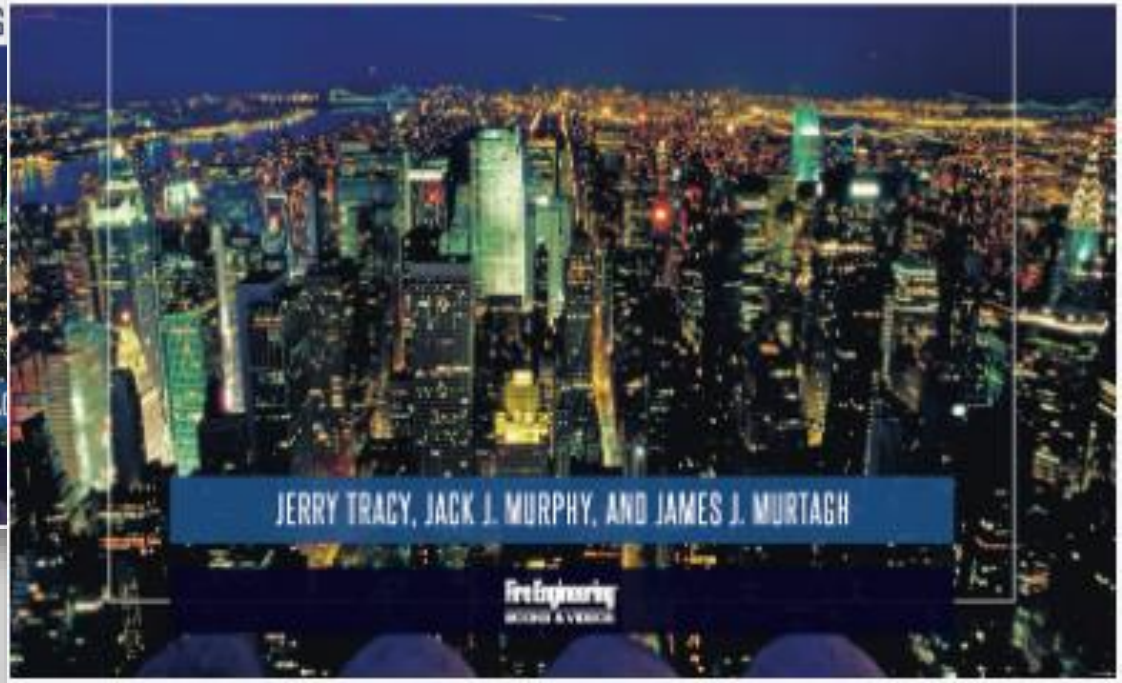

Tall Buildings
fire safety network
Repurposing
Vacant Tall
Office Buildings & Spaces
Battalion Commander Jerry Tracy FDNY (ret)


Tall Buildings
fire safety network
Repurposing
Office Buildings & Spaces
WHY?

HIGH-RISE BUILDINGS

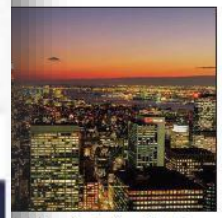
UNDERSTANDING THE VERTICAL CHALLENGES



JERRY TRACY, JACK J. MURPHY, AND JAMES J. MURTAGH

Fire Engineering

ine:
kyscraper



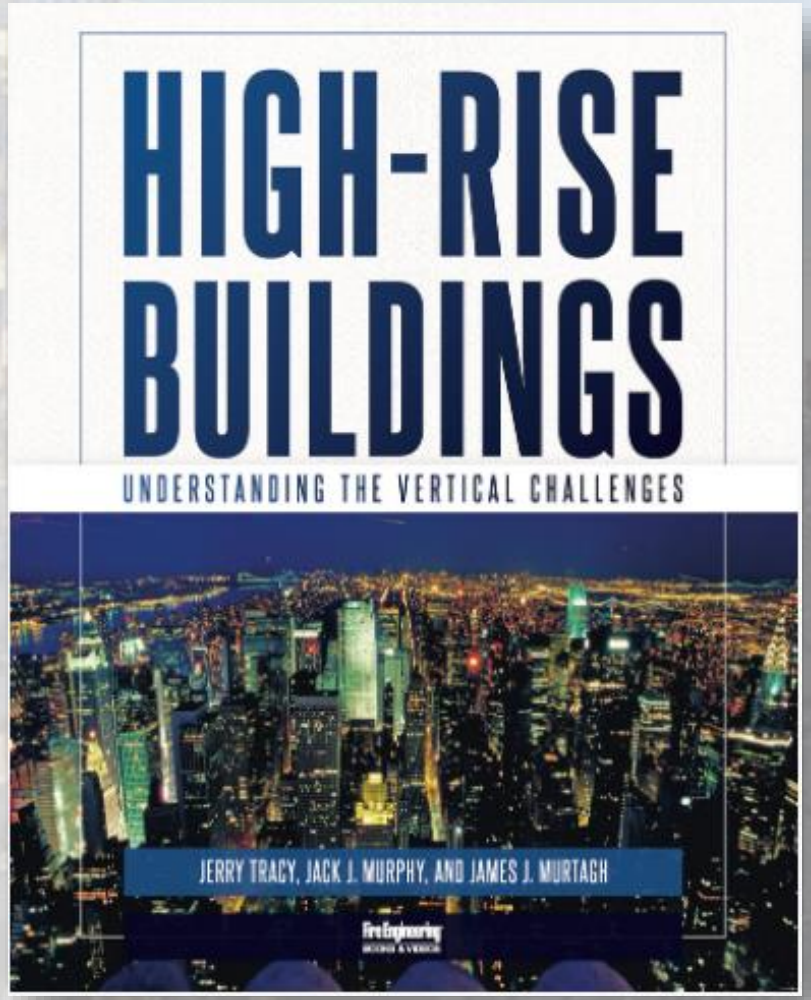
York City prime location without the
ter Twin Towers appearing in the
d the Empire State Building

e fire service using explosives as a tool
grations by removing buildings (fire
fire travel. By the early 1850s, San
been repeatedly decimated by a series
As a possible solution for preventing
g occurrences, city officials appointed
r of the fire department, whose official
included the authority "to blow up any
ldings with gunpowder which he may
y for the suppression of such fire or

w York City enacted legislation grant-
the FDNY fire commissioner to form
n building demolition, referred to as
d Miners Corps.[3] When called on, they
ted by the chief fire engineer, whose
ar to an incident commander. They
the guidance of Assistant Chief Charles
buildings in the path of fire travel.
ved structures or parts of structures

Chapter 11

Section 11.1.1



that were left standing after the fire had been extinguished and were in danger of collapse.

Blasting operations are also used to excavate bedrock to reach levels that will accommodate the building foundation and below-grade sublevel areas. These new below-grade floors (e.g., cellar, subcellar, sub-subcellar, etc.) are used for building utility systems, machinery spaces, storage spaces, and parking, if required. This provides the space and foundation to support the structure. If blasting is not required, the site may be excavated with heavy equipment to reach the depths required and/or the bedrock to support a high-rise building. Pilings or other foundation supports (e.g., micropiles, ground anchors, or pipe, screw, or helical piles) may be drilled in positions to support the load of the proposed structure and its foundation.[4] The urban setting will necessitate careful planning and protection of adjoining properties and buildings from damage during any phase of construction, alteration, or demolition. Considerable planning and a plan review process will be conducted long before work begins at a construction site. This long-range planning requires the expertise of professional engineers, including fire protection engineers, contractors, and at times, explosive experts who are qualified to deconstruct or implode buildings safely and efficiently.

Buildings are most vulnerable to fires and emergencies when they are in stages of transition, which can be described as "born," "sick," or "dying." The most important and efficient point for the inclusion of effective fire and life safety features will be when buildings are in the design or "conception" phase. When a new building is "born," it is under construction. This period begins with the groundbreaking and continues until the building owners receive the conclusive certificate of occupancy from the city. A building is considered "sick" when it is undergoing significant alterations or renovations that could involve selected floors or the entire structure. These operations often occur while the remaining floors are occupied. This period may compromise the safety of the occupants due to the increased risk of potentially dangerous events with a considerable number and variety of operations being conducted simultaneously. When a building is "dying," it is often abandoned and left unoccupied or inhabited by those in search of shelter until it is demolished. At this stage in the life of a building, the passive and active fire protection systems may be compromised, not fully active, or even absent altogether.

11.2 Chief Officer First-to-Arrive Construction Site Concerns

An incident command structure forms the foundation of responsibility, accountability, coordination, and purposeful commitment of personnel to achieve a successful outcome. It defines who is responsible for what, where, when, and why, delineated from the first fire unit to arrive to the other response units, including chief officers arriving on the first alarm and beyond. In the case of responding to construction sites or buildings undergoing alterations, renovations, or demolition, the ICS will expand to include the coordinated assistance of a building intelligence representative (BiR), who could be the construction project manager, site safety manager (SSM), or a fire safety manager (FSM), with their span of controls. This individual would assume the authority and function of command and direction for all of the contractors, their workforce, and the use of the machinery (e.g., heavy equipment, cranes, and elevator hoists). The SSM would become a liaison to the incident commander's command staff. (*Note:* This would not be considered unified command.)

