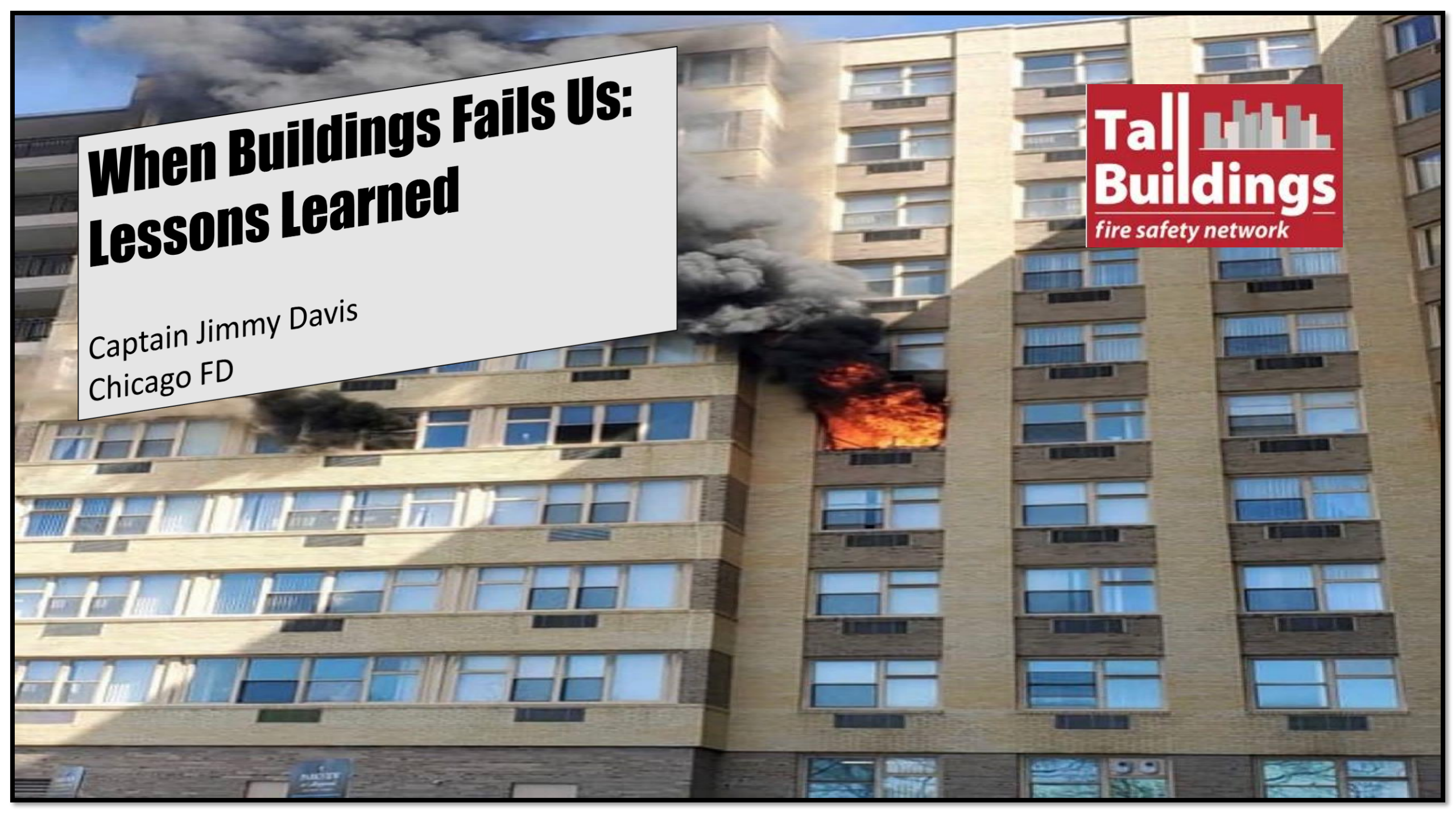


# When Buildings Fail Us: Lessons Learned

Captain Jimmy Davis  
Chicago FD

**Tall Buildings**  
fire safety network





- 29-years w/Chicago Fire Dept.**
- Captain/Eng. Co. 43 (Logan Sq.)**
- Instructor QFA High-Rise Ops/Standpipe Ops (2017)**
- National and International Speaker/Instructor**





**3,300+** high-rise buildings (2021) **over 75 ft.**

45 of which stand taller than 600 ft.

