

SUBSTITUTE
ORDINANCE

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

This ordinance is organized into 3 Articles, as follows:

- Article I: 2022 Chicago Energy Transformation Code
- Article II: Correlating Amendments
- Article III: Effective Date

ARTICLE I.
2022 CHICAGO ENERGY TRANSFORMATION CODE

SECTION 1. The Municipal Code of Chicago is hereby amended by repealing Title 14N (the 2019 Chicago Energy Conservation Code) in its entirety and replacing it, as follows:

TITLE 14N 2022 ENERGY TRANSFORMATION CODE

PART I – COMMERCIAL PROVISIONS

CHAPTER 14N-C1 SCOPE AND PURPOSE

14N-C1-C001 Adoption of the commercial provisions of the International Energy Conservation Code by reference.

The commercial provisions of the *International Energy Conservation Code*, 2021 edition, second printing, and any erratum thereto identified by the publisher (hereinafter referred to as “IECC-CE”), excluding the appendices, are adopted by reference and shall be considered part of the requirements of this title except as modified by the specific provisions of this title.

If a conflict exists between a provision modified by this title and a provision adopted without modification, the modified provision shall control.

14N-C1-C002 Citations.

Provisions of IECC-CE which are incorporated into this title by reference may be cited as follows:

14N-C[IECC-CE chapter number]-[IECC-CE section number]

14N-C1-C003 Global modifications.

The following modifications shall apply to each provision of IECC-CE incorporated into this title:

1. Replace each occurrence of “*International Building Code*” with “*Chicago Building Code*.”

2. Replace each occurrence of “ASME A17.1” or “ASME A17.1/CSA B44” with “the *Chicago Conveyance Device Code*.”
3. Replace each occurrence of “NFPA 70” with “the *Chicago Electrical Code*.”
4. Replace each occurrence of “*International Fire Code*” with “*Chicago Fire Prevention Code*.”
5. Replace each occurrence of “*International Fuel Gas Code*” with “*Chicago Fuel Gas Code*.”
6. Replace each occurrence of “*International Mechanical Code*” with “*Chicago Mechanical Code*.”
7. Replace each occurrence of “*International Plumbing Code*” with “*Chicago Plumbing Code*.”
8. Replace each occurrence of “*International Existing Building Code*” with “*Chicago Building Rehabilitation Code*.”
9. Replace each occurrence of “*International Property Maintenance Code*” with “*Chicago Minimum Requirements for Existing Buildings*.”
10. Replace each occurrence of “code official” or “code official” with “*building official*.”

14N-C1-C100 Chapter C1.

The provisions of Chapter 1 of IECC-CE are not adopted. The following is adopted as Chapter C1:

“CHAPTER C1 SCOPE AND PURPOSE

C101 GENERAL

C101.1 Title.

This Part I of Title 14N of the Municipal Code of Chicago shall be known as the *Chicago Energy Transformation Code—Commercial Provisions*, hereinafter referred to as “this code.”

C101.2 Scope.

This code applies to *commercial buildings*, the *building site* and associated systems and equipment.

Exception: *Temporary buildings other than conditioned construction trailers.*

C101.3 Intent.

The intent of this code is to regulate the design and construction of *commercial buildings* for the effective use and conservation of energy over the useful life of each *building* and for the reduction of carbon emissions caused by use and occupancy of *buildings* built and renovated under this code. This code is intended to provide flexibility to allow the use of innovative and cost-effective approaches and techniques to achieve these

objectives. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

C101.4 Compliance.

Commercial buildings shall meet the requirements of this code. *Residential buildings* shall meet the requirements of the *Chicago Energy Transformation Code—Residential Provisions*.

C101.4.1 Mixed commercial and residential buildings.

Where a *building* includes both *commercial building* and *residential building* portions, each portion shall be separately considered and meet applicable requirements of this code and the *Chicago Energy Transformation Code—Residential Provisions*.

C101.4.2 Evidence of compliance.

The *building official* may designate specific computer software, worksheets, forms, compliance manuals and other similar materials as providing evidence of compliance with the requirements of this code.

C102 CONSTRUCTION DOCUMENTS

C102.1 General.

Construction documents shall comply with the *Chicago Construction Codes Administrative Provisions*, including specifically Section 14A-4-411.3.13.”

CHAPTER 14N-C2 DEFINITIONS

14N-C2-C201 General.

The provisions of Section C201 of IECC-CE are not adopted. The following is adopted as Section C201:

“C201 GENERAL

C201.1 Definitions.

The definitions in Section C202 shall apply to italicized words throughout this code except where specifically limited to a particular chapter or section. Unless the context requires otherwise, the definitions in Section C202 shall also apply to non-italicized words throughout this code.

C201.2 Interchangeability.

Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural includes the singular.

C201.3 Words defined in other codes.

Where non-italicized words are not defined in this code and are defined in the *Chicago Construction Codes Administrative Provisions*, *Chicago Building Code*, *Chicago Conveyance Device Code*, *Chicago Electrical Code*, *Chicago Fire Prevention Code*, *Chicago Fuel Gas Code*, *Chicago Mechanical Code*, *Chicago Energy Transformation Code—Residential Provisions*, *Chicago Plumbing Code*, *Chicago Building Rehabilitation*

Code, or *Chicago Minimum Requirements for Existing Buildings*, such words shall have the meanings ascribed to them in those codes unless the context requires otherwise.

C201.4 Words not defined.

Where italicized words are not defined in Section C202 or non-italicized words are not defined in Section C202 or any of the codes referenced in Section C201.3, such words shall have the meaning given in the latest edition of Merriam-Webster's Collegiate Dictionary as the context implies."

14N-C2-C202 Definitions.

The provisions of Section C202 of IECC-CE are adopted by reference with the following modifications:

1. Revise the definition of "addition" to read:

"ADDITION (for this code only). An extension or increase in the *conditioned floor area*, number of *stories above grade plane* or *building height* of an *existing building*."
2. Revise the definition of "alteration" to read:

"ALTERATION. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code*."
3. Revise the definition of "approved" to read:

"APPROVED. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*."
4. Revise the definition of "approved agency" to read:

"APPROVED AGENCY. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*."
5. Revise the definition of "building" to read:

"BUILDING. As defined in Chapter 2 of the *Chicago Building Code*."
6. Insert the following definitions:

"BUILDING HEIGHT. As defined in Chapter 2 of the *Chicago Building Code*.

"BUILDING OFFICIAL. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*."
7. Revise the definition of "building thermal envelope" to read:

"BUILDING THERMAL ENVELOPE. The *exterior walls*, floors, ceilings, roofs and any other building element assemblies that enclose *conditioned space* or provide a boundary between *conditioned space* and exempt or unconditioned space."
8. Delete the definition of "captive key override."

9. Revise the definition of “change of occupancy” to read:
“CHANGE OF OCCUPANCY. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
10. Insert the following definitions:
“CHICAGO BUILDING CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO BUILDING REHABILITATION CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO CONSTRUCTION CODES. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO CONSTRUCTION CODES ADMINISTRATIVE PROVISIONS. Title 14A of the Municipal Code of Chicago.
CHICAGO CONVEYANCE DEVICE CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO ELECTRICAL CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO ENERGY TRANSFORMATION CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
Chicago Energy Transformation Code—Commercial Provisions. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
Chicago Energy Transformation Code—Residential Provisions. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO FIRE PREVENTION CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO FUEL GAS CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO MECHANICAL CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO MINIMUM REQUIREMENTS FOR EXISTING BUILDINGS. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO PLUMBING CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*
CHICAGO ZONING ORDINANCE. Title 17 of the Municipal Code of Chicago.”
11. Delete the definition of “code official.”

12. Revise the definition of “computer room” to read:
“COMPUTER ROOM. A room whose primary function is to house equipment for the processing and storage of electronic data which has a design total *information technology equipment (ITE)* equipment power density less than or equal to 20 watts per square foot (20 watts per 0.092 m²) of *conditioned floor area* or a design total *ITE* equipment load less than or equal to 10 kW.”
13. Revise the definition of “dwelling unit” to read:
“DWELLING UNIT. As defined in Chapter 2 of the *Chicago Building Code.*”
14. Revise the definition of “energy simulation tool” to read:
“ENERGY SIMULATION TOOL. A software program or calculation-based methodology that projects the annual energy use of a *building.*”
15. Insert the following definition:
“ENERGY STORAGE SYSTEM (ESS). One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.”
16. Insert the following definition:
“EXISTING BUILDING. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
17. Revise the definition of “exterior wall” to read:
“EXTERIOR WALL. A wall that is either an *above-grade wall* or *below-grade wall.*”
18. Insert the following definition:
“FENESTRATION AREA. The total area of the *fenestration* measured using the rough opening and including the glazing, sash and frame. For doors where the glazed vision area is less than 50% of the door area, the fenestration area is the glazed vision area. For all other doors, the fenestration area is measured using the rough opening and including the slab and the frame.”
19. Revise the definition of “floor area, net” to read:
“FLOOR AREA, NET. As defined in Chapter 2 of the *Chicago Building Code.*”
20. Insert the following definition:
“FUEL GAS. A natural gas, manufactured gas, liquefied petroleum gas or mixture of any of these gases.”
21. Revise the definition of “greenhouse” to read:
“GREENHOUSE. As defined in Chapter 2 of the *Chicago Building Code.*”

22. Insert the following definition:
“GRID-INTEGRATED CONTROL. An *automatic* control that can receive and automatically respond to demand response requests from and send information back to a utility, electrical system operator or third-party demand response program provider.”
23. Delete the definition of “Group R.”
24. Revise the definition of “historic building” to read:
“HISTORIC BUILDING. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
25. Insert the following definition:
“INSULATED SIDING. A type of *continuous insulation* with manufacturer-installed insulating material having an *R-value* of not less than R-2 as an integral part of the cladding product.”
26. Revise the definition of “labeled” to read:
“LABELED. As defined in Chapter 2 of the *Chicago Building Code.*”
27. Revise the definition of “listed” to read:
“LISTED. As defined in Chapter 2 of the *Chicago Building Code.*”
28. Revise the definition of “low-sloped roof” to read:
“LOW-SLOPED ROOF. As defined in Chapter 2 of the *Chicago Building Code.*”
29. Revise the definition of “networked guestroom control system” to read:
“NETWORKED GUESTROOM CONTROL SYSTEM. A control system, with access from the front desk or other central location associated with a Group R-1 occupancy, that is capable of identifying the rented and unrented status of each *sleeping unit* according to a timed schedule and controlling HVAC in each *sleeping unit* separately.”
30. Revise the definition of “on-site renewable energy” to read:
“ON-SITE RENEWABLE ENERGY. Energy from *renewable energy resources* harvested at the *building site.*”
31. Insert the following definition:
“PHOTOSYNTHETIC PHOTON EFFICACY (PPE). A photosynthetic photon flux divided by input electric power in units of micromoles per second per watt, or micromoles per joule as defined by ANSI/ASABE S640.”
32. Revise the definition of “registered design professional” to read:
“REGISTERED DESIGN PROFESSIONAL. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*”

33. Revise the definition of “renewable energy resources” to read:
“RENEWABLE ENERGY RESOURCES. Energy derived from solar radiation, wind, waves, tides, *biogas*, *biomass* or extracted from fluid or steam heated within the earth.”
34. Revise the definition of “repair” to read:
“REPAIR. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
35. Revise the definition of “reroofing” to read:
“REROOFING. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
36. Revise the definition of “residential building” to read:
“RESIDENTIAL BUILDING (for this code only). Group R-2, R-3, R-4 and R-5 occupancies with no more than four *stories above grade plane.*”
37. Revise the definition of “roof assembly” to read:
“ROOF ASSEMBLY. As defined in Chapter 2 of the *Chicago Building Code.*”
38. Revise the definition of “roof recover” to read:
“ROOF RECOVER. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
39. Revise the definition of “roof repair” to read:
“ROOF REPAIR. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
40. Revise the definition of “roof replacement” to read:
“ROOF REPLACEMENT. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
41. Insert the following definition:
“SKYLIGHT. See “*fenestration.*””
42. Revise the definition of “sleeping unit” to read:
“SLEEPING UNIT. As defined in Chapter 2 of the *Chicago Building Code.*”
43. Insert the following definition:
“SOLAR-READY ZONE. A section of the roof deck designated and reserved for the future installation of a solar photovoltaic or solar thermal system.”
44. Insert the following definition:
“STORY ABOVE GRADE PLANE. As defined in Chapter 2 of the *Chicago Building Code.*”

45. Insert the following definition:
“**TEMPORARY.** As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*”
46. Insert the following definitions:
“**THERMAL RESISTANCE.** See “*R-value (thermal resistance).*”
“**THERMAL TRANSMITTANCE.** See “*U-factor (thermal transmittance).*””
47. Revise the definition of “vegetative roof” to read:
“**VEGETATIVE ROOF.** As defined in Chapter 2 of the *Chicago Building Code.*”
48. Revise the definition of “ventilation” to read:
“**VENTILATION.** As defined in Chapter 2 of the *Chicago Building Code.*”
49. Insert the following definition:
“**VERTICAL FENESTRATION.** See “*fenestration.*””

CHAPTER 14N-C3 GENERAL REQUIREMENTS

14N-C3-C301 Climate zone.

The provisions of Section C301 of IECC-CE are not adopted. The following is adopted as Section C301:

“C301 CLIMATE ZONE

C301.1 General.

Climate zone 5A shall be used to determine the applicable requirements in Chapter 4.”

14N-C3-C302 Design conditions.

The provisions of Section C302 of IECC-CE are adopted by reference without modification.

14N-C3-C303 Materials, systems and equipment.

The provisions of Section C303 of IECC-CE are adopted by reference with the following modifications:

1. Revise Section C303.1.1 by replacing “insulated siding” with “*insulated siding.*”
2. Revise Section C303.1.4.1 by replacing “insulated siding” with “*insulated siding.*”
3. Revise Section C303.2.1 by replacing “basement walls, crawl space walls” with “*below-grade walls, crawl space walls.*”

CHAPTER 14N-C4 COMMERCIAL ENERGY EFFICIENCY

14N-C4-C401 General.

The provisions of Section C401 of IECC-CE are adopted by reference with the following modifications:

1. Revise Section C401.1 by replacing “commercial” with “*commercial*.”
2. Revise Section C401.2 and its subsections to read:

“C401.2 Application.

Commercial buildings shall comply with Chapter C6 and either Section C401.2.1, C401.2.2, C401.2.3 or C401.2.4.

C401.2.1 Chicago Energy Transformation Code.

Commercial buildings shall comply with one of the following:

1. Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C402 through C406 and Section C408. *Dwelling units* and *sleeping units* in Group R-2 occupancies without systems serving multiple units shall be deemed to be in compliance with this chapter, provided that they comply with Section R406.
2. Total Building Performance. The Total Building Performance option requires compliance with Section C407.

Exception: *Additions, alterations, repairs and changes of occupancy to existing buildings* complying with Chapter C5.

C401.2.2 ASHRAE 90.1.

Commercial buildings shall comply with the requirements of ANSI/ASHRAE/IESNA 90.1.

C401.2.3 Phius certification.

Commercial buildings shall obtain certification in accordance with Sections 401.2.3.1 and 403.2.3.2.

C401.2.3.1 Construction documents.

The construction documents submitted to the *building official* shall establish that the project is eligible for certification in accordance with the PHIUS *Passive Building Standard Certification Guidebook*, including all co-requisite programs applicable to the project type. Such documentation shall include:

1. A design certification letter issued by an *approved* third-party certification organization.
2. A list of compliance features.

C401.2.3.2 Certification.

Within 180 days of project completion, as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as

applicable in accordance with the *Chicago Construction Codes Administrative Provisions*, the owner shall submit to the *building official* a written certification establishing that the project has been certified in accordance with the *PHIUS Passive Building Standard Certification Guidebook*, including all co-requisite programs applicable to the project type.

C401.2.4 National Green Building Standard certification.

Eligible *commercial buildings* shall obtain certification in accordance with Sections 401.2.4.1 and 401.2.4.2.

C401.2.4.1 Construction documents.

