An ordinance amending Chapter 59, "Dallas Energy Conservation Code," of the Dallas City Code, as amended; adopting with certain changes the 2021 Edition of the International Energy Conservation Code of the International Code Council, Inc.; providing standards and requirements for the design and construction of energy-efficient buildings and spaces within the city; providing a penalty not to exceed $2,000; providing a saving clause; providing a severability clause; and providing an effective date.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DALLAS;

SECTION 1. That Chapter 59, "Dallas Energy Conservation Code," of the Dallas City Code, as amended, is amended by adopting the 2021 Edition of the International Energy Conservation Code of the International Code Council, Inc. (which is attached as Exhibit A and made a part of this ordinance), with the following amendments:


"C101.1 Title. This code shall be known as the Dallas Energy Conservation Code [of [NAME OF JURISDICTION]], and shall be cited as such. It is referred to herein as 'this code.'

C101.1.1 Additional administrative provisions. Except as otherwise specified in this chapter, all provisions of Chapter 52, 'Administrative Procedures for the Construction Codes of the City of Dallas' apply to this code."

“C102.1.2 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 code official, be considered in compliance. The United States Environmental Protection Agency's Energy Star Program certification of energy code equivalency shall be considered in compliance.”


“C402.5.2 Dwelling and sleeping unit enclosure testing. The building thermal envelope shall be tested in accordance with ASTM E779, ANSI/RESNET/ICC 380, ASTM E1827 or an equivalent method approved by the code official. The measured air leakage shall not exceed 0.30 cfm/ft² (1.5 L/s m²) of the testing unit enclosure area at a pressure differential of 0.2 inch water gauge (50 Pa). Where multiple dwelling units or sleeping units or other occupiable conditioned spaces are contained within one building thermal envelope, each unit shall be considered an individual testing unit, and the building air leakage shall be the weighted average of all testing unit results, weighted by each testing unit's enclosure area. Units shall be tested separately with an unguarded blower door test as follows:

1. Where buildings have fewer than eight testing units, each testing unit shall be tested.

2. For buildings with eight or more testing units, the greater of seven units or 20 percent of the testing units in the building shall be tested, including a top floor unit, a ground floor unit, a middle floor unit and a unit with the largest testing unit enclosure area. For each tested unit that exceeds the maximum air leakage rate, an additional three [two] units shall be tested, including a mixture of testing unit types and locations.”


“R101.1 Title. This code shall be known as the Dallas Energy Conservation Code [[of [NAME-OF-JURISDICTION]], and shall be cited as such. It is referred to herein as ‘this code.’

R101.1.1 Additional administrative provisions. Except as otherwise specified in this chapter, all provisions of Chapter 52, ‘Administrative Procedures for the Construction Codes of the City of Dallas apply to ‘this code.’”


“R102.1.2 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 code official, be considered in compliance. The United States Environmental Protection Agency's Energy Star Program certification of energy code equivalency shall be considered in compliance. Regardless of the program or the path to compliance, each one- and two-family dwelling shall be tested for air and duct leakage as prescribed in Section R402.4.1.2 (N1102.4.1.2) and R403.3.3 (N1103.3.3) respectively.”


“DYNAMIC GLAZING. Any fenestration product that has the fully reversible ability to change its performance properties, including U-factor, solar heat gain coefficient (SHGC), or visible transmittance (VT).”

PROJECTION FACTOR. The ratio of the horizontal depth of the overhang, eave or permanently attached shading device, divided by the distance measured vertically from the bottom of the fenestration glazing to the underside of the overhang, eave or permanently attached shading device.”


“R105.2 Required inspections. The code official or his or her designated agent, upon notification, shall make the inspections set forth in Sections R105.2.1 through R105.2.5.

R105.2.1 Footing and foundation inspection. Inspections associated with footings and foundations shall verify compliance with the code as to R-value, location, thickness, depth of burial and protection of insulation as required by the code and approved plans and specifications.

R105.2.2 Framing and air barrier rough-in inspection. Inspections at framing and rough-in shall be made before application of insulation [interior finish] and shall verify compliance with the code as to: types of insulation and corresponding R-values and their correct location and proper installation; fenestration properties such as U-factor and SHGC and proper installation; air leakage controls as required by the code; and approved plans and specifications.