The first fire unit to arrive will have established and assumed command of the alarm response for a fire or emergency. (For more information, refer to chapter 9, section 9.1.2, "First Unit to Arrive.") An information report will have been transmitted to all incoming fire units and the responding chief officer, who will assume overall incident command. This chief officer will announce his or her arrival and will be briefed as to the cause of the alarm, current conditions, and the status and location of fire units proceeding to or already at the location of the alarm or fire. The IC will also examine and verify current alarm information and review the building intelligence that has been made available (e.g., BICs, QAPs, and construction site situation status board). The IC would expect a confirmation of the alarm or fire location and current conditions, including structural integrity, if relevant, along with what operational tactics would be most applicable for the situation at hand. The IC will refer to previously prepared battle plans for the building or site as applicable.

11.2.1 Life safety

Construction sites are a dangerous arena for anyone performing occupational functions. The hazards are numerous, including open excavations, work being

Chapter 11 – Section 11.1.1

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"All the News That's Fit to Print"

Fire Times of New York

Late Edition

Today, early clouds then some sunshine by the evening, high 77. **Tonight,** partly cloudy, low 60. **Tomorrow,** periodic sunshine, high 77. Weather map appears on Page C8.

VOL. CLXIX ... No. 58,705 August 30, 2023 $3.00

Renovations To stay In Business

Upgrades to Infrastructure required for redundancy of Electric power supply and Technology connectivity

Record Office Vacancies

Troubling New York City's Economy

There is a record [illegible]lion square feet of vacant office space in Manhatta[illegible] the firm [illegible]lliers. The vacancy rate has [illegible] of the pandemic. Nationwide [illegible] percent. That entire ecosystem collapsed during [illegible] months of the pandemic as office workers shifted to remote work. Three years later, it has been slow to recover as remote work remains popular, causing companies to reduce their office footprints. That retreat has led to the high vacancy rates.

Incentives Needed for a Rebound Back to the Office

'Work from Home' A Consequence of the Pandemic

What's being said?

"WORK-FROM-HOME IS PROVEN" – KEVIN O'LEARY, CNN
IT HAS ALSO CREATED A TSUNAMI OF VACANCIES

"Just under 40% are NEVER coming back to the office. I WANT to do more of this."

WE NEED TO LOOK AT THIS CHAOS IN A FRAMEWORK

- ALL BUILDINGS ARE DIFFERENT
- ALL MARKETS ARE DIFFERENT
- MANAGING ORGANIZATIONS ARE DIFFERENT
- CITY/STATE GOVERNMENTS' PENALTIES/ INCENTIVES ARE DIFFERENT
- WHAT DO WE PRIORITIZE?

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- WHAT DO WE PRIORITIZE?

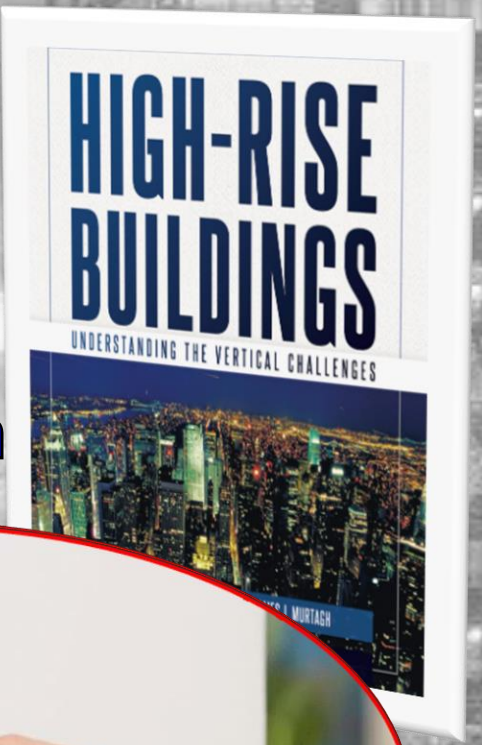

Tall Buildings
fire safety network
What are the Incentives?
Enhancing the Brand
Attractive
Resilient
Healthy
Secure
Fun Place to Be

Collaborative - Community Workspaces

Renovations

Drawing Business Back

- **Upgrade facilities, infrastructure & office environm**
  - **Office Arra**
  - **Tech**
  - **E**
  -
  -
  - **H** ***ontrols***



Renovations

Operational Resources

- To [illegible] Fire Safety

- Technology
- [illegible]
- [illegible]
- Elevators
- HVAC

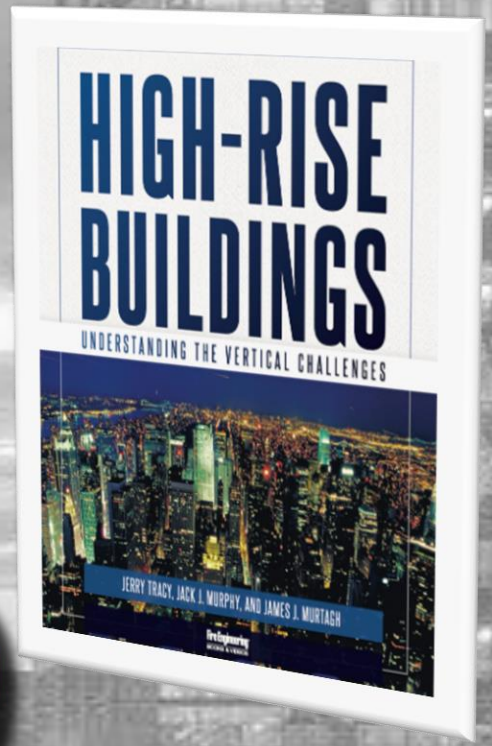
OPERATIONAL RESOURCES

Tall Buildings
fire safety network

Life Safety

TWOFOLD APPLICATION

Upon Ent



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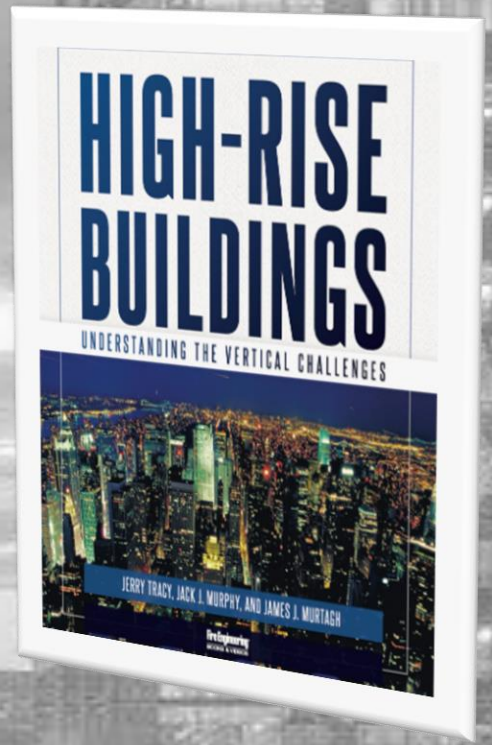
Life Safety
in a
Hybrid Work Environment