The construction documents submitted to the *building official* shall establish that the project is eligible for certification at the gold or emerald level in accordance with ICC 700. Such documentation shall include:

1. Evidence that the project has been registered with an *approved* third-party certification organization that certifies compliance with ICC 700.
2. Evidence that the project, as designed, is eligible for certification at the gold or emerald level.
3. A list of compliance features.

C401.2.4.2 Certification.

Within 180 days of project completion, as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable in accordance with the *Chicago Construction Codes Administrative Provisions*, the owner shall submit to the *building official* a written certification that the project has achieved certification at the gold or emerald level under ICC 700. The written certification shall be issued by an *approved* third-party certification organization.”

3. Revise Section C401.3 by replacing “an *approved party*” with “the builder.”
4. Revise Section C401.3, item 1, by replacing “*basement walls, crawl space walls*” with “*below-grade walls, crawl space walls.*”

14N-C4-C402 Building envelope requirements.

The provisions of Section C402 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “above-grade wall,” “air barrier,” “air curtain,” “below-grade wall,” “building thermal envelope,” “commercial building,” “conditioned space,” “continuous insulation,” “daylight responsive control,” “daylight zone,” “dwelling unit,” “dynamic glazing,” “enclosed space,” “entrance door,” “equipment room,” “exterior wall,” “fenestration,” “fenestration area,” “greenhouse,” “infiltration,” “internal curtain system,” “net floor area,” “opaque doors,” “roof assembly,” “rooftop monitor,” “skylight,” “sleeping

- unit,” “solar heat gain coefficient (SHGC),” “testing unit enclosure area,” “thermostat,” “vertical fenestration,” “visible transmittance (VT),” “walk-in cooler,” and “walk-in freezer.”
2. Revise Section C402.1 by deleting item 2 and replacing “skylight area” with “*skylight fenestration area*.”
 3. Revise the exception to Section C402.1.1.1, item 1 by replacing “Low energy” with “Low-energy.”
 4. Revise Section C402.1.2 by deleting item 5 and revising item 4 to read:
“Have an average wall and roof *U*-factor less than 0.200.”
 5. Revise Section C402.1.3 by replacing each “*Group R*” with “Group R.”
 6. Revise Table C402.1.3 by deleting all columns except “5 and Marine 4,” deleting “and Marine 4,” and deleting footnote c.
 7. Revise Section C402.1.4 by replacing each “*Group R*” with “Group R.”
 8. Revise Table C402.1.4 by deleting all columns except “5 and Marine 4,” deleting “and Marine 4,” replacing “permitted” with “allowed” in footnote b, and deleting “in Climate Zones 0 through 6 and less than or equal to 0.36 in Climate Zones 7 and 8” in footnote h.
 9. Revise Section C402.1.4.2 to read:
“C402.1.4.2 Thermal resistance of cold-formed steel assemblies.
U-factors of walls with cold-formed steel framed ceilings and walls shall be allowed to be determined in accordance with AISI S250 as modified herein.
 1. Where the steel-framed wall contains no *cavity insulation* and uses *continuous insulation* to satisfy the *U*-factor maximum, the steel-framed wall member spacing is allowed to be installed at any on-center spacing.
 2. Where the steel-framed wall contains framing at 24 inches (600 mm) on center with a 23% framing factor or framing at 16 inches (400 mm) on-center with a 25% framing factor, the next lower framing member spacing input values shall be used when calculating using AISI S250.
 3. Where the steel-framed wall contains less than 23% framing factors the AISI S250 shall be used without any modifications.
 4. Where the steel-framed wall contains other than standard C-shape framing members the AISI S250 calculation option for other than standard C-shape framing is allowed to be used.”
 10. Delete Equation 4-1.
 11. Delete Table C402.1.4.2.
 12. Revise Section C402.2.2 by replacing “permitted” with “allowed.”

13. Revise the exceptions to Section C402.2.3 by replacing each “permitted” with “allowed.”
14. Revise Section C402.2.5 by replacing each “below-grade exterior walls” with “*below-grade walls.*”
15. Insert a new Section C402.2.8 to read:

“C402.2.8 Balconies and parapets.
See Section C605.”
16. Revise Section C402.3 and its subparts to read:

“C402.3 Roof solar reflectance.
See Section 1515 of the *Chicago Building Code.*”
17. Delete Table C402.3.
18. Delete Equation 4-3.
19. Revise Table C402.4 by deleting all columns except “5 and Marine 4,” deleting “and Marine 4,” and deleting “NR = No Requirement.”
20. Revise Section C402.4.1 by replacing “skylight area” with “*skylight fenestration area.*”
21. Revise Section C402.4.1.1 to read:

“C402.4.1.1 Increased vertical fenestration area with daylight responsive controls.
Not more than 40 percent of the gross *above-grade wall* area shall be *vertical fenestration*, provided that all of the following requirements are met:

 1. In *buildings* with no more than two *stories above grade plane*: not less than 50 percent of the *net floor area* is within a *daylight zone*.
 2. In *buildings* with three or more *stories above grade plane*: not less than 25 percent of the *net floor area* is within a *daylight zone*.
 3. *Daylight responsive controls* are installed in *daylight zones*.
 4. *Visible transmittance (VT)* of *vertical fenestration* is not less than 1.1 times *solar heat gain coefficient (SHGC)*.

Exception: *Fenestration* that is outside the scope of NFRC 200 is not required to comply with Item 4.”
4. Revise Section C402.4.1.2 by replacing “*toplit*” with “*toplit.*”
5. Insert a new Section C402.4.1.3 and Equations 4-3a through 4-3d to read:

“C402.4.1.3 Orientation.
The *fenestration area* for *vertical fenestration* shall comply with either equations 4-3a and 4-3b or 4-3c and 4-3d.

Exceptions:

1. Buildings with shade on 75% of the east- and west-oriented *vertical fenestration area* from permanent projections, *existing buildings*, existing permanent infrastructure, or topography at 9 a.m. and 3 p.m., respectively, on the summer solstice (June 21).
2. *Alterations* and *additions* with no increase in *vertical fenestration area*.
3. Buildings where the west-oriented and east-oriented *vertical fenestration area* does not exceed 20% of the gross wall area for each of those facades and the actual SHGC for vertical fenestration on those facades is no greater than 90% of the maximum specified in Table C402.4.

$$A_w \leq (A_t)/4 \quad \text{(Equation 4-3a)}$$

$$A_e \leq (A_t)/4 \quad \text{(Equation 4-3b)}$$

$$A_w \times \text{SHGC}_w \leq (A_t \times \text{SHGC}_c)/5 \quad \text{(Equation 4-3c)}$$

$$A_e \times \text{SHGC}_e \leq (A_t \times \text{SHGC}_c)/5 \quad \text{(Equation 4-3d)}$$

where:

A_e = The *fenestration area* of east-oriented *vertical fenestration* (oriented within 45 degrees of true east to the south and within 22.5 degrees of true east to the north) in square feet.

A_w = The *fenestration area* of west-oriented *vertical fenestration* (oriented within 45 degrees of true west to the south and within 22.5 degrees of true west to the north) in square feet.

A_t = The total *fenestration area* of *vertical fenestration* in square feet, measured using the rough opening and including the glazing, sash and frame.

SHGC_c = Maximum allowed SHGC from Table C402.4.

SHGC_e = Actual SHGC for east-oriented *vertical fenestration*.

SHGC_w = Actual SHGC for west-oriented *vertical fenestration*.”

6. Revise Section C402.4.2 by replacing each “*toplit*” with “toplit.”
7. Revise the exception to Section C402.4.2 by deleting item 1 and replacing “*sidelit*” with “sidelit.”
8. Revise Section C402.4.3.1 to read:

“*Skylights* shall be allowed a maximum SHGC of 0.60 where located above *daylight zones* provided with *daylight responsive controls*.”

9. Revise Section C402.4.3.2 to read:

“Where *skylights* are installed above *daylight zones* provided with *daylight responsive controls*, a maximum *U-factor* of 0.75 shall be allowed.”
10. Revise Sections C402.4.3.3 and C402.4.3.4 by replacing “permitted” with “allowed.”
11. Revise Section C402.4.4 by replacing “*toplit*” with “toplit.”
12. Revise Section C402.4.5.2 to read:

“Opaque nonswinging doors that are horizontally hinged sectional doors with a single row of fenestration shall have an assembly *U-factor* less than or equal to 0.440, provided that the *fenestration area* is not less than 14 percent and not more than 25 percent of the total door area.”
13. Delete the exception to Section C402.5.1.
14. Revise Section C402.5.1.1 by replacing “*continuous*” with “continuous” and “in places and changes in” with “at joints between dissimilar.”
15. Delete all exceptions to Section C402.5.1.2.
16. Revise Table C402.5.4 by replacing “High-speed doors” with “High speed doors.”
17. Revise the first sentence of Section C402.5.5 to read:

“Where combustion air is supplied through openings in an *exterior wall* to a room or space containing a space-conditioning fuel-burning appliance, one of the following shall apply:”
18. Revise the exception to Section C402.5.9 by replacing “Exceptions:” with “Exception:” and deleting item 1.
19. Revise exception 2 to Section C402.5.11 by deleting “where approved by the *code official*.”

14N-C4-C403 Building mechanical systems.

The provisions of Section C403 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “air curtain,” “air economizer,” “boiler system,” “computer room,” “data center system,” “demand control ventilation,” “duct system,” “embedded fan,” “enthalpy recovery ratio,” “fan array,” “fan brake horsepower,” “fan energy index,” “fan nameplate electrical input power,” “fan system design condition,” “fault detection and diagnostics system,” “fault detection and diagnostics (FDD) system,” “large-diameter ceiling fan,” “nameplate horsepower,” “radiant heating system,” “thermostat,” “ventilation air,” “walk-in cooler,” “walk-in freezer,” and “water economizer.”

2. Revise items 1 and 2 in Section C403.1.2 to read:
 - “1. Replace design mechanical load component (MLC) values specified in Table 6.2.1.1 of ASHRAE 90.4 with 0.22.
 2. Replace annualized MLC values specified in Table 6.2.1.2 of ASHRAE 90.4 with 0.17.”
3. Delete Tables C403.1.2(1) and C403.1.2(2).
4. Revise Table C403.3.2(5) by deleting rows applicable to “outside the US.”
5. Revise Table C403.3.2(6), footnote g, by replacing “constant” with “continuously.”
6. Revise the exception to Section C403.4.3.3.1 by replacing “permitted” with “allowed.”
7. Revise Section C403.4.3.3.2 by deleting “in Climate Zones 3 through 8.”
8. Revise Section C403.4.4, item 3.2 by replacing “indicated in Table C403.4.4 based on the climate zone and system served” with “of 7.5 horsepower (5.6 kW) or greater.”
9. Delete Table C403.4.4.
10. Revise Section C403.5 by replacing “*air* or water economizer” with “*air economizer* or *water economizer*” and each “*Group R*” with “Group R.”
11. Revise the exception to Section C403.5 by replacing “Exceptions:” with “Exception:” and deleting items 1 and 5.
12. Revise Table C403.5(1) by deleting all rows except for climate zone 5A.
13. Delete Table C403.5(2).
14. Revise the exception to Section C403.5.3.2 by replacing “permitted” with “allowed.”
15. Revise Table C403.5.3.3 by deleting all rows except for climate zone 5A and deleting footnote a.
16. Revise Section C403.6.5 by deleting “in Climate Zones 0B, 1B, 3B, 3C and 4 through 8.”
17. Delete exceptions 3, 4 and 5 to Section C403.6.5.
18. Delete Section C403.6.5.1.
19. Revise Section C403.7.1 and its exceptions by replacing each “Table 403.3.1.1” with “Section 403.”
20. Revise the title of Section C403.7.4 to read “Energy recovery ventilation systems.”
21. Revise Section C403.7.4.1 and its exceptions to read:

“C403.7.4.1 Nontransient dwelling units.

Dwelling units intended for occupancy by the same persons for more than 30 days shall be provided with outdoor air *energy recovery ventilation systems* with an *enthalpy recovery ratio* of not less than 60 percent at heating design condition.”

22. Revise Section C403.7.4.2, excluding its exceptions, to read:

“Where the supply airflow rate of a fan system serving a space other than a *dwelling unit* covered by Section C403.7.4.1 exceeds the values specified in Tables C403.7.4.2(1) and C403.7.4.2(2), the system shall include an *energy recovery ventilation system*. The *energy recovery ventilation system* shall provide an *enthalpy recovery ratio* of not less than 50 percent at design conditions. Where an *air economizer* is required, the *energy recovery ventilation system* shall include a bypass or controls that allow operation of the economizer as required by Section C403.5.”
23. Revise the exception to Section C403.7.4.2 by replacing “*energy recovery systems*” with “*energy recovery ventilation systems*” in item 1 and deleting items 5 and 6.
24. Revise Table C403.7.4.2(1) by deleting all rows except for climate zone 5A and by deleting “NR = Not Required.”
25. Revise Table C403.7.4.2(2) by deleting all rows except for climate zone 5A.
26. Revise Section C403.7.6 by replacing “Group R-1 buildings” with “Group R-1 occupancies.”
27. Revise the exception to Section C403.7.7, item 1 to read: “In buildings with fewer than three *stories above grade plane*” and deleting item 2.
28. Revise exception 1 to Section C403.8.1 by replacing “permitted” with “allowed.”
29. Revise Section C403.8.4 by replacing “permitted” with “allowed.”
30. Delete exception 2 to Section C403.10.6.
31. Revise Section C403.12.1 by deleting each “not less than R-8 insulation in *Climate Zones* 0 through 4 and” and each “in *Climate Zones* 5 through 8.”
32. Revise Table C403.12.3, footnotes a and c, by replacing each “permitted” with “allowed.”
33. Revise Section C403.12.3.1 by replacing “permitted” with “allowed.”

14N-C4-C404 Service water heating.

The provisions of Section C404 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “demand recirculation water system,” “dwelling unit,” “heat trap,” “on-site renewable energy,” and “water heater.”

2. Revise Section C404.5.2 by replacing “circulating water systems” with “*circulating hot water systems.*”
3. Revise Section C404.7 by replacing “*Group R*” with “Group R.”
4. Revise Section C404.8.3 by deleting “*approved.*”

14N-C4-C405 Electrical power and lighting systems.

The provisions of Section C405 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “daylight responsive control,” “daylight zone,” “dwelling unit,” “general lighting,” “occupant sensor controls,” “rooftop monitor,” and “time switch control.”
2. Throughout the body of each provision of this section, reset the following terms in non-italic type: “*toplit*” and “*sidelit.*”
3. Revise Section C405.2.1 by replacing “*Occupant sensor controls*” with “*Occupant sensor controls.*”
4. Revise the exception to Section C405.2.1.1 by replacing “permitted” with “allowed.”
5. Revise Section C405.2.1.3, item 2, by replacing each “permitted” with “allowed.”
6. Revise Section C405.2.2.1, item 6, by replacing “permit” with “allow.”
7. Revise the exception to Section C405.2.2.1 by replacing “permitted” with “allowed.”
8. Revise the exceptions to Section C405.2.4.1 by replacing each “permitted” with “allowed.”
9. Revise Equation 4-10 by replacing “*approved*” with “reliable.”
10. Revise Section C405.3.2.2.1, including the exception, by replacing each “permitted” with “allowed.”
11. Revise Section C405.4 to read:

“C405.4 Lighting for plant growth and maintenance.

All permanently installed luminaires used for plant growth and maintenance shall have a *photosynthetic photon efficacy* as defined in accordance with ANSI/ASABE S640 of not less than 1.7 $\mu\text{mol}/\text{J}$ for *greenhouses* and 2.2 $\mu\text{mol}/\text{J}$ for all other indoor growing spaces.

Exceptions:

1. Buildings with no more than 40kW of aggregate horticultural lighting load.
2. Cannabis facilities subject to the Cannabis Regulation and Tax Act, 410 ILCS 705.”