R105.2.3 Insulation and fenestration rough-in inspection. Inspections at framing and rough-in shall be made before application of interior finish and shall verify compliance with the code as to: types of insulation and corresponding R-values and their correct location and proper installation; fenestration properties such as U-factor and SHGC and proper installation.

R105.2.4 Plumbing rough-in inspection. Inspections at plumbing rough-in shall verify compliance as required by the code and approved plans and specifications as to types of insulation and corresponding R-values and protection and required controls.

R105.2.5[4] Mechanical rough-in inspection. Inspections at mechanical rough-in shall verify compliance as required by the code and approved plans and specifications as to installed HVAC equipment type and size, required controls, system insulation and corresponding R-value, system air leakage control, programmable thermostats, dampers, whole-house ventilation, and minimum fan efficiency.

Exception: Systems serving multiple dwelling units shall be inspected in accordance with Section C105.2.4.

R105.2.6[5] Final inspection. The building shall have a final inspection and shall not be occupied until approved. The final inspection shall include verification of the installation of all required building systems, equipment and controls and their proper operation and the required number of high-efficacy lamps and fixtures.”

**R401.2.5 Additional energy efficiency.** Buildings shall be considered in compliance with this code and state law provided they comply with all of the following:

1. ANSI/RESNET/ICC Standard 301, as it existed on January 1, 2021;
2. The mandatory requirements of Section R406.2 of the 2018 International Energy Conservation Code; and
3. The building thermal envelope provisions of Table R402.1.2 or Table R402.1.4 of the 2018 International Energy Conservation Code.”


**“TABLE R402.1.2**

**MAXIMUM ASSEMBLY U-FACTORS* AND FENESTRATION REQUIREMENTS**

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>FENESTRATION U-FACTOR</th>
<th>SKYLIGHT U-FACTOR</th>
<th>GLAZED FENESTRATION SHGC</th>
<th>CEILING U-FACTOR</th>
<th>WOOD FRAME WALL U-FACTOR</th>
<th>MASS WALL U-FACTOR</th>
<th>FLOOR U-FACTOR</th>
<th>BASEMENT WALL U-FACTOR</th>
<th>CRAWL SPACE WALL U-FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.50</td>
<td>0.75</td>
<td>0.25</td>
<td>0.035</td>
<td>0.084</td>
<td>0.197</td>
<td>0.064</td>
<td>0.360</td>
<td>0.477</td>
</tr>
<tr>
<td>1</td>
<td>0.50</td>
<td>0.75</td>
<td>0.25</td>
<td>0.035</td>
<td>0.084</td>
<td>0.197</td>
<td>0.064</td>
<td>0.360</td>
<td>0.477</td>
</tr>
<tr>
<td>2</td>
<td>0.40</td>
<td>0.65</td>
<td>0.25</td>
<td>0.029</td>
<td>0.084</td>
<td>0.165</td>
<td>0.064</td>
<td>0.360</td>
<td>0.477</td>
</tr>
<tr>
<td>3</td>
<td>0.32 [0.30]</td>
<td>0.55</td>
<td>0.25</td>
<td>0.029</td>
<td>0.084</td>
<td>0.098</td>
<td>0.047</td>
<td>0.091†</td>
<td>0.136</td>
</tr>
<tr>
<td>4 except Marine</td>
<td>0.30</td>
<td>0.55</td>
<td>0.40</td>
<td>0.024</td>
<td>0.045</td>
<td>0.098</td>
<td>0.047</td>
<td>0.059</td>
<td>0.065</td>
</tr>
<tr>
<td>5 and Marine 4</td>
<td>0.30</td>
<td>0.55</td>
<td>0.40</td>
<td>0.024</td>
<td>0.045</td>
<td>0.082</td>
<td>0.033</td>
<td>0.050</td>
<td>0.055</td>
</tr>
<tr>
<td>6</td>
<td>0.30</td>
<td>0.55</td>
<td>NR</td>
<td>0.024</td>
<td>0.045</td>
<td>0.060</td>
<td>0.033</td>
<td>0.050</td>
<td>0.055</td>
</tr>
<tr>
<td>7 and 8</td>
<td>0.30</td>
<td>0.55</td>
<td>NR</td>
<td>0.024</td>
<td>0.045</td>
<td>0.057</td>
<td>0.028</td>
<td>0.050</td>
<td>0.055</td>
</tr>
</tbody>
</table>

For 1 ft = 304.8 mm.