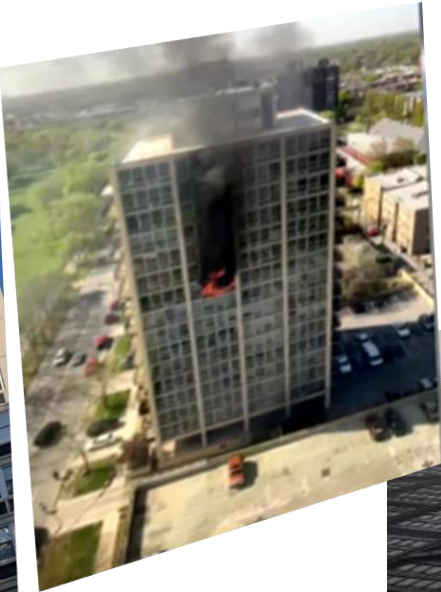
19 alone stand taller than 780 ft.

347 buildings over 300 ft.

Chicago is ranked 9<sup>th</sup> in the world in total high-rise density of buildings 490 ft. or greater.

#2 behind New York City in total density of high-rise buildings

What do these buildings have in common?



# DEFECT BUILDINGS

“Allowable known building conditions that significantly contribute to loss of life and greater property loss”



- “Although lacking a centralized sprinkler system, *it meets city code for building of that era*”
- History has a habit of repeating itself...
- #1 – **Automatic sprinklers** remains the center of discussion

# ❑ Defect buildings

- ❑ Pre-ordinance, “grandfathered” high-rise buildings
  - ❑ “Pre-1975” (Chicago)
  - ❑ We all have them
- ❑ Receive little attention *until after the fire*
- ❑ Defect buildings represent a “dormant catastrophe”
  - ❑ Increased threat to building occupants & firefighters
  - ❑ Inherent defects disrupt and impede firefighting operations



# 2003 Cook Co. Building Fire

69 W. Washington St.

10/17/2003

(2003) - A push to retrofit pre -1975 buildings with sprinkler systems. However, building owners could conduct a Life Safety Evaluation (LSE) study with a State of Illinois Engineer or a Licensed Architect.

\*\*If the building owners could prove the building had enough fire containment techniques to limit the spread of smoke and fire, no sprinklers were needed\*\*

(2004) Automatic sprinklers ONLY apply to commercial buildings, ***NOT residential high-rise buildings.***

**Cost of retrofit \$2-\$7.00/sq. ft. (2018)**



“If your going to have a fire, odds are that it’s going to be in a “pre-ordinance [defect] building”



Without fire sprinklers,  
**HIGH-RISE = HIGH RISK.**

These residential high-rise fires in 2023 could have been prevented. Let's make the future safer with fire sprinklers.

- Jan. 25: 4850 S. Lake Park Ave.  
- 1 resident death
- Apr. 5: 1212 N. Lake Shore Dr.  
- 1 firefighter death, others injured
- Apr. 8: 6430 S. Stony Island Ave.  
- Residents injured
- Apr. 12: 6151 N. Winthrop Ave.
- May 4: 6730 S. South Shore Dr.  
- No injuries/deaths in this case, but 2 resident deaths in 2013 fire
- Jun. 11: 999 N. Lake Shore Dr.
- July 31: 7100 S. South Shore Dr.
- Aug. 18: 421 W. Melrose St.  
- 1 resident critically injured
- Sep. 10: 3620 S. Rhodes Ave.
- Sep. 23: 3550 S. Rhodes Ave.
- Oct. 4: 6401 S. Yale Ave.
- Oct. 9: 3110 N. Sheridan Rd.  
- 1 resident injured
- Nov. 6: 3515 S. Cottage Grove Ave.  
- 5 residents injured
- Dec. 8: 3033 N. Sheridan Rd.  
- 1 resident injured
- Dec. 10: 6430 S. Stony Island Ave.  
- 2nd fire in 2023
- Dec. 26: 6253 S. Michigan Ave.  
- 2 residents injured
- Dec. 29: 1020 W. Foster Ave. (5200 N. Sheridan Rd.)  
- 2 residents critically injured

Hundreds of Chicago's residential high-rises built prior to 1975 remain unsprinklered, needlessly risking the lives of residents and responding firefighters.