12. Revise Section C405.5.3 to read:
“C405.5.3 Gas lighting.
 See Section C606.”
13. Revise Section C405.6 by replacing “Group R-2 building” with “Group R-2 occupancy.”
14. Revise Section C405.7 by replacing “Low-voltage dry-type distribution electric transformers” with “*Low-voltage dry-type distribution transformers.*”
15. Revise Section C405.9.2 by replacing “permitted” with “allowed” and deleting “and applicable local code.”
16. Revise exception 3 to Section C405.11.1 by replacing “permitted” with “allowed.”
17. Revise Section C405.12.2 by deleting “*approved*” and by replacing “permitted” with “allowed.”
18. Revise Table C405.12.2 by replacing “permitted” with “allowed.”
19. Revise Section C405.12.3 by replacing each “permitted” with “allowed.”

14N-C4-C406 Additional efficiency requirements.

The provisions of Section C406 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “dwelling unit,” “fault detection and diagnostics system,” “fault detection and diagnostics (FDD) system,” “general lighting,” “infiltration,” “on-site renewable energy,” “service water heating,” “sleeping unit,” and “water heater.”
2. Revise Section C406.1 by inserting items 12 and 13 to read:
 - “12. *Grid-integrated controls* for HVAC and more efficient HVAC performance in accordance with Sections C406.2 and C406.13.
 13. *Grid-integrated controls* for water heating and high-efficiency *service water heating* in accordance with Sections C406.7 and C406.14.”
3. Revise Tables C406.1(1) through C406.1(5) to read:

**“TABLE C406.1(1)
 ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP B OCCUPANCIES**

SECTION	CREDIT(S)
C406.2.1: 5% heating efficiency improvement ^a	1
C406.2.2: 5% cooling efficiency improvement ^a	2
C406.2.3: 10% heating efficiency improvement ^a	2
C406.2.4: 10% cooling efficiency improvement ^a	4 or Equation 4-12
C406.3: Reduced lighting power	7 or Equation 4-13

C406.4: Enhanced digital lighting controls	2
C406.5: On-site renewable energy	9 or Equation 4-14
C406.6: Dedicated outdoor air	5
C406.7.2: Recovered or renewable water heating	NA
C406.7.3: Efficient fossil fuel water heater	NA
C406.7.4: Heat pump water heater	NA
C406.8: Enhanced envelope performance	10
C406.9: Reduced air infiltration	11
C406.10: Energy monitoring	2
C406.11: Fault detection and diagnostics system	1
C406.12: Efficient commercial kitchen equipment	Equation 4-15
C406.13: Grid integrated HVAC controls	2 ^b
C406.14: Grid integrated water heating controls	1

NA = Not Applicable.

a. Only one type of credit may be claimed for heating efficiency and only one type of credit may be claimed for cooling efficiency.

b. Reduce in accordance with Section C406.13.1.

TABLE C406.1(2)
ADDITIONAL ENERGY EFFICIENCY CREDITS FOR
GROUP R AND I OCCUPANCIES

SECTION	CREDIT(S)
C406.2.1: 5% heating efficiency improvement ^a	1
C406.2.2: 5% cooling efficiency improvement ^a	1
C406.2.3: 10% heating efficiency improvement ^a	2
C406.2.4: 10% cooling efficiency improvement ^a	1 or Equation 4-12
C406.3: Reduced lighting power	2 or Equation 4-13
C406.4: Enhanced digital lighting controls	NA
C406.5: On-site renewable energy	7 or Equation 4-14
C406.6: Dedicated outdoor air	8
C406.7.2: Recovered or renewable water heating	14
C406.7.3: Efficient fossil fuel water heater	9 ^b
C406.7.4: Heat pump water heater	5
C406.8: Enhanced envelope performance	4
C406.9: Reduced air infiltration	9
C406.10: Energy monitoring	1
C406.11: Fault detection and diagnostics system	1
C406.12: Efficient commercial kitchen equipment	Equation 4-15
C406.13: Grid integrated HVAC controls	3 ^c

C406.14: Grid integrated water heating controls	1
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NA = Not Applicable.

a. Only one type of credit may be claimed for heating efficiency and only one type of credit may be claimed for cooling efficiency.

b. Reduce in accordance with Section C406.4.3.

c. Reduce in accordance with Section C406.13.1.

**TABLE C406.1(3)
ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP E OCCUPANCIES**

SECTION	CREDIT(S)
C406.2.1: 5% heating efficiency improvement ^a	1
C406.2.2: 5% cooling efficiency improvement ^a	1
C406.2.3: 10% heating efficiency improvement ^a	3
C406.2.4: 10% cooling efficiency improvement ^a	2 or Equation 4-12
C406.3: Reduced lighting power	8 or Equation 4-13
C406.4: Enhanced digital lighting controls	2
C406.5: On-site renewable energy	6 or Equation 4-14
C406.6: Dedicated outdoor air	NA
C406.7.2: Recovered or renewable water heating	1
C406.7.3: Efficient fossil fuel water heater	2 ^b
C406.7.4: Heat pump water heater	1
C406.8: Enhanced envelope performance	2
C406.9: Reduced air infiltration	1
C406.10: Energy monitoring	2
C406.11: Fault detection and diagnostics system	1
C406.12: Efficient commercial kitchen equipment	Equation 4-15
C406.13: Grid integrated HVAC controls	4 ^c
C406.14: Grid integrated water heating controls	1

NA = Not Applicable.

a. Only one type of credit may be claimed for heating efficiency and only one type of credit may be claimed for cooling efficiency.

b. Reduce in accordance with Section C406.4.3.

c. Reduce in accordance with Section C406.13.1.

**TABLE C406.1(4)
ADDITIONAL ENERGY EFFICIENCY CREDITS FOR GROUP M OCCUPANCIES**

SECTION	CREDIT(S)
C406.2.1: 5% heating efficiency improvement ^a	2
C406.2.2: 5% cooling efficiency improvement ^a	1
C406.2.3: 10% heating efficiency improvement ^a	3
C406.2.4: 10% cooling efficiency improvement ^a	2 or Equation 4-12
C406.3: Reduced lighting power	12 or Equation 4-13

C406.4: Enhanced digital lighting controls	3
C406.5: On-site renewable energy	7 or Equation 4-14
C406.6: Dedicated outdoor air	2
C406.7.2: Recovered or renewable water heating	NA
C406.7.3: Efficient fossil fuel water heater	NA
C406.7.4: Heat pump water heater	NA
C406.8: Enhanced envelope performance	4
C406.9: Reduced air infiltration	3
C406.10: Energy monitoring	3
C406.11: Fault detection and diagnostics system	1
C406.12: Efficient commercial kitchen equipment	Equation 4-15
C406.13: Grid integrated HVAC controls	3 ^b
C406.14: Grid integrated water heating controls	NA

NA = Not Applicable.

a. Only one type of credit may be claimed for heating efficiency and only one type of credit may be claimed for cooling efficiency.

b. Reduce in accordance with Section C406.13.1.

**TABLE C406.1(5)
ADDITIONAL ENERGY EFFICIENCY CREDITS FOR OTHER^a OCCUPANCIES**

SECTION	CREDIT(S)
C406.2.1: 5% heating efficiency improvement ^c	1
C406.2.2: 5% cooling efficiency improvement ^c	1
C406.2.3: 10% heating efficiency improvement ^c	3
C406.2.4: 10% cooling efficiency improvement ^c	2 or Equation 4-12
C406.3: Reduced lighting power	7 or Equation 4-13
C406.4: Enhanced digital lighting controls	2
C406.5: On-site renewable energy	7 or Equation 4-14
C406.6: Dedicated outdoor air	5
C406.7.2: Recovered or renewable water heating ^b	14
C406.7.3: Efficient fossil fuel water heater ^b	9 ^d
C406.7.4: Heat pump water heater ^b	5
C406.8: Enhanced envelope performance	5
C406.9: Reduced air infiltration	6
C406.10: Energy monitoring	2
C406.11: Fault detection and diagnostics system	1
C406.12: Efficient commercial kitchen equipment	Equation 4-15
C406.13: Grid integrated HVAC controls	3 ^e
C406.14: Grid integrated water heating controls	2

NA = Not Applicable.

- a. Other occupancy groups include all groups except Groups B, E, I, M and R.
 - b. For other occupancy groups listed in Section C406.7.1.
 - c. Only one type of credit may be claimed for heating efficiency and only one type of credit may be claimed for cooling efficiency.
 - d. Reduce in accordance with Section C406.4.3.
 - e. Reduce in accordance with Section C406.13.1.”
4. Revise the last sentence of Section C406.1.1 to read: “Where the entire building complies using credits from Section C406.5, C406.8, C406.9 or C406.13, tenant spaces shall be deemed to comply with this section.”
 5. Revise Section C406.10.2 by deleting “*approved*” and replacing “permitted” with “allowed.”
 6. Revise Table C406.10.2 by replacing “permitted” with “allowed.”
 7. Revise Section C406.10.3 by replacing each “permitted” with “allowed.”
 8. Revise Section C406.12, item 2 to read:

“Be installed prior to the final ventilation inspection.”
 9. Add a new Section C406.13 to read:

“C406.13 Grid-integrated HVAC controls.

All thermostatic HVAC controls shall be provided with *grid-integrated controls* capable of the following:

1. Automatically increasing the *zone* operating cooling set points by a minimum of 4°F (2.2°C).
2. Automatically decreasing the *zone* operating heating set points by a minimum of 4°F (2.2°C).
3. Both ramp-up and ramp-down logic to prevent the building peak demand from exceeding that expected without the *grid-integrated control* implementation.

Exception: Controls shall not be installed for any *zone* serving a Group E-2, I-1, I-2, I-4 or R-4 occupancy, serving a space subject to cooling requirements in accordance with Section 803 of the *Chicago Minimum Requirements for Existing Buildings* or serving a process where reset of the *zone* temperature setpoint during a demand shed event might disrupt the process, including but not limited to computer rooms, data centers, telecom and private branch exchange (PBX) rooms, and laboratories.

The thermostatic controls shall be capable of performing all other functions provided by the control when the *grid-integrated controls* are not available. Systems with *direct digital control* of individual *zones* reporting to a central control panel shall be capable of remotely complying.

C406.13.1 Credit reduction.

If *grid-integrated controls* cannot be installed in a portion of a facility in accordance with the exception to Section C406.13, the credit for this option shall

be reduced in proportion to the gross floor area not served by *grid-integrated controls*.”

10. Add a new Section C406.14 to read:

“C406.14 Grid integrated water heating controls.

All electric storage *water heaters* in a building with a total storage tank capacity greater than 37 gallons (140 L) shall be provided with *grid-integrated controls* that comply with ANSI/CTA-2045-B or another *approved grid-integrated control*.”

14N-C4-C407 Total building performance.

The provisions of Section C407 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “air economizers,” “energy cost,” “proposed design,” “service water heating,” “standard reference design,” and “thermostat.”
2. Throughout this section, reset the singular and plural forms of the following terms in non-italic type: “*construction document*,” and “*Group R*.”
3. Revise Section C407.2, item 2 to read:

“An annual *energy cost* that is less than or equal to 80 percent of the annual *energy cost* of the *standard reference design*. Energy prices shall be taken from a reliable source, such as the Department of Energy, Energy Information Administration’s *State Energy Data System Prices and Expenditures* reports. The *building official* shall be allowed to require time-of-use pricing in *energy cost* calculations. The reduction in *energy cost* of the *proposed design* associated with *on-site renewable energy* shall be not more than 5 percent of the total *energy cost*. The amount of renewable energy purchased from off-site sources shall be the same in the *standard reference design* and the *proposed design*.”

4. Revise Table C407.2 by inserting a new row under “Envelope” to read:

“C402.4.1.3 | Fenestration—orientation”

5. Revise Section C407.3.2 by replacing “permitted” with “allowed.”

(Remainder of this page intentionally blank.)

6. Revise Table C407.4.1(1) by replacing the following rows to read:

Vertical fenestration other than opaque doors	Area 1. The proposed vertical fenestration area where the proposed vertical fenestration area is less than 40 percent of above-grade wall area. 2. 40 percent of above-grade wall area where the proposed vertical fenestration area is 40 percent or more of the above-grade wall area. 3. Fenestration orientation shall comply with Section C402.4.1.3.	As proposed
	U-factor: as specified in Table C402.4	As proposed
	1. SHGC: as specified in Table C402.4 2. Fenestration SHGC shall comply with Section C402.4.1.3.	As proposed
	External shading and PF: none	As proposed
Skylights	Area 1. The proposed skylight fenestration area; where the proposed skylight fenestration area is less than that allowed by Section C402.1. 2. The area allowed by Section C402.1; where the proposed skylight fenestration area exceeds that allowed by Section C402.1.	As proposed
	U-factor: as specified in Table C402.4	As proposed
	SHGC: as specified in Table C402.4	As proposed

7. Revise Table C407.4.1(3), footnote e by replacing “permits” with “allows.”

8. Revise Section C407.4.2.2 by replacing “permitted” with “allowed.”

9. Revise Section C407.4.2.3 by replacing “permitted” with “allowed.”

10. Revise Section C407.5 by deleting “*approved*.”

11. Revise Section C407.5.1 to read:

“Performance analysis tools complying with the applicable subsections of Section C407 and tested according to ASHRAE Standard 140 shall be accepted.”

12. Revise Section C407.5.2 by replacing “an *approved*” with “a reliable.”

14N-C4-C408 Maintenance information and system commissioning.

The provisions of Section C408 of IECC-CE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “air economizer,” “enclosed space,” and “nameplate horsepower.”
2. Throughout this section, reset the following term in non-italic type: “*construction documents*.”
3. Revise Section C408.2 by replacing “permitted” with “allowed.”
4. Revise Section C408.2.4.1 by deleting “pursuant to Section C105.2.6.”
5. Revise Section C408.2.4.2 by replacing “permitted” with “allowed.”
6. Revise Section C408.2.5 to read:

“The construction documents shall specify that the documents described in this section be provided to the building owner or owner’s authorized agent within 90 days of project completion as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable in accordance with the *Chicago Construction Codes Administrative Provisions*.”

7. Revise Section C408.3.1.1 by replacing “permitted” with “allowed.”
8. Revise Section C408.3.2 to read:

“The construction documents shall specify that the documents described in this section be provided to the building owner or owner’s authorized agent within 90 days of project completion as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable in accordance with the *Chicago Construction Codes Administrative Provisions*.”

CHAPTER 14N-C5 EXISTING BUILDINGS

14N-C5-C501 General.

The provisions of Section C501 of IECC-CE are adopted by reference with the following modifications:

1. Revise Sections C501.1 and C501.1.1 to read:

“C501.1 Scope.

The provisions of this chapter shall control *additions, alterations, repairs, and changes of occupancy* to and relocation of *existing buildings*.

C501.1.1 Existing buildings.

Except as specified in this chapter, this code shall not be used to require the

removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an *existing building* or building system lawfully in existence at the time of adoption of this code.”

2. Revise Section C501.2 to read:

“C501.2 Compliance.

Additions, alterations, repairs, and changes of occupancy to or relocation of *existing buildings* shall comply with Sections C502, C503, C504 and C505 of this code, as applicable, and with the provisions for *alterations, repairs, additions and changes of occupancy* or relocation, respectively, in the other *Chicago Construction Codes*. *Alterations* where unconditioned or low-energy space is changed to *conditioned space* shall comply with Section C502.

Exception: *Additions, alterations, repairs or changes of occupancy* complying with ANSI/ASHRAE/IESNA 90.1.”

3. Revise Section C501.3 to read:

“Devices and systems required by this code shall be maintained in conformance to the code edition under which they were installed. The requirements of this chapter shall not provide the basis for removal or abrogation of energy conservation, fire protection or safety systems and devices in *existing buildings*.”

4. Revise Section C501.4 by replacing each “permitted” with “allowed.”

5. Revise Section C501.5 to read:

“Provisions of this code relating to the *repair, alteration, relocation and change of occupancy of existing buildings* shall not be mandatory for *historic buildings* provided that a report has been submitted to the *building official* and signed by a *registered design professional* demonstrating that compliance with that provision would threaten, degrade or destroy the historic form, fabric or function of the *historic building*.”

