

ORDINANCE NO. 1816

AN ORDINANCE ADOPTING BY REFERENCE THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, REPEALING CHAPTER 15.60 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE PRESCRIPTIVE ENERGY CODE AND DESIGN CRITERIA, AND AMENDING TITLE 17 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

WHEREAS, the City Council has adopted from time to time certain building and construction standards; and

WHEREAS, it is deemed to be in the interest of the public health, safety and general welfare to adopt by reference thereto the 2021 edition of the International Energy Conservation Code; and

WHEREAS, the City of Louisville remains committed to its adopted goals to reduce energy consumption, increase clean energy sources, and support the transition to a low-carbon community as outlined in the Sustainability Action Plan and Resolution 25, Series 2019, “A Resolution Setting Clean Energy and Carbon Reduction Goals”; and

WHEREAS, reducing building energy consumption is an effective strategy to reduce community-wide energy consumption and increase long-term cost savings for residents and businesses; and

WHEREAS, the City Council desires to add requirements for solar readiness, electric vehicle charging infrastructure, and building electrification to build a more resilient building stock and support future building and transportation electrification efforts pursued by residents and businesses; and

WHEREAS, the City Council, after proper notice as required by law, has held a public hearing on this ordinance providing for the adoption of said codes; and

WHEREAS, the 2021 edition of the International Energy Conservation Code has been submitted to the City Council in writing and the City Council has determined that such codes should be adopted as herein set forth.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 1. Chapter 15.18 of the Louisville Municipal Code is hereby repealed and reenacted to read as follows:

INTERNATIONAL ENERGY CONSERVATION CODE

Sec. 15.18.010. Adoption.

Sec. 15.18.020. Appendices adopted.

Sec. 15.18.030. Amendments and Deletions to the 2021 International Energy Conservation Code.

Sec. 15.18.040. Design criteria.

Sec. 15.18.050. Applicability.

Sec. 15.18.060. Copies available.

Sec. 15.18.070. Violations and penalties.

Sec. 15.18.010. - Adoption.

The International Energy Conservation Code, 2021 Edition, published by the International Code Council, 4051 West Flossmoor Road, Country Club Hills, Illinois, 60478-5795, is hereby adopted by reference thereto and incorporated into and made a part of the Louisville Municipal Code. The subject matter of the International Energy Conservation Code is to regulate and govern energy efficient building envelopes and the installation of energy efficient mechanical, lighting and power systems in the City of Louisville, and to provide for the issuance of permits and collection of fees therefor. The International Energy Conservation Code, 2021 Edition, is adopted as amended by the City, including the outline table of contents and index, for the minimum requirements for minimum energy efficiency.

Sec. 15.18.20. Appendices adopted.

The following appendices of the 2021 International Energy Conservation Code are hereby specifically adopted; any appendices not listed are not adopted: Appendix RC, Zero Energy Residential Building Provisions, Appendix CB, Solar Ready Zone – Commercial and Appendix RB, Solar Ready Provisions – Detached One and Two-Family Dwellings and Townhouses. Group R2, R3, and R4, three stories or less shall comply with Appendix RB.

Sec. 15.18.030. - Amendments and Deletions to the 2021 International Energy Conservation Code

The 2021 International Energy Conservation Code adopted in Section 15.18.010 is hereby amended in the following respects. An ellipsis (...) indicates when the remainder of a section of the 2021 International Energy Conservation Code is to remain unchanged and in full force and effect.

1. **Section C101.1 Title**, is amended to insert "the City of Louisville" so the section will read:

C101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville, and shall be cited as such. It is referred to herein as "this code."

2. **Section C103.2 Information on construction documents**, is hereby amended to read as follows:

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documented are permitted to be submitted when *approved* by the *code official*. 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 herein governed. Details shall include the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values
3. Fenestration *U*-factor and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.
7. Economizer description.
8. Equipment and system controls.
9. Fan motor horsepower (hp) and controls.
10. Duct sealing, duct and pipe insulation and location.
11. Lighting fixture schedule with wattage and control narrative.
12. Location and *daylight* zones on floor plans.
13. Air barrier and air sealing details, including the location of the air barrier.
14. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.

3. **Section C202 General Definitions**, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: A building that contains no combustion equipment, or plumbing for combustion equipment, installed within the building or building site.

Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

Electric Vehicle (EV): A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.

