



# **Building Chicago's Future**

## ***Modernizing Chicago's Construction Codes***

3-1908CM

**Presented by:**

Judy Frydland – Commissioner

Grant Ullrich – Deputy Commissioner

City of Chicago, Department of Buildings





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# Modernizing Chicago's Construction Codes

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## Building Chicago's Future



Rahm Emanuel,  
Mayor



Richard C. Ford, II  
Commissioner



Judith Frydland,  
Commissioner

# Modernizing Chicago's Construction Codes



**Judy Frydland**  
Building Commissioner



**Grant Ullrich**  
Deputy Commissioner

## **Course Description**

This presentation will cover:

- ① The history of the Chicago Building Code
- ② Chicago's code modernization process
- ③ Key updates proposed in Phase 2
- ④ Expected benefits of code modernization

## Learning Objectives

- ① Major events that shaped Chicago's building code
- ② Chicago's current process for modernizing its construction codes with input from technical experts and industry stakeholders
- ③ Chicago's plans for implementing the updated codes
- ④ Key changes proposed in Phase 2
- ⑤ Local government's role in supporting construction, renovation, and investment in the community

# Introduction

# Modernizing Chicago's Construction Codes



2018

# Modernizing Chicago's Construction Codes



**2009**

# Modernizing Chicago's Construction Codes

2018



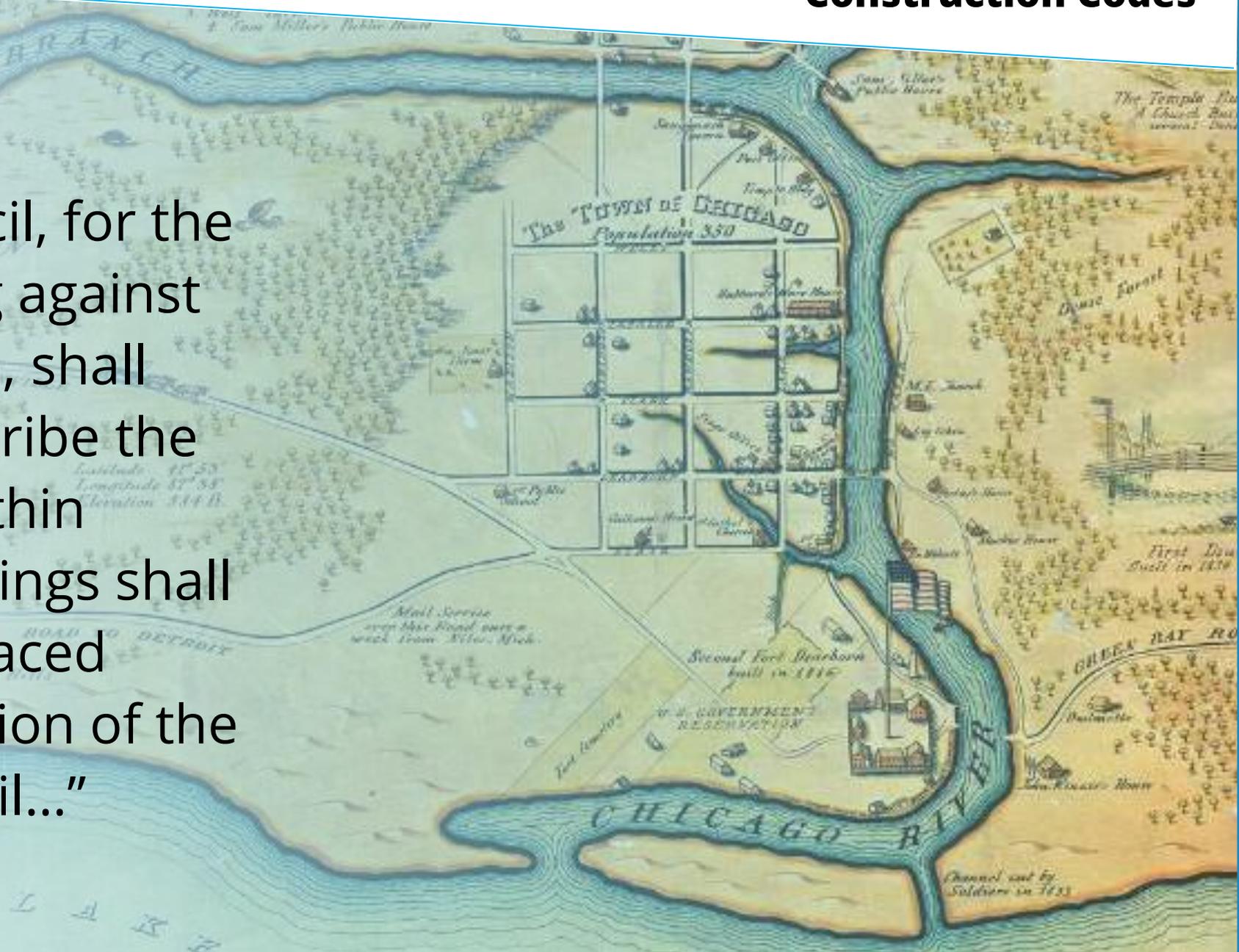
# Modernizing Chicago's Construction Codes



# History

## 1837

“The common council, for the purpose of guarding against the calamities of fire, shall have power to prescribe the limits in said city, within which wooden buildings shall not be erected or placed without the permission of the said common council...”