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

b. Mass walls shall be in accordance with Section R402.2.5. Where more than half the insulation is on the interior, the mass wall U-factors shall not exceed 0.17 in Climate Zones 0 and 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.

c. In Warm Humid locations as defined by Figure R301.1 and Table R301.1, the basement wall U-factor shall not exceed 0.360.
d. The SHGC column applies to all glazed fenestration.

**Exception:** In Climate Zones 0 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such skylights does not exceed 0.30.

e. There are no SHGC requirements in the Marine Zone.

f. A maximum $U$-factor of 0.32 shall apply in Marine Climate Zone 4 and Climate Zones 5 through 8 to vertical fenestration products installed in buildings located either:
   1. Above 4,000 feet in elevation above sea level, or
   2. In windborne debris regions where protection of openings is required by Section R301.2.1.2 of the *Dallas One- and Two-Family Dwelling [International Residential Code]*.


**“TABLE R402.1.3
INSULATION MINIMUM $R$-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT”**

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>FENESTRATION $U$-FACTOR</th>
<th>SKYLIGHT* $U$-FACTOR</th>
<th>GLAZED FENESTRATION SHGC</th>
<th>CEILING $R$-VALUE</th>
<th>WOOD FRAME WALL $R$-VALUE</th>
<th>MASS WALL $R$-VALUE</th>
<th>FLOOR $R$-VALUE</th>
<th>BASEMENT WALL $R$-VALUE</th>
<th>SLAB &amp; DEPTH</th>
<th>CRAWL SPACE WALL $R$-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>NR</td>
<td>0.75</td>
<td>0.25</td>
<td>30</td>
<td>13 or 0&amp;10ci</td>
<td>3/4</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>NR</td>
<td>0.75</td>
<td>0.25</td>
<td>30</td>
<td>13 or 0&amp;10ci</td>
<td>3/4</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0.40</td>
<td>0.65</td>
<td>0.25</td>
<td>42 [49]</td>
<td>13 or 0&amp;10ci</td>
<td>4/6</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0.32 [0.36]</td>
<td>0.55</td>
<td>0.25</td>
<td>42 [49]</td>
<td>19 or 13+3ci or 0+15ci</td>
<td>8/13</td>
<td>19</td>
<td>5ci or 13</td>
<td>0[4ci, 2 ft]</td>
<td>5ci or 13f</td>
</tr>
<tr>
<td>4 except Marine</td>
<td>0.30</td>
<td>0.55</td>
<td>0.40</td>
<td>60</td>
<td>30 or 20&amp;5ci or 13+10ci or 0&amp;20ci</td>
<td>8/13</td>
<td>19</td>
<td>10ci or 13</td>
<td>10ci, 4 ft</td>
<td>10ci or 13</td>
</tr>
<tr>
<td>5 and Marine 4</td>
<td>0.30</td>
<td>0.55</td>
<td>0.40</td>
<td>60</td>
<td>30 or 20&amp;5ci or 13+10ci or 0&amp;20ci</td>
<td>13/17</td>
<td>30</td>
<td>15ci or 19 or 13 &amp; 5ci</td>
<td>10ci, 4 ft</td>
<td>15ci or 19 or 13 &amp; 5ci</td>
</tr>
<tr>
<td>6</td>
<td>0.30</td>
<td>0.55</td>
<td>NR</td>
<td>60</td>
<td>30 or 20&amp;5ci or 13+10ci or 0&amp;20ci</td>
<td>15/20</td>
<td>30</td>
<td>15ci or 19 or 13 &amp; 5ci</td>
<td>10ci, 4 ft</td>
<td>15ci or 19 or 13 &amp; 5ci</td>
</tr>
<tr>
<td>7 and 8</td>
<td>0.30</td>
<td>0.55</td>
<td>NR</td>
<td>60</td>
<td>30 or 20&amp;5ci or 13+10ci or 0&amp;20ci</td>
<td>19/21</td>
<td>38</td>
<td>15ci or 19 or 13 &amp; 5ci</td>
<td>10ci, 4 ft</td>
<td>15ci or 19 or 13 &amp; 5ci</td>
</tr>
</tbody>
</table>

For SI: 1 foot = 304.8 mm.

