

Chicago Plan Review Manual

Volume I: Application Screening, Building Planning, and Means of Egress

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Overview

Goal

The goal of the *Chicago Plan Review Manual* is to provide readers with essential knowledge and concepts to perform plan reviews utilizing a systematic and procedural approach in applying the *Chicago Building Code* and other provisions of the *Chicago Construction Codes*.

Modules 1 through 6 address non-structural topics, including application screening, building planning, egress, and fire protection. Modules 7 through 9 address structural topics, including structural loads, foundation systems, and structural components and materials.

Description

The *Chicago Plan Review Manual* addresses applicable requirements of the *Chicago Construction Codes* to prepare you for performing a plan review for new construction of a permanent building. After completing all 9 modules, you will be prepared to determine whether the permit application and construction documents for construction of a new permanent building complies with the outlined requirements of the *Chicago Construction Codes*.

The topics covered in the *Chicago Plan Review Manual* are not all-inclusive. This publication addresses requirements that will apply to many new construction building types. Prior to performing a plan review, the plan reviewer should be familiar with and determine the applicability of each provision of the *Chicago Construction Codes*, including requirements not covered in this publication, to the specific project.

The *Chicago Plan Review Manual* does not cover:

- ♦ Requirements related to accessibility for people with disabilities.
- ♦ Application of the *Chicago Building Rehabilitation Code* for work involving additions, alterations, and repairs to existing buildings.
- ♦ Temporary buildings and structures, such as tents and stages.

- ♦ Hazardous (Group H) occupancies and additional requirements of the interim *Chicago Fire Prevention Code*.
- ♦ The Chicago Zoning Ordinance (Title 17 of the *Municipal Code*).

Objectives

Using the material in the *Chicago Plan Review Manual*, readers will be better able to:

- ♦ Identify the applicable provisions of the *Chicago Construction Codes* regarding permit applications and plan reviews.
- ♦ Review a new construction building permit application for compliance with administrative and building planning requirements of the *Chicago Construction Codes*.
- ♦ Review a new construction building permit application for compliance with egress requirements of the *Chicago Building Code*.
- ♦ Review a new construction building permit application for compliance with fire-resistance and interior finish requirements of the *Chicago Building Code*.
- ♦ Review a new construction building permit application for compliance with fire protection system requirements of the *Chicago Building Code*.
- ♦ Review a new construction building permit application for compliance with nonstructural material requirements of the *Chicago Building Code*.
- ♦ Determine which structural requirements of the *Chicago Building Code* are applicable to a new construction building permit application.
- ♦ Review structural plans and calculations for conformance with the *Chicago Building Code*.
- ♦ Review structural components and materials for conformance with the *Chicago Building Code*.

Explanation of Icons

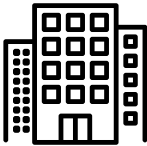
In this publication, icons are placed in the margin to highlight the following types of material:

CODE BOOK



This icon directs you to material in the *Chicago Construction Codes*. This will help you become familiar with locating information within the code books. The exact location of the information referenced will be provided below the icon.

FOR EXAMPLE



This icon indicates where an example is used to reinforce concepts explained in the text.

ACTIVITY



Activities, indicated by this icon, provide an opportunity for you to practice applying the codes. The activities are designed to enhance your learning experience by presenting reality-based exercises.

KEY CONCEPT



Look for this icon to indicate a process or procedure that is important for you to be able to use on the job.

CHICAGO



AMENDMENT

This icon indicates a Chicago-specific process or amendment to the model code. For these topics, users should not rely on materials interpreting the ICC model codes.

QUESTION AND



ANSWER

The question and answer sections provide questions addressing critical areas.

DISCUSSION



This icon introduces discussion exercises. The questions in this exercise can be discussed with your peers regarding their importance and application.

FINAL



REFLECTION

This icon introduces the final reflection exercise. The questions in this exercise will help you determine the most important thing you learned from the class, why the information is important for you to know, and how you will use the information on the job.

REFERENCE



ICC code commentaries include code language with explanations and discussions of major issues. This icon refers to an explanation in the associated ICC commentary or additional information in a referenced standard.

Margin Descriptions Within Code Books

In the *Chicago Construction Codes* published by the International Code Council®, the following marginal markings are used to indicate language that is different from the model language in the *International Codes*:

Provisions added or modified by the City of Chicago are indicated with a double-ruled line (||) in the outer margin adjoining the text.

Provisions deleted by the City of Chicago are indicated with a carat (<) in the outer margin.

Purpose of Nonstructural Plan Review

KEY CONCEPT



The purpose of the *Chicago Construction Codes* is to establish minimum requirements for the protection and promotion of public health, safety, and welfare.

A nonstructural plan review is performed to determine that a building permit application and the work described in it:

- ♦ Complies with the *Chicago Construction Codes Administrative Provisions*.
- ♦ Complies with applicable nonstructural construction requirements in the *Chicago Building Code* and other *Chicago Construction Codes*.
- ♦ Calls for use of appropriate materials and does not provide for materials or methods that are not allowed by the *Chicago Building Code*.