14N-C5-C502 Additions.

The provisions of Section C502 of IECC-CE are adopted by reference with the following modifications:

1. Revise Section C502.1 to read:

“*Additions* to an *existing building* shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the *existing building* to comply with this code. *Additions* shall not create an unsafe or hazardous condition or overload existing building systems. An *addition* shall be deemed to comply with this code if the *addition* alone complies, if the *existing building* and *addition* comply with this code as a single building or if the *building* with the *addition* will use no more energy than the *existing building*.”

2. Revise Section C502.2 by replacing “*nonconditioned*” with “unconditioned.”

3. Revise exception 2 to Section C502.2 to read:

“Where the total building performance option in Section C407 is used to comply with this section, the annual *energy cost* of the *proposed design* shall be not greater than 110 percent of the annual *energy cost* otherwise allowed by Section C407.2.”

4. Revise Section C502.3.1 to read:

“*Additions* shall comply with the following:

1. Where an *addition* has *vertical fenestration* that results in a total building *vertical fenestration area* less than or equal to that allowed by Section C402.4.1, the *addition* shall comply with Section C402.1.5, C402.4.3 or C407.
2. Where an *addition* has *vertical fenestration* that results in a total building *vertical fenestration area* greater than that allowed by Section C402.4.1, the *vertical fenestration* shall comply with Section C402.4.1.1 for the *addition* only.
3. Where an *addition* has a *vertical fenestration area* greater than that allowed by Section C402.4.1, the *vertical fenestration* shall comply with Section C402.4.1.1 for the *addition* only.
4. Where an *addition* has *vertical fenestration* that results in a total building *vertical fenestration area* exceeding that allowed by Section C402.4.1.1, the *addition* shall comply with Section C402.1.5 or C407.”

5. Revise Section C502.3.2 to read:

“C502.3.2 Skylight area.

Additions shall comply with the following:

1. Where an *addition* has a *skylight fenestration area* that results in a total building *skylight fenestration area* less than or equal to that allowed by Section C402.4.1, the *addition* shall comply with Section C402.1.5 or C407.
2. Where an *addition* has a *skylight fenestration area* that results in a total building *skylight fenestration area* greater than allowed by Section C402.4.1, the *skylights* shall comply with Section C402.4.1.2 for the *addition* only.
3. Where an *addition* has a *skylight fenestration area* greater than that allowed by Section C402.4.1, the *skylights* shall comply with Section C402.4.1.2 for the *addition* only.
4. Where an *addition* has a *skylight fenestration area* that results in a total building *skylight fenestration area* exceeding that allowed by Section C402.4.1.2, the *addition* shall comply with Section C402.1.5 or C407.”

6. Revise Section C502.3.3 by replacing “building” with “*existing building's*.”

14N-C5-C503 Alterations.

The provisions of Section C503 of IECC-CE are adopted by reference with the following modifications:

1. Revise Section C503.1 to read:

“C503.1 General.

Alterations to any existing building shall comply with the requirements of Section C503. Alterations shall be such that the existing building is not less conforming to the provisions of this code than the existing building was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.

Exception: The following *alterations* need not comply with the requirements for new construction, provided that the energy use of the *building* is not increased:

1. Storm windows installed over existing *fenestration*.
 2. Surface-applied window film installed on existing *fenestration* assemblies reducing solar heat gain, provided that the code does not require the glazing or *fenestration* to be replaced.
 3. Existing ceiling, wall or floor cavities exposed during construction, provided that these cavities are filled with insulation with a *thermal resistance* of at least R-3 per inch. Insulation shall not be required to be added to existing wall cavities for masonry *above-grade walls* where a *registered design professional* indicates in the construction documents that insulation would block air circulation in the cavity and create moisture problems that would potentially lead to differential expansion and contraction.
 4. Construction where the existing roof, wall or floor cavity is not exposed.
 5. *Roof recover*.
 6. *Air barriers* shall not be required for *roof recover* and *roof replacement* where the scope of work does not include *alterations* or *repairs* to the remainder of the building envelope.”
2. Revise the exception to Section C503.2 to read:

“Exception: Where the *existing building* exceeds the *fenestration area* limitations of Section C402.4.1 prior to *alteration*, the building is exempt from Section C402.4.1 provided that there is not an increase in *fenestration area*.”

3. Revise Section C503.2.1 to read:

“Roof replacements shall comply with Section C402.1.3, C402.1.4, C402.1.5 or C407 where the existing roof assembly is part of the building thermal envelope and contains insulation entirely above the roof deck. In no case shall the thermal resistance (R-value) of the roof insulation be reduced or the thermal transmittance (U-factor) of the roof

assembly be increased as part of the *roof replacement*. For *low-sloped roofs*, where the required *R-value* cannot be provided due to flashing height limitations presented by existing rooftop conditions that are not being altered, such as HVAC equipment, door or window sill height, parapet height, weep holes, and roof flashing heights not meeting the manufacturer's specifications if reduced, the maximum thickness of insulation compatible with the available space and existing conditions shall be installed. New insulation shall have a minimum *R-value* of R-5 per inch. In no case shall a *roof replacement* reduce the *R-value* of the *roof assembly*."

4. Revise Section C503.2.2 to read:

"The addition of *vertical fenestration* that results in a total building *fenestration area* less than or equal to that specified in Section C402.4.1 shall comply with Section C402.1.5, C402.4.3 or C407. The addition of *vertical fenestration* that results in a total building *fenestration area* greater than Section C402.4.1 shall comply with Section C402.4.1.1 for the space adjacent to the new *fenestration* only. *Alterations* that result in a total building *vertical fenestration area* exceeding that specified in Section C402.4.1.1 shall comply with Section C402.1.5 or C407. Provided that the *vertical fenestration area* is not changed, using the same *vertical fenestration area* in the *standard reference design* as the *building* prior to *alteration* shall be an alternative to using the *vertical fenestration area* specified in Table C407.4.1(1)."

5. Revise the exception to Section C503.2.2.1 by replacing "permitted" with "allowed."

6. Revise Section C503.2.3 to read:

"C503.2.3 Skylight fenestration area.

New *skylight fenestration area* that results in a total building *skylight fenestration area* less than or equal to that specified in Section C402.4.1 shall comply with Section C402.1.5, C402.4 or C407. The addition of *skylight fenestration area* that results in a total building *skylight fenestration area* greater than Section C402.4.1 shall comply with Section C402.4.1.2 for the space adjacent to the new *skylights*. *Alterations* that result in a total building *skylight fenestration area* exceeding that specified in Section C402.4.1.2 shall comply with Section C402.1.5 or C407. Provided that the *skylight fenestration area* is not changed, using the same *skylight fenestration area* in the *standard reference design* as the *building* prior to *alteration* shall be an alternative to using the *skylight fenestration area* specified in Table C407.4.1(1)."

7. Revise Section C503.3 by replacing "duct systems" with "*duct systems*."

14N-C5-C504 Repairs.

The provisions of Section C504 of IECC-CE are adopted by reference with the following modifications:

1. Revise Section C504.1 to read:

"*Existing buildings* shall be repaired in compliance with Section C501.3 and this section. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered to be part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section

C501.3, *repairs* exempt from *permit* and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

Where a building was constructed to comply with ANSI/ASHRAE/IESNA 90.1, *repairs* shall comply with the standard and need not comply with Sections C402, C403, C404 and C405.”

2. Revise Section C504.2, item 3 to read:

“Air barriers shall not be required to be added as part of *roof repair* where the scope of work does not include *alterations* to the remainder of the building envelope.”

14N-C5-C505 Change in use.

The provisions of Section C505 of IECC-CE are not adopted. The following is adopted as Section C505:

“C505 CHANGE IN USE

C505.1 General.

Spaces undergoing a change in use that will result in an increase in demand for either fossil fuel or electrical energy and that requires a building permit shall comply with this code. Where the use of 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 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*.

Exceptions:

1. Where the component performance alternative in Section C402.1.5 is used to comply with this section, the proposed UA shall not be greater than 110 percent of the target UA.
2. Where the total building performance option in Section C407 is used to comply with this section, the annual *energy cost* of the *proposed design* shall not be greater than 110 percent of the annual *energy cost* otherwise allowed by Section C407.3.”

CHAPTER 14N-C6 CHICAGO-SPECIFIC REQUIREMENTS—COMMERCIAL

14N-C6-C600 Chapter C6.

The following is adopted as Chapter C6 of this code:

“CHAPTER C6. CHICAGO-SPECIFIC REQUIREMENTS—COMMERCIAL

C601 SCOPE

C601.1 General.

The provisions of this appendix shall be applicable to *commercial buildings*.

C601.2 Implementation of certain requirements that exceed the requirements of the 2021 IECC and 2022 Illinois Energy Conservation Code.

The provisions of Sections C603 through C605 shall be applicable to permits applied for on and after January 1, 2023, in accordance with Section 14A-1-105.9 of the *Chicago Construction Codes Administrative Provisions*.

C602 RESERVED

C603 SOLAR-READY ROOFS

C603.1 Scope.

This section shall be applicable for new construction *buildings* and *additions*.

Exception: A new construction *building* or *addition* with a ground-level footprint of 7,500 square feet (697 m²) or less.

C603.2 General.

Solar-ready zones shall be provided on *low-slope roofs* of *buildings* with a *building height* of 60 feet (18.3 m) or less. *Solar-ready zones* shall comply with Sections C603.3 through C603.10.

Exceptions:

1. A *building* with a permanently installed, *on-site renewable energy* system.
2. A roof that will be shaded by existing structures or existing vegetation for more than 50 percent of daylight hours annually, as certified by a *registered design professional* based on calculations.
3. A roof where the incident solar radiation available is not feasible for a solar photovoltaic or solar thermal system, as certified by a *registered design professional* based on analysis.
4. A roof where a *registered design professional* certifies that the *solar-ready zone* area required by Section C603.4 cannot be met because of extensive rooftop equipment, skylights, occupiable rooftop areas, *vegetative roof* areas or similar obstructions.
5. Group H occupancies.

C603.3 Construction document requirements for a solar-ready zone.

Construction documents shall indicate the *solar-ready zone*.

C603.4 Solar-ready zone area.

The total *solar-ready zone* surface area shall be not less than 40 percent of the available roof area. The available roof area is the horizontally projected gross roof area less areas

covered by skylights, rooftop parking or helipads, occupiable rooftops, *vegetative roof* areas and mandatory *access* or set back areas as required by Section 1204 of the *Chicago Fire Prevention Code*. The *solar-ready zone* shall be either a single area or smaller, separated sub-zone areas. Each sub-zone shall be not less than 5 feet (1524 mm) in width in the narrowest dimension.

Exception: A *solar-ready zone* shall not be required if the available roof area is less than 2,000 square feet (186 m²).

C603.5 Obstructions.

Solar ready zones shall be free from obstructions, including pipes, vents, ducts, HVAC equipment, *skylights* and roof-mounted equipment.

C603.6 Roof loads and documentation.

A collateral dead load of not less than 5 pounds per square foot (5 psf) (24.41 kg/m²) shall be included in the gravity and lateral design calculations for the *solar-ready zone*. The structural design loads for roof dead load and roof live load shall be indicated on the construction documents.

C603.7 Interconnection pathway.

Construction documents shall indicate pathways for future routing of conduit or piping from the *solar-ready zone* to the electrical service panel and *energy storage system-ready area* or *service water heating system*.

C603.8 Energy storage system-ready area.

The floor area of the *energy storage system-ready area* shall be not less than 2 feet (610 mm) in one dimension and 4 feet (1219 mm) in the perpendicular dimension and located in accordance with the *Chicago Fire Prevention Code*. The location and layout diagram of the *energy storage system-ready area* shall be indicated on the construction documents.

C603.9 Electrical service reserved space.

The main electrical service panel shall have a reserved space to allow installation of a dual-pole circuit breaker for future solar electric and a dual-pole circuit breaker for future *energy storage system* installation. These spaces shall be labeled "For Future Solar Electric and Storage." The reserved spaces shall be positioned at the end of the panel that is opposite from the panel supply conductor connection.

C603.10 Permanent certificate.

A permanent certificate, indicating the location and dimensions of the *solar-ready zone* and other requirements of this section, shall be posted near the electrical distribution panel, *water heater* or other conspicuous location by the builder.

C604 ELECTRIFICATION-READY RESIDENCES

C604.1 Scope.

This section shall apply to equipment within *dwelling units* and rooms and spaces provided with domestic cooking appliances shared by the occupants of more than one *dwelling unit* in Group R-2 occupancies that are created through:

1. New construction.

2. *Change of occupancy.*

Exception: *Change of occupancy* within Group R.

This section shall not apply to *alterations, additions, repairs or changes of occupancy* to existing Group R occupancies.

C604.2 Indoor cooking appliances.

A receptacle outlet served by an individual branch circuit with a minimum rating of 40 amperes shall be installed within 3 feet (914 mm) of each *fuel gas*-fired range, cooktop, oven or other permanently installed indoor cooking appliance. A minimum of 9,600 VA for 240-volt systems or 8,000 VA for 208-volt systems shall be included in feeder and service load calculations.

C604.3 Domestic clothes dryers.

A receptacle outlet served by an individual branch circuit with a minimum rating of 30 amperes shall be installed within 3 feet (914 mm) of each *fuel gas*-fired domestic clothes dryer. A minimum of 5,000 VA shall be included in feeder and service load calculations.

C604.4 Water heaters.

A receptacle outlet served by an individual branch circuit with a minimum rating of 30 amperes shall be installed within 3 feet (914 mm) of each *fuel gas*-fired *water heater* serving a single *dwelling unit*. A minimum of 4,500 VA shall be included in feeder and service load calculations.

C604.4.1 Clear space.

A clear space that is at least 3 feet (914 mm) by 3 feet (914 mm) by 7 feet (2134 mm) high shall be provided within 3 feet (914 mm) of the installed *fuel gas*-fired *water heater*.

Exception: Clear space is not required adjacent to heat pump *water heaters* or tankless *water heaters*.

C604.5 Electrification-ready circuits.

Both ends of the unused conductors required by Sections C604.2, C604.3 and C604.4 shall be labeled "SPARE" and be electrically isolated. Space shall be reserved in the electrical panel in which the branch circuit originates for the installation of an overcurrent device. Capacity for the circuits required by Sections C604.2, C604.3 and C604.4 shall be included in the electrical load calculations of the original installation.

C605 EXTERIOR BALCONIES AND PARAPETS

C605.1 Continuous insulation.

In new construction, exterior balconies and parapets that interrupt the *building thermal envelope* shall comply with one of the following:

1. Shall be insulated with *continuous insulation* having a minimum *thermal resistance (R-value)* equivalent to the continuous insulation component required in the adjacent wall assembly as listed in Table C402.1.3. Where more than one wall assembly is interrupted by an adjacent balcony, the higher *thermal resistance (R-value)* shall be used.

2. Shall incorporate a minimum R-3 thermal break at the location where the element penetrates the *building thermal envelope*.

Exception: Penetrations in the *building thermal envelope* that do not exceed 1 square foot (0.09 m²).

C606 GAS LIGHTING PROHIBITED

C606.1 General.

New permanently installed *fuel gas*-fired lighting appliances shall be prohibited.

C607 ROOF SOLAR REFLECTANCE

C607.1 General.

Roof coverings shall comply with Section 1515 of the *Chicago Building Code*.

C608 ELECTRIC VEHICLE SUPPLY EQUIPMENT

C608.1 General.

Electric vehicle supply equipment or electric vehicle supply equipment-ready parking spaces shall be provided in accordance with Section 17-10-1011 of the *Chicago Zoning Ordinance*.”

CHAPTER 14N-C7 REFERENCED STANDARDS—COMMERCIAL

14N-C7-C700 Chapter C7.