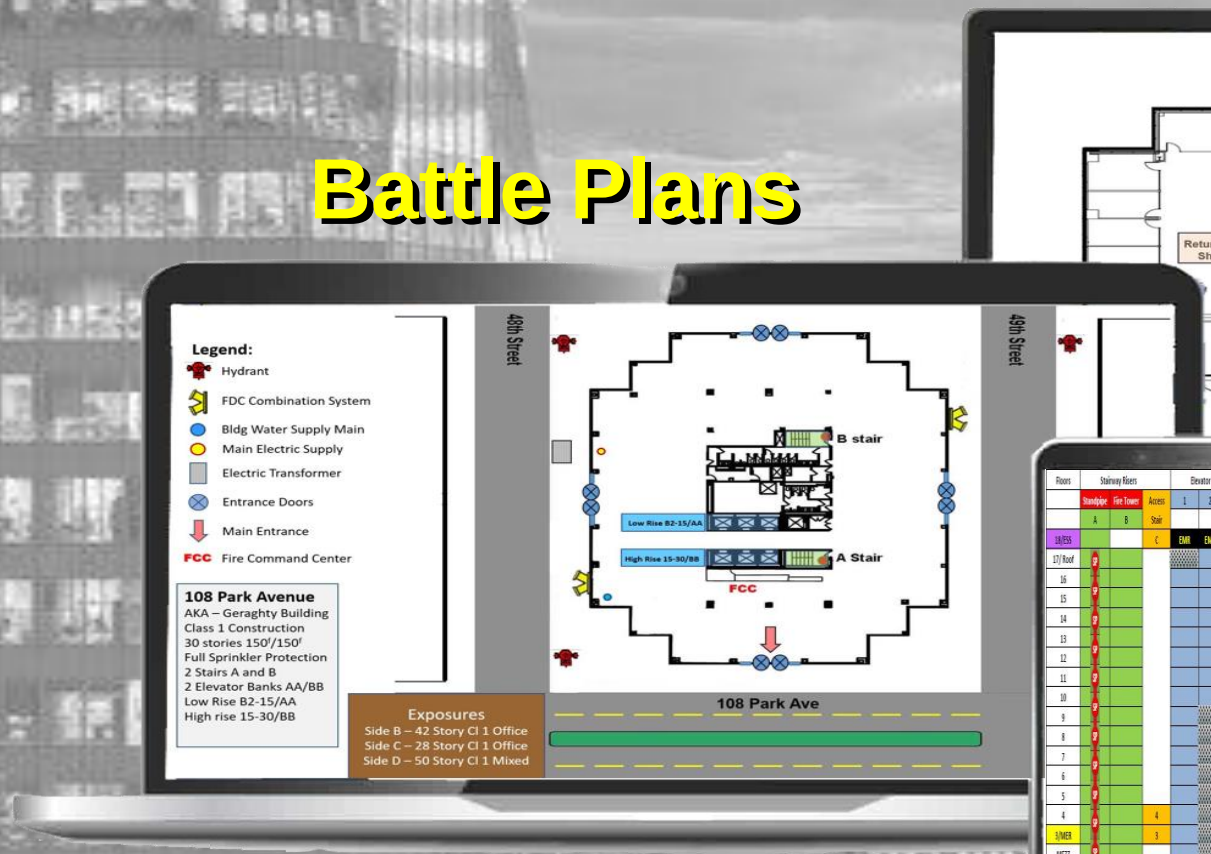


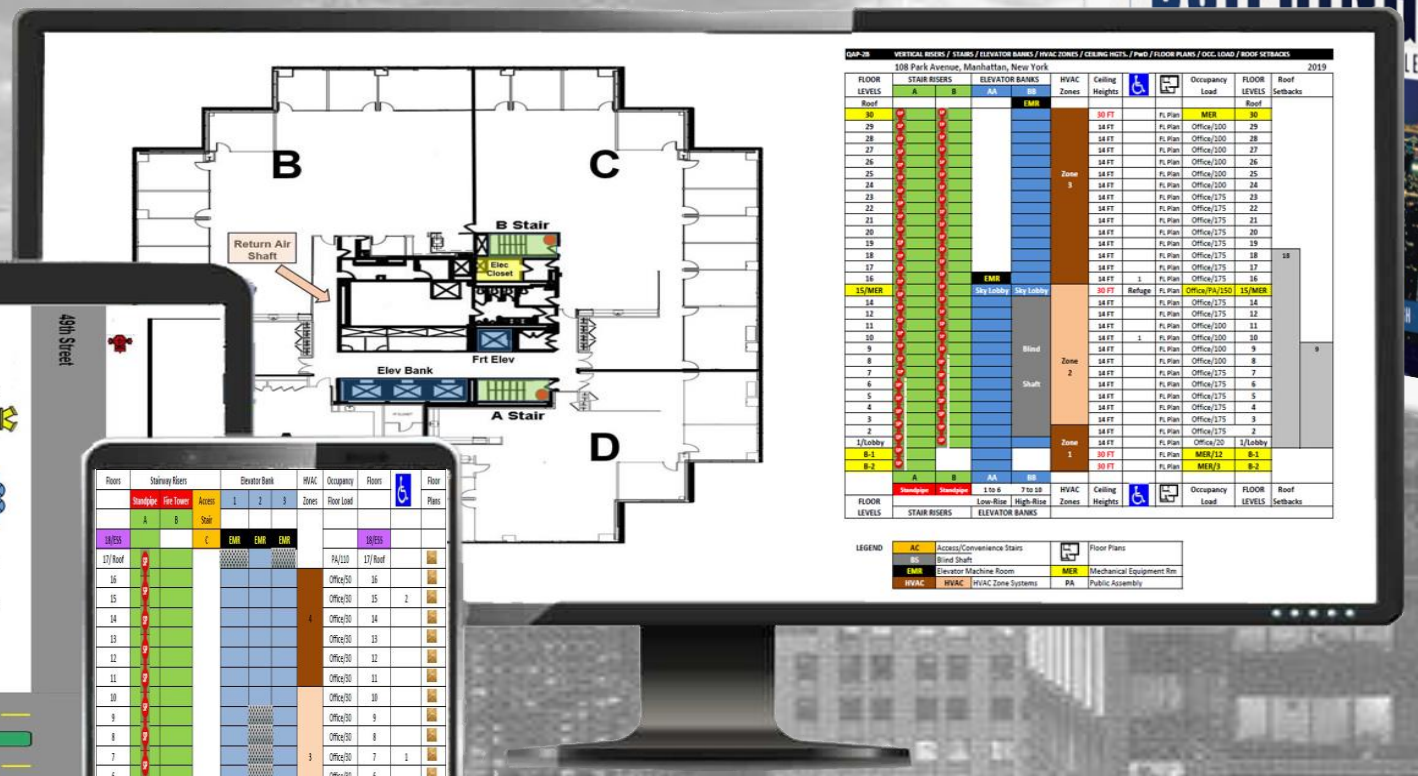
Alerts
Information
Instructions
Mapping

Operational Resources

Authorized / Secure Access

Battle Plans





Building / Fire Protection Systems Status

Intelligence Critical to Incident

Building Engineers Remote Access
Critical Power Management Systems

Ability for Remote Monitoring of All Critical Power Management & Storage

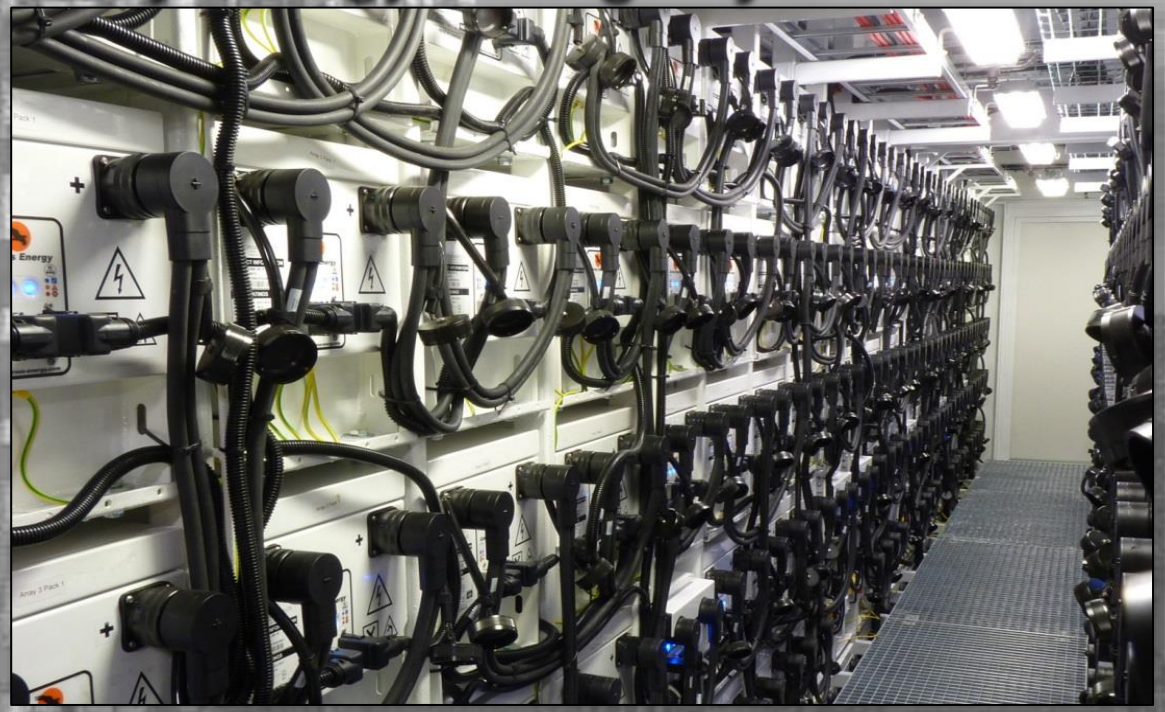
Including BMS

Building Management Systems

Battery Monitoring Systems

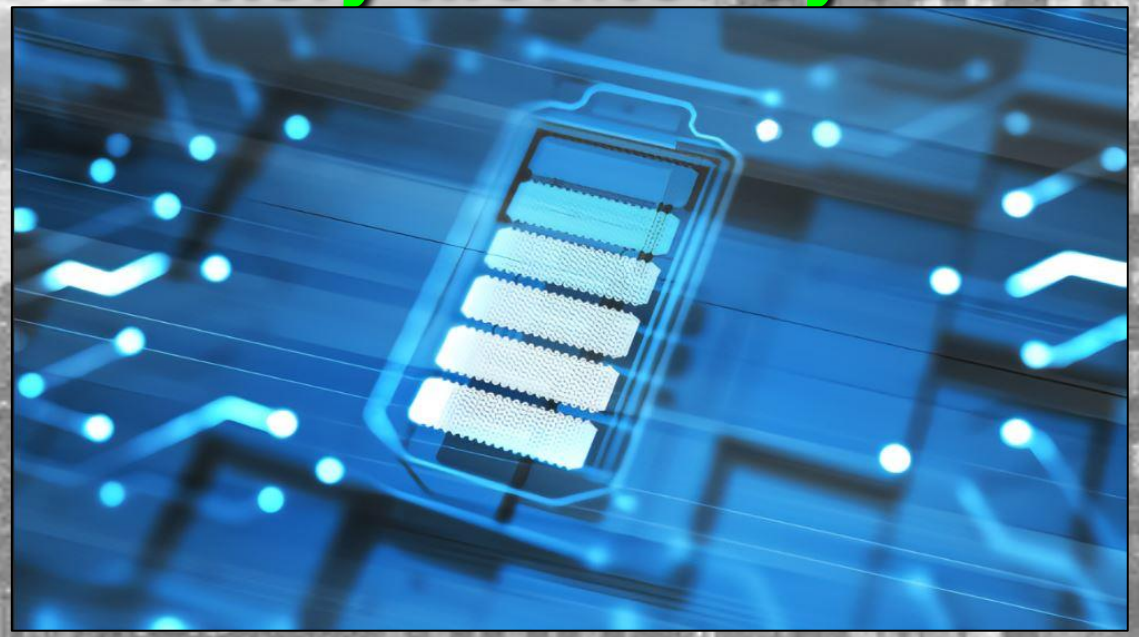
Intelligence Critical to Incident

Battery Energy Storage Systems - BESS



Energy Storage Monitoring System – ESMS

Instant Access to the Battery Monitor System



- ✓ Voltage
- ✓ Current
- ✓ Temperature (During Charge/Discharge)
- ❖ Open Circuit*

Other Incentives

LEED (Leadership in Energy and Environmental Design)

BREEAM (Building Research Establishment Environmental Assessment Method)

carbon revolution

The Green Revolution