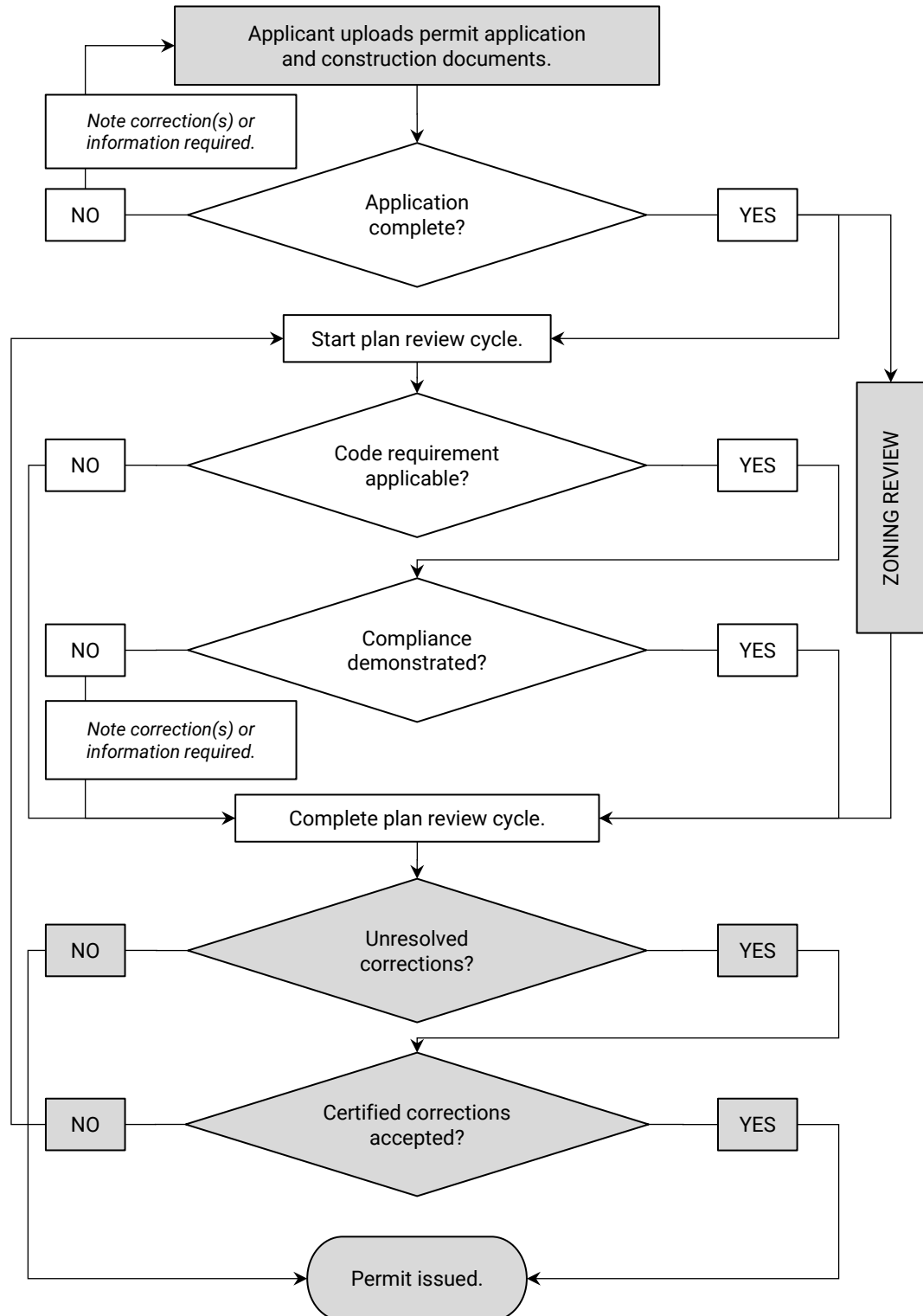
Purpose of Structural Plan Review

The purpose of a structural plan review is to determine that building structures, as shown in construction documents:

- ♦ Are designed in accordance with applicable structural requirements of the *Chicago Building Code* to create safe conditions for people and property.
- ♦ Will be built using appropriate materials, methods, and standards of construction.

The Plan Review Process

The flow chart below describes a typical plan review process. (Shaded areas indicate activities not covered in this *Plan Review Manual*.)



Plan Review Worksheet

A plan review worksheet has been prepared to accompany this *Plan Review Manual*. The worksheet provides a method for systematically documenting compliance with applicable code requirements and/or tracking items requiring corrections.

The ProjectDox and Hansen systems remain the means of documenting and communicating approval or required corrections to permit applicants.

Module 1. Application Screening

Purpose

When a standard plan review building permit application is received, it is screened by a project manager to verify that information necessary to complete substantive reviews is included in the appropriate manner in the application package. Similar screening may be performed on self-certified applications.

Application screening is conducted by the project administrator for traditional developer services projects, or by the consultant reviewer for direct developer services projects.

If an application is incomplete, or material is provided in an inappropriate or disorganized format, the applicant must be notified of specific deficiencies. These deficiencies must be resolved by the applicant before the application will be routed to plan examiners for substantive review.

(If the deficiencies are not resolved, or an extension requested by the applicant within 120 days of notification, the application is considered withdrawn and must be restarted.)

KEY CONCEPT



Applicable Code Requirements

Chicago Construction Codes Administrative Provisions:

Section 104.2: Applications and Permits

Section 105: Transitional Provisions [to new code]

Section 202: Definitions

Section 306: Stop Work Order

Section 401: Permits—General

Section 401.3: Review

Section 402: Work Exempt from Permit

CHICAGO



AMENDMENT

Section 404: Additional Requirements Based on Scope of Work

Section 404.2: Boilers and Unfired Pressure Vessels

Section 404.3: Construction Equipment

Section 404.4: Conveyance Devices (elevators, escalators, mechanical amusement riding devices, etc.)