NR = Not Required
ci – continuous insulation

a. R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R-value of the insulation shall be not less than the R-value specified in the table.

b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.

Exception: In Climate Zones 0 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such skylights does not exceed 0.30

c. "5ci or 13" means R-5 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "10ci or 13" means R-10 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "15ci or 19 or 13&5ci" means R-15 continuous insulation (ci) on the interior or exterior surface of the wall; or R-19 cavity insulation on the interior side of the wall; or R-13 cavity insulation on the interior of the wall in addition to R-5 continuous insulation on the interior or exterior surface of the wall.

d. R-5 insulation shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation R-value for slabs. as indicated in the table. The slab-edge insulation for heated slabs shall not be required to extend below the slab.

e. There are no SHGC requirements in the Marine Zone.

f. Basement wall insulation is not required in Warm Humid locations as defined by Figure R301.1 and Table R301.1.

g. The first value is cavity insulation; the second value is continuous insulation. Therefore, as an example, "13&5" means R-13 cavity insulation plus R-5 continuous insulation.

h. Mass walls shall be in accordance with Section R402.2.5. The second R-value applies where more than half of the insulation is on the interior of the mass wall.

i. A maximum U-factor of 0.32 shall apply in Climate Zones 3 through 8 to vertical fenestration products installed in buildings located either:
   1. Above 4,000 feet in elevation, or
   2. In windborne debris regions where protection of openings is required by Section R301.2.1.2 of the Dallas One- and Two-Family Dwelling [International Residential Code]."


“R402.4.1.4 Sampling options for R2 multifamily dwelling units. For buildings with eight or more testing units that must be tested as required by R402.4.1.2 or R402.4.1.3, the greater of seven units or 20 percent of the testing units in the building shall be tested, including a top floor unit, a ground floor unit, a middle floor unit, and a unit with the largest testing unit enclosure area. For each tested unit that exceeds the maximum air leakage rate, an additional three units shall be tested, including a mixture of testing unit types and locations. Where buildings have fewer than eight testing units, each testing unit shall be tested.”

“R402.4.6 Electrical and communication outlet boxes (air-sealed boxes). Electrical and communication outlet boxes installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. [Electrical and communication outlet boxes shall be tested in accordance with NEMA OS 4, Requirements for Air-Sealed Boxes for Electrical and Communication Applications, and shall have an air leakage rate of not greater than 2.0 cubic feet per minute (0.944 L/s) at a pressure differential of 1.57 psf (75 Pa). Electrical and communication outlet boxes shall be marked “NEMA OS 4” or “OS 4” in accordance with NEMA OS 4. Electrical and communication outlet boxes shall be installed per the manufacturer’s instructions and with any supplied components required to achieve compliance with NEMA OS 4.]”


“R403.3.8 Sampling options for R2 multifamily dwelling units. For buildings with eight or more testing units that must be tested as required by R403.3.5, the greater of seven units or 20 percent of the testing units in the building shall be tested, including a top floor unit, a ground floor unit, a middle floor unit, and a unit with the largest testing unit floor area. For each tested unit that exceeds the maximum duct leakage rate, an additional three units shall be tested, including a mixture of testing unit types and locations. Where buildings have fewer than eight testing units, each testing unit shall be tested.”


“R403.6.4 Sampling options for R2 multifamily dwelling units. For buildings with eight or more testing units that must be tested as required by R403.6.3, the greater of seven units or 20 percent of the testing units in the building shall be tested, including a top floor unit, a ground floor unit, a middle floor unit, and a unit with the largest testing unit floor area. For each tested unit that does not meet the minimum ventilation rate, an additional three units shall be tested, including a mixture of testing unit types and locations. Where buildings have fewer than eight testing units, each testing unit shall be tested.”


“R405.2 Performance-based compliance. Compliance based on total building performance requires that a proposed design meets all of the following:

1. The requirements of the sections indicated within Table R405.2.

2. The building thermal envelope greater than or equal to levels of efficiency and solar heat gain coefficients in Table R402.1.1 or R402.1.3 of the 2009 International Energy Conservation Code.