The fire injuries and deaths we witnessed in 2023 did not have to happen. And while each fire may have only affected a single building, it ultimately impacted upwards of hundreds of households due to damage and long-term displacements. Compartmentation and passive fire safety measures in high-rises do not offer enough life safety and are long outdated.

Fire sprinklers are the most effective solution to reducing the risk. They individually activate, control the fire while it is still small, and reduce smoke. Fire sprinklers ensure residents and firefighters get out alive.

Help lead Chicago's residential high-rises forward into the 21st century of fire protection with fire sprinklers.



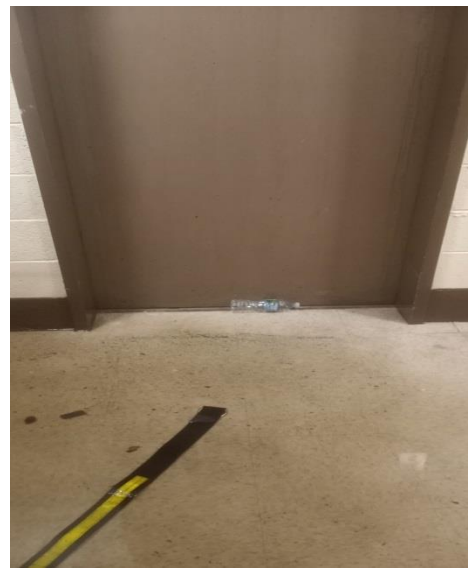
 Northern Illinois Fire Sprinkler Advisory Board  
*Save Lives. Protect Property.*

708-403-4468 | FireSprinklerAssoc.org



# Problem: Failure of passive fire protection

- ❑ Expect the emergence of significant incident driven threats magnified into multiple problem sets to deal with once the **FIRE** is out of it's container.
- ❑ The high-rise fire fight relies heavily on the fire-resisting performance of interior compartments in tall buildings.  
(Dr. Paul Grimwood)



- Self-closing door devices inoperable
- Battery operated smoke detectors
- Confusing scissor stairs
- Trash chute doors propped open
- Improper rated doors
- Older glass windows/less time to failure
- No 1-way PA system to address building occupants
- Hallway hose cabinets instead of stairwells
- Some have (1) stairwell configuration
- Standpipe system unreliable
- Stairwell doors propped open
- Elevators unreliable; prone to early failure
- Poor housekeeping
- Scissor stairwells

# Problem: Pre-ordinance residential high-rise buildings

- ❑ The “non-sprinkled” pre-ordinance residential high-rise buildings; represent the greatest threat platform you will encounter; leading to many widespread systemic failures, and greater loss of life. Case studies validate this.
- ❑ Likely to evolve, or present into (a)typical high-rise fire.

## **(a) Typical High-Rise Fires**

- The fire is well beyond suppression capabilities (e.g. commercial HR)
- Wind-impacted fire event
- Fires that will require a tactical change (Plan B, C...)
- External combustible external cladding fires (Grenfell [2017])
- *Extended burn time without intervention (18-minute mark)*
- Fire “Out of the Box” with hallway/corridor involvement/”fire-lapping”
- Ineffective water – the futility of a Standpipe Operation
- Prolonged tactical ineffectiveness/interference (e.g. smoke domination)

