amended, and shall not repeal any of the provisions of such ordinances, except in those instances where provisions of such ordinances are in direct conflict with the provisions of this ordinance.

SECTION 6.

It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses, and phrases of this ordinance are severable, and, if any phrase, clause, sentence, paragraph, or section of this ordinance shall be declared void,

ineffective, or unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such voidness, ineffectiveness, or unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this ordinance, since the same would have been enacted by the City Council without the incorporation in this ordinance of any such void, ineffective, or unconstitutional phrase, clause, sentence, paragraph, or section.

SECTION 7.

Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine not to exceed Two Thousand Dollars (\$2,000.00) for all violations involving fire safety, or public health and sanitation and shall be fined not more than Five Hundred Dollars (\$500.00) for all other violations of this ordinance. Each day or any portion thereof during which any violation of this ordinance occurs or continues shall be deemed a separate offense and upon conviction thereof shall be punishable as herein provided.

SECTION 8.

All rights and remedies of the City of Fort Worth, Texas are expressly saved as to any and all violations of the previous codes, or any other ordinances affecting construction and fire safety, which have accrued at the time of the effective date of this ordinance: and, as to such accrued violations and all pending litigation, both civil and criminal, whether pending in court or not, under such ordinances, same shall not be affected by this ordinance but may be prosecuted until final disposition by the courts.

SECTION 9.

A copy of the 2009 International Energy Conservation Code, together with the local amendments contained in this ordinance, shall be filed in the office of the City Secretary for permanent record and inspection.

SECTION 10.

The Department of Planning and Development of the City of Fort Worth, Texas, is hereby authorized to publish this ordinance in pamphlet form for general distribution among the public, and the operative provisions of this ordinance as so published shall be admissible in evidence in all courts without further proof than the production thereof, as provided in Chapter XXV, Section 3, of the Charter of the City of Fort Worth, Texas.

SECTION 11.

The City Secretary of the City of Fort Worth, is hereby directed to publish the caption and Sections 1, 7, 9, 11 and 12 of this ordinance for two (2) days in the official newspaper of the City of Fort Worth, Texas as authorized by Section 2, Chapter XXV of the Charter of the City of Fort Worth, Texas and by Section 52.013 (a) of the Texas Local Government Code.

SECTION 12.

This ordinance shall take effect upon April 1, 2011.

APPROVED AS TO FORM AND LEGALITY:

By: _____
Assistant City Attorney

Adopted: March 22, 2011

Effective: April 1, 2011

1-05-11