

2022 Chicago Energy Transformation Code

(Reflecting ordinances adopted through September 21, 2022)

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CITY OF CHICAGO • OFFICE OF THE MAYOR

★
MAYOR LORI E. LIGHTFOOT

Mayor's Message

Dear Friends:

I'm pleased to present the 2022 Chicago Energy Transformation Code (CETC). This builds on the city's legacy of innovation, adaptation, and dedication to public safety by putting our city's building regulations at the forefront of global efforts to address climate change. With the passage of the CETC, we've become the first city in Illinois and one of the first in the country to adopt and exceed the requirements of the 2021 International Energy Conservation Code (IECC). This latest addition to the Chicago Construction Codes will help ensure that every building on every block of Chicago is vibrant, safe, and sustainably constructed, while also maintaining affordability.

The City of Chicago has long been a leader in adopting requirements for energy efficiency and sustainable design. The CETC will result in an approximately 40% improvement in energy efficiency for residential and commercial buildings compared to the first Chicago energy code, which was adopted in 2001. These requirements have been regularly strengthened in alignment with the IECC's three-year revision cycle. Each new edition of the Chicago Energy Code has provided for the cost-effective reduction of energy use. Additionally, by being among the first to adopt requirements based on the 2021 IECC, the City of Chicago will be at the front of the line to apply for \$1 billion in federal financial assistance. And it's not just the city that stands to benefit, homeowners and businesses who build under the CETC will also be eligible for energy efficiency rebates and tax credit programs that were created or expanded by the Inflation Reduction Act. The 2021 IECC is estimated to result in a 5% energy savings for commercial buildings compared to the same code from 2018.

So, what makes the CETC truly transformative? Unlike with previous energy codes, which focused exclusively on reducing building energy usage, the CETC will incentivize the use of equipment types and energy sources that will reduce greenhouse gas emissions. Implementation of the CETC will save energy and reduce the carbon footprint for both residential and commercial buildings while aligning with the City's 2022 Climate Action Plan. And that will be felt in the pocketbooks of Chicagoans. According to the U.S. Department of Energy, the average homeowner should save more than \$2,300.00 over the life of a typical mortgage by meeting the latest efficiency standards. Our CETC exceeds them.

Importantly, the CETC holds small buildings and high rises to different standards, tightening requirements on high-rise buildings to accommodate innovations in engineering and materials while reducing barriers to rehabilitate and preserve the character of existing buildings that form the fabric of our city.

The CETC becomes the latest addendum to the first full rewrite of the Chicago building code in 70 years, and there will be more changes as we build towards a net-zero future. As the science of climate change evolves, so too must we in order to keep our place among the world's leaders in innovative, sustainable, and equitable design for the next 70 years and beyond.

Sincerely,

Mayor



CITY OF CHICAGO



DEPARTMENT OF BUILDINGS

Commissioner's Message

I am honored to present the 2022 Chicago Energy Transformation Code (CETC). Under the leadership of Mayor Lori Lightfoot, Chicago was among the first large cities in America to not only adopt the latest model *International Energy Conservation Code* (IECC) but also to exceed it. Our early adoption of the code allows Chicago residents and businesses to be at the front of line to apply for rebates, economic incentives and millions of federal dollars made available through the Federal Inflation Reduction Act and other national programs. Based on federal projections, we believe implementation of the CETC will add up to a more than nine percent savings in energy costs compared to the prior model code. That's extra money in the pockets of Chicagoans that can go towards reducing other expenses or building family savings.

I'm also grateful to our partners at the International Code Council (ICC) and the many national and local stakeholders, including the skilled trades, contractors, and advocacy groups for their input in developing our new code.

Knowing that the world needs to go beyond energy efficiency, Mayor Lightfoot's code is focused on Energy Transformation. While the new code does not prohibit the use of fossil fuel appliances, all new residential construction must be "electric ready" or wired for electric appliances for future electrification of homes. Also, all new construction of low-rise commercial buildings, such as warehouses and fulfillment centers, must be designed with roofs that can support future solar panel installation. These are just two of the innovations in the CETC that promote the use of green technologies while working towards the sustainability goals outlined in Mayor Lightfoot's Climate Action Plan.