Section 404.5: Demolition

Section 404.6: Electrical Work

Section 404.7: Fences

Section 404.8: Fire Escapes

Section 404.9: Fire Protection Systems

Section 404.10: Industrial Private Event Venues

Section 404.11: Mechanical Amusement Riding Devices (Carnivals)

Section 404.12: Mechanical Refrigeration or Cooling Systems

Section 404.13: New Construction

Section 404.14: Plumbing

Section 404.16: Scaffolding

Section 404.17: Sewer Work

Section 404.18: Signs

Section 404.19: Tanks for Flammable Liquids

Section 404.20: Water Service

Section 404.21: Warm Air Heating Furnaces

Section 404.22: Work On, Above or Below the Public Way

Section 405: Temporary Structures and Uses

Section 406: Excavation Work on Private Property

Section 409: Pre-application Services

Section 410: Applications

Section 411: Supporting Documents

Section 412.1.2: Deposit When Drawings Required

Section 412.4: Permit Issued After Stop Work Order

Section 1002: Formal Interpretations

Section 1003: Alternative Code Approval

Chicago Building Code:

Section 1603: Construction Documents (Structural Information)

Chapter 17: Special Inspections and Tests

Chapter 32: Encroachments into the Public Way

Chapter 33: Work Site Safety and Operations

Chapter 36, Appendix D: Fire Limits

Chicago Municipal Code:

Chapter 10-16: Underground Work

Chapter 10-20: Work on and Under Public Ways

Chapter 10-21: Chicago Underground Facilities Damage Prevention

Chapter 10-24: Signs Extending Over and Upon Certain Public Property

Chapter 10-28: Structures on and Under Public Ways

Chapter 10-29: Wire, Pipes, Cables and Conduits On, Under or Over Public Property

Chapter 11-4, Article II: Air Pollution Control

Chapter 11-4, Article XIV: Reprocessable Construction Material

Chapter 11-4, Article XVI: Flammable Liquid Tank Regulations

Chapter 11-4, Article XVIII: Asbestos, Sandblasting, and Grinding Standards

Chapter 11-12: Water Supply and Service

Chapter 11-16: Public Sewers and Drains

Chapter 11-18: Stormwater Management

Chapter 11-20: Gas Supply and Service

Chapter 16-6: Flood Control

KEY CONCEPT



Tasks

There are three tasks to perform as part of the initial screening process:

- 1.1 Determine if required documents have been submitted.
- 1.2 Determine if required information is provided on the drawings that have been submitted as part of the permit application.
- 1.3 Determine if special requirements are applicable to the work based on the site location.

Task 1.1 Check for Required Documents

Purpose

To allow plan reviews to be conducted efficiently, and to ensure enough information about the scope of permitted work is available to contractors and inspectors in the field, the *Chicago Construction Codes Administrative Provisions* specify the types of documents which must be submitted with a permit application and the types of information which must be included in those documents.

Building permit applications must also contain enough information to establish compliance with the *Chicago Zoning Ordinance*.

KEY CONCEPT



Applicable Code Requirements

Permit application requirements are found in the following sections of the *Chicago Construction Codes Administrative Provisions*:

Section 401: General (Permits)

Section 404: Additional Requirements Based on Scope of Work

Section 406: Excavation Work on Private Property

Section 407: Demolition

Section 410: [Permit] Applications

Section 411: Supporting Documents

Section 411.2: Survey

Section 411.3: Construction Documents

Requirements related to special inspections and geotechnical reports are found in the following sections of the *Chicago Building Code*:

Section 1704.3: Statement of Special Inspections

Section 1803.6: Reporting [Geotechnical Investigations]

Permit Application

The permit application must provide certain required information in the form and format required by the Department.

The *Municipal Code* specifies the following required information. This information must be entered, by the applicant, in the Dynamic Portal (Hansen):

- ♦ Description of all work to be authorized by the permit.
- ♦ Description of any repairs needed due to fire damage, where applicable.
- ♦ Description of the land on which the proposed work is to be done by street address, legal description, or similar description that will readily identify and definitively locate the proposed work.
- ♦ Description of the existing use and occupancy of the premises
- ♦ Description of the use and occupancy for which the proposed work is intended.
- ♦ The full name, residence address, business address, e-mail address, residence telephone number, and business telephone number for each of the following persons:
 - The applicant, which may include a lessee of the real property.
 - The owner of the real property for which the permit is sought, if such owner of the real property is different from the applicant.
 - If such applicant or owner of the real property is a corporation, partnership, limited liability company or other legal entity, each person owning, directly or indirectly, more than 25 percent of the interest in such applicant or owner of the real property.
- ♦ Signature of the applicant, or the applicant's authorized agent. If the application is signed by an individual other than the owner of the real property, that individual must attest that he or she is submitting the

application with the knowledge and consent of the owner of the real property.

The *Municipal Code* allows the Building Commissioner to require additional information as part of the permit application.

Note: During the transition period, an interim permit application (Form 400) will be required. Applicants will need to upload a completed version of this form to ProjectDox.

Building Address Certificate

A building address (house number) certificate must be obtained from the Chicago Department of Transportation before an application is started for the following work:

- New principal buildings (not required for accessory buildings which do not contain dwelling units, such as private garages and sheds)
- Building alterations that will relocate the main building entrance
- Building additions that will use a separate street address

A copy of the certificate must be submitted to the Department of Buildings as part of the permit application.

House Number Certificate
City of Chicago Department of Transportation
Division of Maps and Plats

This certificate is valid only for the type listed below:
New Construction

Certificate Number: 67244 Date of Issue: 09/05/2018

This is to certify that the correct number of the building at:
LOTS 139 AND 140 IN JOHN P. ALTGELD'S SUBDIVISION OF BLOCKS 1 TO 4 IN THE NORTH HALF OF BLOCK 6 AND ALL OF
BLOCK 7 IN THE SUBDIVISION OF THAT PART LYING NORTHEASTERLY OF THE CENTER LINE OF LINCOLN AVENUE IN THE
NORTHWEST QUARTER OF SECTION 29-40-14.

in the City of Chicago is number
1448 W BARRY AVE

In accordance with plats on file and approved by the Division of Maps and
Plats of the City of Chicago. By order of the Commissioner of the
Department of Transportation

Rebekah Scheinfeld
Commissioner of
Transportation

Any Variation or changes made to the site plan will invalidate this certificate

Attention
Please be aware that the above legal address will be conveyed to the Office of Emergency Management and Communication. This is the address to which the CHICAGO
POLICE and FIRE DEPARTMENTS will respond in the event of an EMERGENCY.
The main entrance of your building must be located at the above address and clearly labeled. This will also be the location of the fire alarm panels when a fire alarm
System is required. The panels must be located within the viewing distance of the entrance, as approved by the Fire Prevention Bureau during the Plan Review Process.