Extra efficiency =
More profit per square foot

Ratings

LEED (Leadership in Energy and Environmental Design)

BREEAM (Building Research Establishment Environmental Assessment Method)

Now – UL (Underwriters Laboratories) **SPIRE**

Smart Buildings Assessment™

Underwriters Laboratories & Telecommunications Industry Association

launched SPIRE

1st Rating program for Smart Buildings.

Similar to WELL Certifications

https://www.ul.com/services/first-comprehensive-smart-building-assessment-and-rating-program

Renovations

Renovations

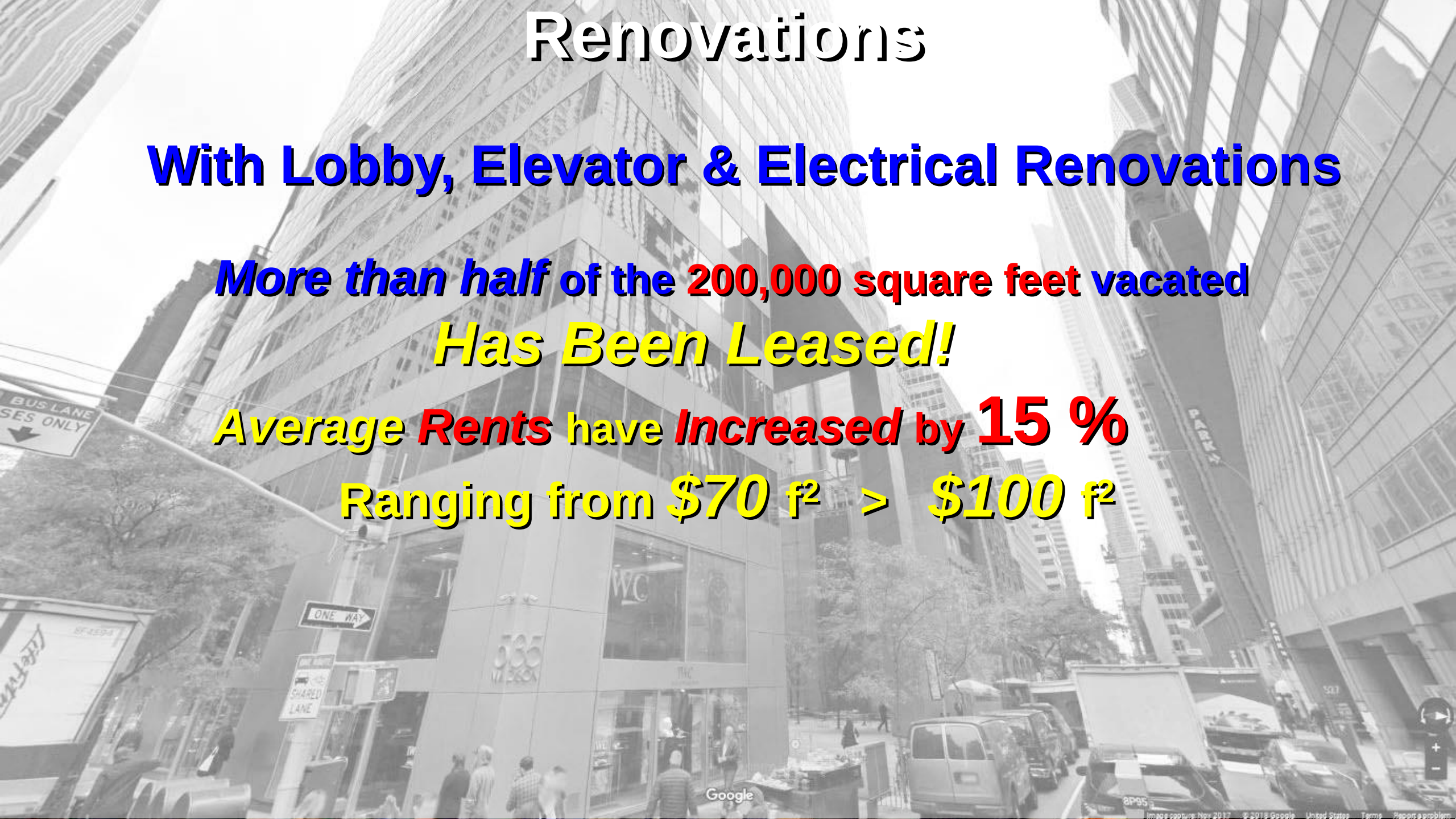
With Lobby, Elevator & Electrical Renovations

More than half **of the 200,000 square feet vacated**

Has Been Leased!

Average Rents **have** ***Increased*** **by 15 %**

Ranging from *$70* f² > *$100* f²




Waldorf Astoria Hotel
THE WALDORF-ASTORIA
Maintaining Occupancy as Residential
6:13
52°
Waldorf Astoria Closing For
Major Renovation Project
CBSNewYork.com
Offering 375 hotel rooms, down from 1,400, with 375 condominium units.