Our new code also reflects Mayor Lightfoot's commitment to equity by ensuring that the code provides options, flexibility, adaptability, and affordability for use in all of Chicago's 77 communities.

Our Code Modernization Program has been a success because of our commitment to partner with design professionals, the construction industry, the skilled trades and a variety of other advocates and stakeholders. But our code must always continue to evolve. That's why I encourage you to reach out to the Department of Buildings if you have a suggestion for future changes or questions about how to apply any provision of the new code. We look forward to working with you. We pride ourselves on having an open door policy at Department of Buildings and we welcome and value your input.

Sincerely,

Matthew Beaudet
Building Commissioner

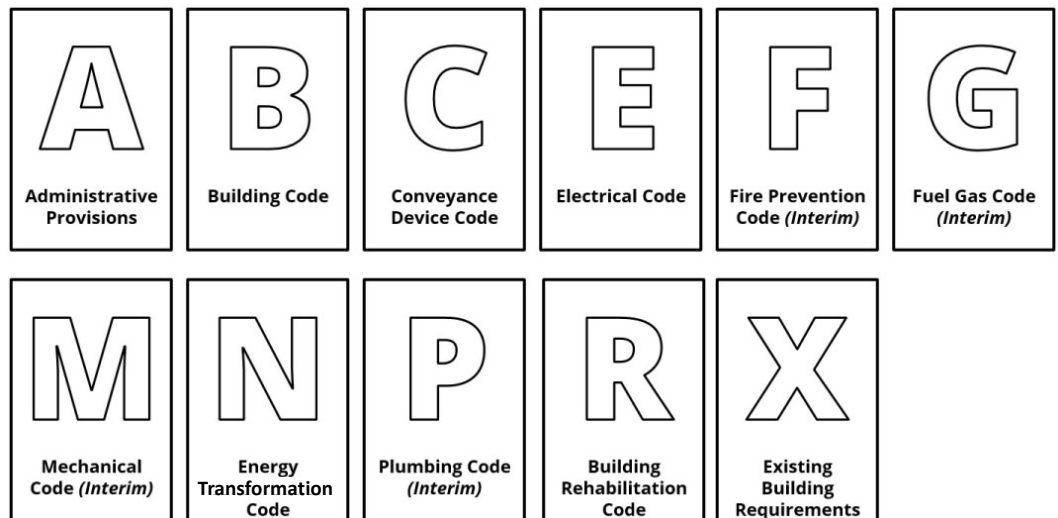
About the Chicago Construction Codes

Overview

The *Chicago Construction Codes* (Titles 14A through 14X of the *Municipal Code of Chicago*) are intended to provide clear, consistent, and coordinated requirements for the construction and maintenance of buildings and property in the City of Chicago. The *Chicago Construction Codes* are based on up-to-date model codes and standards with carefully-considered amendments to reflect local conditions and building practices. The *Chicago Construction Codes* are administered by several departments, but primary responsibility for development and enforcement is assigned to the Department of Buildings. The International Code Council® (ICC®) publishes the *Chicago Construction Codes* in user-friendly print and electronic formats on behalf of the City of Chicago. The National Fire Protection Association (NFPA) publishes the *Chicago Electrical Code*.

Individual Titles

The requirements of each title of the *Chicago Construction Codes* are interrelated and not intended to be applied separately. In developing the *Chicago Construction Codes*, efforts have been made to avoid unnecessary duplication across different titles. The *Chicago Construction Codes* are also designed to interact with the Chicago Zoning Ordinance. In case of a conflict between the *Chicago Construction Codes* and the Chicago Zoning Ordinance, the stricter provision governs. There are currently eleven full or interim titles:



The *Chicago Construction Codes Administrative Provisions* (Title 14A) establish uniform administrative procedures for each code in the *Chicago Construction Codes* series. These provisions establish the limits of the applicability of each code and describe how the codes are to be applied and enforced. These provisions also establish the powers and responsibilities of city employees, design professionals, construction professionals, and building owners with respect to application of the *Chicago Construction Codes*.