The provisions of Chapter 6 of IECC-CE are adopted by reference as Chapter C7 of this code with the following modifications:

1. Insert a new section to read:

“AISI

American Iron and Steel Institute
25 Massachusetts Avenue, NW, Suite 800
Washington DC 20001

AISI S250 – 21 (with Supplement #1 dated 2022): North American Standard for Thermal Transmittance of Building Envelopes with Cold-Formed Steel Framing”

2. Delete the entire “ASME” section.
3. Insert a new section to read:

“CTA

Consumer Technology Association
1919 S. Eads Street
Arlington, VA 22202

ANSI/CTA-2045-B: Modular Communications Interface for Energy Management”

4. Delete the following ICC references: IBC-21, IFC-21, IFCG-21, IMC-21, IPC-21, IPMC-21, and IPSDC-21.

5. Insert the following ICC reference: “ICC 700—2020: National Green Building Standard.”
6. Delete the entire “NFPA” section.
7. Insert a new section to read:

“PHIUS

Phius
53 West Jackson Boulevard, Suite 1462
Chicago, IL 60604-3606

PHIUS—2021: Passive Building Standard Certification Guidebook (Version 3.1, July 2022)”

PART II – RESIDENTIAL PROVISIONS

CHAPTER 14N-R1 SCOPE AND PURPOSE

14N-R1-R001 Adoption of the residential provisions of the International Energy Conservation Code by reference.

The residential provisions of the *International Energy Conservation Code*, 2021 edition, second printing, and any erratum thereto identified by the publisher (hereinafter referred to as “IECC-RE”), excluding the appendices, are adopted by reference and shall be considered part of the requirements of this title except as modified by the specific provisions of this title.

If a conflict exists between a provision modified by this title and a provision adopted without modification, the modified provision shall control.

14N-R1-R002 Citations.

Provisions of IECC-RE which are incorporated into this title by reference may be cited as follows:

14N-R[IECC-RE chapter number]-[IECC-RE section number]

14N-R1-R003 Global modifications.

The following modifications shall apply to each provision of IECC-RE incorporated into this title:

1. Replace each occurrence of “*International Building Code*” with “*Chicago Building Code*.”
2. Replace each occurrence of “ASME A17.1” or “ASME A17.1/CSA B44” with “the *Chicago Conveyance Device Code*.”
3. Replace each occurrence of “NFPA 70” with “the *Chicago Electrical Code*.”

4. Replace each occurrence of “*International Fire Code*” with “*Chicago Fire Prevention Code*.”
5. Replace each occurrence of “*International Fuel Gas Code*” with “*Chicago Fuel Gas Code*.”
6. Replace each occurrence of “*International Mechanical Code*” with “*Chicago Mechanical Code*.”
7. Replace each occurrence of “*International Plumbing Code*” with “*Chicago Plumbing Code*.”
8. Replace each occurrence of “*International Existing Building Code*” with “*Chicago Building Rehabilitation Code*.”
9. Replace each occurrence of “*International Property Maintenance Code*” with “*Chicago Minimum Requirements for Existing Buildings*.”
10. Replace each occurrence of “*code official*” or “code official” with “*building official*.”

14N-R1-R100 Chapter R1.

The provisions of Chapter 1 of IECC-RE are not adopted. The following is adopted as Chapter R1:

“CHAPTER R1 SCOPE AND PURPOSE

R101 GENERAL

R101.1 Title.

This Part II of Title 14N of the Municipal Code of Chicago shall be known as the *Chicago Energy Transformation Code—Residential Provisions*, hereinafter referred to as “this code.”

R101.2 Scope.

This code applies to *residential buildings*, the *building site* and associated systems and equipment.

R101.3 Intent.

The intent of this code is to regulate the design and construction of *residential buildings* for the effective use and conservation of energy over the useful life of each *building* and for the reduction of carbon emissions caused by use and occupancy of *buildings* built and renovated under this code. This code is intended to provide flexibility to allow the use of innovative and cost-effective approaches and techniques to achieve these objectives. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

R101.4 Compliance.

Residential buildings shall meet the requirements of this code. *Commercial buildings* shall meet the requirements of the *Chicago Energy Transformation Code—Commercial Provisions*.

R101.4.1 Mixed residential and commercial buildings.

Where a *building* includes both *residential building* and *commercial building* portions, each portion shall be separately considered and meet applicable requirements of this code and the *Chicago Energy Transformation Code—Commercial Provisions*.

R101.4.2 Evidence of compliance.

The *building official* may designate specific computer software, worksheets, forms, compliance manuals and other similar materials as providing evidence of compliance with the requirements of this code.

R102 CONSTRUCTION DOCUMENTS

R102.1 General.

Construction documents shall comply with the *Chicago Construction Codes Administrative Provisions*, including specifically Section 14A-4-411.3.13.”

CHAPTER 14N-R2 DEFINITIONS

14N-R2-R201 General.

The provisions of Section R201 of IECC-RE are not adopted. The following is adopted as Section R201:

“R201 GENERAL

R201.1 Definitions.

The definitions in Section R202 shall apply to italicized words throughout this code except where specifically limited to a particular chapter or section. Unless the context requires otherwise, the definitions in Section R202 shall also apply to non-italicized words throughout this code.

R201.2 Interchangeability.

Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural includes the singular.

R201.3 Words defined in other codes.

Where non-italicized words are not defined in this code and are defined in the *Chicago Construction Codes Administrative Provisions, Chicago Building Code, Chicago Conveyance Device Code, Chicago Electrical Code, Chicago Fire Prevention Code, Chicago Fuel Gas Code, Chicago Mechanical Code, Chicago Energy Transformation Code—Commercial Provisions, Chicago Plumbing Code, Chicago Building Rehabilitation Code, or Chicago Minimum Requirements for Existing Buildings*, such words shall have the meanings ascribed to them in those codes unless the context requires otherwise.

R201.4 Words not defined.

Where italicized words are not defined in Section R202 or non-italicized words are not defined in Section R202 or any of the codes referenced in Section R201.3, such words

shall have the meaning given in the latest edition of Merriam-Webster's Collegiate Dictionary as the context implies."

14N-R2-R202 Definitions.

The provisions of Section R202 of IECC-RE are adopted by reference with the following modifications:

1. Revise the definition of "addition" to read:

"ADDITION (for this code only). An extension or increase in the *conditioned floor area, number of stories above grade plane* or building height of an *existing building.*"

2. Revise the definition of "alteration" to read:

"ALTERATION. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*"

3. Revise the definition of "approved" to read:

"APPROVED. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*"

4. Revise the definition of "approved agency" to read:

"APPROVED AGENCY. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*"

5. Revise the definition of "building" to read:

"BUILDING. As defined in Chapter 2 of the *Chicago Building Code.*"

6. Insert the following definition:

"BUILDING OFFICIAL. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*"

7. Insert the following definitions:

"CHANGE OF OCCUPANCY. As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*

CHICAGO BUILDING CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*

CHICAGO BUILDING REHABILITATION CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*

CHICAGO CONSTRUCTION CODES. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions.*

CHICAGO CONSTRUCTION CODES ADMINISTRATIVE PROVISIONS. Title 14A of the Municipal Code of Chicago.

CHICAGO ELECTRICAL CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO ENERGY TRANSFORMATION CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

Chicago Energy Transformation Code—Commercial Provisions. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

Chicago Energy Transformation Code—Residential Provisions. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO FIRE PREVENTION CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO FUEL GAS CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO MECHANICAL CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO MINIMUM REQUIREMENTS FOR EXISTING BUILDINGS. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO PLUMBING CODE. As defined in Chapter 2 of the *Chicago Construction Codes Administrative Provisions*.

CHICAGO ZONING ORDINANCE. Title 17 of the Municipal Code of Chicago.”

8. Delete the definition of “code official.”
9. Revise the definition of “dwelling unit” to read:
“**DWELLING UNIT.** As defined in Chapter 2 of the *Chicago Building Code*.”
10. Insert the following definition:
“**EXISTING BUILDING.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code*.”
11. Insert the following definition:
“**FUEL GAS.** A natural gas, manufactured gas, liquefied petroleum gas or mixture of any of these gases.”
12. Revise the definition of “historic building” to read:
“**HISTORIC BUILDING.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code*.”
13. Revise the definition of “insulated siding” by resetting “continuous insulation” in italic type.

14. Revise the definition of “labeled” to read:
“**LABELED.** As defined in Chapter 2 of the *Chicago Building Code.*”
15. Revise the definition of “listed” to read:
“**LISTED.** As defined in Chapter 2 of the *Chicago Building Code.*”
16. Insert the following definition:
“**LOCAL EXHAUST.** An exhaust system that uses one or more fans to exhaust air from a specific room or rooms within a *dwelling unit.*”
17. Insert the following definition:
“**LOW-SLOPED ROOF.** As defined in Chapter 2 of the *Chicago Building Code.*”
18. Revise the definition of “on-site renewable energy” to read:
“**ON-SITE RENEWABLE ENERGY.** Energy from *renewable energy resources* harvested at the *building site.*”
19. Revise the definition of “renewable energy certificate (REC)” to read:
“**RENEWABLE ENERGY CERTIFICATE (REC).** An instrument that represents the environmental attributes of one megawatt hour of *renewable energy resources*; also known as an energy attribute certificate (EAC).”
20. Revise the definition of “renewable energy resources” by deleting “hot.”
21. Revise the definition of “repair” to read:
“**REPAIR.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
22. Revise the definition of “reroofing” to read:
“**REROOFING.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
23. Revise the definition of “residential building” to read:
“**RESIDENTIAL BUILDING (for this code only).** Group R-2, R-3, R-4 and R-5 occupancies with no more than four *stories above grade plane.*”
24. Revise the definition of “roof assembly” to read:
“**ROOF ASSEMBLY.** As defined in Chapter 2 of the *Chicago Building Code.*”
25. Revise the definition of “roof recover” to read:
“**ROOF RECOVER.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”

26. Revise the definition of “roof repair” to read:
“**ROOF REPAIR.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
27. Revise the definition of “roof replacement” to read:
“**ROOF REPLACEMENT.** As defined in Chapter 2 of the *Chicago Building Rehabilitation Code.*”
28. Insert the following definition:
“**SKYLIGHT.** See “*fenestration.*””
29. Insert the following definition:
“**STORY ABOVE GRADE PLANE.** As defined in Chapter 2 of the *Chicago Building Code.*”
30. Revise the definition of “sunroom” by replacing “dwelling” with “*dwelling unit.*”
31. Insert the following definitions:
“**THERMAL RESISTANCE.** See “*R-value (thermal resistance).*”
THERMAL TRANSMITTANCE. See “*U-factor (thermal transmittance).*”
32. Revise the definition of “ventilation” to read:
“**VENTILATION.** As defined in Chapter 2 of the *Chicago Building Code.*”
33. Insert the following definition:
“**VERTICAL FENESTRATION.** See “*fenestration.*””
34. Revise the definition of “whole house mechanical ventilation system” by replacing each “whole house” with “whole-house.”

CHAPTER 14N-R3 GENERAL REQUIREMENTS

14N-R3-R301 Climate zone.

The provisions of Section R301 of IECC-RE are not adopted. The following is adopted as Section R301:

“R301 CLIMATE ZONE

R301.1 General.

Climate zone 5A shall be used to determine the applicable requirements in Chapter 4.”

14N-R3-R302 Design conditions.

The provisions of Section R302 of IECC-RE are adopted by reference without modification.

14N-R3-R303 Materials, systems and equipment.

The provisions of Section R303 of IECC-RE are adopted by reference with the following modifications:

1. Revise Section R303.1.1 by resetting “insulated siding” in italic type.
2. Revise the exception to Section R303.1.1 by deleting “or Table R906.2 of the *International Residential Code*, as applicable.”
3. Revise Section R303.1.4.1 by resetting “insulated siding” in italic type.
4. Revise Section R303.2 by deleting “or the *International Residential Code*, as applicable.”
5. Revise Section R303.2.1 by resetting “crawl space walls” in italic type.

CHAPTER 14N-R4 RESIDENTIAL ENERGY EFFICIENCY

14N-R4-R401 General.

The provisions of Section R401 of IECC-RE are adopted by reference with the following modifications:

1. Revise Section R401.1 by resetting “residential building” in italic type.
2. Revise Section R401.2 to read:

“R401.2 Application.

Residential buildings shall comply with Chapter R6, Section R401.2.5 and either Section R401.2.1, R401.2.2, R401.2.3 or R401.2.4.

Exception: *Additions, alterations, repairs and changes of occupancy to existing buildings* complying with Chapters R5 and R6.”

3. Revise Section R401.2.4 to read:

“R401.2.4 Above-code Certification Option.

The Above-code Certification Option requires compliance with either Section R401.2.4.1 or R401.2.4.2.

R401.2.4.1 Phius Certification Option.

The Phius Certification Option requires compliance with Section R409.

R401.2.4.2 National Green Building Standard Certification Option.

The National Green Building Standard Certification Option requires compliance with Section R410.”

4. Revise Section R401.2.5 by replacing “all compliance approaches” with “all compliance approaches except the Above-code Certification Option”; replacing each “one of the additional efficiency package options” with “two of the additional efficiency package options”; replacing “option” with “options”; and by resetting “energy cost,” “proposed design” and “standard reference design” in italic type.

5. Revise the first two sentences of Section R401.3 to read:

“A permanent certificate shall be completed by the builder and posted on a wall in the space where the furnace is located, a utility room or an *approved* location inside the *building*. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels.”

14N-R4-R402 Building thermal envelope.

The provisions of Section R402 of IECC-RE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “basement wall,” “building thermal envelope,” “cavity insulation,” “conditioned space,” “continuous insulation,” “crawl space wall,” “dwelling unit,” “dwelling unit enclosure area,” “dynamic glazing,” “fenestration,” “infiltration,” “insulated siding,” “opaque door,” “proposed design,” and “ventilation air.”
2. Revise Section R402.1.1 to read:

“Wall assemblies in the *building thermal envelope* shall comply with the vapor retarder requirements of Section 1404.3 of the *Chicago Building Code*.”

(Remainder of this page intentionally blank.)

3. Revise Table R402.1.2 to read:

**“TABLE R402.1.2
MAXIMUM ASSEMBLY U-FACTORS^a AND FENESTRATION REQUIREMENTS**

FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC ^d	WOOD FRAME ROOF/ CEILING U-FACTOR	WOOD FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
0.30	0.55	0.40	0.024	0.045	0.082	0.033	0.050	0.055

For SI: 1 foot = 304.8 mm.

- Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.
- 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 0.065.
- [Reserved.]
- The SHGC column applies to all glazed fenestration.”

4. Revise Table R402.1.3 to read:

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

FENESTRATION U-FACTOR ^b	SKYLIGHT U-FACTOR ^b	GLAZED FENESTRATION SHGC ^b	WOOD FRAME ROOF/ CEILING R-VALUE	WOOD FRAME WALL R-VALUE ^g	MASS WALL R-VALUE ^h	FLOOR R-VALUE	BASEMENT WALL R-VALUE ^{c, 9}	SLAB R-VALUE & DEPTH ^d	CRAWL SPACE WALL R-VALUE ^{c, 9}
0.30	0.55	0.40	60	30 or 20&5ci ^{h, i} or 13&10ci ^h or 0&20ci ^h	13/17	30	15ci or 19 or 13&5ci	10ci, 4 ft	15ci or 19 or 13&5ci ^h

For SI: 1 foot = 304.8 mm.

ci = continuous insulation.

- 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.
- 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. [Reserved.]
- f. [Reserved.]
- g. The first value is cavity insulation; the second value is continuous insulation (ci). Therefore, as an example, "13&5ci" 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. To reduce the possibility of condensation within walls during cold weather, the ratio of the *R*-values of continuous insulation to cavity insulation should not be less than 0.30 without hygrothermal analysis."

5. Revise Section R402.2.1 by deleting the first sentence.

6. Revise Section R402.2.2 to read:

"R402.2.2 Low-sloped roofs.

For *low-sloped roofs*, installing R-42 insulation over 100 percent of the ceiling area requiring insulation shall satisfy the requirement for R-60 insulation. For *low-sloped roofs* with above-deck insulation, installing R-42 *continuous insulation* above the roof deck shall satisfy the requirement for R-60 insulation. This reduction shall not apply to the *U*-factor alternative approach in Section R402.1.4 and the Total UA alternative in Section R402.1.5."