Electric Vehicle Supply Equipment (EVSE): The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.

Electric Vehicle Capable Space: A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1” in size. Conduit must be continuous from the future or existing electrical panelboard or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as “For future electric vehicle charging”.

Electric Vehicle Ready Space: A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panelboard or switchboard to meet the electric vehicle requirements.

Electric Vehicle Supply Equipment (EVSE) Installed Space: A designated parking space with dedicated electric vehicle supply equipment capable of supplying a minimum 40-amp, dedicated circuit rated at 208/240 Volt from a building electrical panelboard.

4. ***Section C401.2 Application,*** is hereby amended to read as follows:

C401.2 Application

Commercial buildings shall comply with Section C401.2.1

5. ***Section C401.2.1 International Energy Conservation Code,*** is hereby deleted and replaced to read as follows:

C401.2.1 International Energy Conservation Code

Commercial buildings shall be built all-electric unless the fuel gas options of C403.3.2 and the additional electric infrastructure requirements of C405.14 are met. All buildings must comply with the following:

City of Louisville’s Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C401.3, C401.4, C402 through C406, and Section C408.

Core and shell buildings shall be required to comply with the provisions of Section C402.1.3 through C402.5 of the 2021 International Energy Conservation Code.

- 6. *Section C401.2.2 ASHRAE 90.1*, is hereby deleted in its entirety.
- 7. A new *Section C401.4 Mandatory Requirements for Commercial Buildings*, is hereby added to read as follows:

C401.4 Mandatory Requirements for Commercial Buildings.
Commercial buildings must comply with Table C401.4.

**Table C401.4 (Mandatory)
Requirements for Commercial Buildings**

Title	IECC Section
Air leakage	C402.5
Calculation of heating and cooling loads	C403.1.1
Data centers	C403.1.2
System Design	C403.2
Heating and cooling equipment efficiency	C403.3
Heating and cooling system controls	C403.4, except C403.4.3, C403.4.4, C403.4.5
Economizer fault detection and diagnostics	C403.5.5
Ventilation and exhaust systems	C403.7, except C403.7.4.1
Fan and fan controls	C403.8, except C403.8.6
Large diameter ceiling fans	C403.9
Refrigeration equipment performance	C403.11, except C403.11.3
Construction of HVAC system elements	C403.12
Mechanical systems located outside of the building thermal envelope	C403.13
Service water heating	C404
Electrical power and lighting systems	C405, except C405.3
Maintenance information and system commissioning	C408

- 8. *Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements, R-Value Method*, is hereby deleted and replaced with the following:

Table C402.1.3 (Mandatory)
Opaque Thermal Envelope Insulation Component of an Average Minimum Requirements, R-Value Method in following locations:

Roof C402.2.1	
Insulation entirely above roof deck	R-49
Metal buildings ^a	R-21 + R-11 LS
Attic and other	R-49
Walls. Above grade C402.2.2	
Mass ^d	R-21
Metal buildings	R-21
Metal framed	R-21
Wood framed and other	R-21
Walls, Below grade C402.2.5	
Below-grade wall ^b	R-10
Floors C402.2.3	
Mass ^c	R-21
Joist/framing	R-38
Slab-on-grade floors C402.2.4	
Unheated	R-20 for 24"
Heated ^e	R-15 for 36" below + R-5 full slab

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 4.88 kg/m², 1 pound per cubic foot = 16 kg/m³.
 NR = No Requirement, LS = Liner System.

- a. Where using R-value compliance method, a thermal spacer block shall be provided,
- b. Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.
- c. "Mass floors" shall be in accordance with Section C402.2.3.
- d. "Mass walls" shall be in accordance with Section C402.2.2.
- e. The first value is for perimeter insulation and the second value is for full, under-slab insulation.

9. *Section C402.1.4 Assembly U-factor, C-factor or F-factor-based method,* is hereby deleted in its entirety.

10. *Section C402.1.5 Component performance alternative,* is hereby deleted in its entirety.