The *Chicago Building Code* (Title 14B) regulates the new construction of buildings and structures and other building- and property-related activities, including special inspections and tests, construction site safety, and building rehabilitation work, as specifically referenced in the other *Chicago Construction Codes*. The accessibility-related provisions of this code have been drafted to be consistent with the 2018 *Illinois Accessibility Code* and federal regulations for privately-funded construction.

The **Chicago Conveyance Device Code** (Title 14C) regulates the design, construction, installation, alteration, maintenance, and repair of conveyance devices, such as elevators, escalators, mechanical amusement riding devices, and their components.

The **Chicago Electrical Code** (Title 14E) regulates the installation and removal of electrical conductors, equipment, and raceways; signaling and communication conductors, equipment, and raceways; and optical fiber cables and raceways.

The **Chicago Fire Prevention Code** (Title 14F) regulates matters affecting or relating to protecting people and structures from the hazards of fire and explosion arising from the storage, handling, or use of specialized industrial processes, materials, or devices; conditions unusually hazardous to life, property, or public welfare in the use and occupancy of buildings or premises; and the maintenance and operation of fire protection and life safety systems. An interim version of this code, incorporating numerous fire-safety-related provisions of the *Municipal Code of Chicago* by reference, was adopted in April 2019. A comprehensively-updated code addressing fire prevention is expected in a future phase of code modernization.

The **Chicago Fuel Gas Code** (Title 14G) regulates the installation and operation of fuel gas (natural gas) piping from the point of utility delivery to the inlet connections of gas-fueled appliances and related accessories. An interim version of this code, incorporating existing fuel-gas-related provisions of the *Municipal Code of Chicago* by reference, was adopted in April 2019. A comprehensively-updated code addressing fuel gas is expected in a future phase of code modernization.

The **Chicago Mechanical Code** (Title 14M) regulates the installation, alteration, repair, and replacement of mechanical systems and equipment, including ventilating, heating, cooling, air-conditioning, and refrigeration systems, incinerators, and other energy-related systems. An interim version of this code, incorporating existing mechanical-system-related provisions of the *Municipal Code of Chicago* by reference, was adopted in April 2019. Packages of amendments to the 2003 *Chicago Mechanical Code* were adopted in September 2021 and September 2022. A comprehensively-updated code addressing mechanical systems is expected in a future phase of code modernization.

The **Chicago ENergy Transformation Code** (Title 14N) regulates matters related to the design, construction, and rehabilitation of new and existing buildings for energy efficiency and decarbonization. This code has been drafted to be consistent with the proposed 2022 Illinois amendments to the *International Energy Conservation Code*.

The **Chicago Plumbing Code** (Title 14P) regulates plumbing systems. An interim version of this code, incorporating existing plumbing-related provisions of the *Municipal Code of Chicago* by reference, was adopted in April 2019. A package of amendments to the 2001 *Chicago Plumbing Code* was adopted in October 2021. A comprehensively-updated code addressing plumbing is expected in a future phase of code modernization.

The **Chicago Building Rehabilitation Code** (Title 14R) regulates the repair, alteration, change of occupancy, addition to, and relocation of existing buildings and structures. The accessibility-related provisions of this code have been drafted to be consistent with the 2018 *Illinois Accessibility Code* and federal regulations for privately-funded construction.

The **Chicago Minimum Requirements for EXisting Buildings** (Title 14X) regulate the condition and maintenance of existing buildings, existing structures, and outdoors areas, and establish the respective responsibilities of owners and occupants to comply with these requirements. This code also establishes minimum requirements for providing light, ventilation, space, security, electricity, plumbing, heating, cooling, sanitation, weather protection, and fire protection in occupied buildings, and requirements for the maintenance of vacant structures. These requirements apply both prospectively and retroactively.

Unlike the International Codes® family, the *Chicago Construction Codes* do not (and are not intended to) include a separate code for one- and two-family residential buildings. Instead, one- to three-unit residential buildings up to four stories (single-family homes to three flats) are regulated in most titles of the *Chicago Construction Codes* as Occupancy Group R-5. There are numerous Chicago-specific exceptions applicable to Group R-5 occupancies. Additionally, in the *Chicago Electrical Code*, requirements for residential occupancies are collected in Article 560, and requirements applicable to the rehabilitation of residential buildings up to four stories are in Article 570.