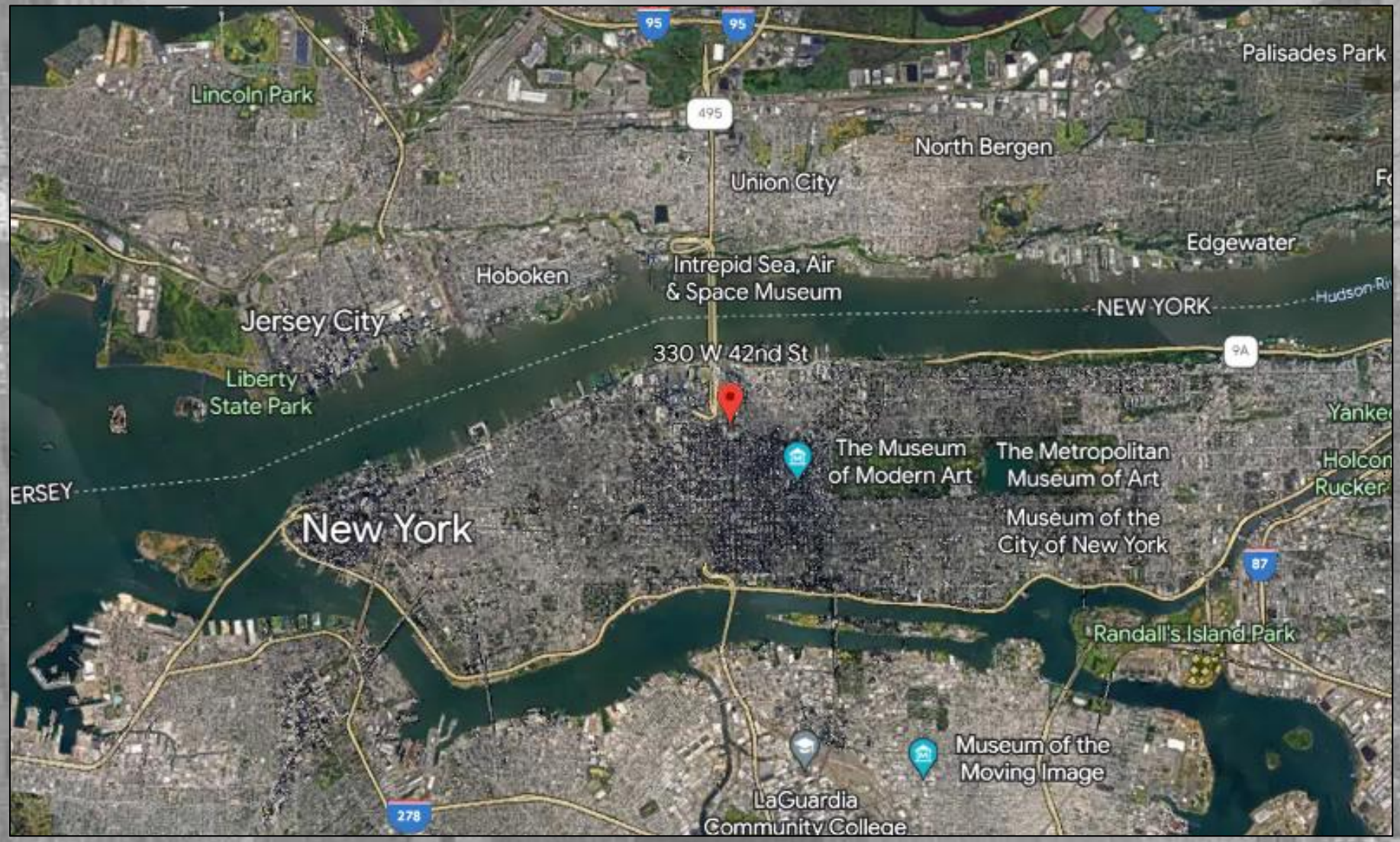

Difficult & Challenging Access for
Fire / Emergency Operations
Pre-Incident Planning Warranted

Renovation vs Alteration

Alteration ***Change of Occupancy***

✓**Fire Protection** ***Comply with current Codes***

Alteration


95
95
Palisades Park
Lincoln Park
495
North Bergen
Union City
Edgewater
Hoboken
Intrepid Sea, Air
& Space Museum
Jersey City
NEW YORK
Hudson R
330 W 42nd St
9A
Liberty
State Park
The Museum
of Modern Art
The Metropolitan
Museum of Art
Holcon
Rucker
ERSEY
New York
Museum of the
City of New York
87
Randall's Island Park
Museum of the
Moving Image
LaGuardia
Community College
278

Alteration

McGraw Hill Building
Built in1931
Undergoing Complete Alteration

328 W. 42nd St

Alteration

Residential Amenities

Floors 12 – 32
Residential

Floors 2 – 11
modernized
office space,

328 W. 42nd St

Consequence of Challenge & Change

- **Maintain Life Safety during this Phase**

Consequence of Challenge & Change

- Maintain Life Safety during this Phase
- Maintain Fire Protection
  - ✓ Passive & Active Systems

Consequence of Challenge & Change

- Maintain Life Safety during this Phase
- Maintain Fire Protection
  - ✓ Passive & Active Systems
- Preparedness & Obligations
  - ✓ Property Owners / Managing Agents
  - ✓ Fire Service

2007
37

NIOSH
Fire Fighter Fatality Investigation
and Prevention Program

Death in the line of duty...

A summary of a NIOSH fire fighter fatality investigation — August 5, 2010

Two Career Fire Fighters Die Following a Seven-Alarm Fire in a High-Rise Building Undergoing Simultaneous Deconstruction and Asbestos Abatement—New York

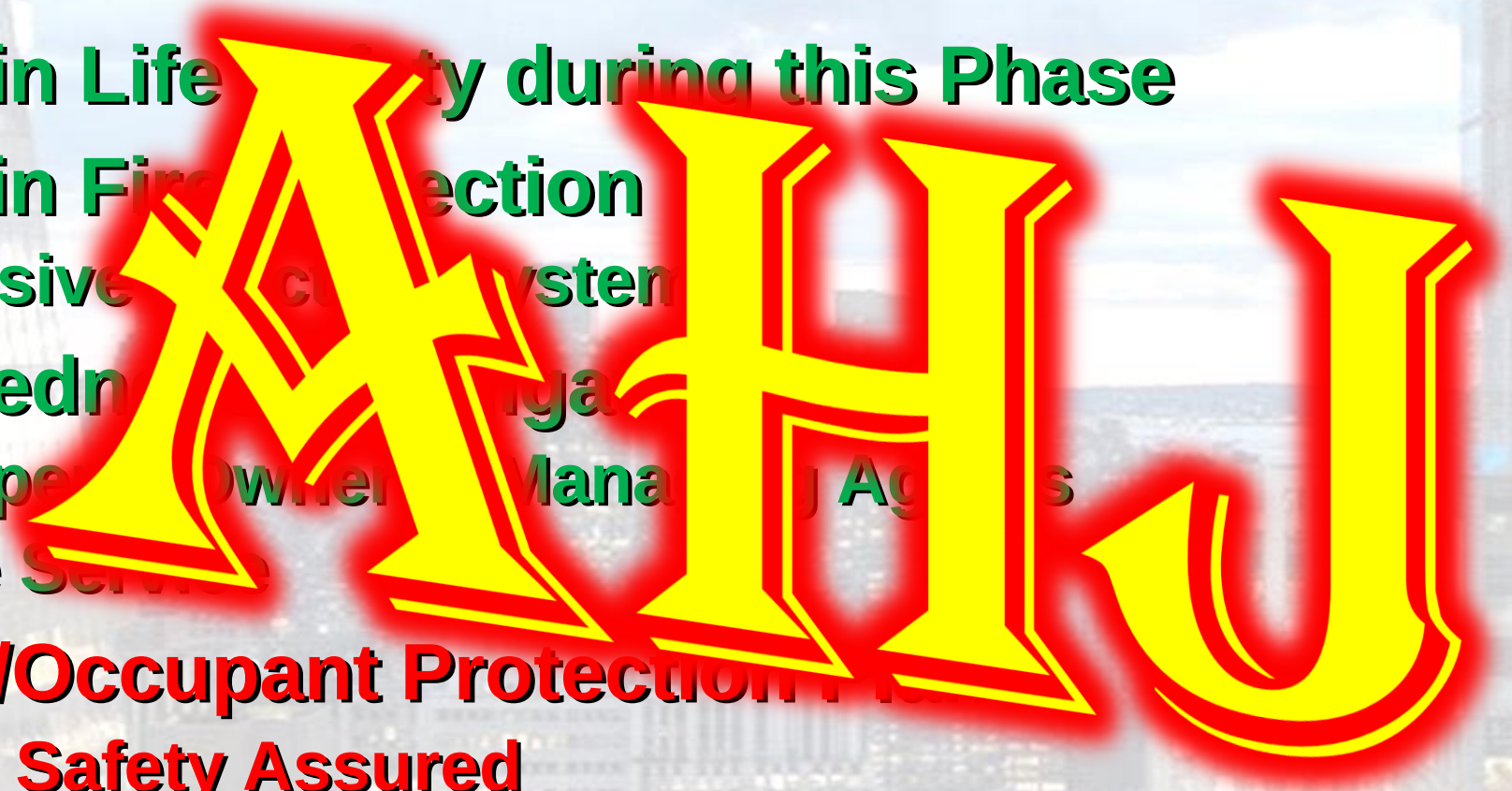
Recommendation #2: fire departments should be prepared to use alternative water supplies when a building's standpipe system is compromised or inoperable.