# 1212 N. Lake Shore Dr.

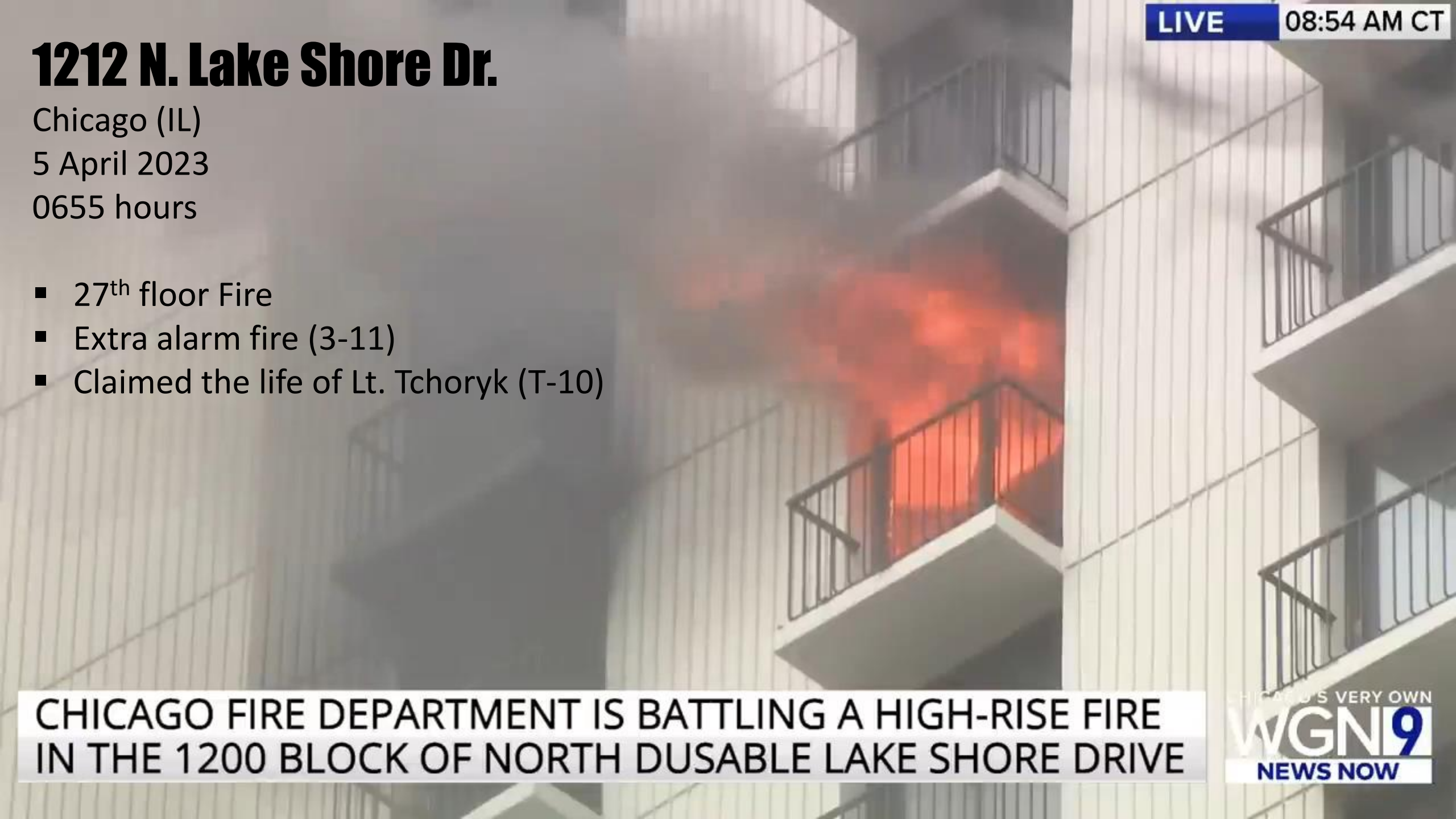
Chicago (IL)

5 April 2023

0655 hours

- 27<sup>th</sup> floor Fire
- Extra alarm fire (3-11)
- Claimed the life of Lt. Tchoryk (T-10)

CHICAGO FIRE DEPARTMENT IS BATTLING A HIGH-RISE FIRE IN THE 1200 BLOCK OF NORTH DUSABLE LAKE SHORE DRIVE



# 1212 N. Lake Shore Dr.

Chicago (IL)

April 05, 2023

27<sup>th</sup> floor Fire

- “Twin” Towers
- Built in 1970
- 180 Units
- 35 Stories
- No sprinklers
- Smoke Towers
- Scissor Stairwells
- Standpipe issues





04/05/23 – 1212 N. LAKE SHORE DR. 3-11 ALARM  
Pre-1975 Defect Bldg. (No sprinklers) 35-story