Figure 1: Example of a CDOT house number certificate

Survey

A plat of survey, prepared by an Illinois-licensed land surveyor to industry standards, must be submitted with a permit application for the following types of work:

- Erecting a new building
- Adding new occupiable floor area to an existing building
- Relocating an existing building on the same site or to a new site
- Work affecting shared structural elements (party walls, etc.)

Unless waived by a supervisor, the survey must be dated no more than **60 days** before it is uploaded (or provided to the Developer Services consultant reviewer).

The survey, or the survey together with a site plan, must show:

- The dimensions of the lot
- The position of all existing buildings and structures on the lot
- The dimensioned position to be occupied by the proposed new building, addition, or relocated building
- The existence and dimensioned location of party walls, if any

These measurements must be taken at ground level.

The survey must indicate every recorded easement on the lot where work is to be performed and on the immediately adjoining lots, indicating the use or benefit resulting from such easement.

The Building Department may require additional information for large sites or sites with complex topography.

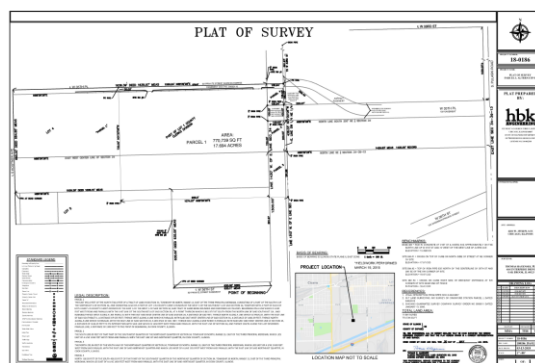


Figure 2: Example of a plat of survey

Construction Documents

Construction documents are written, graphic, and pictorial documents prepared or assembled for describing the design, location, and physical characteristics of the elements of a project necessary for obtaining a permit.

Construction documents must be drawn to a legible scale and accurately dimensioned.

Construction documents must be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show in detail that it will conform to the provisions of the *Chicago Construction Codes*, the *Chicago Zoning Ordinance*, and other relevant laws to the satisfaction of the Department.

Construction documents must be submitted in an electronic format (through ProjectDox) in most cases.

Every page of the construction documents must indicate the property address where work is to be performed.

Construction documents must be signed and sealed by an Illinois-licensed architect or structural engineer (registered design professional).

Construction documents for installations which do not involve the design of or changes in the structural system or means of egress and which do not materially affect the structural loading may be signed and sealed by an Illinois-licensed professional engineer.

Where the *Chicago Construction Codes* require that any material or equipment be installed in accordance with the manufacturer's instructions or requirements, those instructions or requirements must be specifically referenced or reproduced in the construction documents and available at the work site.

Energy Conservation Code Compliance Statement

In order to facilitate compliance with the *Chicago Energy Conservation Code*, an Illinois-licensed architect or engineer (but not necessarily the professional who seals the drawings), must complete and seal an energy

conservation compliance form, and file it with the building permit application.

The information required on this form is in addition to the information that is required on the construction documents.

Figure 3: Examples of energy conservation compliance statement forms

Statement of Special Inspections

When Chapter 14B-17 becomes effective in Spring 2020, a statement of special inspections must be filed as part of the permit application for any project where structural observation or special inspections are required by Section 1704 of the *Chicago Building Code*.

Special inspections and structural observation are not required for:

- Buildings of Group R-5 occupancy
- Buildings up to 3 stories above grade and up to 25,000 ft²
- Repairs not necessitated by substantial structural damage
- Interior alterations not involving structural work, sprayed fire-resistant materials (SFRM), intumescent coatings, penetrations of fire-resistance-rated construction, or smoke control systems.

In non-exempt projects, special inspections are required for:

Earthwork (1705.6)

- Site preparation
- Fill material
- Fill compaction
- Excavation
- Foundation sub-grade

Deep Foundation Elements

- Materials (1705.7, 1705.8, 1705.9)
- Test piles (1706.8, 1705.9, 1705.10)
- Installation [1705.2 (steel), 1705.3 (concrete), 1705.7 (driven), 1705.8 (cast-in-place), 1705.9 (helical piles), 1705.10 (site fabricated items)]
- Load tests [1705.7 (driven), 1705.8 (cast-in-place), 1705.9 (helical piles), 1705.10 (site fabricated items), 1708, 1709]

Concrete (site formed) (1705.3)

- Materials
- Installation of reinforcing steel (including pre-stressed tendons, anchor bolts, and welding)
- Formwork installation
- Concreting operations and placement
- Concrete curing
- Concrete strength

Concrete (precast) (1705.3)

- Erection and installation
- Application of forces for pre-stressed concrete

Masonry (1705.4)

- Materials
- Strength
- Mortar and grout
- Grout placement, including pre-stressing grout
- Mortar, grout, and prism specimens
- Reinforcement, pre-stressing tendons, and connections

- Welding of reinforcing bars (1705.3)
- Pre-stressing force
- Protection during hot or cold weather
- Anchorage
- Masonry unit installation
- Grouting of pre-stressed tendons

Note: under the referenced standard, TMS 402/602 almost all work will be subject to Quality Assurance Level B inspections

Structural Steel (1705.2)

- Bolts, nuts, and washers – materials
- Bolts, nuts, and washers – installation
- Structural steel – materials
- Structural steel – installation
- Structure steel details – installation
- Weld filler material and welder certification
- Welds
- Cold-formed metal deck – materials
- Cold-formed metal deck – installation
- Open web steel joists and girders
- Cold-formed steel trusses spanning 60' or greater

Wood (off-site fabrication) (1704.2.5)

- Inspection or Certificate of Compliance

Wood (on-site fabrication) (1705.5)

- Metal plate connected wood/metal trusses spanning 60' or greater
- High-load diaphragms

