

NFCA  
Educational Conference  
Wrap Up...  
March 28, 2014



# NFCA Wrapup

- Build Relationships
- Strive for Life Safety through Quality
- Conduct Business, Education, Training
- Have some fun...



# NFCA Wrapup

- Fire Resistance Rated Construction
  - Fire & Smoke Protection Features
  - Effective Compartmentation  
& Structural Fire Protection
  - Continuity



# NFCA Wrapup

- **Fire Resistance** – Time, in minutes or hours that materials or assemblies have withstood a fire exposure as determined by tests, methods based on tests, or this code ...
- ICC Adds SYSTEMS



# NFCA Wrapup

- Fire Resistance Rated Construction
  - Fire & Smoke Protection Features
  - Continuity
  - Statistics...



# Buildings are Safe Because....

- ***Total Fire Protection Stats -  
North America High Rise***
- ***11,025 Tall Buildings - 20 + stories***
- ***70% in NY, SF, LA, CHI, HI, Toronto...***
  - ***2/3 Canada's high rise built before 1985***

» *Source, Emporis.com*



# Buildings are Safe Because....

- ***Total Fire Protection Stats -  
North America High Rise***

***= Fire Resistance & Compartmentation Primary***

- ***Chicago, NY, Toronto – Older stock of buildings***
- ***SF, LA, HON – Earthquakes***

» ***Source, Emporis.com***



# Buildings are Safe Because....

- ***Total Fire Protection***  
***= Safer buildings...***
- ***Compartmentation***
- ***Sprinklers, Alarms,***
- ***Egress Strategies***
- ***NIST Reports...***





# Buildings are Safe Because....

- **National Institute of Standards & Technology**  
**'NIST Reports - World Trade Center 7 –**
- **Chapter 4.6, 'Factors that could have mitigated structural collapse'**
- Connections
- Fireproofing Bond
- Compartmentation





# NFCA Wrapup

- WTC – Contributing Factors to Collapse
  - Fireproofing Issues
  - Load Distribution Realities & Changes
  - Exit Design & Arrangement
  - Fuels & Forces @ Impact
  
- Slide Credits, Carl Wren, Austin Fire Dept.



# NFCA Wrapup

- WTC in 2009/2012 Codes
  - <120' Tall – Fire Service Elevator
  - >420' Tall – (not r2) – FF Access Stair
  - >75' Tall – Luminous Path Marking
  - Support for Radio Communications
  - Permitted use of elevators for emergency egress
  - >75' Tall – Remoteness or Separation of Stair Shafts & not just stair access



# NFCA Wrapup

- >75' Tall – Remoteness or Separation of Stair Shafts & not just stair access
  - >75;' - >30' or >1/4 of the diagonal
  - >420' - >1/2 of the diagonal for high rise



# NFCA Wrapup

- Impact Resistant stairwells @ >420' height
- >420' Tall – Redundant sprinkler water supply and sources
- Unprotected lightweight construction marked to alert firefighters (New & Existing Buildings)



# NFCA Wrapup

- Building Codes & High Rise – WTC
  - <75' Tall – increased bond strength for SFRM
  - Durability of SFRM – Increase Bond Strength



# NFCA Wrapup

- Fire Resistance Rated Construction
  - 1960's Engineered Structural Members Subject to Rapid Failure without Warning
  - Furnishings have Higher Heat Release Rates than 1960's (workstations, upholstery, foams)





# NFCA Wrapup

- Fire Service Elevator Trade Off for 3<sup>rd</sup> Stairwell, >420'
- Video Communications in Stairwells
- Fire Command Center – 2 hour Rating



# NFCA Wrapup

The rule of thumb of the emergency services – risk versus benefit – risk (invest) a lot for a life (maybe even another life) –risk little for little gain ...

We cannot and will not eliminate all risk but high rise is a big risk/investment...

Carl Wren, Austin Fire Dept.



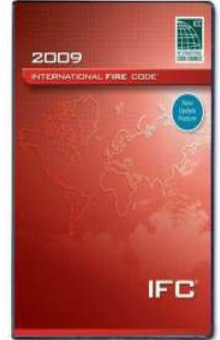
# National Fire Protection Association - NFPA 101-2012

- **SECTION 4.5.8 Maintenance, Inspection, and Testing.**
- **4.5.8.1 Whenever or wherever any device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature **is required for compliance** with the provisions of this Code, **such device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature **shall thereafter be continuously maintained** in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the AHJ. [101:4.6.12.1]

# National Fire Protection Association - NFPA 101-2012

- **4.5.8.2 No existing life safety feature shall be removed or reduced** where such feature is a requirement for new construction. [101:4.6.12.2]
- **4.5.8.3\* Existing life safety features **obvious to the public**, if not required by the Code, shall be either maintained or removed.** [101:4.6.12.3]
- **4.5.8.4 Any device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature **requiring periodic testing, inspection, or operation** to ensure its maintenance **shall be tested, inspected, or operated** as specified elsewhere in this Code or as directed by the AHJ. [101:4.6.12.4]
- **4.5.8.5 Maintenance, inspection, and testing shall be performed under the supervision of a responsible person who shall ensure** that testing, inspection, and maintenance **are made at specified intervals** in accordance with applicable NFPA standards or as directed by the AHJ. [101:4.6.12.5]

# International Fire Code Maintenance



## SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

**703.1 Maintenance.** The required fire resistance rating of fire-resistance rated construction (including walls, fire stops, shaft enclosures, partitions, smoke barriers, floors, fire resistive coatings and sprayed fire resistant materials applied to structural members and fire resistive joint systems) shall be maintained. Such elements shall be visually inspected by the owner annually and properly repaired, restored or replaced when damaged, altered, breached or penetrated.

**Openings** made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings, **and holes** made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire.

# UAE Fire and Life Safety Code of Practice Maintenance & Management

## Chapter 1, SECTION 21 Firestopping

**21.15.2** The required fire resistance rating of installed firestop systems shall be ***visually inspected by the owner or owner's inspection agency annually.*** Damaged, altered or breached firestop systems shall be properly repaired, restored or replaced to comply with applicable codes as per the guidelines of Civil defense.

**21.15.3** Any new **Openings** made therein for the passage of through penetrants, **shall be protected with approved firestop system** to comply with applicable codes as per the guidelines of Civil defense.

# Thanks to all Speakers

- Luke Woods, UL, LLC - Standards
- Dave Dratnol, Isolatek – IBC Codes
- Canada Committee – NBC/NFC Codes
- Jonathan Wohl, Wohl Diversified – 911 Center
- Joe Delaune, LA State Fire Marshals Office
- NFCA Committee Meetings
- NFCA Membership Meeting
- NFCA Board Meeting
- **Matt Schumann, UL**
- **Jonathan Flannery, ASHE**
- **Bill McHugh, NFCA**



# NFCA Educational Conference

## Thanks Sponsors!!

Reception, Breakfast  
Lunch, Breaks, Golf Hole



Breakfast



Golf Hole





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