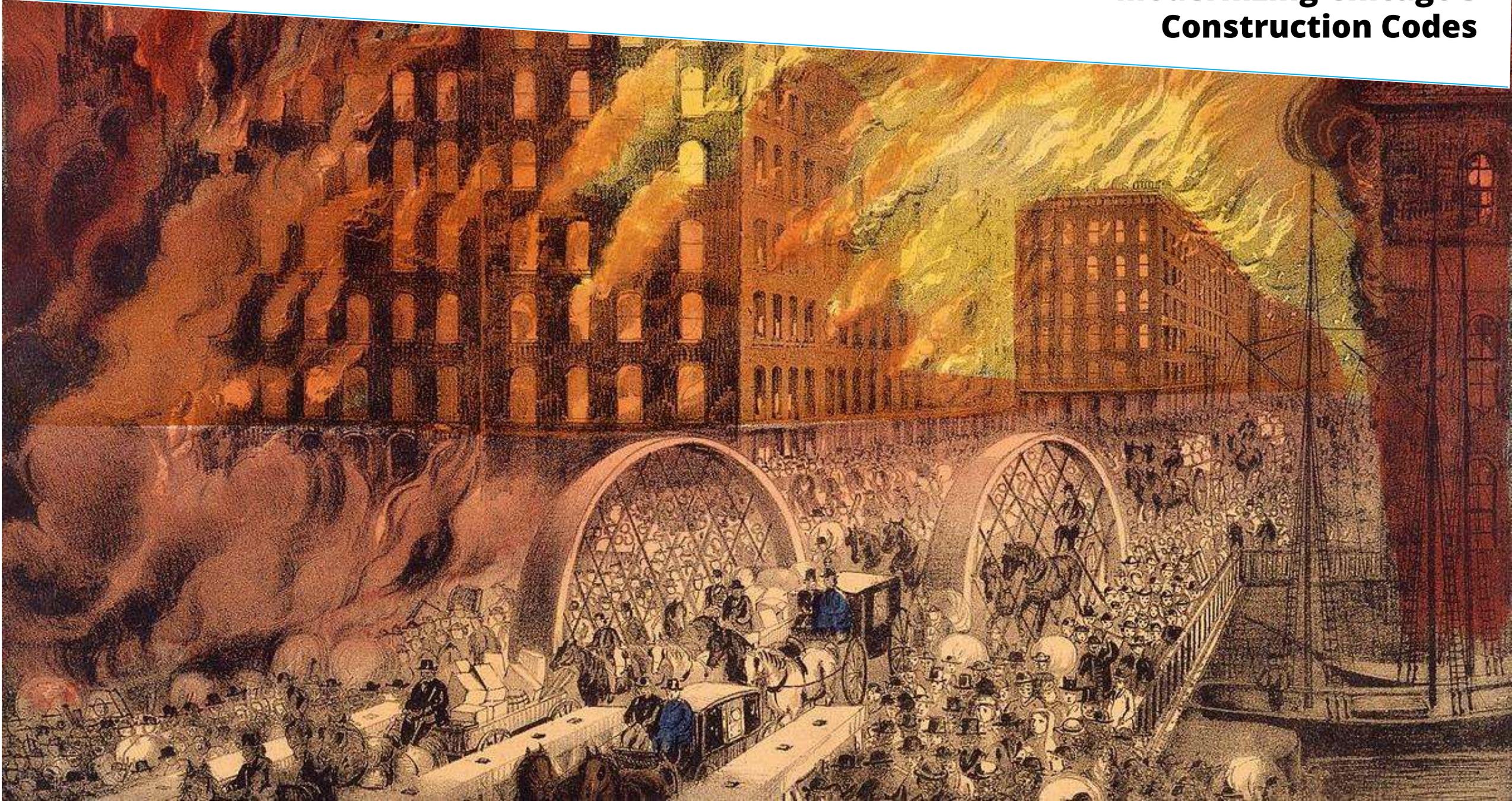


# Modernizing Chicago's Construction Codes

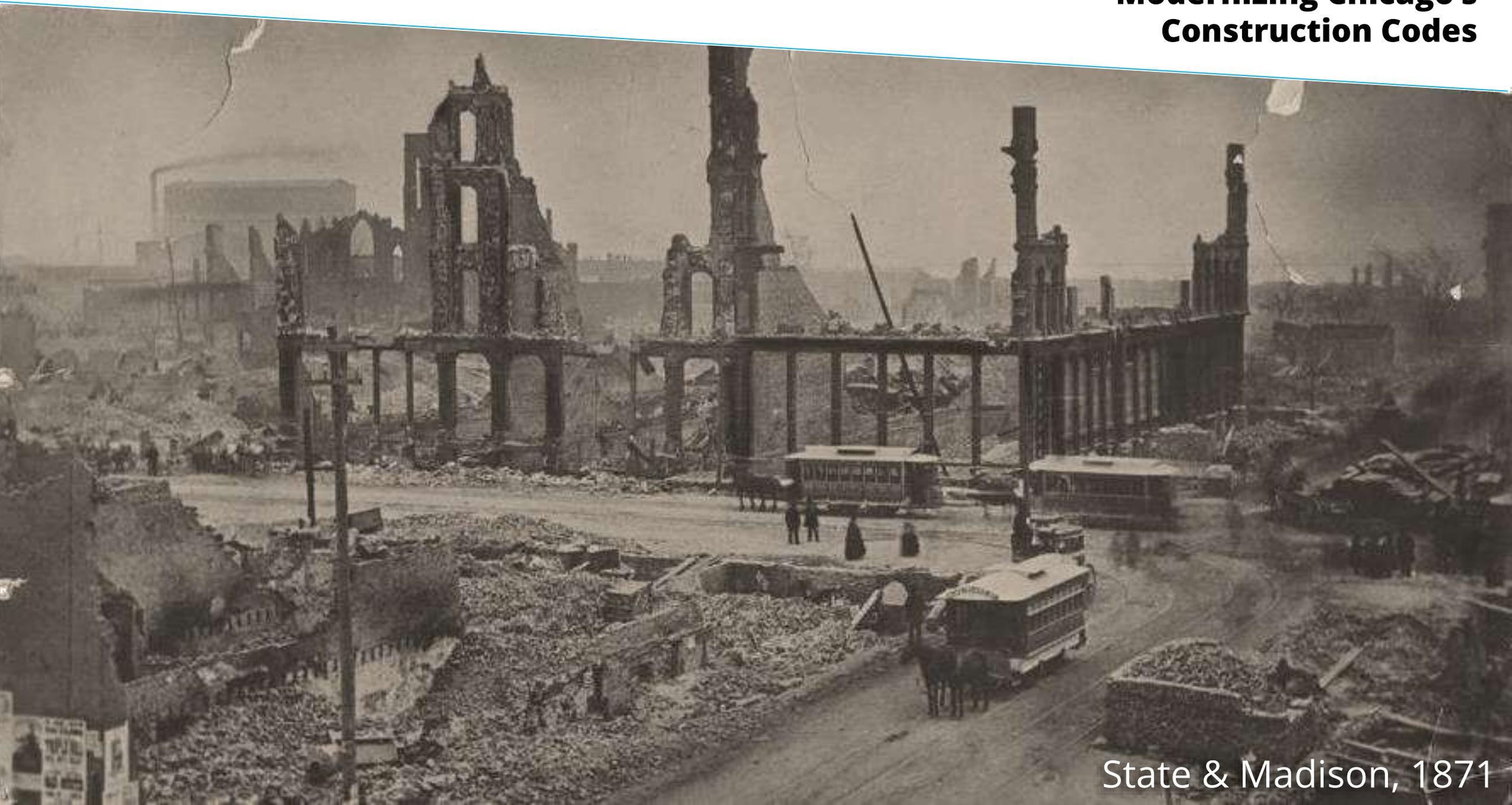


LaSalle & Washington, 1858

# Modernizing Chicago's Construction Codes



# Modernizing Chicago's Construction Codes



State & Madison, 1871

**Modernizing Chicago's  
Construction Codes**



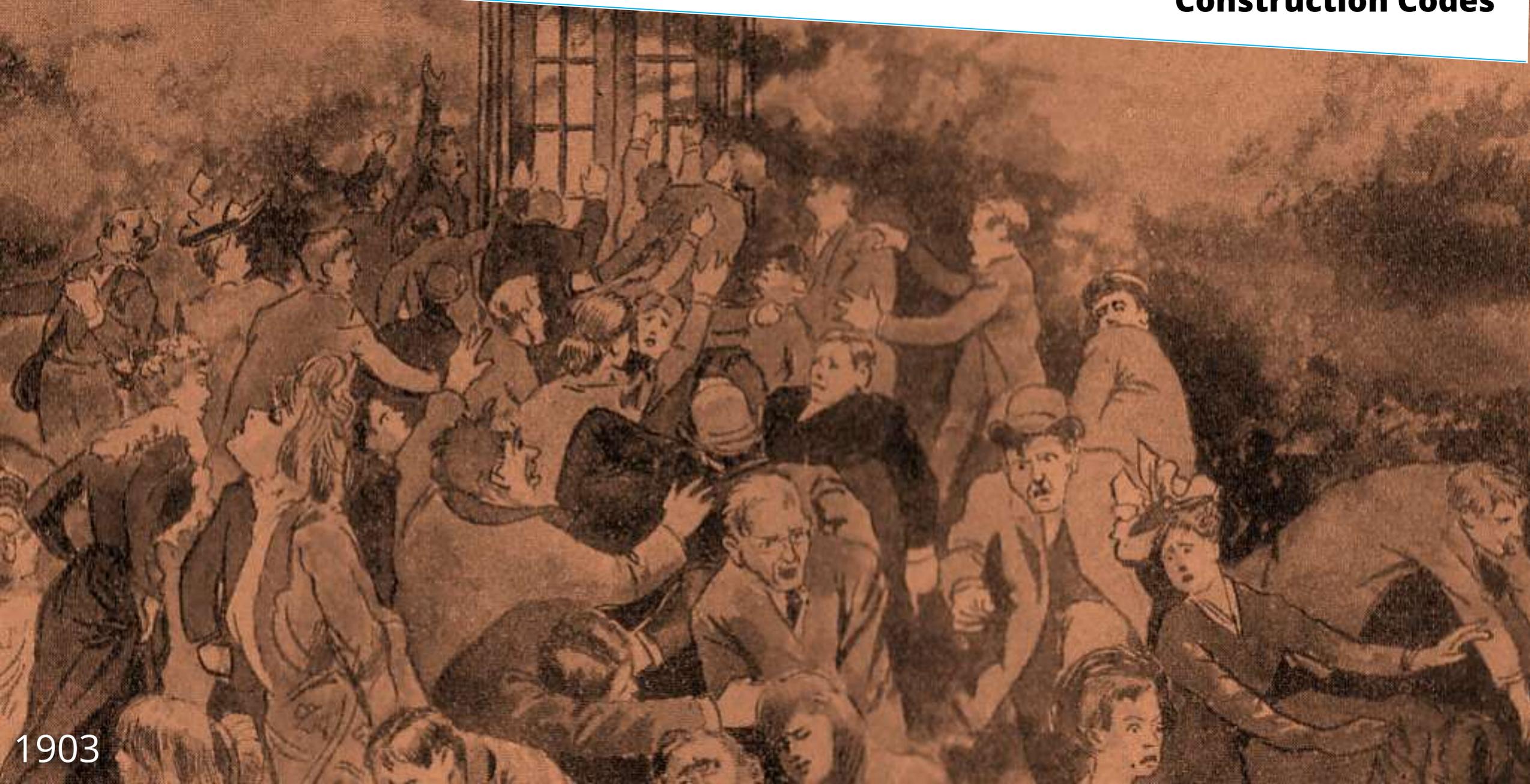
State & Madison, 1878

# Modernizing Chicago's Construction Codes



Wabash & Washington, 1892

# Modernizing Chicago's Construction Codes



1903

# Modernizing Chicago's Construction Codes



61st & Woodlawn, 1940s

**Chicago Tribune  
Headlines from 1998**

9 Section 2 Chicago Tribune TUESDAY, MARCH 31, 1998  