7. Revise Section R402.2.3 by replacing "permitted" with "allowed."

8. Revise the exceptions to Section R402.2.4 to read:

"Exception: Vertical doors providing access from *conditioned spaces* to unconditioned spaces that comply with the *fenestration* requirements of Table R402.1.3."

9. Revise Section R402.2.6 to read:

"R402.2.6 Steel-frame ceilings, walls and floors.

Steel-frame ceilings, walls, and floors shall comply with the insulation requirements of Table R402.2.6 or the *U*-factor requirements of Table R402.1.2. The calculation of the *U*-factor for steel-framed ceilings and walls in an envelope assembly shall be determined in accordance with AISI S250 as modified herein.

- 1. Where the steel-framed wall contains no *cavity insulation* and uses *continuous insulation* to satisfy the *U*-factor maximum, the steel-framed wall member spacing is allowed to be installed at any on-center spacing.
- 2. Where the steel-framed wall contains framing at 24 inches (600 mm) on center with a 23% framing factor or framing at 16 inches (400 mm) on-center with a 25%

framing factor, the next lower framing member spacing input values shall be used when calculating using AISI S250.

3. Where the steel-framed wall contains less than 23% framing factors the AISI S250 shall be used without any modifications.
4. Where the steel-framed wall contains other than standard C-shape framing members the AISI S250 calculation option for other than standard C-shape framing is allowed to be used.”

10. Revise Table R402.2.6 to read:

**“TABLE R402.2.6
STEEL-FRAME WALL INSULATION R-VALUES**

WOOD FRAME R-VALUE REQUIREMENT	COLD-FORMED STEEL-FRAME EQUIVALENT R-VALUE^a
Steel-frame Wall, 16 inches on center	
R-13&10ci	R-0&20ci or R-13&15ci or R-15&14ci
R-20&5ci	R-13&12.7ci or R-15&12.3ci or R-19&11.6ci or R-21&11.3ci or R-25&10.9ci
Steel-frame Wall, 24 inches on center	
R-13&10ci	R-0&20ci or R-13&13ci or R-15&12ci or R-19&11ci or R-21&11ci
R-20&5ci	R-13&11.5ci or R-15&10.9ci or R-19&10.1ci or R-21&9.7ci or R-25&9.1ci

ci = continuous insulation.

a. The first value is cavity insulation *R*-value; the second value is continuous insulation *R*-value. Therefore, for example, “R-30&3ci” means R-30 cavity insulation plus R-3 continuous insulation.”

11. Revise Section R402.2.7 by replacing “permitted” with “allowed.”
12. Delete the exception to Section R402.2.9.
13. Revise Section R402.2.9.1 by replacing “permitted” with “allowed.”
14. Revise Section R402.2.10.1 by deleting “or *International Residential Code*, as applicable” and replacing “6 inches (153 mm)” with “12 inches (305 mm).”
15. Revise the exception to Section R402.2.12, item 1 to read: “The minimum ceiling insulation *R*-value shall be R-24.”
16. Insert a new Section R402.2.13 to read:

“R402.2.13 Balconies and parapets.
See Section R605.”
17. Revise Section R402.3 and its subsections by replacing each “permitted” with “allowed.”
18. Revise the exception to Section R402.3.5 by deleting “In Climate Zones 2 through 8.”

19. Revise Section R402.4.1.1 by deleting the last sentence.
20. Revise Table R402.4.1.1 by replacing the following rows to read:

Rim joists	Rim joists shall include an air barrier. ^b	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board. ^b
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Basement crawl space and slab foundations	<p>Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder/air barrier in accordance with Section R402.2.10.</p> <p>Penetrations through concrete foundation walls and slabs shall be air sealed.</p> <p>Class 1 vapor retarders shall not be used as an air barrier on below-grade walls.</p>	<p>Crawl space insulation, where provided instead of floor insulation, shall be installed in accordance with Section R402.2.10.</p> <p>Conditioned basement foundation wall insulation shall be installed in accordance with Section R402.2.8.1.</p> <p>Slab-on-grade floor insulation shall be installed in accordance with Section R402.2.9.1.</p>
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21. Revise Section R402.4.1.2 to read:

“R402.4.1.2 Testing.

The *building* or *dwelling unit* shall be tested for air leakage. The maximum air leakage rate for any *building* or *dwelling unit* under any compliance path shall not exceed 5.0 air changes per hour or 0.28 cubic feet per minute (CFM) per square foot [0.0079 m³/(s × m²)] of *dwelling unit enclosure area*. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). A written report of the results of the test shall be signed by the party conducting the test and made available to the *building official*. Testing shall be performed at any time after all penetrations of the *building thermal envelope* have been sealed.

Exceptions:

1. For *additions, alterations, or repairs to existing buildings*, building envelope tightness and insulation installation shall be considered acceptable when the items in Table R402.4.1.1, applicable to the method of construction, are field verified.
2. For heated, attached private garages and heated, detached private garages accessory to Group R-5 occupancies, building envelope tightness and insulation installation shall be considered acceptable where the items in Table R402.4.1.1, applicable to the method of construction, are field verified. Heated, attached private garage space and heated, detached private garage space shall be thermally isolated from all other habitable, *conditioned spaces* in accordance with Sections R402.2.12 and R402.3.5, as applicable.

R402.4.1.2.1 Procedure.

During testing:

1. Exterior windows and doors and fireplace and stove doors shall be closed but not sealed beyond the intended weatherstripping or other *infiltration* control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed but not sealed beyond intended *infiltration* control measures.
3. Interior doors, where installed at the time of the test, shall be open.
4. Exterior or interior terminations for continuous ventilation systems shall be closed and sealed.
5. Heating and cooling systems, where installed at the time of the test, shall be turned off.
6. Supply and return registers, where installed at the time of the test, shall be fully open.

Exception: When testing individual *dwelling units*, an air leakage rate not exceeding 0.30 cubic feet per minute per square foot [$0.008 \text{ m}^3/(\text{s} \times \text{m}^2)$] of the *dwelling unit enclosure area*, tested in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pa), shall be allowed for:

1. Attached single and multiple-family building *dwelling units*.
2. Buildings or *dwelling units* that are 1,500 square feet (139.4 m^2) or smaller.

R402.4.1.2.2 Mechanical ventilation.

Mechanical *ventilation* shall be provided in accordance with Section 403 of the *Chicago Mechanical Code*.”

22. Revise Section R402.4.1.3 to read:

“When complying with Section R401.2.1, the *building* or *dwelling unit* shall have an air leakage rate not exceeding 3.0 air changes per hour, when tested in accordance with Section R402.4.1.2.”

23. Revise Section R402.4.4 to read:

“R402.4.4 Rooms containing fuel-burning appliances.

Where open combustion air ducts provide combustion air to open combustion fuel-burning appliances, the appliances and combustion air opening shall be located outside the *building thermal envelope* or enclosed in a room that is isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.3, where the walls, floors and ceilings shall meet a minimum of the *basement wall R-value* requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with

Section R403. The combustion air duct shall be insulated where it passes through *conditioned space* to an *R*-value of not less than R-8.

Exception: Direct vent appliances with both intake and exhaust pipes installed continuous to the outdoors.”

24. Revise Section R402.4.6 to read:

“R402.4.6 Electrical and communication outlet boxes (air-sealed boxes).

Where air-sealed boxes are required by Table R402.4.1.1, electrical and communication outlet boxes shall comply with all of the following:

1. Be tested in accordance with NEMA OS 4.
2. 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).
3. Be marked “NEMA OS 4” or “OS 4” in accordance with NEMA OS 4.
4. Be installed per the manufacturer’s instructions and with any supplied components required to achieve compliance with NEMA OS 4.”

25. Revise Section R402.5, excluding the exception, to read:

“The area-weighted average maximum *fenestration U*-factor allowed using tradeoffs from Section R402.1.5 or R405 shall be 0.48 for *vertical fenestration* and 0.75 for *skylights*.”

14N-R4-R403 Systems.

The provisions of Section R403 of IECC-RE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “building thermal envelope,” “cavity insulation,” “duct system,” “dwelling unit,” “on-site renewable energy,” “thermostat,” and “water heater.”
2. Revise Section R403.3.3 by deleting item 3.
3. Revise Section R403.3.4 to read:

“Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with the *Chicago Mechanical Code*.”
4. Revise the last sentence of Section R403.3.5 to read: “A written report of the results of the test shall be signed by the party conducting the test and made available to the *building official*.”
5. Revise the numbered items in Section R403.3.6 to read:
 - “1. Rough-in test: The total leakage shall be less than or equal to 4.0 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*

where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3.0 cubic feet per minute (85 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.

Exception: Where the *duct system* is serving less than or equal to 1,500 square feet (139.4 m²) of *conditioned floor area*, the allowable *duct* leakage with the air handler installed shall be less than or equal to 60 cubic feet per minute (1699 L/min).

2. Postconstruction test: Total leakage shall be less than or equal to 4.0 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.

Exception: Where the *duct system* is serving less than or equal to 1,500 square feet (139.4 m²) of *conditioned floor area*, the allowable *duct* leakage shall be less than or equal to 60 cubic feet per minute (1699 L/min).

3. Test for *ducts* within thermal envelope: Where all *ducts* and air handlers are located entirely within the *building thermal envelope*, total leakage shall be less than or equal to 8.0 cubic feet per minute (226.6 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.

Exception: Where the *duct system* is serving less than or equal to 750 square feet (69.7 m²) of *conditioned floor area*, the allowable *duct* leakage shall be less than or equal to 60 cubic feet per minute (1699 L/min)."

6. Revise the last two sentences of R403.5.1 to read: "Access to automatic controls, temperature sensors and pumps shall be provided. Ready access to manual controls shall be provided."
7. Revise Section R403.6 and its subsections to read:

"R403.6 Mechanical ventilation.

Buildings and dwelling units shall be provided with mechanical *ventilation* that complies with the requirements of the *Chicago Building Code* and *Chicago Mechanical Code*. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the *ventilation* system is not operating.

R403.6.1 [Reserved.]

R403.6.2 Whole-house mechanical ventilation system fan efficacy.

Fans used to provide whole-house mechanical ventilation shall meet the efficacy requirements of Table R403.6.2 at one or more rating points. Fans shall be tested in accordance with HVI 916 and *listed*. The airflow shall be reported in the product listing or on the label. Fan efficacy shall be reported in the product listing or shall be derived from the input power and airflow values reported in the product listing or on the label. Fan efficacy for fully ducted HRV, ERC, balanced, and in-line fans shall be determined at a static pressure of not less than 0.2 inch w.c. (49.85 Pa). Fan efficacy for ducted range hoods and bathroom and utility room fans shall be determined at a static pressure of not less than 0.1 inch w.c. (24.91 Pa).

**TABLE R403.6.2
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY^a**

SYSTEM TYPE	AIRFLOW RATE (CFM)	MINIMUM EFFICACY (CFM/WATT)
HRV, ERV, or balanced	Any	1.2 cfm/watt
Range hood	Any	2.8 cfm/watt
In-line supply or exhaust fan	Any	3.8 cfm/watt
Other exhaust fan	< 90	2.8 cfm/watt
	≥ 90	3.5 cfm/watt
Air-handler that is integrated to tested and listed HVAC equipment	Any	1.2 cfm/watt

For SI: 1 cubic foot per minute = 28.3 L/min.

a. Design outdoor airflow rate/watts of fan used.

R403.6.3 Testing.

Mechanical ventilation systems shall be tested and verified to provide the minimum ventilation flow rates required by Section R403.6. Testing shall be performed according to the ventilation *equipment* manufacturer’s instructions, or by using a flow hood or box, flow grid, or other airflow measuring device at the mechanical ventilation fan’s inlet terminals or grilles, outlet terminals or grilles, or in the connected ventilation ducts. Where required by the *building official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and made available to the *building official*.

Exception: Kitchen range hoods that are ducted to the outside with 6-inch (152 mm) or larger duct and not more than one 90-degree (1.57 rad) elbow or equivalent in the duct run.

R403.6.4 Local exhaust.

Local exhaust systems shall be provided in kitchens, bathrooms and toilet rooms and shall have the capacity to exhaust the minimum airflow rate determined in accordance with Table 403.6.4.

**Table 403.6.4
Minimum Required Local Exhaust Rates**

Area to Be Exhausted	Exhaust Rate Capacity
Kitchens	100 cfm intermittent or 50 cfm continuous
Bathrooms and toilet rooms	50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.47 L/s.

R403.6.5 Exhaust discharge.

The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a public nuisance. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic or crawl space.

Exceptions:

1. Whole-house ventilation-type attic fans shall be allowed to discharge into the private attic of the *dwelling unit* served.
2. Domestic ductless range hoods in accordance with the *Chicago Mechanical Code*.

R403.6.6 Ventilating equipment.

Fans providing exhaust or outdoor air shall be *listed* and *labeled* to provide the minimum required airflow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51.

R403.6.7 Whole-house mechanical ventilation systems.

Whole-house mechanical ventilation systems shall be installed in accordance with Sections R403.6.7.1 through R403.6.7.3.

R403.6.7.1 System design.

The *whole-house mechanical ventilation system* shall consist of one or more supply or exhaust fans, or a combination of such, and associated ducts and controls. *Local exhaust* or supply fans are permitted to serve as such a system. Outdoor air ducts connected to the return side of an air handler shall be considered to provide supply *ventilation*.

R403.6.7.2 System controls.

The *whole-house mechanical ventilation system* shall be provided with controls that enable manual override. Controls shall include text or a symbol indicating their function.

R403.6.7.3 Mechanical ventilation rate.

The *whole-house mechanical ventilation system* shall provide outdoor air at a continuous rate of not less than that determined in accordance with Equation 4-1.

Exceptions:

1. The minimum mechanical ventilation rate determined in accordance with Equation 4-1 shall be allowed to be reduced by 30 percent where both of the following conditions apply:
 - 1.1. A ducted system supplies *ventilation air* directly to each bedroom and to one or more of the following:
 - 1.1.1. Living room.
 - 1.1.2. Dining room.
 - 1.1.3. Kitchen.
 - 1.2. The *whole-house mechanical ventilation system* is a balanced *ventilation system*.

2. The *whole-house mechanical ventilation system* is permitted to operate intermittently when the system has controls that enable operation for not less than 25 percent of each 4-hour segment and the *ventilation* rate prescribed in Equation 4 or Exception 1 is multiplied by the factor determined in accordance with Table R403.6.7.3.

$$CFM_{total} = 0.03CFA + 7.5(N_{br} + 1) \quad \text{(Equation 4-1)}$$

where:

- CFM_{total} = total required ventilation rate (cfm)
 CFA = conditioned floor area of dwelling unit (ft²)
 N_{br} = number of bedrooms (not less than 1)

TABLE R403.6.7.3
INTERMITTENT WHOLE-HOUSE MECHANICAL
VENTILATION RATE FACTORS ^{a, b}

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor ^a	4.0	3.0	2.0	1.5	1.3	1.0

a. For run-time percentage values between those given, the factors are permitted to be determined by interpolation.

b. Extrapolation beyond the table is prohibited.

R403.6.7.3.1 Different occupant density.

Equation 4-1 assumes two persons per *dwelling unit* and an additional person for each additional bedroom. Where higher occupant densities are known, the airflow rate shall be increased by 7.5 cfm (3.5 L/s) for each additional occupant. When *approved* by the *building official*, lower occupant densities may be used.

R403.6.7.3.2 Airflow measurement.

The required *ventilation* rate is the quantity of outdoor *ventilation air* supplied or indoor air exhausted by the *whole-house mechanical ventilation system* installed, and shall be measured using a flow hood, flow grid, or other airflow measuring device. *Ventilation* airflow of systems with multiple operating modes shall be tested in all modes designed to meet Section R403.6.4.3. A written report of the results of the test, indicating the verified airflow rate, shall be signed by the party conducting the test and made available to the *building official*.”

8. Revise the first sentence of Section R403.10.2 to read:

“Access to an on-off switch controlling electric power to heaters shall be provided. The on-off switch shall be an integral part of the heater mounted on the exterior of the heater or external to and within 3 feet (914 mm) of the heater.”