- 27<sup>th</sup> Floor fire/1-LODD
- 38 minutes until WOF
- Extended burn time
- Loss of elevators <20 min.
- No alarm transmitted (SD)
- First-Due -detail FF's/Unfamiliar
- Scissor Stairs
- Initial Stretch ineffective
- SP outlet broken

- Door left open to unit
- Zero-visibility conditions
- Heavy smoke all stairwells
- 7 "Maydays" transmitted (3)
- First-due out-of-air/No relief
- Short stretch 150' [200']
- Premature SP charge
- Prolonged tactical ineffectiveness

# Conditions in Lobby







- Appx. 1250 sq. feet unit on fire

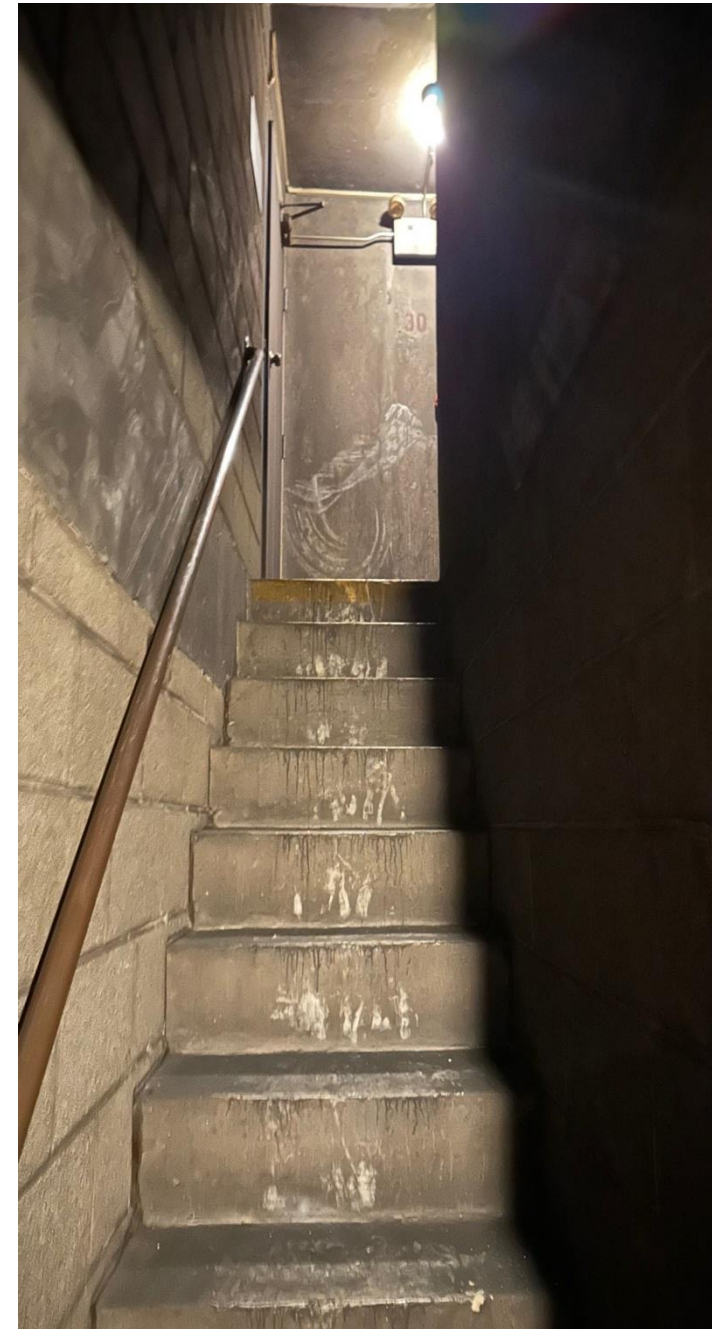
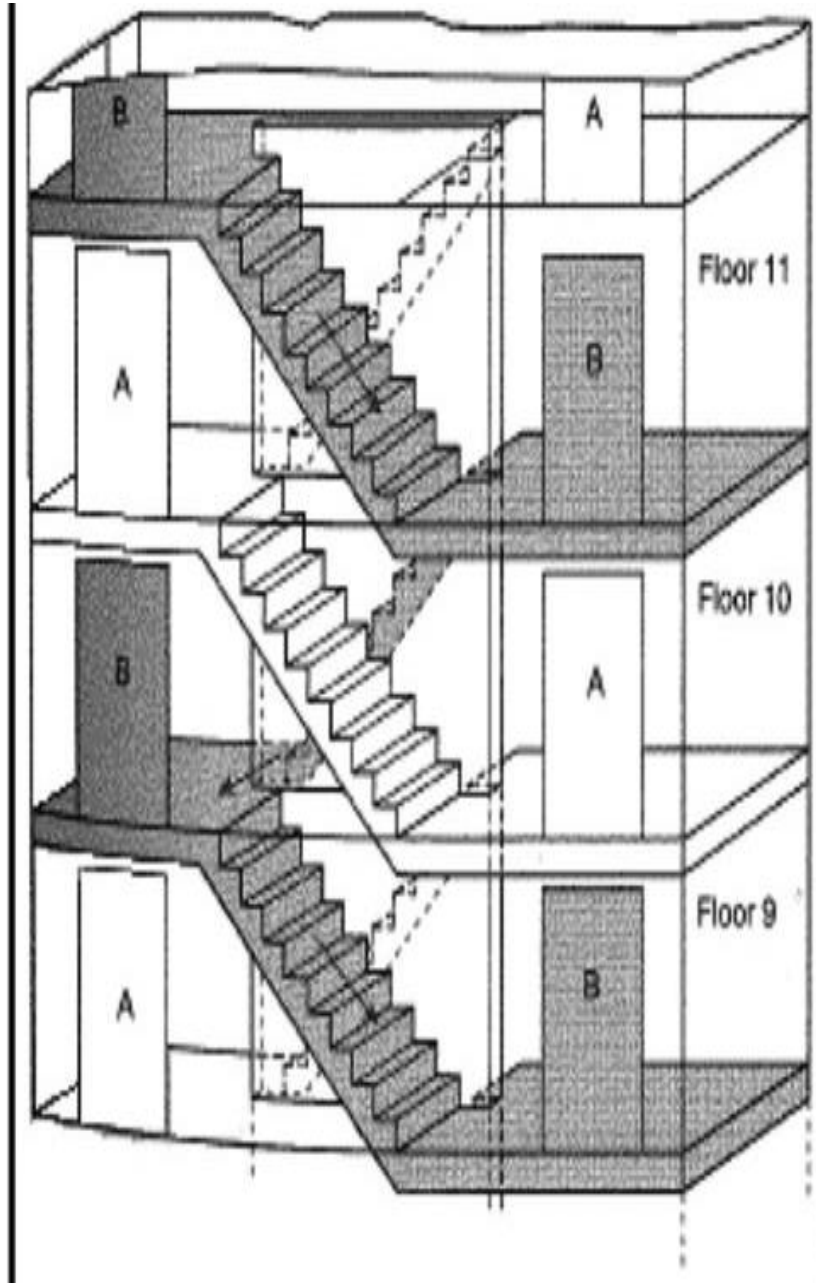