**A park idea from the '70s  
returns for the Millennium**

Chicago Tribune

**MetroWest**

FRIDAY DECEMBER 25, 1998

**Chicago begins updating its building code**

Building Department also acting to speed permit approval process

# Modernizing Chicago's Construction Codes

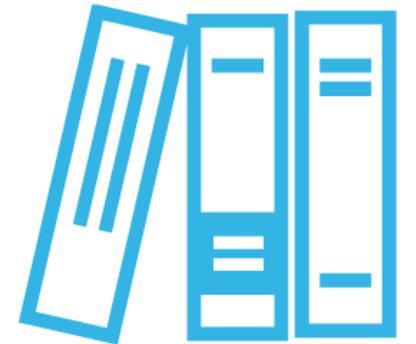


(4 years late...)

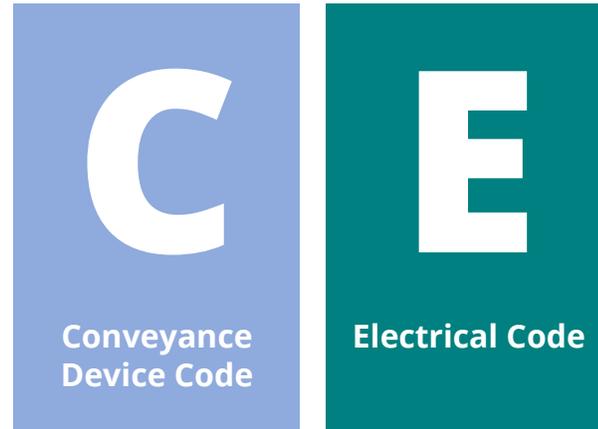
**2015-2021  
Code Modernization  
Process**

## Goal

To better align the City of Chicago's construction requirements with up-to-date model codes and standards used in other major US jurisdictions while maintaining longstanding local requirements that are adapted to unique conditions in Chicago.