Development and Adoption

In 2019, as part of a multi-year effort to comprehensively update regulations for the construction and maintenance of buildings, the City Council reorganized numerous building-related provisions of the *Municipal Code* into the *Chicago Construction Codes*. As part of this same effort, the City Council adopted new provisions aligned with the *International Building Code*® and *International Existing Building Code*®, which will be phased in between December 2019 and July 2020. Previously, in 2017 and 2018, the City Council adopted comprehensively-revised requirements for electrical installations and conveyance devices. In a future phase of this effort, the City of Chicago intends to update its requirements for mechanical systems, fuel gas, and plumbing, and adopt a comprehensively-revised fire prevention code.

The creation of the *Chicago Construction Codes* would not have been possible without the generous and continued support and encouragement of professionals and organizations working in the design, construction, and real estate industries. Numerous individuals contributed countless hours over several decades to lay the groundwork necessary for the comprehensive code modernization initiative launched by Commissioner Judy Frydland in 2015.

In 2017, the electrical industry took the lead in supporting a comprehensive overhaul of the *Chicago Electrical Code*, which was drafted by a dedicated team of technical experts with guidance from the reinvigorated Chicago Electrical Commission. In 2018, a new *Chicago Conveyance Device Code*, developed in consultation with elevator specialists and large building owners, was adopted. These successful efforts established a template for restarting efforts to align core provisions of the *Chicago Building Code* with the International Codes®.

In 2018, the Department of Buildings convened a distinguished cross section of industry leaders to launch the external phase of the consensus-based code development process. For several months, a dedicated team of volunteer architects and engineers, assigned to six subject-matter working groups, reviewed and debated draft provisions. A diverse group of stakeholder representatives provided regular feedback on their progress and provided insight on larger policy decisions. In all, more than 200 individuals contributed to the code development process and helped to build widespread support. The ordinance creating the *Chicago Construction Codes* was adopted by a unanimous vote of the City Council on April 10, 2019.

In 2022, the City Council adopted an ordinance replacing the 2019 *Chicago Energy Conservation Code* with the 2022 *Chicago Energy Transformation Code*. The *Chicago Energy Transformation Code* reflects Mayor Lightfoot's commitment to equitably addressing the climate crisis.

Maintenance

The City of Chicago is committed to ensuring the *Chicago Construction Codes* remain clear, consistent, and up to date. The Department of Buildings periodically proposes amendments to the *Chicago Construction Codes* for consideration by the City Council. Suggestions for potential amendments may be sent to the attention of the Commissioner of Buildings, 121 North LaSalle Street, City Hall Room 906, Chicago, Illinois 60602 or DOBCommissioner@cityofchicago.org. Information about recent amendments may be found on the Department of Buildings' web site.

The Department of Buildings will continue to engage with industry stakeholders to develop protocols for ensuring continued alignment with model codes in the years ahead.

Section Numbering

The *Chicago Construction Codes* are part of the *Municipal Code of Chicago* and are subject to the general interpretive and organizational rules established in Chapter 1-4 of the *Municipal Code*. Provisions of the *Municipal Code* use a three-part numbering system, with each part separated by hyphens. The first part indicates the title in which the provision appears. The second part indicates the chapter within the title. The third part is a section designation:

[Title]-[Chapter]-[Section]

The *Chicago Construction Codes* have been assigned title designations from 14A to 14X, with the letter-portion of the title designation correlated to the subject matter. Not all letters are currently

used. Provisions of the *Chicago Construction Codes* may either be referred to in the formal three-part *Municipal Code* style, 14B-2-203, or more informally as Section 203 of the *Chicago Building Code*.

Italicized Terms

In each title of the *Chicago Construction Codes* (except the *Chicago Electrical Code* and *Chicago Conveyance Device Code*) italicized text is used to identify defined words and terms. Definitions, and additional rules governing code interpretation, are in Chapter 2 of each title.

Marginal Markings

In titles based on model codes published by ICC, Chicago-specific amendments are indicated by marginal markings. Provisions added or modified by Chicago are indicated with a double-ruled line (| |) in the outer margin adjoining the text. Provisions deleted by Chicago are indicated with a carat (<) in the outer margin.

