HISTORICAL EVOLUTION OF BUILDING AND FIRE CODES

American Concrete Institute
Detroit, MI
March 29, 2017
“Objectives”

• Understand background of the evolution building codes and fire.

• Review the history of model building codes in the United States

• Consider the ramifications for buildings exposed to fire today.
Definition

• Conflagration:

1. A destructive fire, usually extensive  (*Dictionary.com*)
2. A large disastrous fire  (*Merriam-Webster.com*)
3. An extensive fire which destroys a great deal of land or property  (*Oxford English.com*)
Conflagrations

Name a familiar conflagration
October 1871
The Chicago Fire

- Single source (O’Leary’s Barn)
- High winds from southwest
- Spread by flaming brands
- Over 17,000 buildings destroyed
- Almost 100,000 homeless
July 1845
New York City

- Whale oil & candle manufacturer
- Substantial number of buildings constructed of wood
- 345 buildings destroyed
- $5-$10 million in property damage
- Last of three (3) conflagrations in NYC (1777 & 1835)
April 1900
Ottawa-Hull

- Buildings of wood
- Closely spaced
- High wind
- Lack of adequate water supplies & FD equipment.
- Thousands of buildings destroyed
Figure 3 Ruins of Hull Post Office on left; courthouse and jail in the background

(photograph courtesy Public Archives)
May 1901
Jacksonville, FL

- Buildings of wood
- High wind
- 148 city blocks affected
- 2,368 buildings destroyed
April 1904
Toronto

- 2\textsuperscript{nd} major fire (1849)
- 20 acres destroyed
- Mostly business district
- Est $10 million property damage
April 1904
Baltimore

- 24 blocks of business district
- High winds
- 140 acres
- 1,526 buildings destroyed
- Est $50 million property damage
Early Building Codes

• 1866 - Insurance industry forms National Board of Fire Underwriters (NBFU)
  • Develop fire safety criteria for communities
  • Grade cities on fire risk
  • Establish consistency in insurance industry standards
  • Reduce losses
Early Building Codes

• 1905 - Developed National Building Code (NBC) to serve as model for communities
  • Fire resistive construction in urban areas
  • Municipal water supplies
  • Fire department services and equipment
  • Fire districts
May 1917
Atlanta, GA Fire

- Buildings of wood
- 300 acres
- 1,900 buildings
- 10,000 people displaced
- Est. $5 million in damages
Municipal Building Codes
Fire Districts
Regional Model Building Codes

BUILDING STANDARDS

UNIFORM BUILDING CODE
1927 Edition

PREPARED BY
International Conference of Building Officials

COPYRIGHTED © 1926 and 1927
by International Conference of Building Officials
19 Pine Avenue
LONG BEACH, CALIFORNIA
MODEL CODE GROUPS - BOCA

- Building Officials and Code Administrators
- Formed 1915 – was oldest model code group
- Basic Building Code (BBC) published in 1950
- Purchased rights to National Building Code (NBC) in 1982. NBC was the first model building code developed by insurance industry since 1905.
- BBC became BOCA National Building Code (BNBC)
MODEL CODE GROUPS - ICBO

• International Conference of Building Officials
• Formed 1922 - second model code group
• Uniform Building Code (UBC) published in 1927
MODEL CODE GROUPS - SBCCI

- Southern Building Code Congress International
- Formed 1941
- Southern Standard Building Code (SBC) published in 1946
- Southern dropped from title in 1973 edition
CABO

- BOCA, ICBO & SBCCI formed the Council of American Building Officials (CABO) in the early 1970’s
- Produced the CABO One and Two Family Dwelling Code in 1974
- Produced the CABO Model Energy Code in 1974
International Code Council - ICC

• BOCA, ICBO and SBCCI formed the International Code Council (ICC) in 1994.
• GOAL - develop single full set of construction codes
• Building, Fire, Plumbing, Mechanical, Gas, Zoning, Energy
International Code Council - ICC

- Because of the I-Codes, BOCA, ICBO & SBCCI stopped publishing their codes in 1999

- The ICC absorbed CABO in 2000 and stopped publishing CABO Codes.

- The members of BOCA, ICBO and SBCCI voted to merge at their joint annual business meeting in Ft. Worth, Texas, 2002.
Why haven’t we learned our lessons?
History Repeating?

- **Lindell Ave Apartments, St. Louis, MO**
  - June 13, 2007 and July 18, 2012
  - 4 story, 197-unit, wood framed apartment building.
  - Completed and occupied.
  - 2007 fire $12 million in damage under construction.

- **550 East/500 South, Salt Lake City, UT**
  - February 9, 2014
  - Four story, wood frame apartment complex
  - Under construction
  - $2.5 million in damage.

- **Axis Apartments, Houston, TX**
  - March 25, 2014
  - 5 story, 396 unit wood-framed apartment building
  - Under construction
  - Initial 3-alarm fire upgraded to 5-alarm in an hour.
  - 400 HFD personnel responded.

- **Apollo Way, Madison, WI**
  - August 8, 2014
  - Four-story, 105-unit wood-frame apartment complex
  - Under construction
  - Insurer estimated damage at “upwards of $10 million.”
History Repeating?

January 2015
Edgewater, NJ

• Building(s) of wood
• One (?) building
• 230 units destroyed
• 1,000+ people displaced
History Repeating?

March 2017
Raleigh, NC

• Building(s) of wood
• Under construction
• One (?) building
History Repeating?

March 2017
Raleigh, NC

- Building(s) of wood
- One (?) building
- ? units damaged
- ? people displaced
- ? damages
Questions?