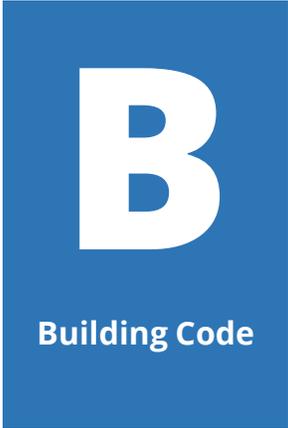
## Phase 1: 2015-2018



**Phase 2: 2017-2020** *(based on 2018 I-Codes)*



**A**  
Administrative  
Provisions



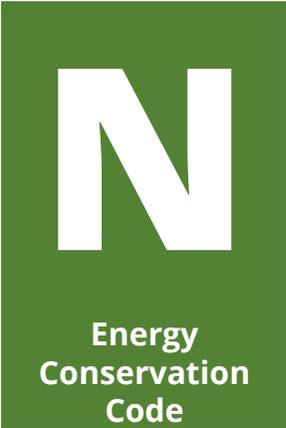
**B**  
Building Code



**C**  
Conveyance  
Device Code



**E**  
Electrical Code



**N**  
Energy  
Conservation  
Code



**R**  
Rehabilitation  
Code



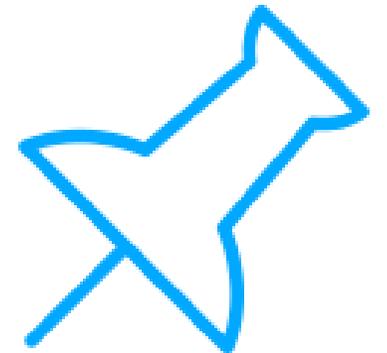
**X**  
Existing  
Building Code

**Phase 3: 2019-2021** *(based on 2018 I-Codes)*

 Administrative Provisions	 Building Code	 Conveyance Device Code	 Electrical Code	 Fire Prevention Code	 Fuel Gas Code	 Mechanical Code
 Energy Conservation Code	 Plumbing Code	 Rehabilitation Code	 Sign Code	 Trade Licensing Code	 Existing Building Code	

## **Phase 3 topics**

- Mechanical, plumbing, and natural gas
- Hazardous materials and special occupancies/operations regulated by CFD
- Smoke control systems (other than atriums)
- Stormwater, flood control, roof drains
- Energy code enhancements (EV-ready, solar-ready, zero code, etc.)
- Signs, trade licenses

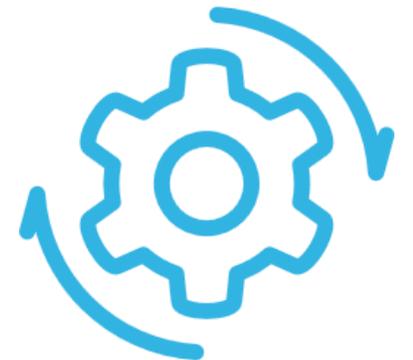


# Chicago Construction Codes

<b>A</b> Administrative Provisions	<b>B</b> Building Code	<b>C</b> Conveyance Device Code	<b>E</b> Electrical Code	<b>F</b> Fire Prevention Code	<b>G</b> Fuel Gas Code	<b>M</b> Mechanical Code
<b>N</b> Energy Conservation Code	<b>P</b> Plumbing Code	<b>R</b> Rehabilitation Code	<b>S</b> Sign Code	<b>T</b> Trade Licensing Code	<b>X</b> Existing Building Code	

## **Continuous Process**

The new construction codes will not be static requirements but a regulatory foundation that will make it easier for the City of Chicago to remain current with the latest building technologies and benefit from national code development efforts.



# Modernizing Chicago's Construction Codes



## The Merits of Moving to the International Building Code (IBC)

Presented by AIA Chicago, BOMA Chicago and the International Code Council

Monday November 23, 2015  
8:15 AM – 12:00 PM

The Lake Room | University Center, 525 S. State St, Chicago, IL

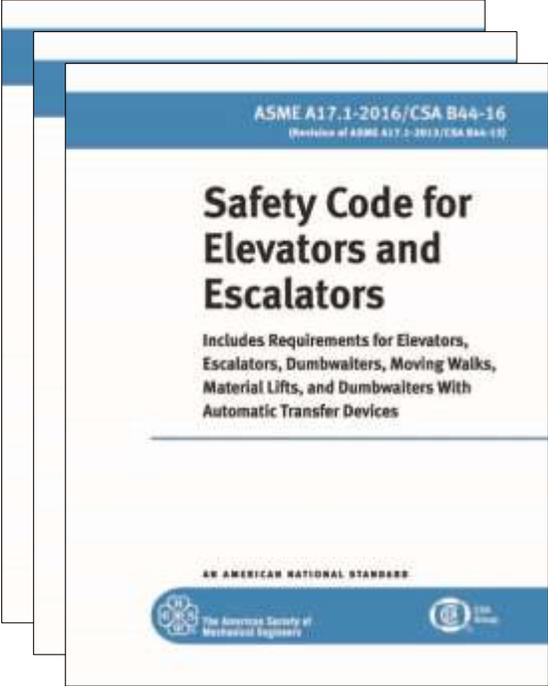
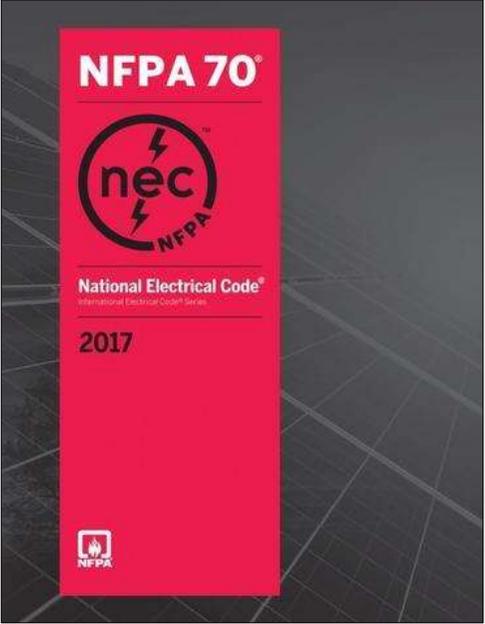