In the *Chicago Electrical Code*, Chicago-specific modifications and additions are indicated by shaded text. Chicago-specific deletions are indicated by a bullet (•) in the left-hand margin.

Revisions History

All ordinances adopted by the City Council are published by the City Clerk in the *Journal of the Proceedings of the City Council of the City of Chicago* (Council Journal) after each council meeting. As part of ICC and NFPA's publication of the *Chicago Construction Codes*, the adoption and amendment history, along with a citation to the relevant page(s) of the Council Journal, is provided in a box beneath each section heading.

Editor's Notes

When preparing this publication based on the ordinances adopted by the City Council, ICC occasionally identifies items which it believes to be typographic or editorial errors in the ordinance text. ICC reviews each of these items with the Department of Buildings. In the case of minor errors, such as clear spelling, capitalization, or punctuation errors, ICC has corrected the error in this text without note. Where any ambiguity exists, ICC will note the extent of any modification using an Editor's Note immediately following the affected provision. ICC's editorial revisions do not have the force of law. Where appropriate, the City Council will make corresponding corrections or clarifications through future legislation.

Publisher's Errors

Pursuant to the adopting ordinances, individual titles of the *Chicago Construction Codes* may incorporate corrections to errors in the model code text identified by the model code publisher (errata). For specific information, review the ordinance provisions reproduced at the beginning of Chapter 1 of each code.

Disclaimer

This publication may not reflect the most current legislation adopted by the City of Chicago and may unintentionally vary, in material ways, from the official legislation. The publisher has prepared and provides this document for informational purposes only, and this document should not be relied upon as the definitive authority for legislation adopted by the City of Chicago. The publisher makes

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PREFACE TO THE MODEL CODE

Introduction

The *International Energy Conservation Code*® (IECC®) establishes minimum requirements for energy-efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new energy-efficient designs. This 2021 edition is fully compatible with all of the International Codes® (I-Codes®) published by the International Code Council® (ICC®), including the *International Building Code*® (IBC®), *International Existing Building Code*® (IEBC®), *International Fire Code*® (IFC®), *International Fuel Gas Code*® (IFGC®), *International Green Construction Code*® (IgCC®), *International Mechanical Code*® (IMC®), *International Plumbing Code*® (IPC®), *International Private Sewage Disposal Code*® (IPSDC®), *International Property Maintenance Code*® (IPMC®), *International Residential Code*® (IRC®), *International Swimming Pool and Spa Code*® (ISPSC®), *International Wildland-Urban Interface Code*® (IWUIC®), *International Zoning Code*® (IZC®) and *International Code Council Performance Code*® (ICCPC®).

This code contains separate provisions for commercial buildings and for low-rise residential buildings (3 stories or less in height above grade). Each set of provisions, IECC—Commercial Provisions and IECC—Residential Provisions, is separately applied to buildings within its respective scope. Each set of provisions is to be treated separately. Each contains a Scope and Administration chapter, a Definitions chapter, a General Requirements chapter, a chapter containing energy efficiency requirements and an Existing Buildings chapter containing provisions applicable to buildings within its scope.

The I-Codes, including the IECC, are used in a variety of ways in both the public and private sectors. Most industry professionals are familiar with the I-Codes as the basis of laws and regulations in communities across the US and in other countries. However, the impact of the codes extends well beyond the regulatory arena, as they are used in a variety of nonregulatory settings, including:

- Voluntary compliance programs such as those promoting sustainability, energy efficiency and disaster resistance.
- The insurance industry, to estimate and manage risk, and as a tool in underwriting and rate decisions.
- Certification and credentialing of individuals involved in the fields of building design, construction and safety.
- Certification of building and construction-related products.
- U.S. federal agencies, to guide construction in an array of government-owned properties.
- Facilities management.
- “Best practices” benchmarks for designers and builders, including those who are engaged in projects in jurisdictions that do not have a formal regulatory system or a governmental enforcement mechanism.
- College, university and professional school textbooks and curricula.
- Reference works related to building design and construction.