11. *Table C402.4 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements,* is hereby deleted and replaced with the following:

Table C402.4	
Building Envelope Fenestration	
Vertical Fenestration	
Maximum U-Factor	0.30

Maximum SHGC	0.33
Maximum Air leakage rate for all fenestration except curtain walls and storefront glazing	.20 cfm/ft ²
Maximum air leakage rate for curtain walls and storefront glazing	.06 cfm/ft
Skylights	
Maximum U-Factor	0.50
Maximum SHGC	0.40
Maximum Air leakage rate	.20 cfm/ft ²

12. *Section C402.4.1 Maximum area*, is hereby deleted and replaced with the following:

C402.4.1 Minimum area of natural lighting. Not less than eight percent of the floor area shall be glazed.

13. *Section C402.4.2 Minimum skylight fenestration area*, is hereby deleted and replaced with the following:

C402.4.2 Minimum area of natural lighting. A minimum skylight area of three percent of the roof area shall be provided for all roofs.

Exception: Roof areas designated for solar ready zones shall not be included in roof area calculation.

14. *Section C403.3.2 HVAC equipment performance requirements*, is hereby deleted in its entirety and replaced to read as follows:

C403.3.2 HVAC/fuel fired equipment performance requirements. Unless built all-electric, all new combustion equipment shall comply with the more efficient HVAC equipment performance of Sections C406.2, C406.2.3, and C406.2.4 and the additional electric infrastructure requirements in Section C405.14. A mechanical compliance certificate demonstrating compliance with section C406.2.3 and/or C406.2.4 shall be required for all HVAC, fuel fired and Service Water Heating equipment.

The efficiency shall be verified through certification under an approved certification program or, where a certification program does not exist, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

(Tables C403.2.(1) through (16) are expressly retained and remain applicable to HVAC equipment performance.)

Exceptions:

1. Factory, laboratory, and high hazard occupancy combustion equipment, except for HVAC and domestic water heating.
2. Commercial Kitchens.
3. Other combustion equipment approved by the Building Official based on demonstration by the applicant that compliance with this section is not feasible and the equipment proposed is the most efficient appliance reasonably available.

15. *Section C403.4.1 Thermostatic controls*, is hereby deleted and replaced with the following:

C403.4.1 Thermostatic controls. The supply of heating and cooling energy to each *zone* shall be controlled by individual thermostatic controls capable of responding to temperature within the *zone*. Where humidification or dehumidification or both is provided, no fewer than one humidity control device shall be provided for each humidity control system. Occupancy sensors shall be provided on the thermostat to setback in accordance with C403.4.2.1

Exception: Independent perimeter systems that are designed to offset only building envelope heat losses, gains or both serving one or more perimeter *zones* also served by an interior system provided that both of the following conditions are met:

1. The perimeter system includes not fewer than one thermostatic control *zone* for each building exposure having exterior walls facing only one orientation (within ± 45 degrees) (0.8 rad) for more than 50 contiguous feet (15 240 mm).
2. The perimeter system heating and cooling supply is controlled by thermostats located within the *zones* served by the system.

16. *Section C403.12.1 Duct and plenum insulation and sealing*, is hereby deleted and replaced with the following:

C403.12.1 Duct and plenum insulation and sealing. All supply and return air ducts and plenums shall be insulated with not less than R-12. Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the International Mechanical Code.

17. *Section C403.12.3 Piping insulation*, is hereby amended to read as follows:

C403.12.3 Piping insulation. Piping serving as part of a heating or cooling system shall be thermally insulated to R-5.

18. **Section C404.4 Insulation of piping**, is hereby amended to read as follows:

C404.4 Insulation of piping. Piping from a water heater to the termination of the heated water fixture supply pipe shall be insulated to R-3. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438 mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated to R-3 or the heat trace manufacturer's instructions.

19. **Section C405.2.1 Occupant sensor controls**, is hereby amended to read as follows:

C405.2.1 Occupant sensor controls. Occupant *sensor controls* shall be installed to control lighting.

20. **Section C405.2.2 Time-switch controls**, is hereby deleted in its entirety.

21. **Section C405.2.2.1 Time-switch control function**, is hereby deleted in its entirety.

22. **Section C405.2.3 Light-reduction controls**, is renumbered to C405.2.2.

23. **Section C405.2.3.1 Light-reduction function**, is renumbered to C405.2.2.1.

24. **Section C405.2.4 Daylight-responsive controls**, is renumbered to C405.2.3.

25. **Section C405.2.4.1 Daylight-responsive control function**, is renumbered to C405.2.3.1.

26. **Section C405.2.4.2 Sidelit daylight zone**, is renumbered to C405.2.3.2.