# Modernizing Chicago's Construction Codes

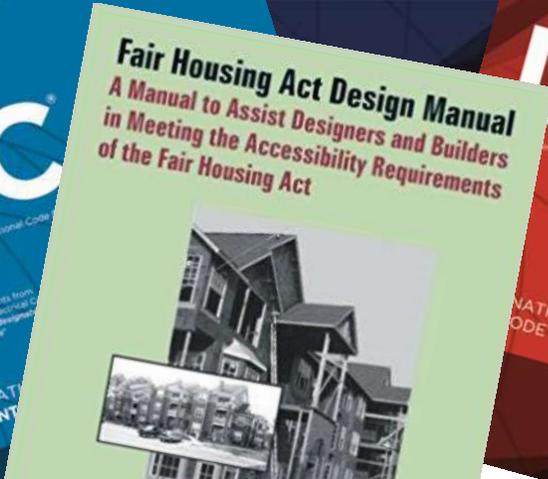
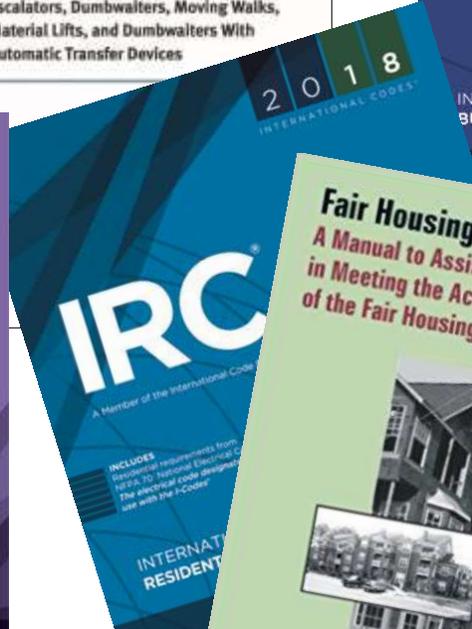
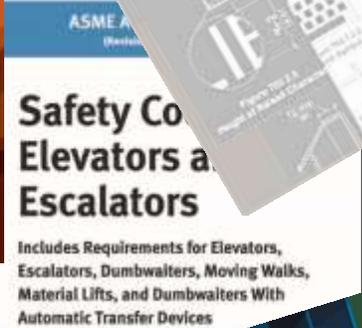
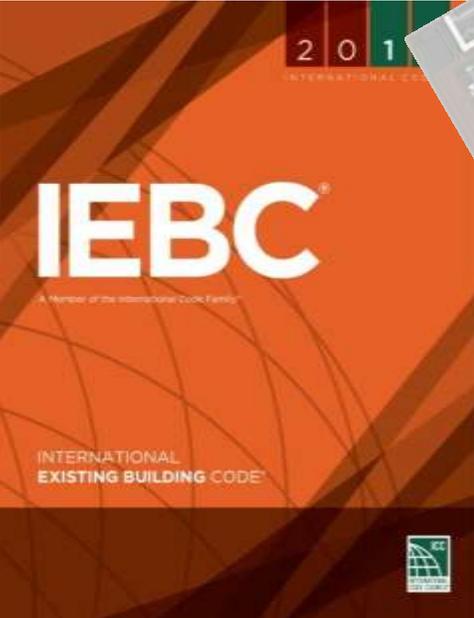
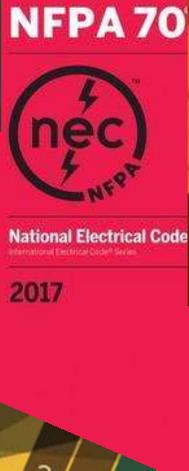
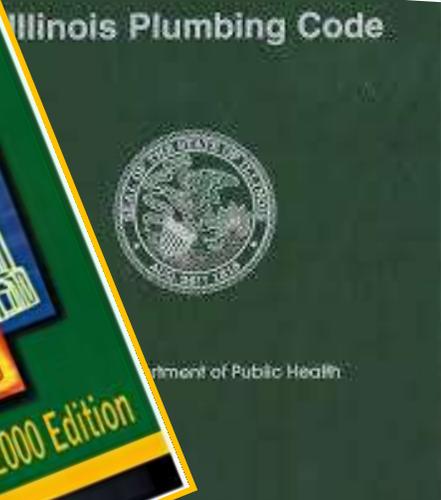
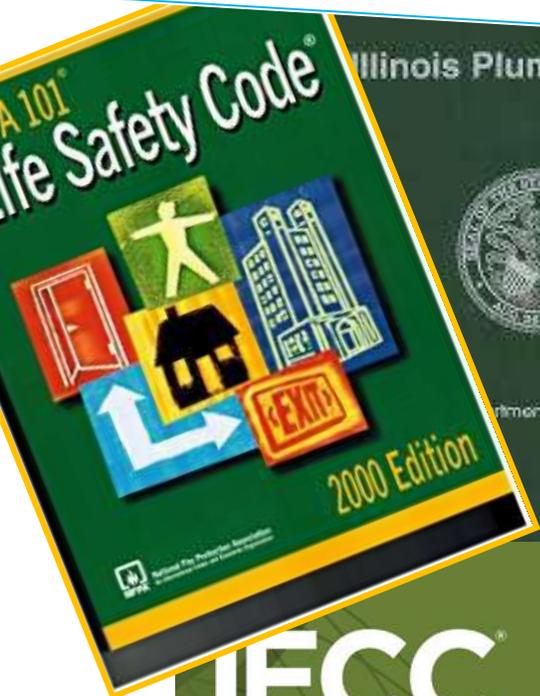


AIA Chicago Design Night - October 2016

# Modernizing Chicago's Construction Codes



# Modernizing Chicago's Construction Codes



## **Internal Preparation (2016-2018)**

- Learn from previous efforts in Chicago and NYC
- Learn from Phase 1 ordinances
- Build internal support
- Develop strategic framework
- Negotiate contract with ICC