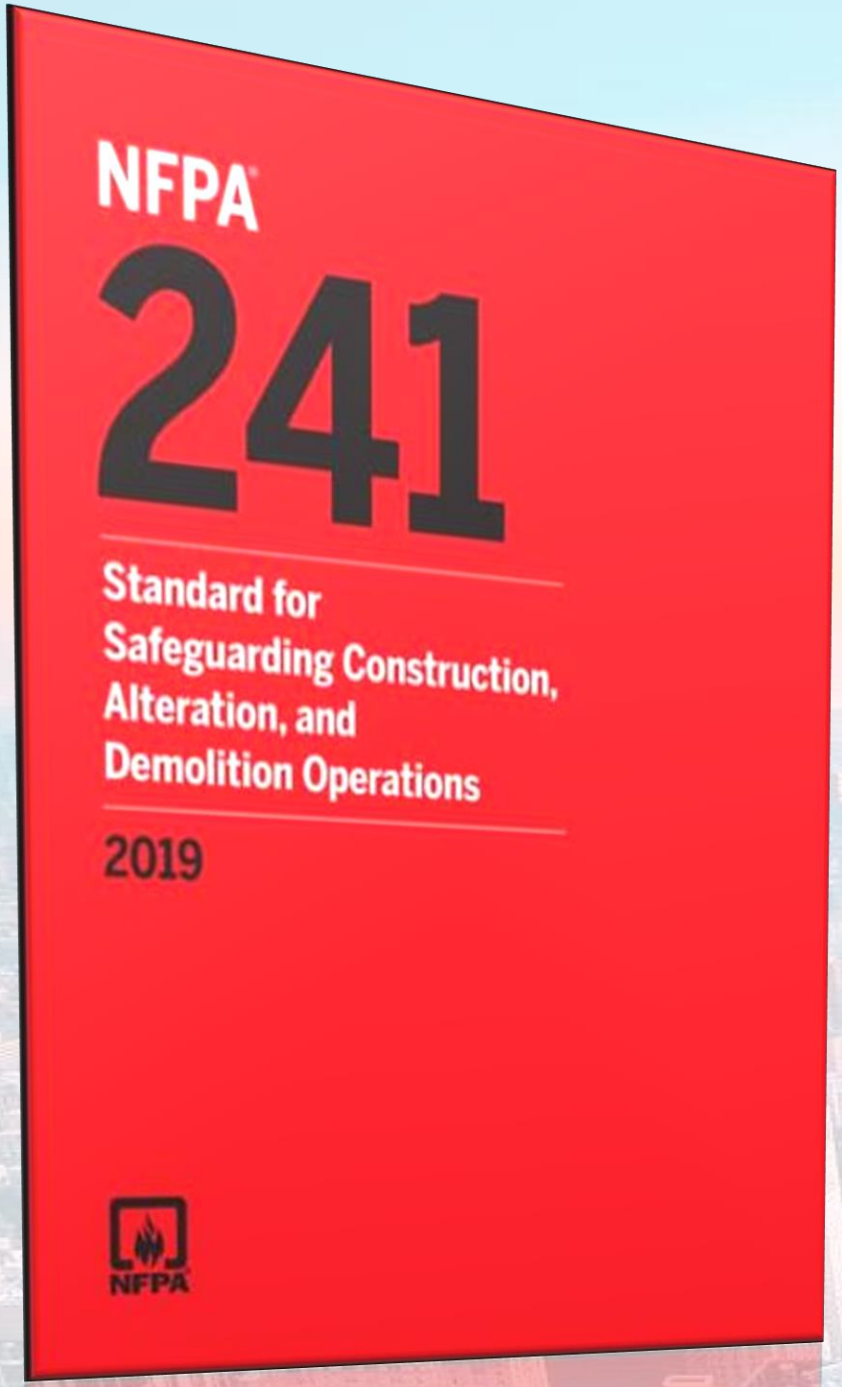
Recommendation #3: Fire departments should develop and enforce risk management plans, policies, and standard operating guidelines for risk management during complex high-rise operations.

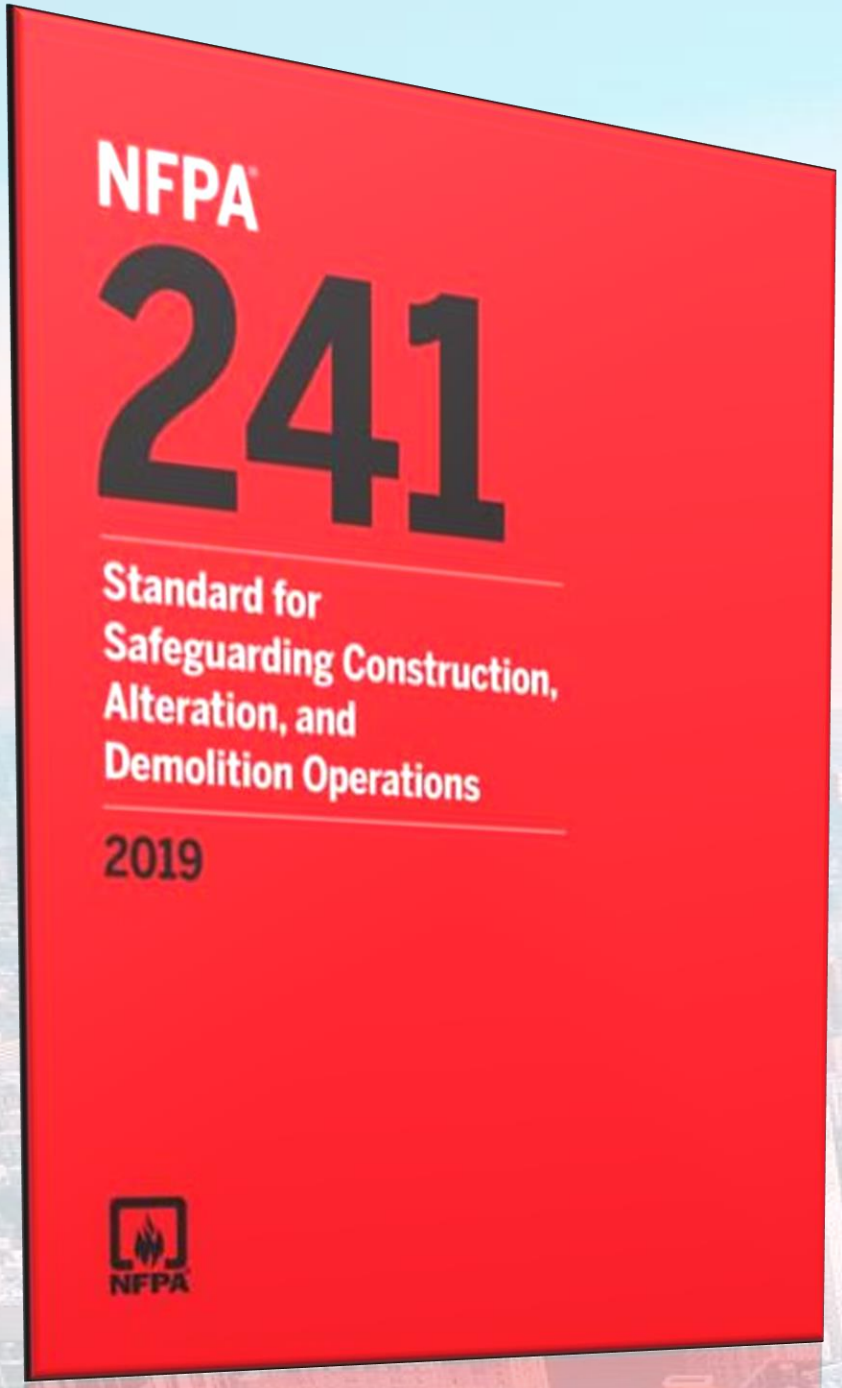
Recommendation #9: Fire departments should conduct pre-incident planning Inspections of buildings within their jurisdictions to facilitate development of safe fireground strategies and tactics.

Consequence of Challenge & Change

- Maintain Life Safety during this Phase
- Maintain Fire Protection
  - ✓ Passive
- Preparedn
  - ✓ Prope Owner Mana Ag s
  - ✓ Fire Ser
- Tenant/Occupant Protection
  - ✓ Life Safety Assured
  - ✓ Informed / Understand the Plan
  - ✓ Egress (As Required) Protected




NFPA
241
Standard for
Safeguarding Construction,
Alteration, and
Demolition Operations
2019
NFPA