Seismic in Risk Category IV Buildings (1705.12, 1705.13)

- Structural steel
- Structural wood
- Cold-formed steel light-frame construction
- Designated seismic systems

- Exterior cladding and architectural components
- Plumbing, mechanical, and electrical components
- Storage racks
- Seismic isolation systems
- Bolted moment frames

Sprayed Fire-resistant Material (1705.14)

- Surface condition before application
- Application conditions
- Thickness, density, bond strength

Fire-resistant Coatings (Mastic, intumescent) (1705.15)

Per manufacturer's requirements:

- Surface condition before application
- Application conditions
- Thickness, density, bond strength

Fire-resistant Penetrations and Joints

Requirements for high-rise buildings and Risk Category III or IV buildings:

- Penetration firestopping
- Fire-resistant joint systems

Smoke Control System

- Must be tested by special inspector prior to acceptance testing in presence of Chicago Fire Department
- Testing during duct installation

Special Cases

- Special inspections may be required as a condition of Alternative Code Approval (ACAR) or by the Committee on Standards and Tests

Geotechnical Report

For larger projects, a geotechnical (soils) report must be submitted with the permit application as a basis for structural design where:

- Project involves excavation or earthwork more than 8 feet below existing grade
- New building or buildings or additions to existing buildings will cover more than 16,000 ft² of ground area
- New construction or addition with more than four stories above grade plane

For very small projects, a geotechnical report is not required:

- Single-story structures without basements up to 2,000 ft²
- Alteration and additions that do not require new foundations and do not result in an increase in loads exceeding 5% of the existing foundation design capacity

For some mid-sized projects, the geotechnical report is not required at the time of permitting, but must be obtained and must confirm the assumptions used for structural design prior to the start of work:

- Construction not exceeding four stories above grade plane
- No excavation more than 8 feet below existing grade
- Covering no more than 16,000 ft² of ground area

For these projects, a modified geotechnical report (based on a test-pit and not requiring an engineer) is allowed where:

- Excavation will not be more than 8 feet below existing grade
- Bearing values for design do not exceed the (conservative) presumptive values in Table 1806.2

A geotechnical report, prepared by a registered geotechnical engineer, must be obtained prior to construction if the bearing value used as the basis of design is less conservative than the value in Table 1806.2.

Task 1.2 Check for Required Information in the Construction Documents

Purpose

Section 411.3 of the *Chicago Construction Codes Administrative Provisions* provides a roadmap to applicants for each type of information that must be included in the construction documents (plans or drawings). This information helps:

- ♦ Registered design professionals (architects and structural engineers) to verify that they have considered the relevant code requirements
- ♦ Plan reviewers to check the proposed work for code compliance
- ♦ Contractors to understand what is intended by the design professionals and required for code compliance
- ♦ Inspectors to confirm that work being performed is consistent with the work authorized by the permit

KEY CONCEPT



Applicable Code Requirements

Requirements for documents to support a permit application are found in the following sections of the *Chicago Construction Codes Administrative Provisions*:

Section 404.7: Fences

Section 404.8: Fire Escapes

Section 404.10: Industrial Private Event Venues

Section 404.12: Mechanical Refrigeration or Cooling Systems

Section 404.13: New Construction (anticipating demolition of existing building on site)

Section 404.14: Plumbing

Section 404.18: Signs

Section 404.19: Tanks for Flammable Liquids

Section 404.20: Warm Air Heating Furnaces

Section 404.31: Work On, Above, or Below the Public Way

Section 411.2: Survey

Section 411.3.1.1: Manufacturer's Instructions

Section 411.3.2: Site Plan

Section 411.3.3: Occupancy Classification and Use Designation

Section 411.3.4: Special Occupancies and Uses

Section 411.3.5: Height and Area

Section 411.3.6: Construction Type

Section 411.3.7: Fire Resistance

Section 411.3.9: Fire Protection Systems

Section 411.3.10: Means of Egress

Section 411.3.11: Accessibility

Section 411.3.13: Energy Conservation

Section 411.3.14: Exterior Wall Envelope

Section 411.3.16: Structural Information

Section 411.3.19: Concrete

Section 411.3.27: Electrical Information

Section 411.3.28: Mechanical Information

Section 411.3.29: Plumbing Information

Section 411.3.30: Conveyance Devices

Section 411.4: Code Compliance

Section 411.5: Phased Approval

Section 411.6: Deferred Submittals

Section 411.8: Amended Construction Documents

Basic Code Compliance Data

Applicants must identify and provide data to demonstrate compliance with the selected code compliance strategy on the first or second page of the construction documents. This information may be presented in the form of a matrix, a narrative, or diagram(s), so long as all necessary information is included. The Department has prepared a list of required code compliance information for typical projects that is available to applicants.

Special Requirements

Pursuant to Chapter 4 of the *Chicago Construction Codes Administrative Provisions*, permit applications covering the following types of work are subject to specialized requirements. For types of work marked with an asterisk (*), a permit application separate from the building permit application may be required.

- Boilers and unfired pressure vessels*
- Construction equipment (tower cranes, derrick-type equipment)*
- Conveyance devices (elevators, escalators, construction hoists, etc.)
- Demolition (of entire building or permanent reduction in building area)*
- Driveways connecting to public ways*
- Electrical work
- Excavation work
- Fire escapes
- Fire protection systems (sprinklers, standpipes, alarms, etc.)*
- Industrial private event venues
- Mechanical amusement riding devices*
- Mechanical refrigeration or cooling system
- Plumbing
- Relocating building
- Scaffolding*
- Sewer work*
- Signs*
- Stormwater (regulated developments)
- Tanks for flammable liquids
- Temporary structures and uses (including tents)
- Water service*
- Warm air heating furnaces
- Use of subsidewalk space*
- Canopies and similar structures over the public way*

Site Plan

Construction documents must include a site plan showing, to scale:

- The size and location of new construction and existing structures on the lot
- Distances from buildings and structures to property lines
- The established grade of the adjoining public way
- Proposed finishes grade(s) for the site
- Information relevant to flood control, if applicable (see Task 1.3)

The site plan must be consistent with the survey.