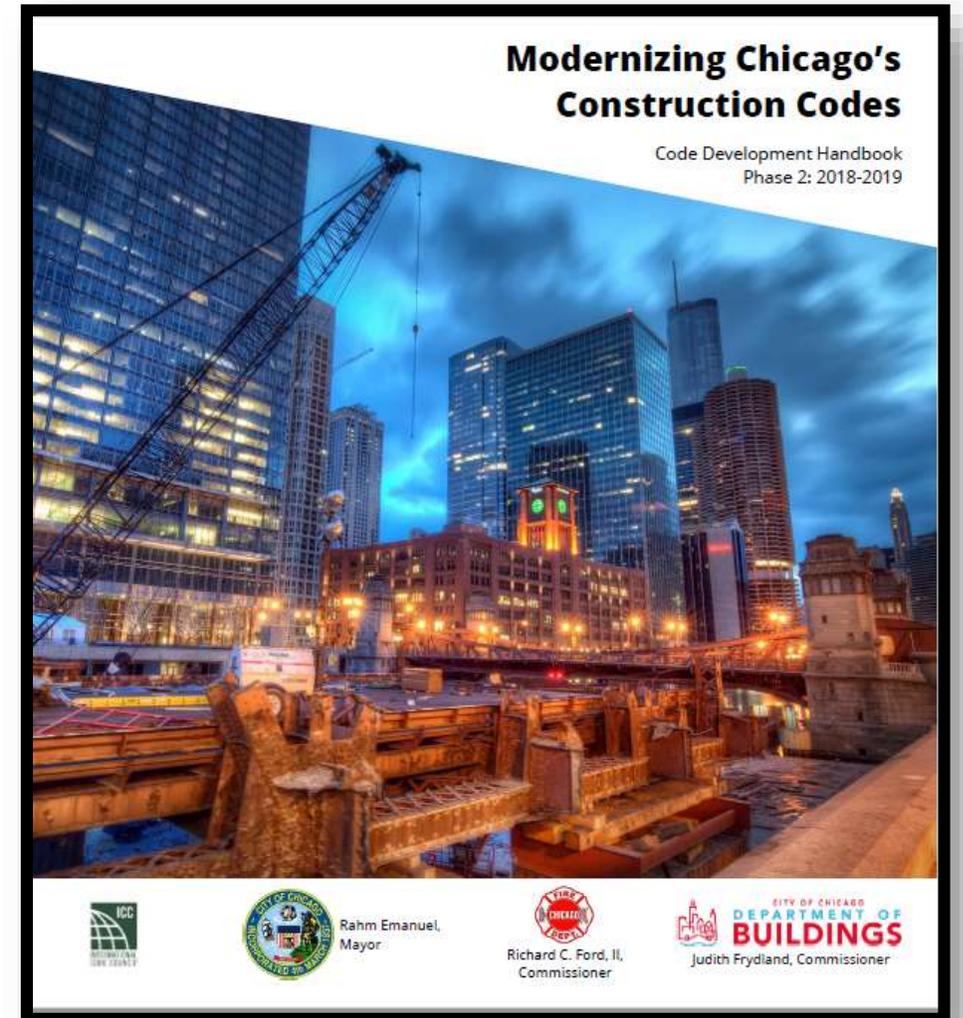


## **External Preparation (2018-2019)**

- Discuss preparations for code modernization at public events
- Identify key proponents (and opponents)
- Recruit representatives from key industry groups and industry leaders for oversight
- Recruit technical experts
- Launch public process

## Handbook

- Establish shared expectations
- Create framework for review
- Set timeline for input process



# Modernizing Chicago's Construction Codes



First Stakeholder Meeting - December 2018

## **Technical Review**

- 3-month review of provisions drafted by DOB/CFD
- Monthly meeting of stakeholders
- Weekly meeting of 6 technical working groups:
  - Building Planning
  - Enclosure & Materials
  - Existing Buildings
  - Fire Protection & Life Safety
  - Small Residential
  - Structural



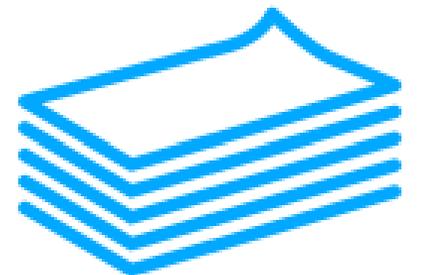
# Modernizing Chicago's Construction Codes



December 2018 – March 2019

## **Ordinance**

- Convert redline drafts reviewed by technical working groups into ordinance
- Ordinance only contains Chicago amendments, not unamended ICC text
- 735-page ordinance introduced to city council on March 13, 2019
- Substitute ordinance (correct typos, etc.) will be considered by committee April 9



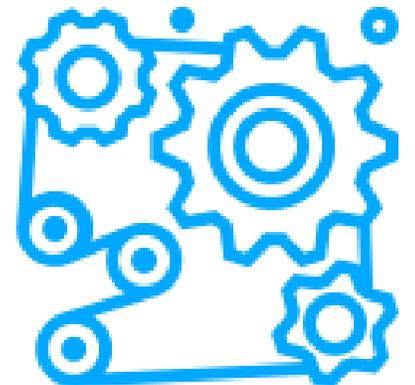
# Modernizing Chicago's Construction Codes



April 9 & 10, 2019

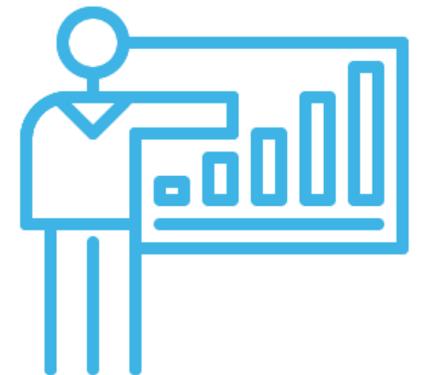
## **Phased Implementation**

- Energy Code effective **June 1, 2019**
- Administrative Provisions effective **July 1, 2019**
- Code published by ICC, **mid-October 2019**
- Invitation-only test projects, fall 2019
- Optional use of new code for permit applications, **December 1, 2019**
- Minimum standards, Spring 2020
- New code mandatory: **August 1, 2020**



## Training

- Training by DOB and industry partners
- DOB internal training Sept. 2019–Aug. 2020
- Self-cert training and update, December 2019
- Structural peer reviewer training, late 2019
- Phase 3 process begins late 2019



# Key Changes

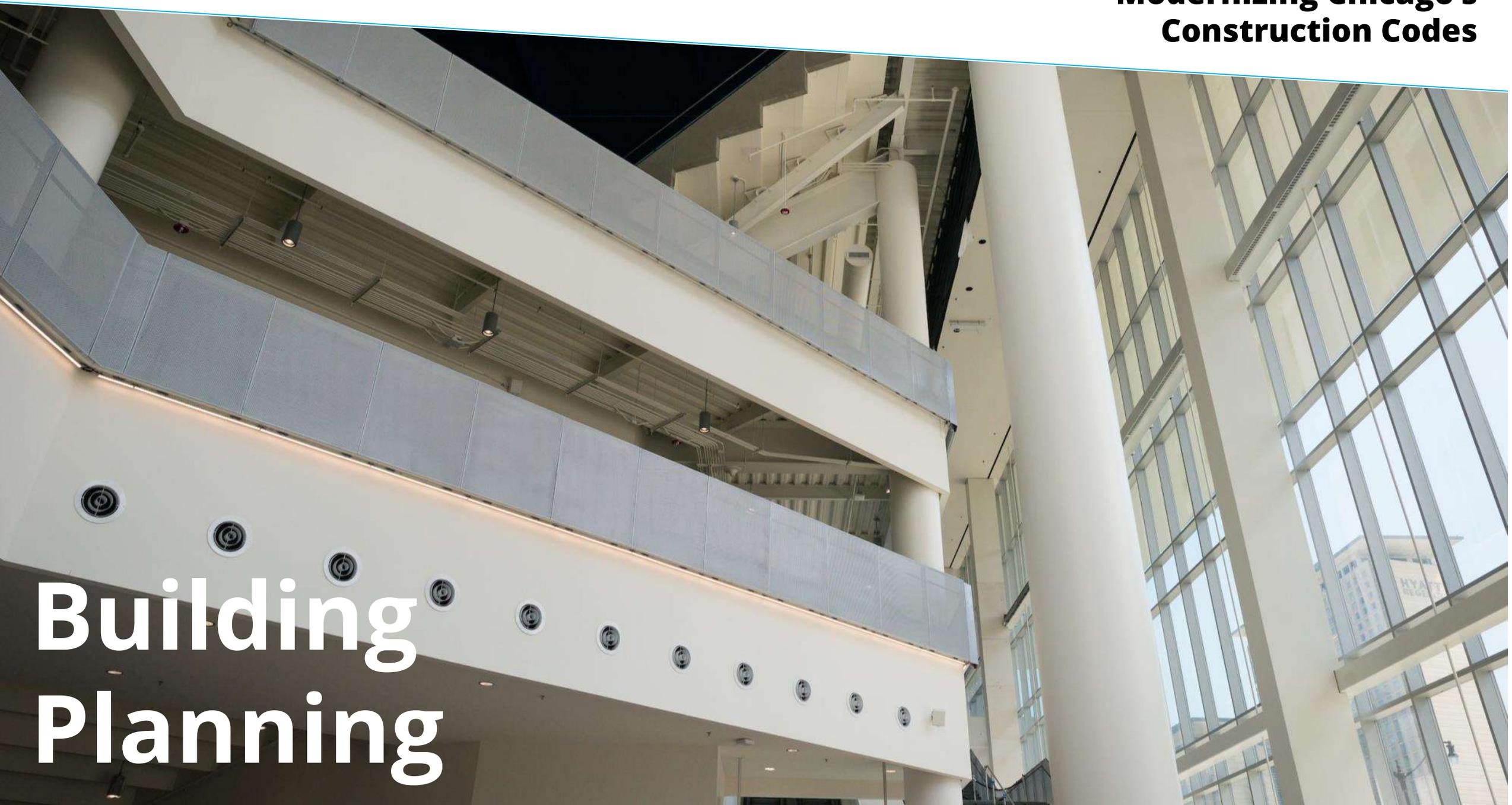
# Modernizing Chicago's Construction Codes