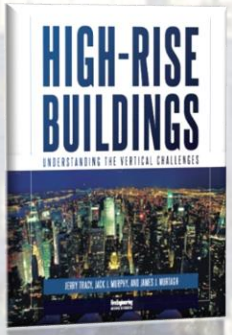
- **Site Safety Manager**

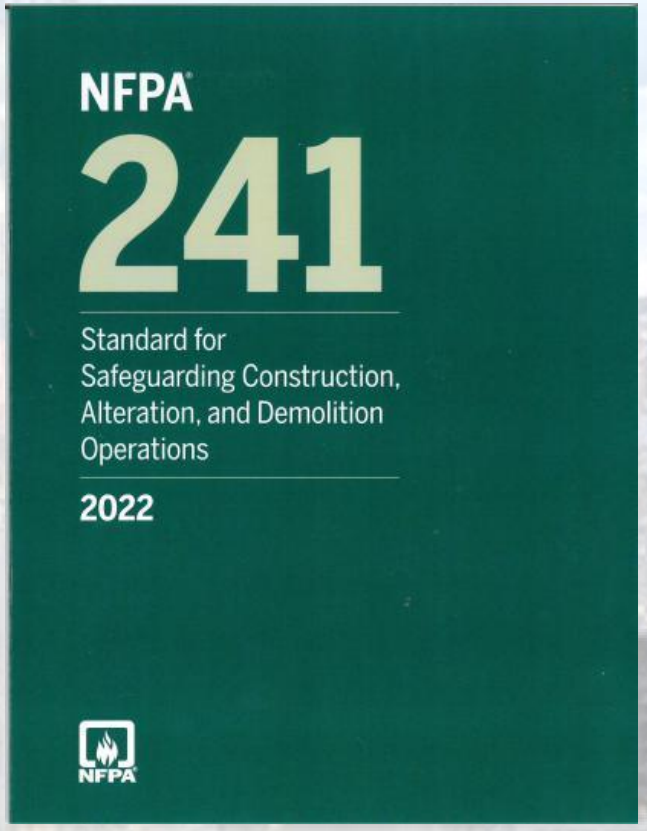
- **Fire Prevention Program Manager**

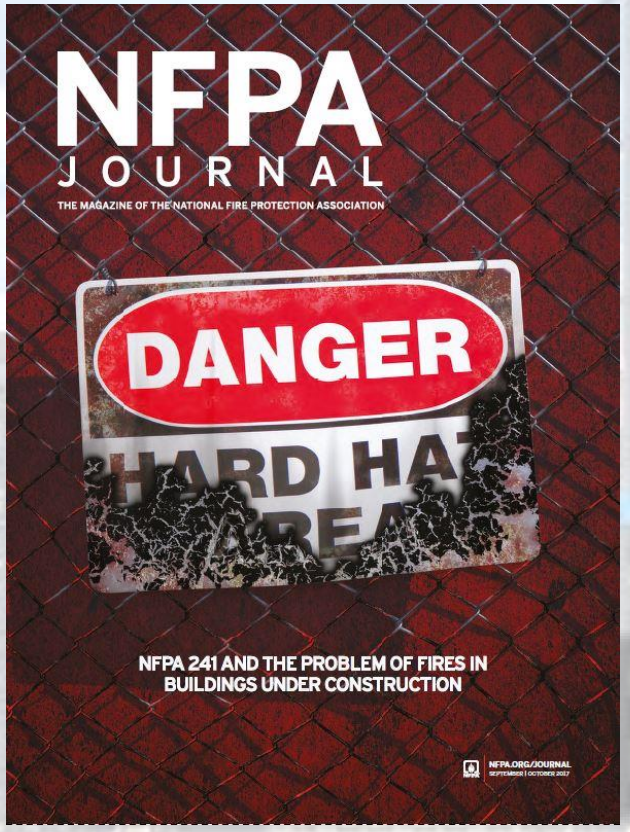
- Fire Prevention Program Manager
- Site Safety Plan
- Evacuation & Accountability
- Intelligence & Resources

- Priorities - Sequence of Operations
- Local Fire Service Involvement
- Consulted before Operations & Continues

Codes & Standards



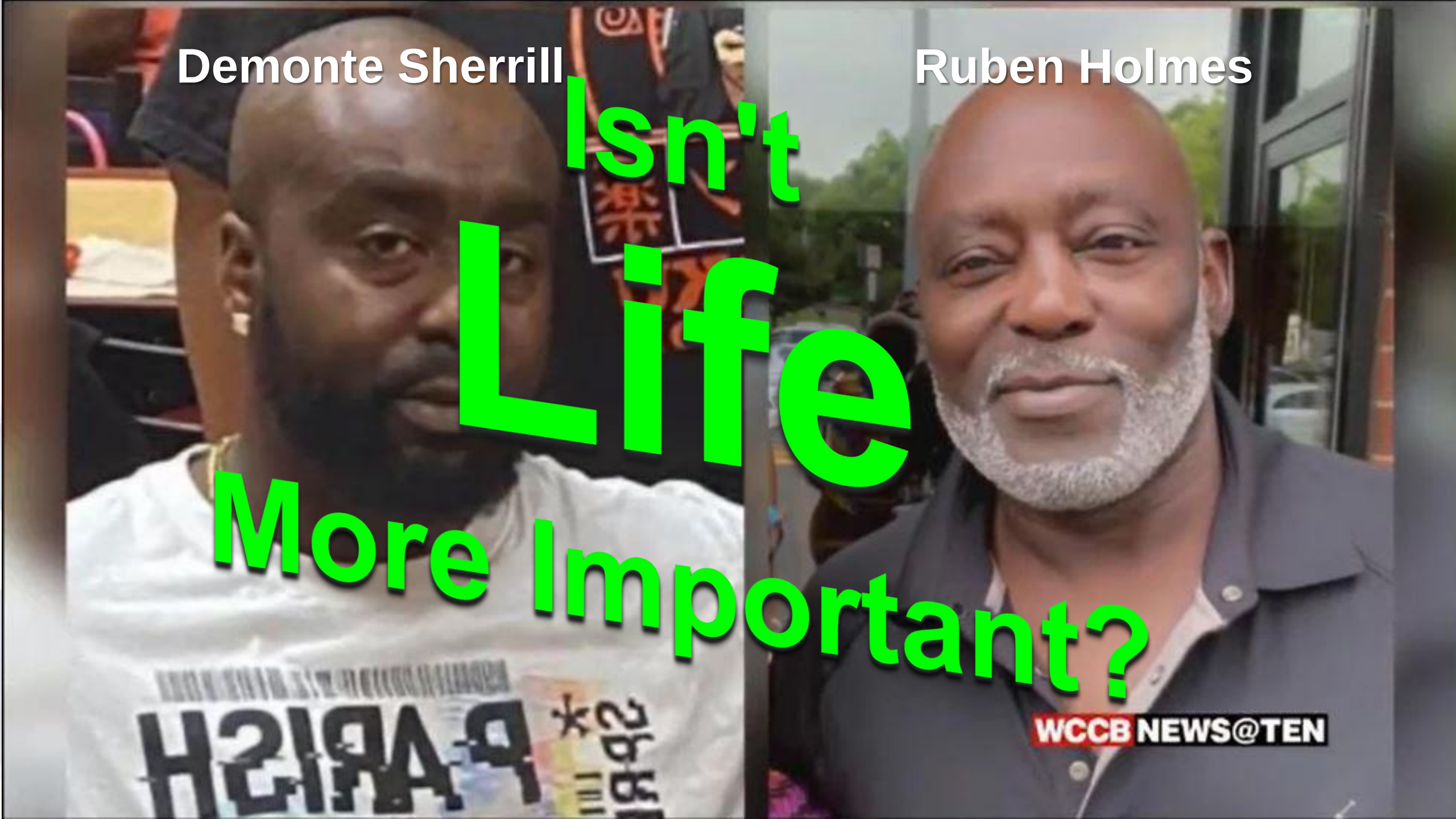




"Despite NFPA 241 being in existence for over 80 years, a failure persists among stakeholders to properly apply it"


Charlotte, North Carolina
Massive apartment building
Under Construction fire.
May 19, 2023
MILLCRE
PEOPLE · PLACES · RELA
MCATRUST.COM
E39


WBTV
INVESTIGATES
0:00
8:19


Demonte Sherrill
Ruben Holmes
Isn't
Life
More Important?
WCCB NEWS@TEN

Tall Buildings
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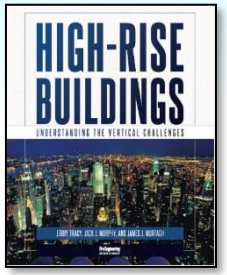
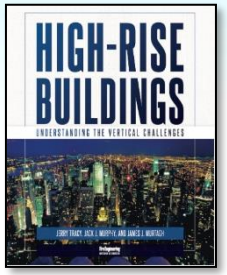


Partnerships – Plans – Preparation

Pro-Active vs. Re-Active

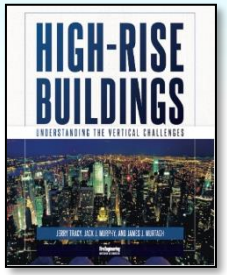


Fire Protection & Issues of Concern

- **Passive - Fire Walls / Partitions / Doors / Smoke Curtains**
- **Active – Alarm System – Complete – Partial**

Sprinkler / Standpipe Systems / Fire-Smoke Dampers

Notre Dame Cathedral 2019



Fire Protection & Issues of Concern

- **Passive - Fire Walls / Partitions / Doors / Smoke Curtains**
- **Active – Alarm System – Complete – Partial**

  Sprinkler / Standpipe Systems / Fire-Smoke Dampers
- **Transportation Modes – Renovation Floors Elev Programed Out**
- **Site Safety Manager – Status Board / Location**

Tall Buildings
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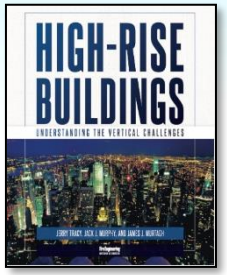