The requirement of a site plan may be waived by a supervisor for non-residential interior alterations or repairs that do not involve exterior walls or openings in exterior walls and do not involve modifications to the means of egress.

Occupancy Classification and Use Designation

Construction documents must indicate the existing and proposed occupancy classification and use designation of every existing building, and every building proposed to be erected, added to, or moved onto the lot under the permit.

Where a building includes multiple occupancy classifications, the construction documents must clearly depict the classification or designation of each area in enough detail to establish compliance with the *Chicago Construction Codes*.

For more information on occupancy classification, see Task 2.1.

Special Occupancies and Uses

Construction documents must indicate where an existing or proposed building contains an occupancy or use for which specialized requirements are provided in the *Chicago Fire Prevention Code* or Chapter 4 of the *Chicago Building Code*.

Special Occupancies and Uses	
Interim <i>Chicago Fire Prevention Code</i> (Title 14F)	<i>Chicago Building Code</i> (Title 14B)
<ul style="list-style-type: none"> • Acetylene gas (15-4-160, Ch. 15-26) • Aerosols (15-26-790) • Ammonium nitrate (15-4-130, Ch. 15-28, Art. VI) • Asphalt, tar, pitch, resin, and paraffin (Ch. 15-28, Art. V) • Calcium carbide (15-4-160, Ch. 15-26) • Chlorine gas (15-26-800) • Combustible solids, including combustible fibers (Ch. 15-28, Art. XII) • Corrosive liquids (15-4-130, Ch. 15-28, Art. X) • Dipping and roll coating (Ch. 15-24, Art. VII) • Dry cleaning (Ch. 15-24, Art. IX) • Drying activities (Ch. 15-24, Art. VIII) • Explosives (15-4-300, Ch. 15-20) • Energy storage systems (Ch. 14F-12) • Firewood (15-4-256, -257) • Flammable liquids (15-4-210, Ch. 15-24, Arts. II–V) • Fuel oil (15-4-258, -259) • Fume hazard gas (15-4-130, 15-4-230) • Hazardous chemicals (Ch. 15-28, Art. II) • Hazardous dusts (Ch. 15-28, Art. XX) • Highly flammable materials (15-4-130, 15-28-500) • Highly-toxic materials (15-4-130; Ch. 15-28, Art. IX) • Hydrogen, generation or compression (15-4-240) 	<ul style="list-style-type: none"> • Aircraft-related occupancies (412) • Ambulatory care facilities (422) • Atriums (404) • Combustible storage (413) • Groups I-1, R-1, R-2, R-3, R-4, and R-5 (420) • Group I-2 (407) • Group I-3 (408) • High-rise buildings (403) • Live/work units (419) • Motion picture projection rooms (409) • Motor-vehicle related occupancies (406) • Stages, platforms, and technical production areas (410) • Special amusement buildings (411) • Underground buildings (405)

- Liquified petroleum gas
(Ch. 15-26, Art. V)
- Lumber dry kilns (Ch. 15-28, Art. XIV)
- Lumberyards and lumber storehouses
(15-4-252)
- Matches (15-4-530; Ch. 15-28, Art. XVI)
- Nitrocellulose (15-4-250; Ch. 15-28,
Arts. XII, XVII, XVIII)
- Nitromethane
(15-4-130; Ch. 15-28, Art. IV)
- Organic peroxides
(15-4-130; Ch. 15-28, Art. VII)
- Oxidizing materials
(15-4-130; Ch. 15-28, Art. III)
- Oxygen, generation or compression (15-
4-240)
- Paint mixing and spraying
(Ch. 15-24, Art. VI)
- Radioactive material
(Ch. 15-28, Art. XI)
- Sawdust, shavings, excelsior
(15-4-254)
- Smokehouses and smokerooms
(Ch. 15-28, Art. XIII)
- Solar panel installations (Ch. 14F-12)
- Solid fuels (15-4-256, -257)
- Underground storage tanks
(15-24-1230, Ch. 15-28, Art. XXI)
- Wastepaper (15-28-730, -740)

Height and Area

Construction documents must indicate the building height and building area of every existing structure and every structure proposed to be erected, added to, or moved onto the lot.

Where height and area measurements determined in accordance with the *Chicago Zoning Ordinance* differ from the measurements determined in accordance with Chapter 2 of the *Chicago Building Code* (usually), both measurements must be indicated on the construction documents, and the basis of measurement must be clearly identified.

For more information about measuring building height and area under the *Chicago Building Code*, see Task 2.3 and Task 2.4.

Construction Type

Construction documents must indicate the construction type of the building as determined in accordance with Chapter 6 of the *Chicago Building Code*. (See Task 2.2.)

Construction type must be determined for existing buildings. Resource A, at the end of the *Chicago Building Rehabilitation Code*, may be used to determine the fire-resistance or fire-protection rating of archaic materials and assemblies.

Fire Resistance

Construction documents must indicate the fire-resistance rating or fire-protection rating and basis of the rating for all elements, components, and assemblies where a fire-resistance rating is required by the *Chicago Construction Codes*. (See Module 4.)

Fire Protection Systems

Construction documents must indicate the general type and location of fire protection systems, including:

- Fire pump and riser rooms
- Automatic sprinkler systems (NFPA 13, 13R, or 13D)
- Alternative automatic fire-extinguishing systems (wet chemical, water mist, carbon dioxide)
- Standpipes
- Portable fire extinguishers
- Fire alarm and detection systems
- Smoke control systems
- Smoke and heat removal features

- Fire command centers
- Fire department connections
- Fire pumps
- City fire alarm boxes

For details on requirements related to these systems, see Module 5.

Means of Egress

Construction documents must show in sufficient detail the location, construction, size, and character of all portions of the means of egress, including the path of discharge to the public way.