# Department Administration

## **Department Administration (eff. July 1, 2019)**

- Largely maintains substantive administrative requirements of existing code
- Updates language to be clearer and consistent with model code terminology
- Eliminates requirement for Department-issued load placards (must be posted by owner)
- Clarifies application of permit fees to phased permitting and some easy permit types



# Building Planning

## **Building Planning (Ch 2 & 3)**

- New terminology, largely consistent with IBC
- New definitions for *building height* and *building area* – Chicago-specific
- Occupancy classifications largely consistent with IBC, except E-2 (daycare) and R-5 (1-3 unit non-transient residential buildings)
- F-2 and S-2 (except parking garages) require CFD approval of low-hazard status

## **Building Planning (Ch. 4)**

- High-rise requirements a hybrid of IBC and CBC – no requirements for 3<sup>rd</sup> stair, glow-in-the-dark markings, or pressurization; limited provisions on fire-rated shafts
- Parking requirements a hybrid of IBC and CBC – distinction between parking garages and parking facilities maintained
- Some hazardous provisions deferred to Phase 3

## **Building Planning (Ch. 5)**

- Height and area limits are similar to CBC for non-sprinklered buildings, and more generous than CBC for sprinklered buildings (but not as permissive as IBC)
- Recognition of both separated and unseparated mixed occupancies
- Does not adopt IBC provisions on unlimited area or mixed construction types

## **Building Planning (Ch. 6)**

- Alignment with ICC construction types (but stricter limits on FRTW in non-combustible construction)
- Allowances for combustible material in Types I and II construction similar to IBC
- Retains CBC requirements for basement construction

## **Building Planning (Ch. 10)**

- Adopts IBC exit terminology and calculation methods
- Retains Chicago requirements for 2 exits (no egress windows)
- Occupant load factors a hybrid of CBC & IBC
- Retains Chicago requirements for exit signs (but clarifies required locations)
- Does not adopt smoke-protected seating

## **Building Planning (Ch. 12)**

- Natural light and ventilation still required per CBC, but tweaks to offer more clarity and more options
- Does not adopt sound transmission requirements
- Provision for residential sleeping lofts

## **Building Planning (Ch. 15, 30, 31)**

- Chicago-specific provisions on occupiable rooftops
- I-Code-based provisions on vegetative roofs
- No requirement for elevator lobbies
- New provisions for special construction

# Fire & Life Safety



## **Fire & Life Safety (Ch. 7)**

- Exterior wall rating and protection of openings based on *fire separation distance* (like CBC, measured to far side of public way)
- Adopts IBC terminology for horizontal and vertical barriers
- Retains CBC requirements for 4-hour *fire walls*, but no ICC structural-integrity req. & may be offset
- Recognizes prescriptive ratings and allows ACAR for calculated ratings

## **Fire & Life Safety (Ch. 8)**

- Aligns with national standard classification system for interior finishes
- Retains some CBC-based stricter requirements for combustibility of interior finishes

## **Fire & Life Safety (Ch. 9)**

- Sprinkler requirements in new buildings will be substantially based on IBC
  - Sprinklers required for assembly occupancies 300+
  - Sprinklers required for 4+ dwelling units (1 exception)
  - Sprinklers required for all H and I occupancies
- Standpipe requirements modified by CFD
- Fire alarm requirements a hybrid of CBC and IBC (adapted to CFD's standard operating procedures)

## **Fire & Life Safety (Ch. 9 cont'd)**

- Smoke control provisions deferred to Phase 3 (optional appendix)
- Fire command center is in lobby, not separate room
- Eliminates CBC requirement for CO detection in assembly occupancies (retained for Groups E, I and R)
- Does not adopt emergency responder radio coverage



**Accessibility**

## **Accessibility (Ch. 11 & rehabilitation code)**

- Updates existing 2006 Chicago accessibility requirements to align with 2009 ANSI standard, 2010 ADA, and 2018 Illinois Accessibility Code
- Better coordination between requirements should ease compliance difficulties
- Authorizes MOPD and housing commissioner to adopt stricter standards for government-funded housing

**Modernizing Chicago's  
Construction Codes**



**Energy  
Conservation**

## **Energy Conservation (June 1, 2019)**

- New forms on DOB web site by mid-May
- New form will be required if permit application fee paid on or after June 1)
- 2018 IECC and Illinois amendments
- Updates to ASHRAE 90.1 2016
- Clarifies that testing must be done, but proof retained by owner, not filed with DOB
- Roof reflectance requirements move to Ch. 15

