

**NOTICE OF PUBLIC HEARING
ORDINANCE No. 1845, SERIES 2022**

**AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE
MUNICIPAL CODE CONCERNING AMENDMENTS AND DELETIONS TO THE 2021
INTERNATIONAL ENERGY CONSERVATION CODE TO INCLUDE REQUIREMENTS
FOR COMMERCIAL ENERGY USE INTENSITY PERFORMANCE TARGETS AND
RESTRICTIONS OF FOSSIL FUEL SPACE AND WATER HEATING EQUIPMENT**

**INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED
PUBLISHED this 15th day of November, 2022.**

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 20th day of
December, 2022. WITH THE FOLLOWING CHANGES.**

Second reading amendments shown with deleted text in ~~**Bold Strikethrough**~~
and new text in **Bold Double Underline**.

**AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE
MUNICIPAL CODE CONCERNING AMENDMENTS AND DELETIONS TO THE 2021
INTERNATIONAL ENERGY CONSERVATION CODE TO INCLUDE
REQUIREMENTS FOR COMMERCIAL ENERGY USE INTENSITY PERFORMANCE
TARGETS AND RESTRICTIONS OF FOSSIL FUEL SPACE AND WATER HEATING
EQUIPMENT**

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 businesses; and

WHEREAS, the City Council desires to add requirements for energy use intensity performance standards and building electrification to build a more resilient building stock and support future building electrification efforts pursued 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, with amendments, 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:

Chapter, 15.18.030 of the Louisville Municipal Code, concerning amendments and deletions to the 2021 International Energy Conservation Code, is hereby amended to read as follows, with new text in underline:

1. Section C202 GENERAL DEFINITIONS is amended to add the following definitions in alphabetical order:

EMERGENCY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection, and ventilation systems in the event of a failure of the primary power. Emergency power systems are those required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

ENERGY USE INTENSITY (EUI). The annual building site energy use per square foot of gross floor area in units of kBtu/sq ft.

STANDBY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of a failure of the primary power. Standby power systems are those required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

2. Section C401.2 Application is deleted in its entirety and replaced as follows:

C401.2. Commercial *buildings* and their building site shall comply with one of the following, as applicable:

C401.2.1 Performance targets. New commercial *building* types included in the scope of Appendix PT shall comply with Appendix PT and Sections C403.2.4 and C404.10.

C401.2.2 Core and shell. Core and shell buildings shall comply with the provisions of Section C402.1.3 through C402.5. When mechanical systems are installed, core and shell buildings shall also meet the provisions in **C403.2.4, C404.10, and** Section C408.

C401.2.2.1 Core and shell buildings shall submit a letter of agreement to the City stating the tenant spaces included in the scope of Appendix PT shall meet the EUI target established in Table PT103, and shall include these requirements in their lease or purchase agreements.

C401.2.3 Tenant finish. Tenant finishes included in the scope of Appendix PT shall comply with Appendix PT **and C403.2.4 and C404.10.** All other tenant finishes shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

C401.2.4 Other commercial building types. Commercial *building* types not included above shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

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

3. Section C403.2 System design is modified as follows:

C403.2 System design. Mechanical systems shall be designed to comply with Sections C403.2.1 through ~~C403.2.3~~ **C403.2.4.** Where elements of a building's mechanical systems are addressed in Sections C403 through C403.14, such elements shall comply with the applicable provisions of those sections.

4. Section C403.2.4 Space heating equipment is added as follows:

C403.2.4 Space heating equipment. Fossil-fuel ~~warm-air furnaces appliances~~ and electric resistance space heating equipment shall not be permitted for space heating.