A plan examiner may require that the construction documents designate the number of occupants to be accommodated on every floor and in all rooms and spaces. (To be used for complex buildings or mixed-occupancy situations.)

To meet this requirement, it may be necessary to provide occupant load and/or egress diagrams separate from the building floor plans.

For details on requirements related to the means of egress, see Module 3.

Accessibility

The seal of a registered design professional on construction documents is a certification that the construction documents comply with the applicable accessibility requirements of the *Chicago Construction Codes*. (Per Illinois law, the seal is also a certification of compliance with the *Illinois Accessibility Code*.)

This provision does not prevent plan examination or inspection to confirm compliance.

For some projects, a project data form may be required by the Mayor's Office for People with Disabilities (MOPD).

Energy Conservation

Construction documents must include the following details related to energy performance for all materials or systems to be installed under the permit:

- Insulation materials and their R-values
- Fenestration U-factors and solar heat gain coefficients (SHGCs)
- Area-weighted U-factor and solar heat gain coefficient calculations
- Mechanical system design criteria
- Mechanical and service water heating systems and equipment types, sizes, and efficiencies
- Economizer description
- Equipment and system controls
- Fan motor horsepower (hp) and controls
- Duct sealing and duct and pipe insulation locations
- Lighting fixture schedule with wattage and control narrative
- Location of required daylight zones on floorplans
- Air sealing details

This information is in addition to the Energy Conservation Code compliance form.

Exterior Wall Envelope

Construction documents must detail the exterior wall envelope in sufficient detail to determine compliance with the *Chicago Construction Codes*.

Construction documents must include details of the exterior wall envelope that are required by Chapter 14 of the *Chicago Building Code*, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves, and parapets, means of drainage, water-resistant membrane, and details around openings.

Structural Information

Construction documents must include the information specified in Section 1603 of the *Chicago Building Code*, including:

- Floor live load(s)
- Roof live load
- Roof snow load data
- Wind design data (including risk category)
- Earthquake design data
- Geotechnical information
- Special loads (where applicable)

Concrete

Where structural concrete is included in the scope of work, construction documents must include the information specified in Section 1901.5 of the *Chicago Building Code*, including:

- The specified compressive strength of concrete at the stated ages or stages of construction for which each concrete element is designed
- The specified strength or grade of reinforcement
- The size and location of structural elements, reinforcement, and anchors
- Provision for dimensional changes resulting from creep, shrinkage, and temperature
- The magnitude and location of prestressing forces
- Anchorage length of reinforcement and location and length of lap splices
- Type and location of mechanical and welded splices of reinforcement
- Details and location of contraction or isolation joints specified for plain concrete
- Minimum concrete compressive strength at time of posttensioning
- Stressing sequence for posttensioning tendons
- For structures assigned to Seismic Design Category D, a statement if slab on grade is designed as a structural diaphragm

Electrical Information

Construction documents must include information required by Articles 215, 600, 700 and 701 of the *Chicago Electrical Code*, including:

Electrical drawings are required for:

- Residential occupancies in buildings greater than two stories above grade plane (215.5)
- Non-residential occupancies in buildings greater than one story in height or greater than 10,000 ft² in area (215.5)
- New or replacement services or feeders rated 400 amperes or greater (215.5)
- Service switchboards and motor control centers rated in excess of 1200 amperes or 600 volts (215.5)
- Certain electric and illuminated signs (600.27)
- Emergency electrical power systems (700.4)

The electrical drawings must include, where applicable:

- A single-line drawing of the service and distribution
- A single-line drawing of the emergency service and distribution showing sizes of conduit, conductors, switches, and overcurrent devices and the utility sources, generators, transfer switches, feeder distribution panels, and branch circuit panelboards, where applicable
- Schedule of conduits, wire, switches, circuit breakers, overcurrent devices, transformers, motors, and luminaires
- Load calculations to verify sizes of services, feeders, and panelboards indicating available fault-current and withstand ratings
- Grounding electrode conductor or common grounding electrode conductor system
- Equipment layout in switchboard rooms and electrical closets indicating the working space required by Section 110.26 of the *Chicago Electrical Code*
- Locations of exit signs and emergency lights on scaled floor plans
- Locations of normal lights in areas with exit signs and/or emergency lights on scaled floor plans
- Connected load of all branch circuit panels connected to the emergency power system

- Complete and detailed plans and specifications of required emergency generators, including a floor plan of the generator room(s) showing the working space provided for all equipment

Electrical drawings for fire alarm systems and electronic locks are checked as part of the review of shop drawings for those systems and an additional permit is required for installation of these systems.

Mechanical Information

Construction documents for work involving mechanical ventilation systems must include ventilation schedules per Section 18-28-403.14 of the *Municipal Code*.

Plumbing Information

Construction documents for work involving plumbing must show all sewerage and drain pipes and the location and type of all plumbing fixtures within the building (within or serving the work area for rehabilitation work).

Conveyance Devices

Construction documents must indicate the general type and location of conveyance devices (elevators, escalators, moving walks, etc.) within or serving the work area.

Rehabilitation Work

Where a permit application for rehabilitation work is limited to repairs, Level 1 alterations, and/or change of occupancy (without alterations), the Department may waive any requirement for the construction documents that is not necessary to determine if the proposed work is in compliance with the *Chicago Construction Codes* and *Chicago Zoning Ordinance*.

Phased Permitting

The Department may issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of the *Chicago Construction Codes*. (Section 411.5)

- The holder of a permit issued based on phased approval proceeds with work at the holder's own risk and without assurance that a permit for the entire structure will be granted.
- Typically, it is required that the same registered design professional sign and seal the drawings for all permits under phased permitting.
- Fee factors for phased permitting are specified in Table 1204.3(6).
- Phased permitting is available for both new construction and rehabilitation work.