# Enclosure & Materials



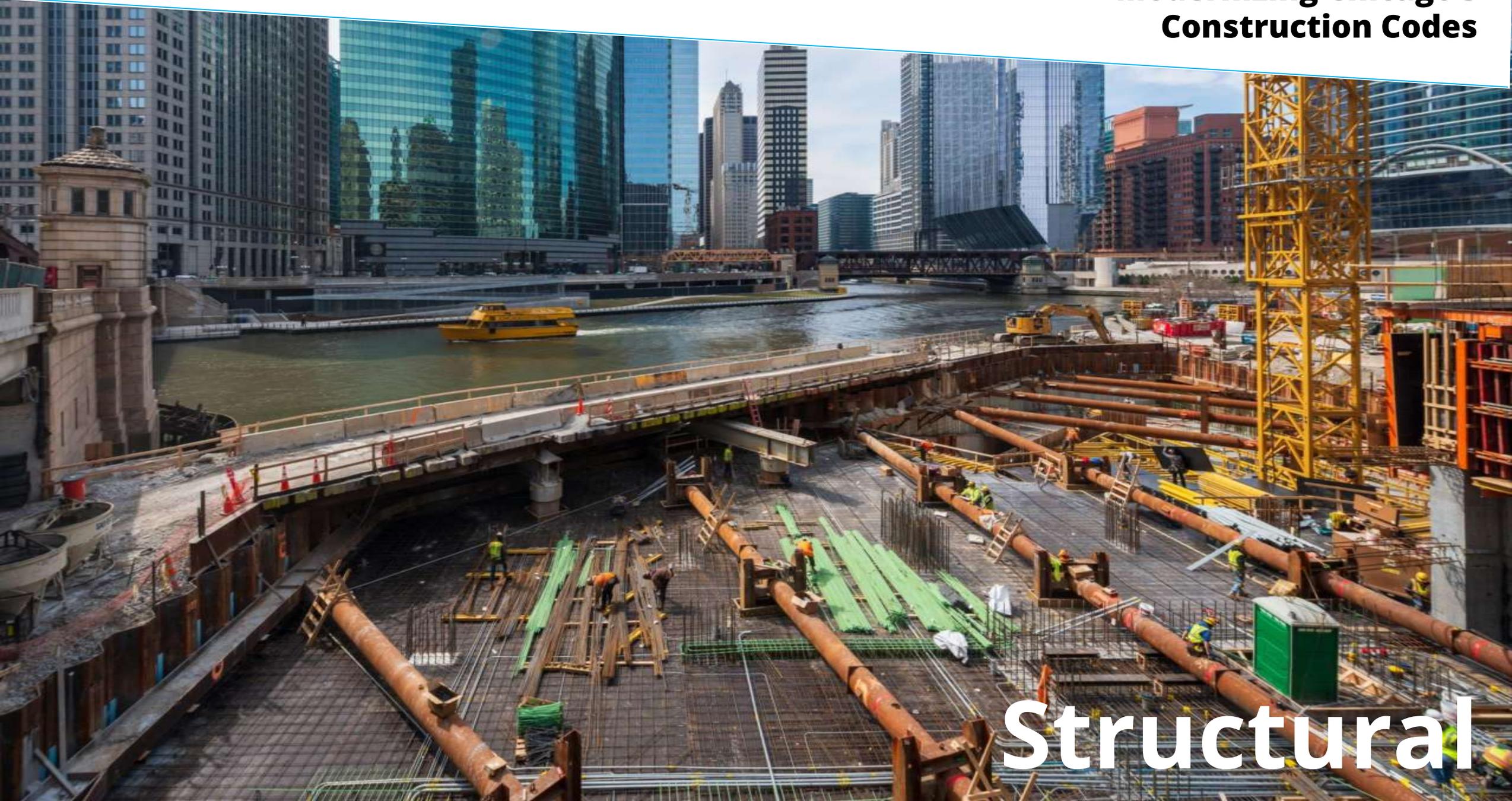
## **Enclosure & Materials (Chs. 14 & 15)**

- Largely adopts IBC's prescriptive and performance requirements for a wide range of cladding and roof materials
- Incorporates 2018 DOB memorandum on combustible cladding materials
- More restrictive than IBC for Class C and unclassified roofing
- Provisions for occupiable roofs, green roofs and rooftop solar

## **Enclosure & Materials (Chs. 19-26)**

- Largely adopts IBC's requirements for a wide range of materials
- CLT will require additional review and approval
- Single-wythe masonry limits retained
- Requirements for masonry shafts in tall cold-formed steel buildings retained
- More restrictive than IBC for some plastics

# Modernizing Chicago's Construction Codes



# Structural

## **Structural (Ch. 16)**

- Basic structural provisions refer to ASCE 7-16
- Risk-classification based structural requirements will reduce requirements for most buildings
- Wind loads reduced 20% for most buildings under 60 feet (note: loads expressed as ultimate loads!)
- Heightened seismic requirements for buildings over 60 feet, depending on soil / site class
- Consistent with ASCE 7-16, heightened wind requirements for cladding at corners

## **Structural (Ch. 18)**

- Geotechnical provisions hybridized for local conditions
- Continues to allow assumed bearing values for small projects, subject to testing prior to construction
- Consistent with 2016 memo on deep foundations

## **Structural (Ch. 19-24)**

- More detailed provisions and updated references for structural applications of concrete, steel, and wood
- Recognizes structural uses of aluminum
- Recognizes structural uses of glass
- Detailed provisions for glass in guard rails

# Small Residential



## **Small Residential**

- Chicago will not adopt a separate residential code
- New occupancy Group R-5 for 1-3 unit non-transient residential buildings
- No sprinkler requirement (but bonuses, as today)
- More flexibility in certain dimensional requirements (ceiling heights, guard heights, winders, natural light/ventilation in basements)
- Reduce floor load for private balconies/decks to 60 psf (still 100 for shared & rooftop areas)



**Existing Building  
Rehabilitation**

## **Existing Building Rehabilitation**

- Adopts 2018 IEBC framework:
  - Repairs
  - 3 approaches to alterations (prescriptive, performance, work area)
  - Centralizes provisions on reroofing (unlike I-Codes)
- Specific allowances for *historic buildings*
- Performance (point-based) method will be subject to additional DOB review process

## Building Rehabilitation

- Encourage reuse of smaller, older buildings in neighborhoods that often struggle to attract private development
- Retail thrive zones
- Opportunity zones



# Modernizing Chicago's Construction Codes



**Minimum  
Standards**

## **Minimum Standards (Property Maintenance)**

- Reorganizes existing retroactive requirements
- Rewrites existing requirements using terminology consistent with model codes
- Eliminates redundant/unenforced provisions
- Provides clearer guidance for property owners
- Transition will be implemented in Spring 2020 (after heat season)
- No change to exterior wall program in ordinance

# Benefits

## **Expected Benefits**

- ① Streamline permitting process
- ② Reduce barriers to cost-effective construction
- ③ Enhance public safety
- ④ Promote energy efficiency and sustainability
- ⑤ Facilitate innovative design and construction
- ⑥ Benefit from national code development efforts



This Concludes The American Institute of Architects  
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Questions and Comments



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