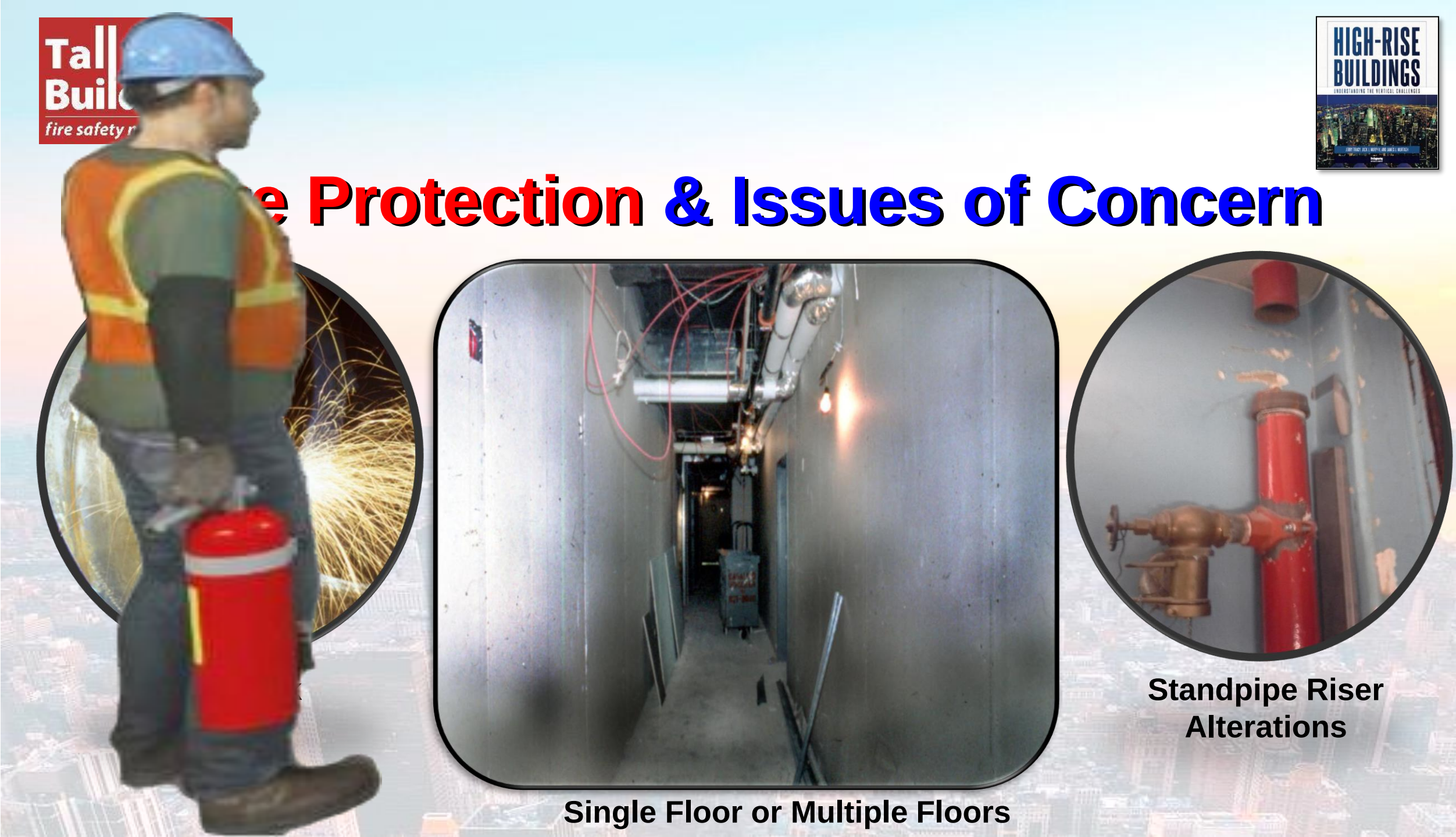
Site Safety Manager

Custodians of Construction Site Fire Safety

Duties / Requirements:

- Competent
- Prevent Hazard/Fire Programs
- Responsible – Safeguard Property
- Establish Pre-Incident Plans – with AHJ
- Conduct Safety Meetings (Meetings ?)
- Present *Training* – Contractor Employees
- Maintain *Fire Protection Systems*

TRUST



e Protection & Issues of Concern

Single Floor or Multiple Floors

Standpipe Riser Alterations

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Tall Buildings
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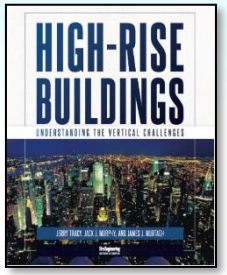
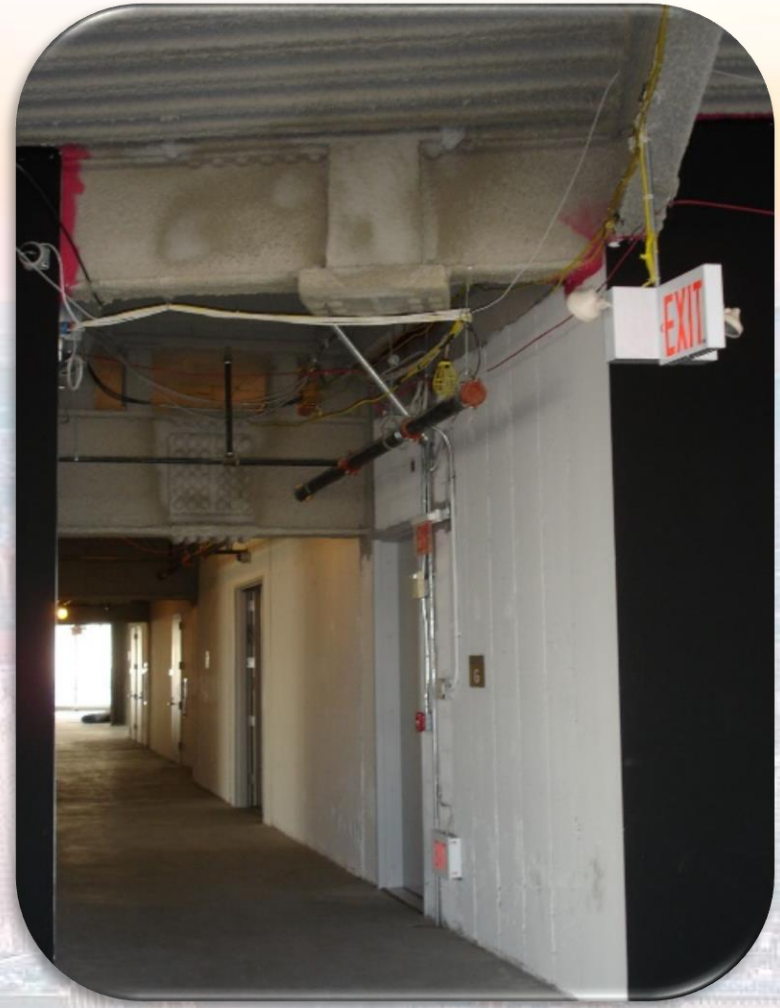


Tall Buildings
fire safety network

Project Issues / Resolutions




Life Safety & Control
FIRE
Building Intelligence Representative
BiR

Who is Responsible with Defined Tasks?


Tall Buildings
fire safety network
Maintaining Life Safety
during
Phases of Alt / Renovation
Establishing
Rapport
Respect
Resources

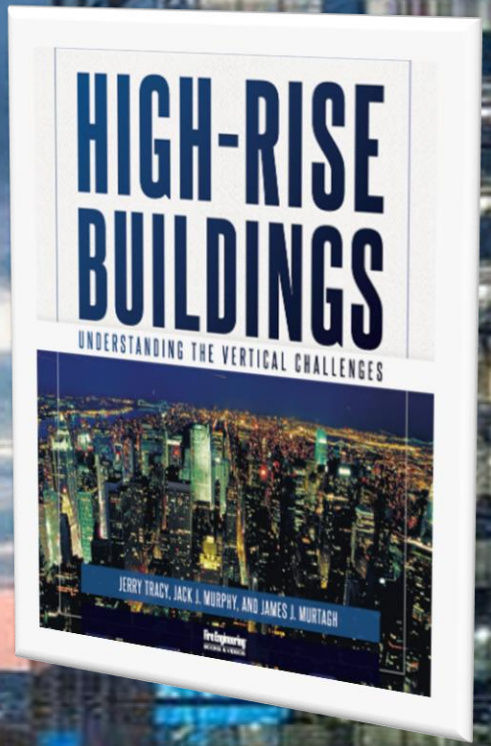

Tall Buildings
fire safety network
Maintaining Life Safety
during
Phases of Alt / Renovation
Establishing
Rapport
Respect
Resources

Maintaining Life Safety during Phases of Alt / Renovation

"Good Morning Britain," dubbed the Crane Operator "Bruce Willis of Reading"


Tall Buildings
fire safety network
Maintaining Life Safety
during
Phases of Alt / Renovation
Establishing
Rapport
Respect
Resources
Results

Jerry Tracy odatjazz108@gmail.com
Jack J. Murphy fmjack1948@gmail.com



Thank You