TABLE 14A-12-1204.3(6)
SCOPE OF REVIEW FACTOR FOR PHASED PERMITTING^a

FACTOR ^b	DESCRIPTION OF WORK	MINIMUM FEE ^c
0.25	Caissons only, or slurry wall only, or grade beams only	\$600
	Interior demolition work, including the removal of mechanical, electrical, and plumbing systems, with no structural work and no alteration of fire separations, in preparation for <i>rehabilitation</i> work	\$300
0.5	All other below-grade construction (foundation, below grade floors)	\$3,000
0.75	Above-grade new construction or <i>addition</i> work where same <i>building area</i> will be permitted in more than one phase of construction	\$3,000
	Interior demolition work, with structural work or <i>alteration</i> of fire separations, in preparation for <i>rehabilitation</i> work	\$1,000
	<i>Rehabilitation</i> work with interior demolition work for same <i>building area</i> permitted as a separate phase	per Table 14A-12-1204.3(4))
1.0	Above-grade new construction or <i>addition</i> with only below-grade work as a separate phase	\$3,000

a. Stop work order penalties provided for in Section 14A-4-412.4 are in addition to these *permit* fees.

b. Where more than one scope of review factor applies because of the diverse scope of work, the highest applicable multiplier applies to all areas.

c. A minimum fee of \$302 applies to all *permits*.

Deferred Submittals

Deferral of any submittal items, such as precast concrete or manufacturer-engineered railing systems, may only be done with the prior approval of the Department.

- The registered design professional must list approved deferred submittals on the construction documents.

- Where deferred submittals are allowed, the permit applicant must designate a registered design professional in responsible charge, who will remain engaged for construction administration.
- Documents for deferred submittal items must first be submitted to the registered design professional in responsible charge for review.
- If the deferred submittal items are in general conformance with the permitted construction documents, the registered design professional must submit a signed and sealed certificate stating that the deferred submittal documents have been reviewed and found to be in general conformance to the permitted construction documents.

Deferred submittal items may not be installed until the deferred submittal documents have received a separate permit from the Department.

Exception: Prior approval is not required for deferred submittals for items required to receive a separate permit by the *Chicago Construction Codes*, including fire protection systems, conveyance devices, regulated equipment, and heating boilers.

Task 1.3 Check Location-based Requirements

Purpose

In general, nonstructural requirements of the *Chicago Building Code* do not change based upon the location of a building site within the city. There are two major exceptions: the fire limits and special flood hazard areas.

As part of the application screening process, the project manager should determine if either of these special location-based requirements apply, based on the permit application address.

KEY CONCEPT



Applicable Code Requirements

Chicago Building Code:

Chapter 36, Appendix D: Fire Limits

Chicago Municipal Code:

Chapter 16-6: Flood Control

CODE BOOK



CBC Appendix D

Fire Limits

The fire limits designate an area of the city where denser development is allowed and, because of this, stricter construction requirements apply. These stricter requirements are intended to further limit the risk of fire spreading from one building to another.

The fire limit boundaries are:

Division Street; Lake Michigan; the Stevenson Expressway; the CTA red line right-of-way; Cermak Road; the Metra SouthWest Service right-of-way; the South Branch of the Chicago River; 16th Street; the Dan Ryan Expressway; Roosevelt Road; Halsted Street, the Eisenhower Expressway; Ashland Avenue; Ogden Avenue; Hubbard Street; the Kennedy Expressway; Ogden Avenue;

Chicago Avenue; North Halsted Street; and the North Branch Canal. (See Figure 4.)

These boundaries are very close (but not identical) to the expanded boundaries for downtown (D) zoning districts adopted in 2016.



Figure 4: Boundaries of the fire limits

As part of the initial screening process, where applicable, project managers should verify that the applicant has identified on the cover sheet or code matrix that the project is within the fire limits.

Within the fire limits, there are much stricter limits on Type IIB (unprotected noncombustible), Type IIIB (unprotected ordinary), and Type V (frame) construction.

Only the building types and features listed in **Section D105** may use these construction types within the fire limits.

Special Flood Hazard Areas

Special flood hazard areas are designed by the Federal Emergency Management Agency (FEMA) based on its research and historical flood records. Under the National Flood Insurance Program (NFIP) the city is required to enforce additional building code requirements for development in these designated areas.

In Chicago, special flood hazard areas are generally areas close to a body of water (Lake Michigan, Lake Calumet, the Chicago River, the Chicago Sanitary and Ship Canal, the Calumet River, etc.)

The boundaries for special flood hazard areas are programmed into the city's GIS database and should trigger a hold in Hansen 7.

The most recent flood maps are also available online from FEMA:

<http://msc.fema.gov>

If a project site is within a special flood hazard area, the project must be reviewed by the sewer/stormwater section.

For applications using the Developer Services program, a special flood hazard area review must be conducted separately from the main Developer Services review.

Summary and Self-Check

Purpose

When a standard plan review building permit application is received, it is screened by a project manager to verify that information necessary to complete substantive reviews is included in the appropriate manner in the application package. Similar screening may be performed on self-certified applications.

Application screening is conducted by the project administrator for traditional developer services projects, or by the consultant reviewer for direct developer services projects.

If an application is incomplete, or material is provided in an inappropriate or disorganized format, the applicant must be notified of specific deficiencies. These deficiencies must be resolved by the applicant before the application will be routed to plan examiners for substantive review.

(If the deficiencies are not resolved, or an extension requested by the applicant within 120 days of notification, the application is considered withdrawn and must be restarted.)

Tasks

There are three tasks to perform as part of the initial screening process:

- 1.1 Determine if required documents have been submitted.
- 1.2 Determine if required information is provided on the drawings that have been submitted as part of the permit application.
- 1.3 Determine if special requirements are applicable to the work based on the site location.

Reflection Activity

Purpose: To reflect on the content covered in this module.

Directions: Answer the questions. Include additional observations if you have them. Share your answers with a neighbor.



What was the most important thing you learned?

Why is this information important for you to know?

How will you use this new information at work?