27. **Section C405.2.4.3 Toplit daylight zone**, is renumbered to C405.2.3.3.

28. **Section C405.2.4.4 Atriums**, is renumbered to C405.2.3.4.

29. **Section C405.2.5 Specific application controls**, is renumbered to C405.2.4.

30. **Section C405.2.6 Manual controls**, is renumbered to C405.2.5.

31. **Section C405.2.7 Exterior lighting controls**, is renumber to C405.2.6.

32. **Section C405.2.7.1 Daylight shut off**, is renumbered to C405.2.6.1.

33. *Section C405.2.7.2 Building façade and landscape lighting*, is renumbered to C405.2.6.2.

34. *Section C405.2.7.3 Lighting setback*, is renumbered to C405.2.6.3.

35. *Section C405.2.7.4 Exterior time-switch control function*, is renumbered to C405.2.6.4.

36. *Section C405.2.8 Parking garage lighting control*, is renumbered to C405.2.7.

37. *Section C405.4.3 Gas lighting*, is hereby amended to read as follows:

C405.4.3 Gas lighting. Gas-fired lighting appliances shall not be permitted.

38. A new *Section C405.13 Electric vehicle charging infrastructure for new construction and building addition of 25% or more of original square footage*, is hereby added to read as follows:

Section C405.13.1 Electric vehicle charging infrastructure for new construction and building addition of 25% or more of original square footage. Electric vehicle charging shall be provided and installed in accordance with this section, National Electrical Code (NFPA 70), and Section 17.20.170 of the Louisville Municipal Code. When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement. All *EVSE Installed*, *EV Ready* and *EV Capable* spaces are to be included in the calculation for the number of minimum vehicle spaces required, as provided by the applicable article of the Louisville Zoning Code.

Section C405.13.2 Identification. The circuit breakers or circuit breaker spaces reserved for the *EVSE Installed*, *EV Ready*, and *EV Capable* spaces shall be clearly identified in the panelboard directory. The conduit for electric vehicle capable spaces shall be clearly identified at both the panelboard and the termination point at the parking space.

39. A new *Section C405.14 Additional electric infrastructure*, is hereby added to read as follows:

Section C405.14 Additional electric infrastructure. All *combustion equipment* and end-uses shall be installed in accordance with this section.

C405.14.1 Electric infrastructure for dwelling and sleeping units. *Combustion equipment* and end-uses serving individual dwelling units or sleeping units shall comply with Section R404.5.

C405.14.2 Combustion equipment. *Combustion equipment* shall be provided with conduit that is continuous between a junction box located within 3 feet (914 mm) of the appliance or equipment and an electrical panel. The junction box, conduit and bus bar in the electrical panel shall be rated and sized to accommodate a branch circuit with sufficient capacity for an equivalent electric appliance, equipment or end use with an equivalent equipment capacity. The electrical junction box and electrical panel shall have labels stating, "For Future Electric Equipment".

Exception: Industrial and manufacturing uses are exempt from Section C405.14.

40. **Section C505.1 General**, is hereby amended to read as follows:

C505.1 General. Where the use in a space changes from one use in Table C405.3.2(1) or C405.3.2(2) to another use in Table C405.3.2(1) or C405.3.2(2), the installed lighting wattage shall comply with Section C405.3. Where the space undergoing a change in occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided that there is not an increase in fenestration area.

Exception: Egress doors with fenestration are allowed to bring total fenestration percentages over the allowed maximum amount of vertical fenestration.

41. **Section R101.1 Title**, is amended to insert "the City of Louisville" so the section will read:

R101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville and shall be cited as such. It is referred to herein as "this code."

42. **Section R103.2 Information on construction documents**, is amended to read as follows:

R103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documented are permitted to be submitted when *approved* by the *code official*. 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 herein governed. Details shall include the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values

3. Fenestration *U*-factor and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.
7. Equipment and system controls.
8. Duct sealing, duct and pipe insulation and location.
9. Air sealing detail.
10. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.

43. **Section R202 General Definitions**, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: A building that contains no combustion equipment, or plumbing for combustion equipment, installed within the building or building site.

Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

Electric Vehicle (EV): A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.

Electric Vehicle Supply Equipment (EVSE): The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.

Electric Vehicle Capable Space: A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1” in size. Conduit must be continuous from the future or existing electrical panel board or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as “For future electric vehicle charging”.