In addition to the codes themselves, the code development process brings together building professionals on a regular basis. It provides an international forum for discussion and deliberation about building design, construction methods, safety, performance requirements, technological advances and innovative products.

Development

This 2021 edition presents the code as originally issued, with changes reflected in the 2000 through 2018 editions and further changes approved through the ICC Code Development Process through 2019. A new edition such as this is promulgated every 3 years.

This code is founded on principles intended to establish provisions consistent with the scope of an energy conservation code that adequately conserves energy; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

Maintenance

The IECC is kept up to date through the review of proposed changes submitted by code enforcement officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate.

The ICC Code Development Process reflects principles of openness, transparency, balance, due process and consensus, the principles embodied in OMB Circular A-119, which governs the federal government's use of private-sector standards. The ICC process is open to anyone; there is no cost to participate, and people can participate without travel cost through the ICC's cloud-based app, cdpACCESS®. A broad cross-section of interests are represented in the ICC Code Development Process. The codes, which are updated regularly, include safeguards that allow for emergency action when required for health and safety reasons.

In order to ensure that organizations with a direct and material interest in the codes have a voice in the process, the ICC has developed partnerships with key industry segments that support the ICC's important public safety mission. Some code development committee members were nominated by the following industry partners and approved by the ICC Board:

- National Association of Home Builders (NAHB)
- National Multifamily Housing Council (NMHC)

The code development committees evaluate and make recommendations regarding proposed changes to the codes. Their recommendations are then subject to public comment and council-wide votes. The ICC's governmental members—public safety officials who have no financial or business interest in the outcome—cast the final votes on proposed changes.

The contents of this work are subject to change through the code development cycles and by any governmental entity that enacts the code into law. For more information regarding the code development process, contact the Codes and Standards Development Department of the ICC.

While the I-Code development procedure is thorough and comprehensive, the ICC, its members and those participating in the development of the codes disclaim any liability resulting from the publication or use of the I-Codes, or from compliance or noncompliance with their provisions. The ICC does not have the power or authority to police or enforce compliance with the contents of this code.

Coordination of the International Codes

The coordination of technical provisions is one of the strengths of the ICC family of model codes. The codes can be used as a complete set of complementary documents, which will provide users with full integration and coordination of technical provisions. Individual codes can also be used in subsets or as stand-alone documents. To make sure that each individual code is as complete as possible, some technical provisions that are relevant to more than one subject area are duplicated in some of the model codes. This allows users maximum flexibility in their application of the I-Codes.

Adoption

The ICC maintains a copyright in all of its codes and standards. Maintaining copyright allows the ICC to fund its mission through sales of books, in both print and electronic formats. The ICC welcomes adoption of its codes by jurisdictions that recognize and acknowledge the ICC's copyright in the code, and further acknowledge the substantial shared value of the public/private partnership for code development between jurisdictions and the ICC.

The ICC also recognizes the need for jurisdictions to make laws available to the public. All I-Codes and I-Standards, along with the laws of many jurisdictions, are available for free in a nondownloadable form on the ICC's website. Jurisdictions should contact the ICC at adoptions@iccsafe.org to learn how to adopt and distribute laws based on the IECC in a manner that provides necessary access, while maintaining the ICC's copyright.

To facilitate adoption, two sections of this code contain blanks for fill-in information that needs to be supplied by the adopting jurisdiction as part of the adoption legislation. For this code, please see:

Section C101.1. Insert: **[NAME OF JURISDICTION]**.

Section R101.1. Insert: **[NAME OF JURISDICTION]**.

EFFECTIVE USE OF THE CHICAGO ENERGY TRANSFORMATION CODE

The *Chicago Energy Transformation Code* (CETC) regulates minimum energy conservation requirements for new and remodeled buildings. The CETC addresses energy conservation requirements for all aspects of energy uses in both commercial and residential construction, including heating and ventilating, lighting, water heating, and power usage for appliances and building systems.

The CETC is a design document. For example, before one constructs a building, the designer must determine the minimum insulation *R*-values and fenestration *U*-factors for the building exterior envelope. Depending on whether the building is for residential use or for commercial use, the CETC sets forth minimum requirements for exterior envelope insulation, window and door *U*-factors and SHGC ratings, duct insulation, lighting and power efficiency, and water distribution insulation.