Inside fire unit - #27 CN – floor 27

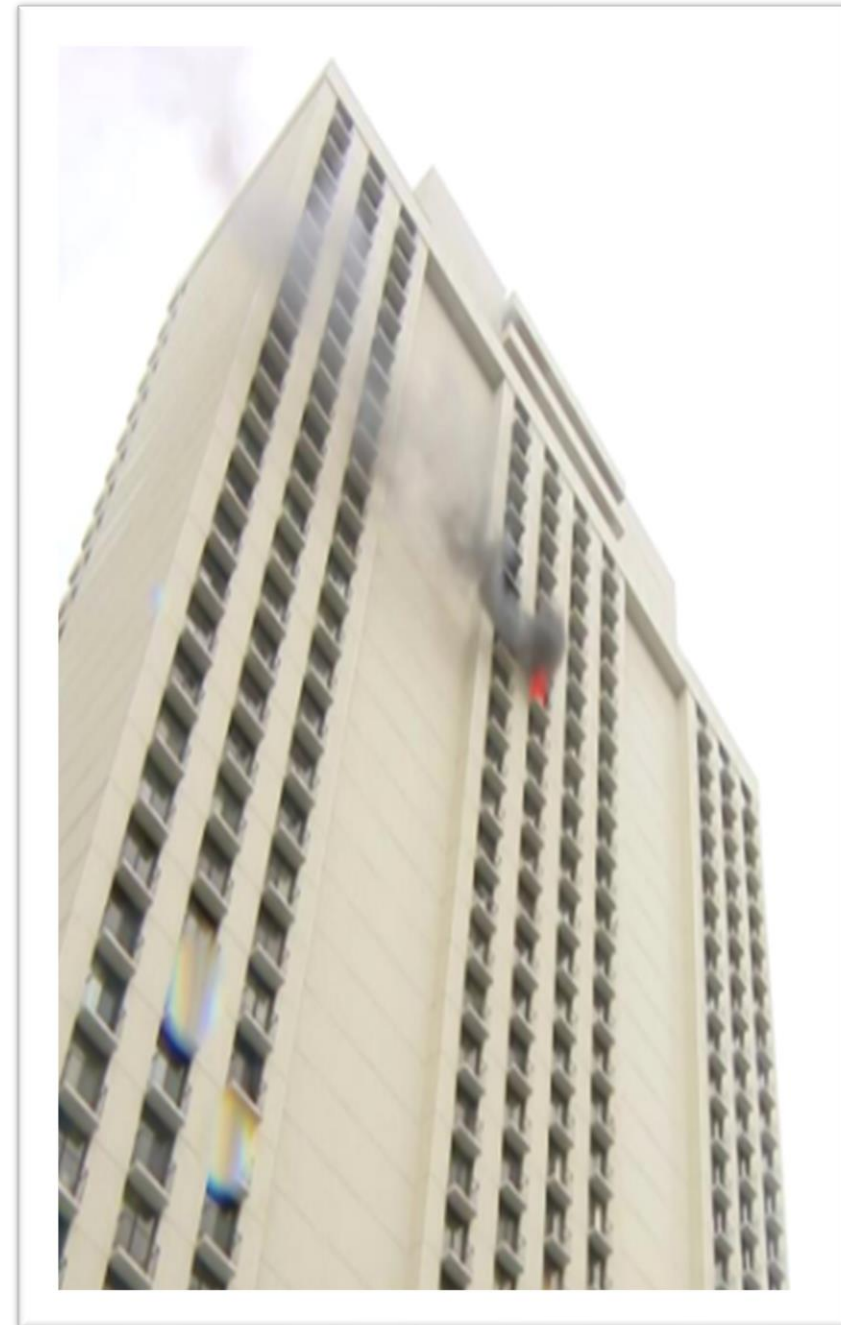
# Scissor Stairwells

Scissor stairs are composed of (2) two different flights of stairs, providing two separate paths for climbing or descending, both of which are located within (1) one stairwell enclosure.

- Associated with Pre-1975 buildings
- Very confusing stairwell
- Both stairs, in the same stairwell, will eventually become contaminated with smoke.



- 85% of fires occur in high-rises without sprinklers  
Chicago, **97% of fires occur in [pre-ordinance / non-sprinklered] residential high-rises (2023)**
- There are over 800 (Chicago) residential high-rises that do not have automatic sprinklers (Pre-1975)
- 100 Buildings with NO 1-way PA systems.
- (Chicago) high-rise fatalities were 3.5 times the national average (1996)
- 2004 (Chicago) city ordinance requires older building be retrofitted with sprinklers; residential high-rises are excluded. **< 15% of buildings are in compliance**
- **76% of buildings have failed the Life-Safety Evaluation**



## What can we do?

- Identify “at-risk” buildings
- Get inside them, pre-plan and formulate a game plan
- Correct immediate fire and/or life-safety concerns
- Report code violation(s) to those responsible for code enforcement
- Check accuracy of building intelligence binder
- Continue to advocate for greater fire-safety in tall buildings



In memory of Lt. Jan Tchoryk (TL-10). Last Alarm: April 5, 2023. Rest Easy 3-5-5