Exceptions:

1. **Emergency backup.** Where it is required by an applicable law or regulation to provide space heating with an emergency power system or a standby power system.
2. ~~**Where cfm/sq. ft. ventilation requirements result in conditions where the Building Official determines that space heating requirements cannot reasonably be met without combustion space heating systems.**~~

- ~~2.~~ ~~3.~~ **Certain make-up air systems.** Electric resistance in make-up air systems where energy recovery ventilation is prohibited by the International Mechanical Code.
- ~~3.~~ ~~4.~~ **Supplementary heat.** Electric resistance heat used for supplementary heat in accordance with Section C403.4.1.1
- ~~4.~~ ~~5.~~ **Electric resistance budget. In addition to any exceptions in this section, Up** to 5 W of electric resistance space heating per square foot of *conditioned floor area* in the *building*, not including supplementary heat.
Electric resistance heating elements integrated into heat pump equipment.
- ~~5.~~ ~~6.~~ **Integrated units.** Electric resistance heating elements integrated into heat pump equipment.
- ~~6.~~ ~~7.~~ **Heated plenums.** Electric resistance in heated plenums.
- ~~7.~~ **Temporary systems. Temporary electric resistance heating systems are permitted where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to achieve interior space temperatures no higher than needed to prevent freezing.**
- ~~8.~~ **Freeze protection. Electric resistance for freeze protection elements. Electric resistance in heating systems intended for freeze protection.**
- ~~9.~~ **Outdoor systems.** Equipment used for outdoor heating.
- ~~10.~~ **Specific conditions. Portions of buildings that require fossil fuel or electric resistance space heating for specific conditions approved by the Building Official for research, health care, process or other specific needs that cannot practicably be served by heat pump or other space heating systems. This does not constitute a blanket exception for any occupancy type.**
- ~~11.~~ ~~10.~~ **Replacements.** Replacement fuel-fired ~~furnace equipment appliances.~~

5. Section C404.10 Water heating equipment is added as follows:

C404.10 Water heating equipment. Fossil fuel and electric resistance instantaneous and storage water heaters shall not be used to provide hot water.

Exceptions:

- ~~1.~~ **Emergency backup. Where it is required by an applicable law or regulation to provide water heating with an emergency power system or a standby power system.**
- ~~2.~~ ~~4.~~ **Integrated units.** Resistance heating elements integrated into heat pump water heating equipment.
- ~~3.~~ ~~2.~~ **Recirculation loops.** Electric resistance elements used for recirculation loop temperature maintenance.
- ~~4.~~ ~~3.~~ **Small systems.** Electric storage water heaters with a rated water storage volume no greater than 20 gallons.
- ~~5.~~ ~~4.~~ **Point-of-use systems.** Instantaneous electric water heaters located within 10 feet of the point of use.

6. **5. Renewable electricity.** Electric resistance equipment where not less than 100 percent of the annual service water-heating requirement is provided by an *on-site renewable energy system* not used to meet any other provision of this code.
7. **6. Renewable or waste thermal energy.** Electric resistance storage water heating equipment in *buildings* where not less than 75% of the annual service water heating requirement is met by a solar thermal system or other renewable thermal system.
8. **7. High-temperature requirements.** Water heating systems that serve end-uses or have a storage requirement that necessitates a water temperature of 141°F (55°C) or hotter.
9. **Electric resistance budget. In addition to any exceptions in this section, a budget of 24 kW plus 0.1 watts per square foot of building area of electric resistance service water heating capacity per building.**
10. **Commercial kitchens. Electric booster-heaters serving commercial dishwashers, commercial food service equipment, and other approved process equipment that require supply water temperatures of 120°F (49°C) or higher.**
11. **8. Replacements.** Replacement of gas-fired storage water heaters or instantaneous water heaters.

APPENDIX PT MODELING TO A PERFORMANCE TARGET

PT101 Scope. This section establishes criteria for demonstrating compliance with a performance target, and is required for new multifamily (occupancy R-2), offices greater than 5,000 ft², primary and secondary schools, parking garages, and warehouses. All end use load components within and associated with the building and their building sites shall be modeled.

PT102 Mandatory requirements. The requirements in this section are mandatory requirements and shall be required in addition to the provisions of ASHRAE 90.1 Appendix G.