Arrangement of the 2022 CETC

The CETC contains two separate sets of provisions—one for commercial buildings and one for residential buildings. Each set of provisions is applied separately to buildings within their scope. The CETC—Commercial Provisions apply to all buildings not covered by the CETC-Residential Provisions. The CETC—Residential Provisions apply to Group R-2, R-3, R-4 and R-5 buildings four stories or less in height. These scopes are based on the definitions of “Commercial building” and “Residential building,” respectively, in Chapter 2 of each set of provisions. Note that the CETC—Commercial Provisions therefore contain provisions for residential buildings five stories or greater in height and all Group R-1 occupancies. Each set of provisions is divided into six different parts:

Chapters	Subjects
1–2	Administration and definitions
3	Climate zones and general materials requirements
4	Energy efficiency requirements
5	Existing buildings
6	Chicago-specific provisions
7	Referenced standards

The following is a chapter-by-chapter synopsis of the scope and intent of the provisions of the *Chicago Energy Transformation Code* and applies to both the commercial and residential energy provisions:

Chapter 1 Scope and Purpose. This chapter contains provisions for the application, enforcement and administration of subsequent requirements of the code. In addition to establishing the scope of the code, Chapter 1 identifies which buildings and structures come under its purview. Users should also consult the *Chicago Construction Codes Administrative Provisions* for additional requirements related to administrative compliance with this code.

Chapter 2 Definitions. Chapter 2 is the repository of the definitions of terms used in the body of the code. Codes are technical documents and every word, term and punctuation mark can impact the meaning of the code text and the intended results. The code often uses terms that have a unique meaning in the code and the code meaning can differ substantially from the ordinarily understood meaning of the term as used outside of the code.

The terms defined in Chapter 2 are deemed to be of prime importance in establishing the meaning and intent of the code text. The user of the code should be familiar with and consult this chapter because the definitions are essential to the correct interpretation of the code and the user may not be aware that a term is defined.

Where understanding of a term’s definition is especially key to or necessary for understanding of a particular code provision, the term is shown in *italics*. This is true only for those terms that have a meaning that is unique to the code. In other words, the generally understood meaning of a term or phrase might not be sufficient or consistent with the meaning prescribed by the code; therefore, it is essential that the code-defined meaning be known.

Guidance regarding tense, gender and plurality of defined terms as well as guidance regarding terms not defined in this code is provided.

Chapter 3 General Requirements. Chapter 3 specifies the climate zones that will serve to establish the exterior design conditions. In addition, Chapter 3 provides interior design conditions that are used as a basis for assumptions in heating and cooling load calculations, and provides basic material requirements for insulation materials and fenestration materials.

Chapter 4 Energy Efficiency. Chapter 4 of each set of provisions contains the technical requirements for energy efficiency.

Commercial Energy Efficiency. Chapter 4 of the CETC—Commercial Provisions contains the energy-efficiency-related requirements for the design and construction of most types of commercial buildings and residential buildings greater than four stories in height above grade. This chapter defines requirements for the portions of the building and building systems that impact energy use in new commercial construction and new residential construction greater than four stories in height, and promotes the effective use of energy. In addition to energy conservation requirements for the building envelope, this chapter contains requirements that impact energy efficiency for the HVAC systems, the electrical systems and the plumbing systems. It should be noted, however, that requirements are contained in other codes that have an impact on energy conservation. For instance, requirements for water flow rates are regulated by the *Chicago Plumbing Code*.

Residential Energy Efficiency. Chapter 4 of the CETC—Residential Provisions contains the energy-efficiency-related requirements for the design and construction of residential buildings regulated under this code. It should be noted that the definition of a residential building in this code is unique for this code. In this code, a residential building is a Group R-2, R-3, R-4 or R-5 buildings four stories or less in height. All other buildings, including residential buildings greater than four stories in height, are regulated by the energy conservation requirements in the CETC—Commercial Provisions. The applicable portions of a residential building must comply with the provisions within this chapter for energy efficiency. This chapter defines requirements for the portions of the building and building systems that impact energy use in new residential construction and promotes the effective use of energy. The provisions within the chapter promote energy efficiency in the building envelope, the heating and cooling system and the service water heating system of the building.