Electric Vehicle Ready Space: A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or

an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panel board or switchboard to meet the electric vehicle requirements.

44. *Section R401.2 Application*, is hereby deleted and replaced with the following:

R401.2 Application. Residential buildings shall be built all-electric unless the fuel gas options of R403.7 and additional electric infrastructure requirements of R404.5 are met. All residential buildings shall comply with the R401.2.1 City of Louisville’s Prescriptive Compliance or R406 Energy Rating Index with a maximum rating index of 50 before the installation of solar panels.

Exception: Additions, alterations, repairs and changes of occupancy to existing buildings complying with Chapter 5.

45. *Section R401.2.1 Prescriptive Compliance Option*, is hereby deleted and replaced with the following:

R401.2.1 City of Louisville’s Prescriptive Compliance. The City of Louisville’s Prescriptive compliance requires compliance with Sections R401 through R404.

46. *Section R401.2.2 Total Building Performance Option*, is hereby deleted in its entirety.

47. *Section R401.2.4 Tropical Climate Region*, is hereby deleted in its entirety.

48. *Section R401.2.5 Additional Energy Efficiency*, is hereby amended to read as follows:

Section R401.2.5 Additional Energy Efficiency. Building shall comply with one of the additional efficiency options and shall be installed in according to Section R408.2.

49. A new *Section R401.4 Mandatory requirements for residential buildings*, is hereby added to read as follows:

R401.3 Mandatory requirements for residential buildings. Residential building must comply with the following sections from the 2021 International Energy Conservation Code.

Table R401.3
Mandatory requirements for residential buildings

Title	IECC Section
Vapor retarder	R402.1.1

Eave baffle	R402.2.3
Access hatches and doors	R402.2.4.1
Crawl space wall insulation	R402.4.1.2
Maximum fenestration U-factor and SHGC	R402.5
Mechanical Controls	R403.1
Ducts	R403.3 except R403.3.2, R403.3.3, and R403.6
Mechanical system piping insulation	R403.4
Heated water circulation and temperature maintenance systems	R403.5.1
Drain Water heat recovery units	R403.5.3
Mechanical ventilation	R403.6 including E403.6.1
Equipment sizing and efficiency rating	R403.7
Systems serving multiple dwelling units	R403.8
Snow melt and ice systems	R403.9
Energy consumption of pools and spas	R403.10
Portable spas	R403.11
Residential pools and permanent residential spas	R403.12
Lighting equipment	R404.1
Interior lighting controls	R404.2

50. **Section R402.1 General**, is hereby amended to read as follows:

R402.1 General. The building thermal envelope shall comply with the requirements of Section R402.1.1 and R402.1.2.

51. **Section R402.1.2 Insulation and fenestration**, is hereby deleted and replaced with the following:

R402.1.2 Insulation and fenestration. Assemblies shall have R-value of insulation materials equal to or greater than that specified in Table R402.1.2 unless an alternative path is specified while using HERS energy rating index of 50.

**Table R402.1.2
Average Insulation and Fenestration Requirements by Component**

Roof	R-60
Above grade walls	R-21
Below grade walls	R-21
Floors	R-38
Non heated slab on grade	R-10 for 4ft

Heated slab on grade^a	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40

a. The first value is for perimeter insulation and the second value is for full, under-slab insulation.

52. *Section R402.1.5 Total UA alternative*, is hereby deleted in its entirety.
53. *Section R402.3.3 Glazed fenestration exemption*, is hereby amended to read as follows:
- R402.3.3 Glazed fenestration exemption.** Not greater than 15 square feet (1.4 m²) of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements in Section R402.1.2.
54. *Section R402.4.1.2 Testing*, is hereby deleted and replaced to read as follows:
- Section R402.4.1.2 Testing.** All new buildings or dwelling units that are heated or cooled, and additions over 500 square feet shall be tested for air leakage.
55. *Section R402.5 Maximum fenestration U-factor and SHGC*, is hereby deleted and replaced with the following:
- Section R402.5 Maximum fenestration U-factor and SHGC.** The maximum U-factor and solar heat gain coefficient (SHGC) for fenestration shall not be required in storm shelters complying with ICC 500.
56. *Section R403.3.1 Ducts located outside conditioned space*, is hereby deleted and replaced with the following:
- R403.3.1 Ducts located outside conditioned space.** All supply and return ducts shall be insulated to a minimum R-8 if located outside a conditioned space.
57. *Section R403.5.2 Hot water pipe insulation*, is hereby deleted and replaced with the following:
- R403.5.2 Hot water pipe insulation.** All service hot water piping shall be insulated to a minimum R-5.