PT103 Performance target. Projects of the types listed in Table PT103 shall demonstrate that the proposed design reaches a fixed energy use intensity (EUI) less than or equal to the values in Table PT103, calculated utilizing the energy modeling procedures of Appendix G of ASHRAE 90.1. For *buildings* with multiple occupancy types, the modeled performance target shall be a weighted average of the floor area of each occupancy type.

Exception: Energy used for electric vehicle charging, data centers, and process loads shall be excluded from compliance modeling.

TABLE PT103 PERFORMANCE TARGETS

BUILDING TYPE	PERFORMANCE TARGET (kBtu/ft ²)
Multifamily (Occupancy R-2)	<u>32</u>
Office, small (>5,000 ft ²)	<u>19</u>
Office, medium (5,000 – 50,000 ft ²)	<u>23</u>
Office, large (>50,000 ft ²)	<u>28</u>
School, primary	<u>34</u>
School, secondary	<u>31</u>
Warehouse	<u>11</u>

PT104 Renewable Energy. On-site renewable energy generated by a system installed as part of this project that is used by the building shall be subtracted from the proposed design energy consumption prior to calculating the proposed building performance.

PT105 Performance documentation. Documentation to verify compliance with this section shall be provided to the code official.

PT105.1 Projected compliance report. Permit submittals shall include a report documenting the proposed design is projected to meet the EUI target. The compliance report shall include the following specific information beyond the information required in ASHRAE 90.1 Appendix G:

1. Address of the building.
2. An inspection checklist documenting the building component characteristics of the proposed design.
3. Name of individual completing the report.
4. Name and version of compliance software tool.
5. Documentation of the reduction in energy use associated with on-site energy.

PT105.2 Construction plan requirements. Construction plans shall depict all component characteristics of the proposed design utilized for the EUI in accordance with ASHRAE 90.1 Appendix G.

PT105.3 Measured performance report. Projects shall demonstrate compliance with this code by documenting that the building has achieved the EUI performance calculated based on 12 months of metered energy use after occupancy.

PT105.3.1 Demonstration of operating energy use. Metered energy data demonstrating compliance with the EUI target shall be reported to the building official using Energy Star Portfolio Manager and adjusted for the percentage of floor area occupied. While at least 75 percent occupied, the building shall operate at or below its assigned energy use target established in Section PT103 for any recording period of 12 consecutive months that is completed within three years of the date of the Certificate of Occupancy. The owner shall notify the building official when this 12-month period has been successfully completed.

PT106 Energy metering and monitoring. All projects must install submetering or monitoring capabilities to support building energy performance analysis. The project must include capabilities to store and access a 24-month continuous data set on an ongoing basis.

PT106.1 End-use monitoring. Measurement devices shall be installed in new *buildings* to monitor the electric energy use of each of the following separately:

1. Total electric energy.
2. HVAC systems energy use.
3. Interior lighting.
4. Exterior lighting.
5. Receptacle circuits.
6. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
7. Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.

PT106.2 Independent metering. The following items shall be independently metered. Individual meters used to comply with this section may not serve multiple *buildings*.

1. All fuel sources serving the building.
2. Energy production from on-site renewable energy systems.
3. Electric vehicle (EV) supply equipment.
4. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
5. Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.
6. Individual tenant energy loads.

6. Section R202 GENERAL DEFINITIONS is amended as follows:

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and townhouses, as well as Group R-2 other than for

multifamily, R-3, and R-4 buildings three stories or less in height above grade plane with separate means of egress.

MULTIFAMILY. Apartments, condominiums, and other similar-type buildings regardless of the number of stories.

INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED
this 15th day of November, 2022.

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 20th day of December, 2022.

Ashley Stolzmann, Mayor

ATTEST:
Meredyth Muth, City Clerk

Published in the *Daily Camera* on December 25, 2022. Full copies of the ordinance are available at the City Clerk's Office, 749 Main Street, Louisville, Colorado.