14N-R4-R404 Electrical power and lighting systems.

The provisions of Section R404 of IECC-RE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “dimmer,” “occupant sensor control,” and “residential building.”
2. Revise Section R404.1 by replacing “high-efficacy lighting sources” with “*high-efficacy light sources*.”
3. Revise exceptions 1 and 2 to Section R404.1.1 to read:
 - “1. Group R-5 occupancies.
 2. [Reserved.]”
4. Revise Section R404.1.2 to read: “See Section R606.”
5. Revise Section R404.3 by replacing “permits” with “allows.”

14N-R4-R405 Total building performance.

The provisions of Section R405 of IECC-RE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “building thermal envelope,” “duct system,” “energy cost,” “on-site renewable energy,” “proposed design,” and “rated design.”
2. Revise the last sentence of Section R405.2, item 3 to read:

“The *building official* shall be allowed to require time-of-use pricing in *energy cost* calculations.”
3. Revise the exception to Section R405.2 by replacing “permitted” with “allowed.”
4. Revise the last sentence of the first paragraph of Section R405.3.2 to read:

“Within 180 days of project completion as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable in accordance with the *Chicago Construction Codes Administrative Provisions*, a confirmed compliance report based on the confirmed condition of the building shall be submitted to the *building official*.”
5. Revise the heading and first paragraph of Section R405.3.2.2 to read:

“R405.3.2.2 Confirmed compliance report.
A compliance report submitted following project completion shall include the following:”

6. Revise Table R405.4.2(1) by changing the content of the second column of the row for “Air exchange rate” to read:

“The air leakage rate at a pressure of 0.2 inch w.g. (50 Pa) shall be 3.0 air changes per hour.”

7. Revise Section R405.5.2 by replacing each “permitted” with “allowed.”

14N-R4-R406 Energy rating index compliance alternative.

The provisions of Section R406 of IECC-RE are adopted by reference with the following modifications:

1. Throughout the body of each provision of this section, reset the singular and plural forms of the following terms in italic type: “building site,” “building thermal envelope,” “on-site renewable energy,” “proposed design,” and “rated design.”
2. Revise Section R406.3.1 by deleting the last sentence.
3. Revise Section R406.4 by deleting “except for buildings covered by the *International Residential Code*, the ERI reference design ventilation rate shall be in accordance with Equation 4-2.”
4. Delete Equation 4-2.
5. Revise Section R406.5 to read:

“Compliance based on an ERI analysis requires that the *rated proposed design* and confirmed built condition be shown to have an ERI less than or equal to 55 when compared to the *ERI reference design*.”
6. Delete Table R406.5.
7. Revise the second sentence of Section R406.6 to read:

“Verification of compliance with Section R406.2 shall be completed by an *approved* third-party inspection agency.”
8. Revise the second sentence of Section R406.7.2 to read:

“Confirmed compliance documents for the built *dwelling unit* shall be created and submitted to the *building official* within 180 days of project completion as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable in accordance with the *Chicago Construction Codes Administrative Provisions*.”
9. Revise the first sentence of Section R406.7.2.1, item 6 to read:

“A certificate indicating that the *proposed design* has an ERI less than or equal to the score indicated in Section R406.5 when compared to the ERI reference design.”
10. Revise the heading and first paragraph of Section R406.7.2.2 to read:

“R406.7.2.2 Confirmed compliance report.

A confirmed compliance report shall be made site and address specific and include the following:”

11. Revise Section R406.7.4 by replacing “permitted” with “allowed.”

14N-R4-R407 IECC Section R407.

The provisions of Section R407 of IECC-RE are not adopted.

14N-R4-R408 Additional efficiency package options.

The provisions of Section R408 of IECC-RE are adopted by reference without modification.

14N-R4-R409 Phius certification compliance alternative.

The following is adopted as Section R409:

“R409 PHIUS CERTIFICATION COMPLIANCE ALTERNATIVE

R409.1 Scope.

This section establishes criteria for compliance using Phius certification.

R409.2 Construction documents.

The construction documents submitted to the *building official* shall establish that the project is eligible for certification in accordance with the PHIUS *Passive Building Standard Certification Guidebook*, including all co-requisite programs applicable to the project type. Such documentation shall include:

1. A design certification letter issued by an *approved* third-party certification organization.
2. A list of compliance features.

R409.3 Occupancy.

Within 180 days of project completion, as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable, in accordance with the *Chicago Construction Codes Administrative Provisions*, the owner shall submit to the *building official* a written certification establishing that the project has been certified in accordance with the PHIUS *Passive Building Standard Certification Guidebook*, including all co-requisite programs applicable to the project type. The written certification shall be issued by an *approved* third-party certification organization.”

14N-R4-R410 National Green Building Standard compliance alternative.

The following is adopted as Section R410:

“SECTION R410 NATIONAL GREEN BUILDING STANDARD COMPLIANCE ALTERNATIVE

R410.1 National Green Building Standard certification.

This section establishes criteria for compliance using National Green Building Standard certification.

R410.2 Construction documents.

The construction documents submitted to the *building official* shall establish that the project is eligible for certification at the gold or emerald level in accordance with ICC 700. Such documentation shall include:

1. Evidence that the project has been registered with an *approved* third-party certification organization that certifies compliance with ICC 700.
2. Evidence that the project, as designed, is eligible for certification at the gold or emerald level.
3. A list of compliance features.

R410.3 Certification.

Within 180 days of project completion, as evidenced by passing the last required final inspection or issuance of a certificate of occupancy, as applicable, in accordance with the *Chicago Construction Codes Administrative Provisions*, the owner shall submit to the *building official* a written certification that the project has achieved certification at the gold or emerald level under ICC 700. The written certification shall be issued by an *approved* third-party certification organization.”

CHAPTER 14N-R5 EXISTING BUILDINGS

14N-R5-R501 General.

The provisions of Section R501 of IECC-RE are adopted by reference with the following modifications:

1. Revise Section R501.1 to read:

“The provisions of this chapter shall control *additions, alterations, repairs and changes of occupancy* to and relocation of *existing buildings*.”
2. Revise Section R501.1.1 to read:

“Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an *existing building* or building system lawfully in existence at the time of adoption of this code. Unaltered portions of the *existing building* or building system shall not be required to comply with this code.”
3. Revise Section R501.2 to read:

“*Additions, alterations, repairs or changes of occupancy* to or relocation of an *existing building* or existing building system shall comply with Section R502, R503, R504 or R505, respectively, in this code. *Alterations* where unconditioned or low-energy space is changed to *conditioned space* shall comply with Section R502.”

4. Revise Section R501.3 to read:

“Devices and systems that are required by this code shall be maintained in conformance to the code edition under which installed. The requirements of this chapter shall not provide the basis for removal or abrogation of energy conservation, fire protection or safety systems and devices in *existing buildings*.”

5. Revise Section R501.4 to read:

“*Alterations, repairs, additions and changes of occupancy* to, or relocation of, *existing buildings* shall comply with the provisions for *alterations, repairs, additions and changes of occupancy* or relocation, respectively, in this code and the other *Chicago Construction Codes*.”

14N-R5-R502 Additions.

The provisions of Section R502 of IECC-RE are adopted by reference with the following modifications:

1. Revise the first two sentences of Section R502.1 to read:

“*Additions to existing buildings* shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the *existing building* to comply with this code. *Additions* shall not create an unsafe or hazardous condition or overload existing building systems.”

2. Revise the exceptions to Section R502.2 to read:

- “1. Where the simulated performance option in Section R405 is used to comply with this section, the annual *energy cost* of the *proposed design* is allowed to be 110 percent of the annual *energy cost* otherwise allowed by Section R405.2.
2. Where the Total UA, as determined in Section R402.1.5, of the *existing building* and the *addition*, and any *alterations* that are part of the project, is less than or equal to the Total UA generated for the *existing building*.
3. Where complying in accordance with Section R405 and the annual *energy cost* or energy use of the *addition* and the *existing building*, and any *alterations* that are part of the project, is less than or equal to the annual *energy cost* of the *existing building*. The *addition* and any *alterations* that are part of the project shall comply with Section R405 in its entirety.”

3. Revise Section R502.3.1 by replacing “*building*” with “building.”

14N-R5-R503 Alterations.

The provisions of Section R503 of IECC-RE are adopted by reference with the following modifications:

1. Revise the first paragraph of Section R503.1 to read:

“Alterations to an existing building or building system shall comply with the requirements of the code for new construction, without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall be such that the existing building or building system is not less conforming to the provisions of this code than the existing building or building system was prior to the alteration.”

2. Revise the exception to Section R503.1.1 to read:

“Exception: The following *alterations* shall not be required to comply with the requirements for new construction provided that the energy use of the building is not increased:

1. Storm windows installed over existing *fenestration*.
 2. Surface-applied window film installed on existing *fenestration* assemblies to reduce solar heat gain provided that the code does not require the glazing or *fenestration* assembly to be replaced.
 3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation with a *thermal resistance* of at least R-3 per inch. Insulation shall not be required to be added to existing wall cavities for masonry *above-grade walls* where a *registered design professional* indicates in the construction documents that insulation would block air circulation in the cavity and create moisture problems that would potentially lead to differential expansion and contraction.
 4. Construction where the existing roof, wall or floor cavity is not exposed.
 5. *Roof recover*.
 6. 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.
 7. For *roof replacement of low-sloped roofs*, where the required *thermal resistance* cannot be provided due to flashing height limitations presented by existing rooftop conditions that are not being altered, such as HVAC equipment, door or window sill height, parapet height, weep holes, and roof flashing heights not meeting the manufacturer’s specifications if reduced, the maximum thickness of insulation compatible with the available space and existing conditions shall be installed. New insulation shall have a minimum *thermal resistance* of R-5 per inch. In no case shall a *roof replacement* reduce the *thermal resistance* (*R-value*) or increase the *thermal transmittance* (*U-factor*) of the *roof assembly*.
 8. The *R-value* for roof assemblies with tapered above-deck insulation shall average R-42.
 9. *Air barriers* shall not be required for *roof recover* and *roof replacement* where the scope of work does not include *alterations* to any other portion of the *building thermal envelope*.”
3. Revise the exception to Section R503.1.4 by replacing “alterations” with “*alterations*.”

14N-R5-R504 Repairs.

The provisions of Section R504 of IECC-RE are adopted by reference with the following modifications:

1. Revise Section R504.1 to read:

“*Existing buildings* shall be repaired in compliance with Section R501.3 and this section. Work on nondamaged components necessary for the required *repair* of damaged components shall be considered to be part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section R501.3, *repairs* exempt from *permit*, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.”

2. Revise Section R504.2, item 2 to read: “*Roof repairs.*”

3. Revise Section R504.2 by adding a new item 4 to read:

“4. Insulation with new roof covering where installed above the existing roof covering of a *low-sloped roof* to create slope between drains or upslope from obstructions to water flow.”

14N-R5-R505 Change in use.

The provisions of Section R505 of IECC-RE are not adopted. The following is adopted as Section R505:

“R505 CHANGE IN USE

R505.1 General.

Any space in a *residential building* that is converted to a *dwelling unit* or portion thereof from another use shall comply with this code.

Exception: Where the simulated performance option in Section R405 is used to comply with this section, the annual *energy cost* of the *proposed design* is allowed to be 110 percent of the annual *energy cost* allowed by Section R405.2.

R505.2 Unconditioned space.

Any unconditioned or low-energy space in a *residential building* that is altered to become a *conditioned space* shall comply with Section R502.”

CHAPTER 14N-R6 CHICAGO-SPECIFIC REQUIREMENTS—RESIDENTIAL

14N-R6-R600 Chapter R6.

The following is adopted as Chapter C6 of this code:

“CHAPTER R6. CHICAGO-SPECIFIC REQUIREMENTS—RESIDENTIAL

R601 SCOPE

R601.1 General.

The provisions of this appendix shall be applicable to *residential buildings*.

R601.2 Implementation of requirements exceeding the requirements of the 2021 IECC and 2022 Illinois Energy Conservation Code.

The provisions of Sections R603 through R605 shall be applicable to permits applied for on and after January 1, 2023, in accordance with Section 14A-1-105.9 of the *Chicago Construction Codes Administrative Provisions*.

R602 [RESERVED]

R603 SOLAR-READY ROOFS

R603.1 General.

New construction *residential buildings* with more than 3 stories above grade plane and low-slope roofs shall comply with Section C603 of the *Chicago Energy Conservation Code—Commercial Provisions*.

Exception: *Buildings* with a ground-level footprint of 7,500 square feet (697 m²) or less.

R604 ELECTRIFICATION-READINESS

R604.1 Scope.

This section shall apply to equipment within *dwelling units* and rooms and spaces provided with domestic cooking appliances shared by the occupants of more than one *dwelling unit* in Group R-2, R-3, R-4 and R-5 occupancies that are created through:

1. New construction.
2. *Change of occupancy*.

Exception: *Change of occupancy* within Group R.

This section shall not apply to *alterations, additions, repairs or changes of occupancy* to existing Group R occupancies.

R604.2 Indoor cooking appliances.

A receptacle outlet served by an individual branch circuit with a minimum rating of 40 amperes shall be installed within 3 feet (914 mm) of each *fuel gas*-fired range, cooktop, oven or other permanently installed indoor cooking appliance. A minimum of 9,600 VA for 240-volt systems or 8,000 VA for 208-volt systems shall be included in feeder and service load calculations.

R604.3 Domestic clothes dryers.

A receptacle outlet served by an individual branch circuit with a minimum rating of 30 amperes shall be installed within 3 feet (914 mm) of each *fuel gas*-fired domestic clothes dryer. A minimum of 5,000 VA shall be included in feeder and service load calculations.

R604.4 Water heaters.

A receptacle outlet served by an individual branch circuit with a minimum rating of 30 amperes shall be installed within 3 feet (914 mm) of each *fuel gas-fired water heater* serving a single *dwelling unit*. A minimum of 4,500 VA shall be included in feeder and service load calculations.

R604.4.1 Clear space.

A clear space that is at least 3 feet (914 mm) by 3 feet (914 mm) by 7 feet (2134 mm) high shall be provided within 3 feet (914 mm) of the installed *fuel gas-fired water heater*.

Exception: Clear space is not required adjacent to heat pump *water heaters* or tankless *water heaters*.

R604.5 Electrification-ready circuits.

Both ends of the unused conductors required by Sections R604.2, R604.3 and R604.4 shall be labeled "SPARE" and be electrically isolated. Space shall be reserved in the electrical panel in which the branch circuit originates for the installation of an overcurrent device. Capacity for the circuits required by Sections R604.2, R604.3 and R604.4 shall be included in the electrical load calculations of the original installation.

R605 BALCONIES AND PARAPETS**R605.1 Continuous insulation.**

In new construction, exterior balconies and parapets that interrupt the *building thermal envelope* shall comply with one of the following:

1. Shall be insulated with *continuous insulation* having a minimum *thermal resistance (R-value)* equivalent to the continuous insulation component required in the adjacent wall assembly as listed in Table R402.1.3. Where more than one wall assembly is interrupted by an adjacent balcony, the higher *thermal resistance (R-value)* shall be used.
2. Shall incorporate a minimum R-3 thermal break at the location where the element penetrates the *building thermal envelope*.

Exceptions:

1. Group R-5 occupancies.
2. Penetrations in the *building thermal envelope* that do not exceed 1 square foot (0.09 m²).

R606 GAS LIGHTING PROHIBITED**R606.1 General.**

New permanently installed *fuel gas-fired* lighting appliances shall be prohibited.

R607 ROOF SOLAR REFLECTANCE**R607.1 General.**

Roof coverings shall comply with Section 1515 of the *Chicago Building Code*.

R608 ELECTRIC VEHICLE SUPPLY EQUIPMENT

R608.1 General.

Electric vehicle supply equipment or electric vehicle supply equipment-ready parking spaces shall be provided in accordance with Section 17-10-1011 of the *Chicago Zoning Ordinance*.”

CHAPTER 14A-R2 REFERENCED STANDARDS—RESIDENTIAL

14A-R2-R700 Chapter R7.

The provisions of Chapter 6 of IECC-RE are adopted by reference as Chapter R7 of this code with the following modifications:

1. Insert a new section to read:

“**AISI**

American Iron and Steel Institute
25 Massachusetts Avenue, NW, Suite 800
Washington DC 20001

AISI S250 – 21 (with Supplement #1 dated 2022): North American Standard for Thermal Transmittance of Building Envelopes with Cold-Formed Steel Framing”

2. Insert a new section to read:

“**AMCA**

Air Movement and Control Association International
2311 Wilson Blvd., Suite 400
Arlington, VA 22201

ANSI/AMCA 210—16/ANSI/ASHRAE 51—16: Laboratory Methods of Testing Fans for Aerodynamic Performance Rating”

3. Delete the following ICC references: IBC-21, IEBC-21, IFC-21, IFCG-21, IMC-21, IPC-21, IPMC-21, IPSDC-21, and IRC-21.
4. Insert the following ICC reference: “ICC 700—2020: National Green Building Standard.”
5. Insert a new section to read:

“**NEMA**

National Electrical Manufacturers Association
12300 17th Street North No. 900
Arlington, VA 22209

OS 4—2016: Requirements for Air-Sealed Boxes for Electrical and Communication Applications.”

6. Delete the entire “NFPA” section.

7. Insert a new section to read:

“PHIUS

Phius
53 West Jackson Boulevard, Suite 1462
Chicago, IL 60604-3606

PHIUS—2021: Passive Building Standard Certification Guidebook (Version 3.1, July 2022)”

ARTICLE II. **CORRELATING AMENDMENTS**

SECTION 1. Section 14A-1-105.9 of the Municipal Code of Chicago and its subsections are hereby amended by deleting the language struck through and by inserting the language underscored, as follows:

14A-1-105.9 Energy conservation (Title 14N).

Beginning June 1, 2019, and ending October 31, 2022, except as otherwise provided in Sections 14A-1-105.9.1 through 14A-1-105.9.3, all *permit* applications must be submitted and all construction and *rehabilitation* work must be performed in accordance with Title 14N (the 2019 Chicago Energy Conservation Code) and ~~Section 14B-15-1515~~. Beginning November 1, 2022, except as provided in Sections 14A-1 105.9.4 through 14A 1-105.9.6, all permit applications must be submitted and all construction and rehabilitation work must be performed in accordance with Title 14N as amended in 2022 (the 2022 Chicago Energy Transformation Code).

(Omitted text is not affected by this ordinance.)

14A-1-105.9.2 Minor revision permits.

On and after June 1, 2019, and until October 31, 2022, the *building official* may allow a *permit* application that seeks a minor revision to an issued *permit* applied for before June 1, 2019, to be issued and built in accordance with all energy conservation requirements applicable to the previously-issued *permit*. The *building official* may designate, by rule, criteria for application of this provision.

14A-1-105.9.3 Phased permitting.

On and after June 1, 2019, and until October 31, 2022, the *building official* may allow a *permit* application that seeks a *permit* for the second or subsequent phase of a project for which an issued *permit* for the first phase was applied for before June 1, 2019, to be issued and built in accordance with all energy conservation requirements applicable to the previously-issued *permit*. The *building official* may designate, by rule, criteria for application of this provision.

14A-1-105.9.4 Permit applied for before November 1, 2022.

A *permit* applied for before November 1, 2022, based on all applicable energy conservation requirements in effect on the date of application, may be issued and the permitted work may be built in accordance with those requirements.

14A-1-105.9.5 Minor revision permits.

On and after November 1, 2022, the *building official* may allow a *permit* application that seeks a minor revision to an issued *permit* applied for before November 1, 2022, to be issued and built in accordance with all energy conservation requirements applicable to the previously-issued *permit*. The *building official* may designate, by rule, criteria for application of this provision.

14A-1-105.9.6 Phased permitting.

On and after November 1, 2022, the *building official* may allow a *permit* application that seeks a *permit* for the second or subsequent phase of a project for which the first phase *permit* was issued under the 2019 *Chicago Energy Conservation Code* to be issued and built under that code. On and after January 1, 2023, the *building official* may allow a *permit* application that seeks a *permit* for the second or subsequent phase of a project for which the first phase *permit* was issued under the 2022 *Chicago Energy Transformation Code* to be issued and built under the requirements of that code applicable to the first phase permit. The *building official* may designate, by rule, criteria for application of this provision.

SECTION 2. Section 14A-2-202 of the Municipal Code of Chicago is hereby amended by inserting the language underscored, as follows:

14A-2-202 DEFINITIONS.

(Omitted text is not affected by this ordinance.)

APPROVED AGENCY. A Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Department of Labor, Occupational Safety and Health Administration (OSHA), acting within its recognized scope; a certification body accredited by the American National Standards Institute (ANSI) or the International Accreditation Service (IAS), acting within its accredited scope; or, where *approved* by the *building official*, another established agency that is regularly engaged in conducting tests, furnishing inspection services, or furnishing product certification.

(Omitted text is not affected by this ordinance.)

CHICAGO ENERGY CONSERVATION CODE. Title 14N of the *Municipal Code*. (On and after November 1, 2022, references to “*Chicago Energy Conservation Code*” mean “*Chicago Energy Transformation Code*.”)

CHICAGO ENERGY TRANSFORMATION CODE. Title 14N of the *Municipal Code* on and after November 1, 2022.

Chicago Energy Transformation Code—Commercial Provisions. Part I of the *Chicago Energy Transformation Code*.

Chicago Energy Transformation Code—Residential Provisions. Part II of the *Chicago Energy Transformation Code*.

(Omitted text is not affected by this ordinance.)

SECTION 3. Section 14A-4-411.3.13 of the Municipal Code of Chicago is hereby amended by inserting the language underscored, as follows:

14A-4-411.3.13 Energy conservation.

Construction documents must include the following details, as applicable:

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

SECTION 4. Table 14A-12-1204.2 of the Municipal Code of Chicago is hereby amended by inserting the language underscored, as follows:

Table 14A-12-1204.2 Stand-Alone Permit Fees

Category of Work	Scope of Work	Drawings required	Zoning fee required	Permit fee
Administrative issues	Change of owner or contractor, extension of time, permit reinstatement ^g	No	No	\$75 per permit number
	Filing deferred submittal documents ^c	Yes	No	\$500
	<u>Filing post-construction compliance documentation required by Title 14N ^c</u>	<u>No</u>	<u>No</u>	<u>\$50</u>
	Reprint permit (<u>except self-service</u>)	No	No	\$25

<i>(Omitted text is not affected by this ordinance.)</i>					
Electrical	Installation of electrical service <u>disconnecting means</u> only, less than 400 amps	See Section 14E-2-215.5	No	\$75	
	Installation of electrical service <u>disconnecting means</u> only, 400 to less than 1,000 amps		No	\$300	
	Installation of electrical service <u>disconnecting means</u> only, 1,000 amps or more		No	\$750	
	<i>(Omitted text is not affected by this ordinance.)</i>				
	Installation of up to 10 new circuits on a single service <u>disconnecting means</u>		No	\$150	
	Installation of 11 to 20 new circuits on a single service <u>disconnecting means</u>		No	\$300	
	Installation of 21 to 40 new circuits on a single service <u>disconnecting means</u>		No	\$600	
	Installation of 41 to 80 new circuits on a single service <u>disconnecting means</u>		No	\$1,500	
	Installation of 81 new circuits or more on a single service <u>disconnecting means</u>		No	\$2,250	
	<i>Repair or alteration</i> of devices on existing electrical circuits	No	No	\$75 per service <u>disconnecting means</u>	
Solar panel installation (less than 13.44 kW) <u>with or without installation of energy storage system (up to 20 kWh)</u>	No	Yes	\$225		
Temporary electrical service <u>or service disconnecting means</u>	No	No	\$150		
<i>(Omitted text is not affected by this ordinance.)</i>					
Mechanical (HVAC)	Duct extension or reconfiguration for existing ventilation <u>or exhaust</u> system	No	No	\$75 per <u>dwelling unit or tenant space</u>	

	<u>Gas piping extension or reconfiguration</u>	<u>No</u>	<u>No</u>	<u>\$75 per dwelling unit or tenant space</u>
<i>(Omitted text is not affected by this ordinance.)</i>				
Roof	Roof repair or <u>roof recover</u> (no tear off)	No	No	<u>\$175 per area up to 5,000 square feet</u>
	<u>Roof repair</u>	<u>No</u>	<u>No</u>	<u>\$175</u>
	<u>Roof replacement</u>	No	No	<u>\$450 per area up to 5,000 square feet</u>

(Omitted text is not affected by this ordinance.)

SECTION 5. Section 14B-7-705 of the Municipal Code of Chicago is hereby amended by inserting the language underscored, as follows:

14B-7-705 Exterior walls.

The provisions of Section 705 of IBC are adopted by reference with the following modifications:

(Omitted text is not affected by this ordinance.)

2. Insert Tables 705.2.1 and 705.2.2 as shown:

**TABLE 705.2.1
PROJECTIONS FROM WALLS OF ANY TYPE OF CONSTRUCTION ^a**

Type of Projection	Material Type	Fire Separation Distance (feet) ^b			
		0 to less than 3	3 to less than 5	5 to less than 10	10 or greater
Cornices, eave overhangs, <u>sunshades</u> , bay windows, oriel windows and similar decorative projections on <i>buildings</i> not exceeding 40 feet in <i>building height</i>	U	No	Yes	Yes	Yes
	P	Yes	Yes	Yes	Yes
Cornices, eave overhangs, <u>sunshades</u> , bay windows, oriel windows and similar decorative projections on <i>buildings</i> greater than 40 feet in <i>building height</i>	U	No	No	No	No
	<u>UNC</u>	<u>No</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
	P	No	No	No	Yes
	PNC	Yes	Yes	Yes	Yes

(Omitted text is not affected by this ordinance.)

SECTION 6. Section 14B-15-1515 of the Municipal Code of Chicago is hereby amended by deleting the language struck through and by inserting the language underscored, as follows:

14B-15-1515 Solar reflectance.

The following language is adopted as a new Section 1515:

(Omitted text is not affected by this ordinance.)

1515.2 Solar reflectance.

All *roof coverings* shall have a minimum solar reflectance as specified in Sections 1515.2.1 or 1515.2.2 as ~~demonstrated by:~~

1. ~~Testing tested~~ in accordance with ASTM C1549, ASTM E903, or ASTM E1918 or CRRC-S100.
2. ~~Testing with a portable reflectometer at near ambient conditions.~~
3. ~~A label from the Cool Roof Rating Council.~~
4. ~~Labeled Energy Star-qualified roof product.~~

1515.2.1 Low-sloped roofs.

Roof coverings on low-sloped roofs shall have an initial reflectance value of 0.72 or a ~~three-year-installed~~ three-year-aged solar reflectance value of 0.5 or greater.

Exceptions:

1. Where more than 50 percent of the roof area is a *vegetative roof* or roof garden, the remainder of the roof area shall have a ~~three-year-installed~~ three-year-aged solar reflectance value of 0.3 or greater.
2. Roofs with a minimum of 15 pounds per square foot (0.72 kN/ m²) of *ballast* installed over the entire roof area to resist wind uplift shall have a ~~three-year-installed~~ three-year-aged solar reflectance value of 0.3 or greater.

(Omitted text is not affected by this ordinance.)

SECTION 7. Section 14B-35-3500 of the Municipal Code of Chicago is hereby amended by inserting the language underscored, as follows:

14B-35-3500 Chapter 35.

The provisions of Chapter 35 of IBC are adopted by reference with the following modifications:

(Omitted text is not affected by this ordinance.)

8. Insert the following standards under ASTM:

“A48/A48M–03(2016): Standard Specification for Gray Iron Castings”

“C1549—2016: Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer”

“D2974–14: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils”

(Omitted text is not affected by this ordinance.)

“E514/E514M–14a: Standard Test Method for Water Penetration and Leakage Through Masonry”

“E903—20: Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres”

“E1918—06(2016): Standard Test Method for Measuring Solar Reflectance of Horizontal or Low-sloped Surfaces in the Field”

(Omitted text is not affected by this ordinance.)

9.1. Insert a new section to read:

“CRRC

Cool Roof Rating Council
2435 North Lombard Street
Portland, OR 97217

ANSI/CRRC S100—2020: Standard Test Methods for Determining Radiative Properties of Materials”

9.2. Delete the following standard under DASMA: ANSI/DASMA 115–2016.

(Omitted text is not affected by this ordinance.)

SECTION 8. Table 18-28-403.3 of the Municipal Code of Chicago is hereby amended by deleting the language struck through and by inserting the language underscored, as follows:

**Table 18-28-403.3
Ventilating Requirements***

(Omitted text is not affected by this ordinance.)

Hotels, Motels and Dormitories					
<i>(Omitted text is not affected by this ordinance.)</i>					
Sleeping Rooms		4	0	0	See Chapter 14B-12; may exhaust through toilet room.
	4		0.3	0.3	
<u>Toilet Rooms / Bathrooms— Private</u>					<u>See Note 6.</u>
<i>(Omitted text is not affected by this ordinance.)</i>					

Private Dwellings (Single and Multiple)					
Living Quarters			NV	NV	See Chapter 14B-12.
Living Quarters (Kitchen)		4	0	0	See Notes 1 and 4 <u>7</u> .
	4		0	1.5	
Toilet Rooms (residential)		-4	0	0	See Notes 2 and 4.
	-4		0	1.5	
<u>Toilet Rooms / Bathrooms— Private</u>					<u>See Note 6.</u>

Note 1. ~~When a common exhaust system serves multiple kitchens, a minimum 75% of the ordinance air shall be used in sizing of central fan and ductwork, provided automatic controls are installed to shut off exhaust from individual kitchens when not in use.~~ [Reserved.]

Note 2. ~~When a common exhaust serves multiple toilet rooms, a minimum 50% of the ordinance air shall be used in sizing of central fan and ductwork, provided automatic controls are installed to shut off exhaust from individual toilet rooms when not in use.~~ [Reserved.]

(Omitted text is not affected by this ordinance.)

Note 6. For each private toilet room or bathroom: 20 CFM when the exhaust system is designed to operate continuously when the associated living quarters are occupied; 50 CFM when the exhaust system is designed to operate intermittently. For intermittent operation, either an automatic control or ready access to a manual control shall be provided within the room.

Note 7. For each residential kitchen: 50 CFM when the kitchen is enclosed and the exhaust system is designed to operate continuously when the associated living quarters are occupied; 100 CFM vented range hood or 300 CFM mechanical exhaust (including downdraft) when the kitchen is unenclosed or the exhaust system is designed to operate intermittently. For intermittent operation, either an automatic control or ready access to a manual control shall be provided within the room.

SECTION 9. Section 18-28-501.2 of the Municipal Code of Chicago is hereby amended by deleting the language struck through and by inserting the language underscored, as follows:

18-28-501.2 Independent system required.

Single or combined mechanical exhaust systems from bath, toilet, urinal, locker, service sink closets and similar rooms for environmental air shall be independent of all other exhaust systems. Dryer, domestic kitchen and hazardous exhaust shall be independent of all other systems. Type I exhaust systems shall be independent of all other exhaust systems except as provided in Section 18-28-506.3.6. Single or combined Type II exhaust systems for food-processing operations shall be independent of all other exhaust systems. Kitchen Commercial kitchen exhaust systems shall be constructed in accordance with ~~Section 18-28-505 for domestic equipment and Sections 18-28-506 through 18-28-509 for commercial equipment.~~

ARTICLE III.
EFFECTIVE DATE

SECTION 1. This ordinance shall take full force and effect on November 1, 2022, following passage and approval and subject to the transitional provisions added to Sections 14A-1-105.9, 14N-C6-C601.2, and 14N-R6-R601.2 of the Municipal Code of Chicago by this ordinance.

SECTION 2. The repeal of provisions of the Municipal Code of Chicago pursuant to this ordinance shall not affect any order or permit issued, offense committed, amount paid, or penalty incurred pursuant to those provisions before the repeal took effect.