58. *Section R403.6.1 Heat and recovery ventilation*, is hereby deleted and replaced in its entirety and the following is hereby added in lieu thereof:

R403.5.2 Heat and recovery ventilation. All new buildings and additions over 500 square feet shall be provided with a heat recovery or energy recovery ventilation system. The system shall be balanced with a minimum sensible heat recovery efficiency of 65 percent at 32°F (0°C) at a flow greater than or equal to the design airflow.

59. *Section R403.7 Equipment sizing and efficiency rating*, is hereby deleted and replaced with the following:

R403.7 Equipment sizing and efficiency rating. All new buildings and additions greater than 500 square feet with heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. In addition to complying with Sec. R404.6 Additional Electric Infrastructure, new and replacement electrical heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed. New gas heating equipment shall comply with the following efficiencies:

1. Gas furnaces shall have a minimum of 96% efficiency.
2. Gas boilers shall have a minimum of 90% AFUE.
3. On demand water heaters shall have greater than .92 uniform energy factor.

Exception: Solid fuel stoves/gas fireplaces, outdoor fire pits, gas stoves and ovens.

60. *Section R404.1.1 Fuel gas lighting equipment*, is hereby amended to read as follows:

R404.1.1 Fuel gas lighting equipment. Fuel gas lighting systems shall not be installed.

61. A new *Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage*, is hereby added to read as follows:

Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage. Electric infrastructure for the current and future charging of *electric vehicles* shall be installed in accordance with this section per Section 17.20.170 of the Louisville Municipal Code. *EV ready spaces and EV*

capable spaces are permitted to be counted toward meeting minimum parking requirements.

R404.4.1 One- and two- family dwellings and townhouses. One- and two-family dwellings and townhouses with a dedicated attached or detached garage or on-site parking spaces shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.

R404.4.1.1 Minimum EV Ready infrastructure. Minimum EV Ready Space infrastructure shall require the following:

1. Installation of conductors:
 - a. Conductors shall be installed of sufficient size to accommodate a minimum 240VAC 40Amp branch circuit to each parking space where required.
 - b. Conductors shall terminate in either a receptacle, plug, junction or outlet box, or an *EVSE* installed in the parking space.
2. The electrical panel directory shall designate the branch circuit as “EV Ready” and the junction box or receptacle shall be labelled “EV Ready.”

R404.4.1.2 Construction documents. Construction documents shall graphically indicate and label all EV ready spaces and associated termination locations. For all Townhouses and one- and two-family dwellings with an electrical utility service 200 Amps or greater, a panelboard schedule shall be provided indicating the EV Ready circuit breaker space(s) and the circuit designation(s).

R404.4.2 Group R occupancies. Group-R occupancies (R-2, R-3, and R-4 buildings three stories and less) with three or more dwelling units and/or sleeping units shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.

Electric vehicle charging shall be provided and installed in accordance with this section and the National Electrical Code (NFPA 70). When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement.

62. A new **Section R404.5 Additional electric infrastructure**, is hereby added to read as follows:

R404.5 Additional electric infrastructure. *Combustion equipment* shall be installed in accordance with this section.

R404.5.1 Combustion equipment and end-uses. *Combustion equipment* shall be provided with a dedicated, appropriately phased circuit that shall have a minimum amperage requirement for a comparable electric appliance, equipment or end use, an electrical receptacle or junction box that is connected to the electric panel, and conductors of adequate capacity within 6 feet (1829 mm) of the appliance or equipment.

Each such circuit shall be accessible with no obstructions. A reserved circuit breaker space shall be installed in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled for each circuit. Both ends of the unused conductor or conduit shall be labeled “For Future Electric Equipment” and be electrically isolated.

- 63. *Section R405 Total building performance*, is deleted in its entirety.
- 64. *Section R406.3 Building thermal envelope*, is hereby deleted and replaced with the following:

R406.3 Building thermal envelope. Building and portions thereof shall comply with Table R406.3.

**Table R406.3
Average of the Insulation and Fenestration Requirements by Component**

Roof	R-60
Above grade walls	R-21
Below grade walls	R-21
Floors	R-38
Non heated slab on grade	R-10 for 4ft
Heated slab on grade	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40

- 65. *Section R406.3.1 On-site renewables are not included*, is deleted in its entirety.

66. *Section R406.3.2 On-site renewables are included*, is deleted in its entirety.
67. *Section R406.3.2 Tropical Climate Region Compliance Path*, is deleted in its entirety.
68. *Section R505.1 General*, is hereby amended to remove the exception.
69. *Section R505.1.1 Unconditioned space*, is hereby deleted and replaced with the following:

R505.1.1 Unconditioned space. Any unconditioned or low-energy space that is altered to become a conditioned space shall comply with Section R503.

Sec.15.18.040. – Design criteria.

All new heated commercial and residential heated structures shall meet the following design criteria:

1. Non-reducible roof snow load: 30 pounds per square foot.
2. Wind speed:
 - a. 145 miles per hour three second gust ASCE-7-10;
 - b. ASTM D3161 test with Class F Application.
3. Wind exposure: “C”, unless in the opinion of the Chief Building Official greater restrictions are needed to protect public safety.
4. Seismic zone: B.
5. Frost line depth: 36 inches below finished grade.
6. Weathering: Severe – Climate Zone 5B.
7. Termite: Slight.
8. Decay: Slight.
9. Winter design temperature: one degree.
10. Anticipated snow: six inches.

11. Ice and water shield: required on all shingled roofs – eaves only. Shields must extend from the lowest edges to a point at least 24 inches inside the exterior wall line of the building.

12. Drip edge: required on both eaves and rakes of roof.

13. Air freezing index: less than 1000.

14. Mean annual temperature: 47 degrees.

15. Elevation: 5,337 feet above sea level.

16. Sump pumps:

a. Cannot drain into sanitary or storm sewer;

b. Must daylight into lawn away from foundation;

c. Perimeter foundation systems must daylight or drain into sump pit and then sump pump, and sump pump must drain into lawn.

17. Drainage from house: slope at least six inches in the first ten feet.

18. Retaining walls:

a. Less than 48 inches from the bottom of the footing to the top of the retaining wall with no surcharge: no permit required.

b. More than 48 inches from bottom of footing to top of retaining wall, or any wall with surcharge: requires stamped engineering plans.

19. Backflow preventer: required on all residential irrigation systems (see cross connection control regulations).

20. Hot water heaters:

a. Expansion tanks required for all hot water heaters;

b. Drain pan required if placed on wood floor.

Sec.15.18.050. - Applicability.

Notwithstanding anything in the International Energy Conservation Code to the contrary, a developer/owner of a residential or commercial building may elect an inspection in accordance with the policies and procedures of the International Energy Conservation Code, as amended herein.

Sec. 15.18.060. - Copies available.

At least one copy of the International Energy Conservation Code, 2021 Edition, as amended herein, certified to be true and accurate, shall be available for public inspection at the office of the Building Safety Division, during business hours. The city clerk shall at all times maintain a reasonable supply of copies of the code available for purchase by the public at a moderate price. Electronic copies are available, without amendment, at <https://codes.iccsafe.org/public/collections/I-Codes>.

Sec. 15.18.070. - Violations and penalties.

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 work to be done, in violation of the provisions of this chapter or the terms of the code or standards adopted and incorporated in this chapter. Any person convicted of a violation of any provision of this chapter or of the provisions of the code or standards adopted and incorporated in this chapter shall be subject to the penalty provided in section 1.28.010.

Section 2. Chapter 15.60 of the Louisville Municipal Code is hereby repealed.

Section 3. Title 17 the Louisville Municipal Code is hereby amended by the addition of a new Section 17.20.170 to read as follows:

Sec. 17.20.170. – Electric vehicle charging infrastructure.

A. Purpose and Intent. The purpose and intent of this section is to facilitate and encourage the use of electric vehicles, to expedite the establishment of convenient and cost-effective electric vehicle infrastructure, and establish the minimum requirements for such infrastructure to serve both short and long-term parking needs.

B. Definitions. The following definitions shall apply to this Section:

Electric vehicle charging stations (EVCS) means a public or private parking space that is served by battery charging station equipment that has as its primary purpose the transfer of electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle.

Electric vehicle charging station – private restricted use means an electric vehicle charging station that is:

1. Privately owned and restricted access (e.g., single-family dwelling unit, executive parking, designated employee parking, assigned parking at multi-family residential building); or

2. Publicly owned and restricted (e.g., fleet parking with no access to the general public).

Electric vehicle charging station – public use means an electric vehicle charging station that is:

1. Publicly owned and publicly available (e.g., Park-n-ride, public library parking lot, Recreation and Senior Center lot, etc); or

2. Privately owned and available to visitors of the use (e.g., shopping center, hotel, office, etc.)

Electric vehicle parking space means any marked parking space that identifies the use to be exclusively for the parking of an electric vehicle.

C. Number of required electric vehicle charging stations. The following table sets forth the number of required charging stations for all new development or redevelopments as required in Chapter 15.18 of the Louisville Municipal Code. This list is not intended to be exhaustive of each use category, however is intended to establish general categories of use tiers. The Director of Planning and Building Safety shall determine the appropriate tier if the use is not identified in the table below.

1. Requirements will be rounded up to the nearest whole number.

2. Minimum electrical and hardware requirements for EVSE Installed, EV Ready, and EV Capable are set forth in Chapter 15.18 of the Louisville Municipal Code.

	EV Installed	EV- Ready	EV Capable
Residential Uses			
Single-Family unit		1 space	1 space
Multi-Family unit, with dedicated parking spaces or garages		1 space	1 space
Tier 1			
Multi-Family, without dedicated parking spaces or garages	10% of spaces	10% of spaces	50% of spaces

Hotel, Motel, Extended Stay Lodging Facility			
Tier 2 – Employment oriented uses			
Business and Professional Offices			
General research facilities, light industrial facilities including manufacturing, assembly, warehouse and fabrication	7% of spaces	10% of spaces	15% of spaces
Hospital			
Tier 3 – Service and Sales oriented uses			
Private and public recreational and social facilities, membership clubs, lodges, and fraternal organizations			
Religious institution			
Commercial amusement, indoor and outdoor	5% of spaces	10% of spaces	10% of spaces
Schools, including public, private, vocational or business			
Restaurant			
Retail			
Personal service			
Medical and dental clinics			

D. Permitted locations.

1. EVCS are permitted in every zoning district when accessory to a principal permitted use. Such stations located a single-family and designated multi-family units shall be private restricted use only.
2. If the primary use of the parcel is the retail electric charging of vehicles, then the use shall be considered an automotive fueling station for zoning purposes. Installation shall be located in zone districts which permit this use.

E. General requirements.

1. Accessible spaces. A charging station will be considered accessible if it is located adjacent to, and can serve, an accessible parking space as defined and required by the ADA. It is not necessary to designate the EVSE exclusively for the use of vehicles parked in the accessible space.
2. EVCS – public use shall be subject to the following requirements.

a. The EVCSs shall be located in a manner that will be easily seen by the public for informational and security purposes.

b. The EVCSs shall be located in desirable and convenient parking locations will serve as an incentive for the use of electric vehicles.

c. The EVCSs must be operational during the normal business hours of the use(s) that it serves.

d. The EVSE shall be maintained in all respects, including the functioning of equipment. A phone number or other contact information shall be provided on the equipment for reporting problems with the equipment or access to it.

e. The property owner may collect a service fee for the use of EVSE.

F. The requirements of this section shall be implemented through the building permit process and shall apply to:

1. All new construction, expansion or modification projects for which a building permit has not been issued as of November 23, 2021; and

2. All planned unit developments for which a building permit has not been issued as of November 23, 2021, irrespective of whether such planned unit development was approved or approved and recorded prior to such date, unless a waiver was expressly granted through the planned unit development review process set forth in Chapter 17.28.

Section 4. If any article, section, paragraph, sentence, clause, or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 5. The repeal or modification of any provision of any prior ordinance by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

Section 6. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

**INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED
PUBLISHED** this _____ day of _____, 2021.

Ashley Stolzmann, Mayor

ATTEST:

Meredyth Muth, City Clerk

APPROVED AS TO FORM:

Kelly PC, City Attorney

PASSED AND ADOPTED ON SECOND AND FINAL READING, this _____ day of
_____, 2021.

Ashley Stolzmann, Mayor

ATTEST:

Meredyth Muth, City Clerk