Chapter 5 Existing Buildings. Chapter 5 of each set of provisions contains the technical energy efficiency requirements for existing buildings. Chapter 5 provisions address the maintenance of buildings in compliance with the code as well as how additions, alterations, repairs and changes of occupancy need to be addressed from the standpoint of energy efficiency. Specific allowances are provided for historic buildings.

Chapter 6 Chicago-specific Provisions. Chapter 6 of each set of provisions contains Chicago-specific requirements, including requirements for solar-ready roofs, electrification-ready residences, and exterior balcony and parapet insulation. These requirements apply regardless of the compliance path selected in earlier chapters.

Chapter 7 Referenced Standards. The code contains numerous references to standards that are used to regulate materials and methods of construction. Chapter 6 contains a comprehensive list of all standards that are referenced in the code. The standards are part of the code to the extent of the reference to the standard. Compliance with the referenced standard is necessary for compliance with this code. By providing specifically adopted standards, the construction and installation requirements necessary for compliance with the code can be readily determined. The basis for code compliance is, therefore, established and available on an equal basis to the *building official*, contractor, designer and owner.

Chapter 7 is organized in a manner that makes it easy to locate specific standards. It lists all of the referenced standards, alphabetically, by acronym of the promulgating agency of the standard. Each agency's standards are then listed in either alphabetical or numeric order based on the standard identification. The list also contains the title of the standard; the edition (date) of the standard referenced; any addenda included as part of the ICC adoption; and the section or sections of this code that reference the standard.

Abbreviations and Notations

The following is a list of common abbreviations and units of measurement used in this code. Some of the abbreviations are for terms defined in Chapter 2. Others are terms used in various tables and text of the code.

AFUE	Annual fuel utilization efficiency
bhp	Brake horsepower (fans)
Btu	British thermal unit
Btu/h-ft ²	Btu per hour per square foot
C-factor	See Chapter 2—Definitions
CDD	Cooling degree days
cfm	Cubic feet per minute
cfm/ft ²	Cubic feet per minute per square foot
ci	Continuous insulation
COP	Coefficient of performance
DCV	Demand control ventilation
°C	Degrees Celsius
°F	Degrees Fahrenheit
DWHR	Drain water heat recovery
DX	Direct expansion
E_c	Combustion efficiency
E_v	Ventilation efficiency
E_t	Thermal efficiency
EER	Energy efficiency ratio
EF	Energy factor
ERI	Energy rating index
F-factor	See Chapter 2—Definitions
FDD	Fault detection and diagnostics
FEG	Fan efficiency grade
FL	Full load
ft ²	Square foot
gpm	Gallons per minute
HDD	Heating degree days
hp	Horsepower
HSPF	Heating seasonal performance factor
HVAC	Heating, ventilating and air conditioning
IEER	Integrated energy efficiency ratio
IPLV	Integrated Part Load Value
Kg/m ²	Kilograms per square meter
kW	Kilowatt
LPD	Light power density (lighting power allowance)
L/s	Liters per second

Ls	Liner system
m ²	Square meters
MERV	Minimum efficiency reporting value
NAECA	National Appliance Energy Conservation Act
NPLV	Nonstandard Part Load Value
Pa	Pascal
PF	Projection factor
pcf	Pounds per cubic foot
psf	Pounds per square foot
PTAC	Packaged terminal air conditioner
PTHP	Packaged terminal heat pump
R-value	See Chapter 2—Definitions
SCOP	Sensible coefficient of performance
SEER	Seasonal energy efficiency ratio
SHGC	Solar Heat Gain Coefficient
SPVAC	Single packaged vertical air conditioner
SPVHP	Single packaged vertical heat pump
SRI	Solar reflectance index
SWHF	Service water heat recovery factor
U-factor	See Chapter 2—Definitions
VAV	Variable air volume
VRF	Variable refrigerant flow
VT	Visible transmittance
W	Watts
w.c.	Water column
w.g.	Water gauge

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