3. An annual energy cost that is less than or equal to the annual energy cost of the 2021 standard reference design or 8 percent less than the annual energy cost of the 2018 standard reference design. Energy prices shall be taken from a source approved by the code official, such as the Department of Energy, Energy Information Administration’s State Energy Data System Prices and Expenditures reports. Code officials shall be permitted to require time-of-use pricing in energy cost calculations.

Exception: The energy use based on source energy expressed in Btu or Btu per square foot of conditioned floor area shall be permitted to be substituted for the energy cost. The source energy multiplier for electricity shall be 3.16. The source energy multiplier for fuels other than electricity shall be 1.1.”


"TABLE R406.5\(^1\)
MAXIMUM ENERGY RATING INDEX

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>ENERGY RATING INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>63</td>
</tr>
<tr>
<td>3</td>
<td>63</td>
</tr>
</tbody>
</table>

\(^1\)This table is effective until August 31, 2022.

"TABLE R406.5\(^2\)
MAXIMUM ENERGY RATING INDEX

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>ENERGY RATING INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>59</td>
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<tr>
<td>3</td>
<td>59</td>
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</table>

\(^2\)The table is effective from September 1, 2022 to August 31, 2025.
TABLE R406.5³
MAXIMUM ENERGY RATING INDEX

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>ENERGY RATING INDEX</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>57</td>
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<tr>
<td>3</td>
<td>57</td>
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</table>

³ The table is effective from September 1, 2025 to August 31, 2028.

TABLE R406.5⁴
MAXIMUM ENERGY RATING INDEX

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>ENERGY RATING INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>3</td>
<td>55</td>
</tr>
</tbody>
</table>

⁴ This table is effective on or after September 1, 2028.


21. All chapters of the 2021 International Energy Conservation Code adopted by this ordinance are subchapters of Chapter 59 of the Dallas City Code, as amended.

22. All references in the 2021 International Energy Conservation Code to the fire code, building code, plumbing code, mechanical code, electrical code, residential code, existing building code, fuel gas code, green construction code, and swimming pool and spa code refer, respectively, to Chapters 16, 53, 54, 55, 56, 57, 58, 60, 61, and 62 of the Dallas City Code.

SECTION 2. That a person violating a provision of this ordinance, upon conviction, is punishable by a fine not to exceed $2,000. No offense committed and no liability, penalty, or forfeiture, either civil or criminal, incurred prior to the effective date of this ordinance will be discharged or affected by this ordinance. Prosecutions and suits for such offenses, liabilities, penalties, and forfeitures may be instituted, and causes of action pending on the effective date of this ordinance may proceed, as if the former laws applicable at the time the offense, liability, penalty, or forfeiture was committed or incurred had not been amended, repealed, reenacted, or superseded, and all former laws will continue in effect for these purposes.
SECTION 3. That Chapter 59 of the Dallas City Code, as amended, will remain in full force and effect, save and except as amended by this ordinance. If any provision contained in Chapters 16, 52, 53, 54, 55, 56, 57, 58, 60, 61, or 62 relating to energy conservation work in the city is in conflict with any provision of Chapter 59, as adopted by this ordinance, the provisions of Chapter 59 will prevail, except that any existing structure, system, development project, or registration that is not required to come into compliance with a requirement of this ordinance will be governed by the requirement as it existed in the former law last applicable to the structure, system, development project, or registration, and all former laws will continue in effect for this purpose.

SECTION 4. That the terms and provisions of this ordinance are severable and are governed by Section 1-4 of Chapter 1 of the Dallas City Code, as amended.

SECTION 5. That this ordinance will take effect on May 12, 2023, and it is accordingly so ordained.

APPROVED AS TO FORM:

TAMMY L. PALOMINO, Interim City Attorney

By Assistant City Attorney

Passed APR 12 2023
The legal advertisement required for the noted ordinance was published in the Dallas Morning News, the official newspaper of the city, as required by law, and the Dallas City Charter, Chapter XVIII, Section 7.

DATE ADOPTED BY CITY COUNCIL

APR 12 2023

ORDINANCE NUMBER

32425

DATE PUBLISHED

APR 15 2023

ATTESTED BY: