



Twin Parks Fire January 9, 2022

**Operational and Regulatory
Considerations**

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DAILY NEWS

NEW YORK'S HOMETOWN NEWSPAPER

'HORRIFIC'

Hi-rise inferno
kills at least
19, including 9
kids, in Bronx

Smoke billows from
apartment building on
E. 181st St. in Fordham
heights as firemen rush
to rescue residents from
the 43rd floor at least
19 and critically injured
dozens more. Below,
rescue and workers who
rescued victims' bodies
from the debris.



SEE PAGES 6-7

SMOKE AT THE SCENE, NEW YORK JOURNAL PHOTO BY MICHAEL

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Newsday

YOUR EYE ON LI

HI 30° LO 15°
PARTLY CLOUDY



TRAGEDY

At least 19 killed, including 9 children,
in Bronx apartment building fire

Faulty electric space heater to blame,
officials say; more than 60 hurt

A2-3 | UPDATES AT NEWSDAY.COM

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PHOTO BY MICHAEL



BRONX BOX 3162 ...Odor of Smoke

by
JAMES J. MURTAGH
Deputy Chief, 3rd Division

Bypassed safety features create life-threatening conditions at "routine" compactor fire....

On a mild Sunday afternoon, March 2, 1986, the alarm teleprinters sounded in the quarters of Engine 48, Ladder 56, and Engine 75, Ladder 33, Battalion 19. The printout indicated a smoke condition on the 15th floor of 331 East 181 Street, Bronx, N.Y. The building, familiar to these firefighters, is thought of as a typical housing project where the report of smoke on one floor or another is handled routinely using the Department's standard operating procedures. However, in firefighting, nothing is routine and on this day, once again, "Murphy's Law" reared its ugly head.

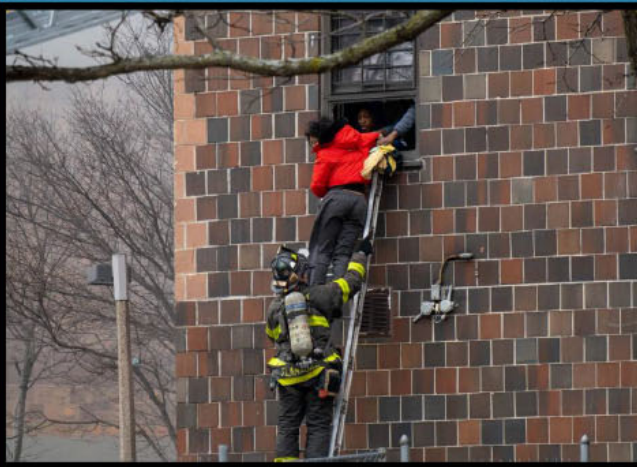
THE BUILDING

The fire building, erected in the early 1970s, is a nineteen-story high-rise residential building. It is of fire protected construction, measuring approximately 150' x 75'. The building contains simplex type apartments (all rooms on the same floor) and duplex apartments (rooms on two different floors connected by an internal private stairway).

The building is equipped with a metal-lined compactor shaft which extends from the ground floor to above the roof and is adjacent to an enclosed stair shaft. The compactor room, located on the ground floor behind

Building

- 19 Story
- Class 1 – "Fireproof"
- 150' x 75'
- Built & Occupied early 70's
- Simplex & Duplex Apartments
- Scissor Stairs
- Site of numerous fires




- 📞10:54 Phone alarm received for smoke in the hallway of 333 E 181st st, Bronx NY
- 📞10:58 10-77 transmitted
- 📞11:01 Incident Commander reports heavy fire out the windows of the 3rd floor on the rear of the building
- 📞11:03 Second alarm transmitted
- 📞11:07 First 2 10-45s transmitted
- 📞11:14 Three more 10-45s Transmitted
- 📞11:19 Third alarm Transmitted
- 📞11:21 Fourth alarm Transmitted
- 📞11:32 Four additional 10-45s transmitted

- 📍11:32 Total Patient count is 10, 7 of which are RED tags
- 📍11:40 1 additional 10-45 transmitted
- 📍11:44 4 additional 10-45s transmitted
- 📍11:45 Total patient count 15, 11 of which are red tags
- 📍11:48 5th alarm transmitted
- 📍12:00 Car 15A reports all visible fire knocked down, fire remains doubtful will hold
- 📍12:10 Car 15A updates TPC to 32, 26 of which are RED tags
- 📍12:16 5 additional 10-45s transmitted
- 📍12:18 15A updates TPC to 37, 30 RED tags

- 🌐12:24 2 additional 10-45s transmitted
- 🌐12:32 4 additional 10-45s transmitted
- 🌐12:33 15A updates TPC to 40, 31 RED, 2 yellow/orange, 7 Green, also reports primary searches throughout the building complete
- 🌐13:26 Incident placed under control

Incident

- Twin Parks - an affordable-housing building constructed in 1972
- 10-77 High-rise multiple dwelling fire; 4 min FD response time
- Like many older, residential high-rises in NYC –no sprinklers in place. Relies primarily on compartmentation to keep smoke from spreading in case of a fire.
 - Doors must automatically close and latch after someone passes through to meet compartmentation goals.
- Compartmentation broke down in at least three places on Jan. 9.
 - The door to Apt. of fire origin stayed open.
 - Both doors to the third-floor stairwells for lengthy periods.
 - Doors to stairwells in at least two higher floors also malfunctioned, allowing smoke to permeate the building. Stairwells acted as chimney



The fire was [sparked by an electric space heater](#) in a bedroom on the lower level of Apt. 3N.

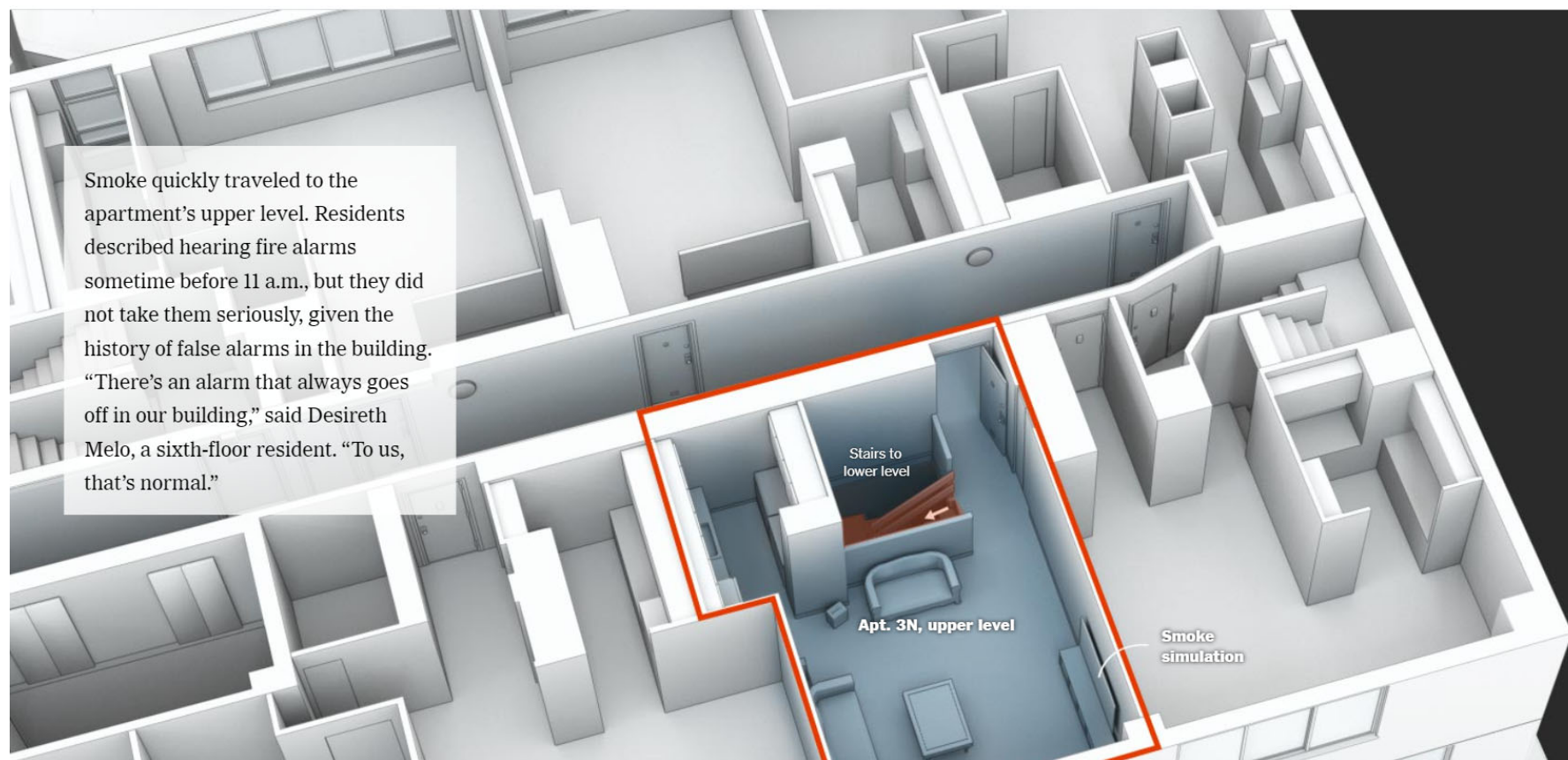
A mattress in the bedroom had caught on fire, and **smoke** filled the lower level of the apartment.

Apt. 3N, lower level

Stairs to upper level

Bedroom

Smoke quickly traveled to the apartment's upper level. Residents described hearing fire alarms sometime before 11 a.m., but they did not take them seriously, given the history of false alarms in the building. "There's an alarm that always goes off in our building," said Desireth Melo, a sixth-floor resident. "To us, that's normal."





FIRST COMPARTMENTATION FAILURE

As the Wague family fled the fire in their apartment, the door never closed properly, creating the initial opening for smoke to enter the third-floor hallway.

The door to Apt. 3N, like most doors in the building, had relied on simple mechanisms to close automatically in case of a fire: spring-loaded hinges and a latch.

**Door to
Apt. 3N**

Interviews with residents and complaints lodged with the city indicate that, before the fire, doors routinely malfunctioned. Still, James Yolles, a spokesman for the building's ownership group, Bronx Park Phase III Preservation LLC, said it had "no knowledge of self-closing-door issues prior to the fire."

[illegible]

3rd floor

3rd floor layout labels: 3F, 3G, 3H, 3J, 3M, 3N (fire source), Stairwells, Hallway.

2nd floor

2nd floor layout labels: 3B, 3C, 3F, 3G, 3H, 3J, 3M, 3N (fire source), Stairwells.

[illegible]

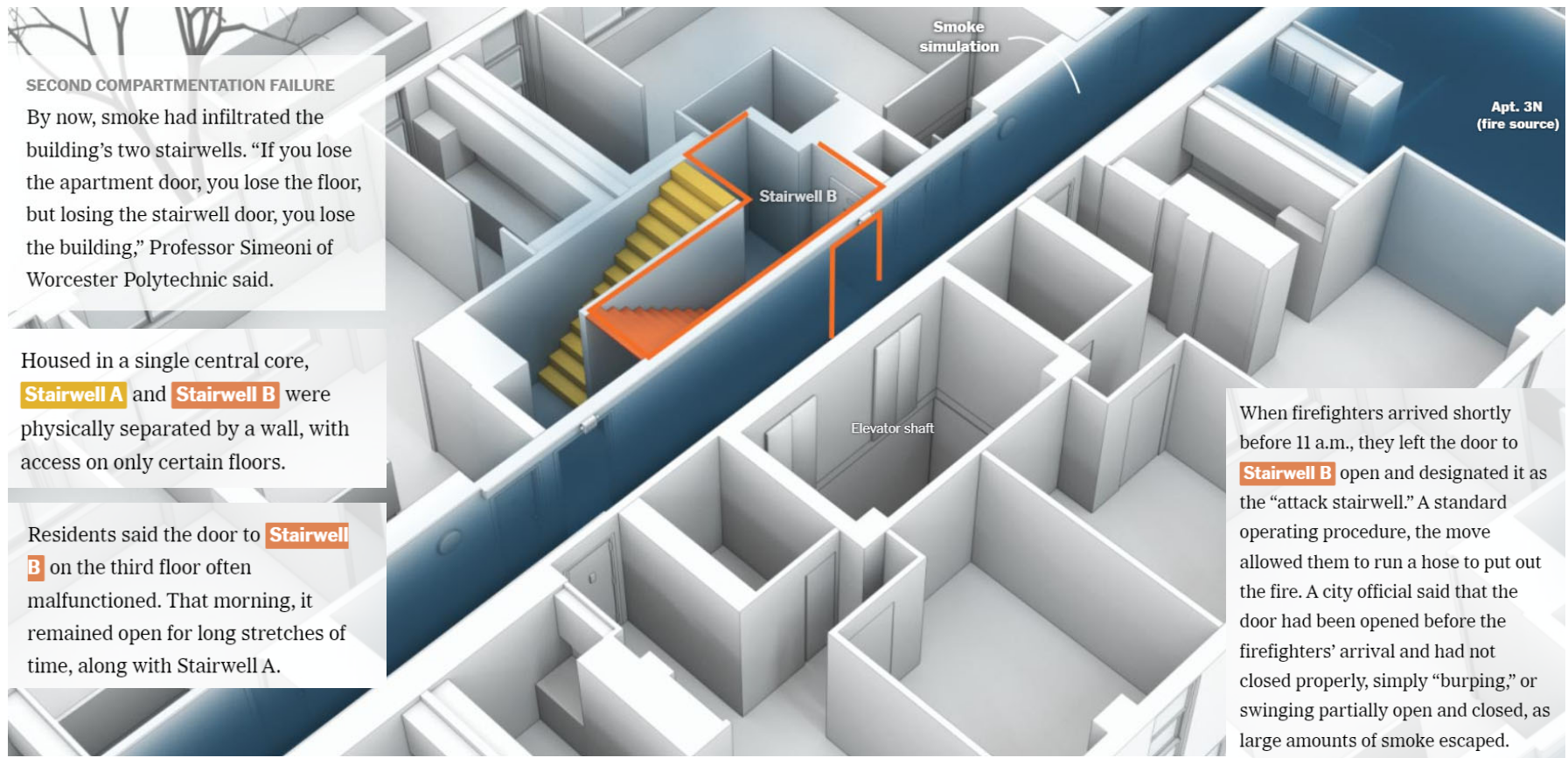
SECOND COMPARTMENTATION FAILURE

By now, smoke had infiltrated the building's two stairwells. "If you lose the apartment door, you lose the floor, but losing the stairwell door, you lose the building," Professor Simeoni of Worcester Polytechnic said.

Housed in a single central core, **Stairwell A** and **Stairwell B** were physically separated by a wall, with access on only certain floors.

Residents said the door to **Stairwell B** on the third floor often malfunctioned. That morning, it remained open for long stretches of time, along with Stairwell A.

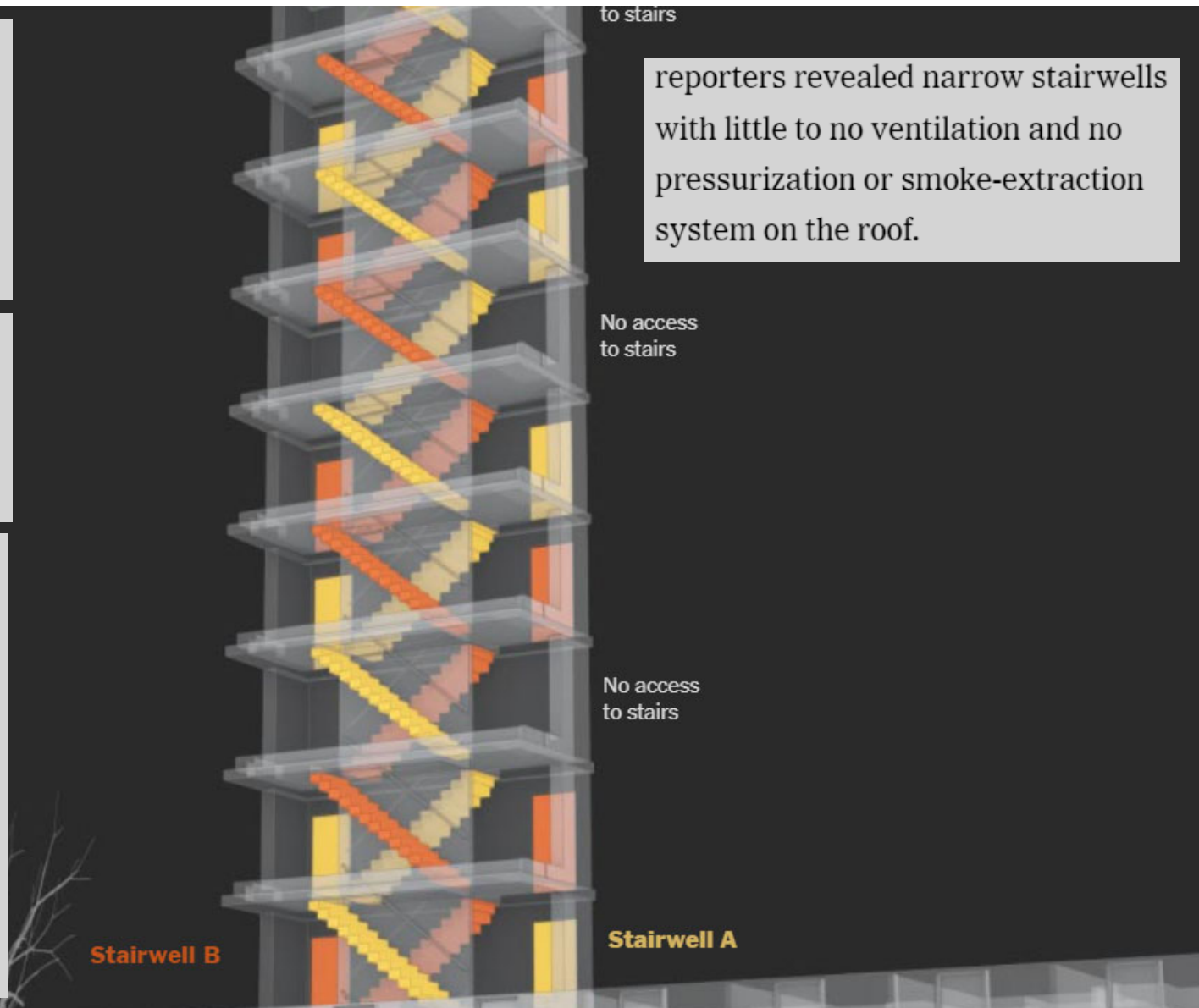
When firefighters arrived shortly before 11 a.m., they left the door to **Stairwell B** open and designated it as the "attack stairwell." A standard operating procedure, the move allowed them to run a hose to put out the fire. A city official said that the door had been opened before the firefighters' arrival and had not closed properly, simply "burping," or swinging partially open and closed, as large amounts of smoke escaped.



These interlocking “scissor stairs” are legal under the New York City building code in residential buildings, but fire safety experts have criticized them.

Despite being the sole means of escape, they were not directly accessible from some floors.

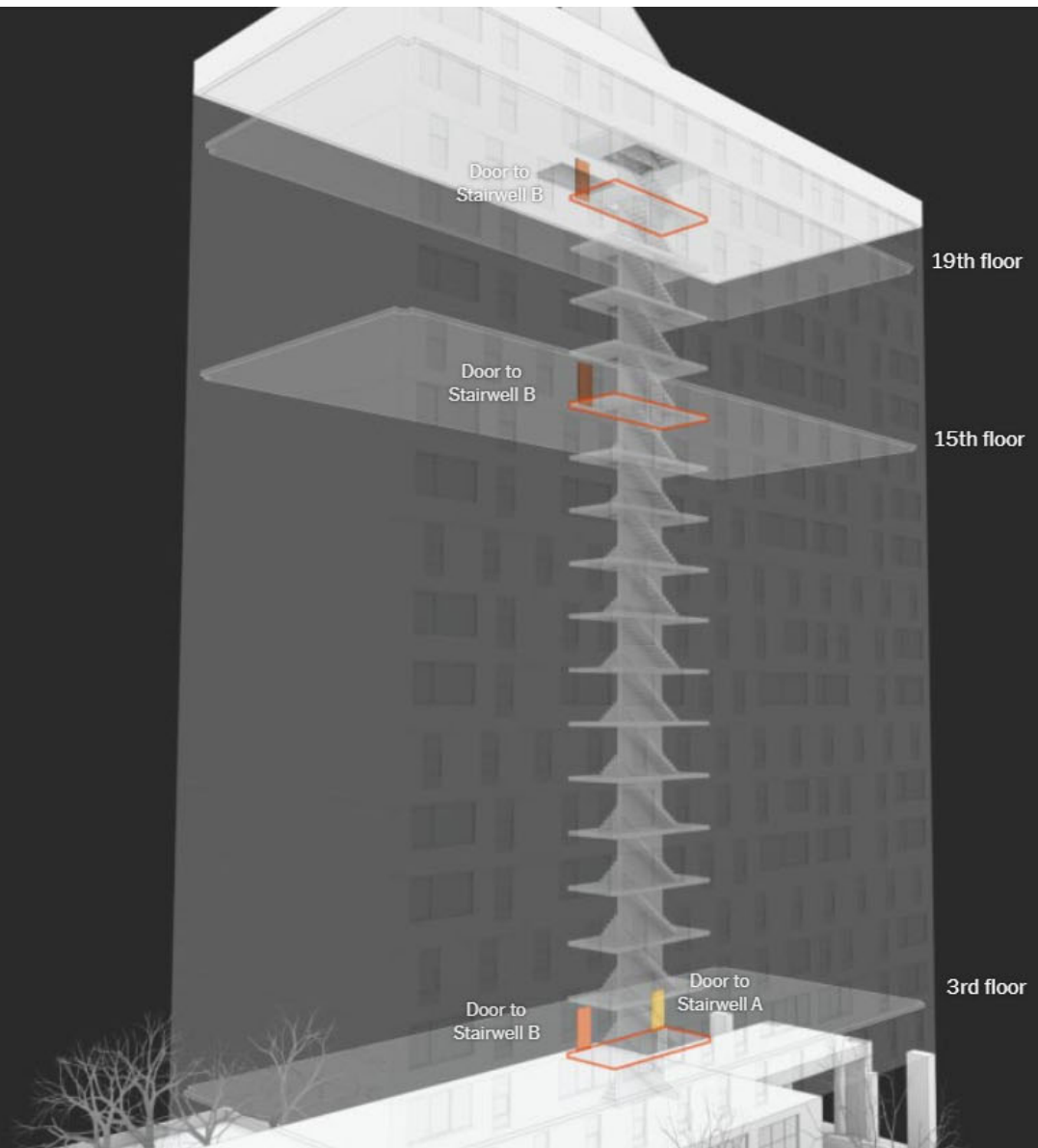
“The reason why scissor stairs don’t work is you’re making the assumption that if you have access from two sides, there are two means of egress,” Professor Torero said. “It relies fully on the fact that the shaft is fully protected from smoke. In a way, you’ve created a single-point failure mode.”



reporters revealed narrow stairwells with little to no ventilation and no pressurization or smoke-extraction system on the roof.

THIRD COMPARTMENTATION FAILURE

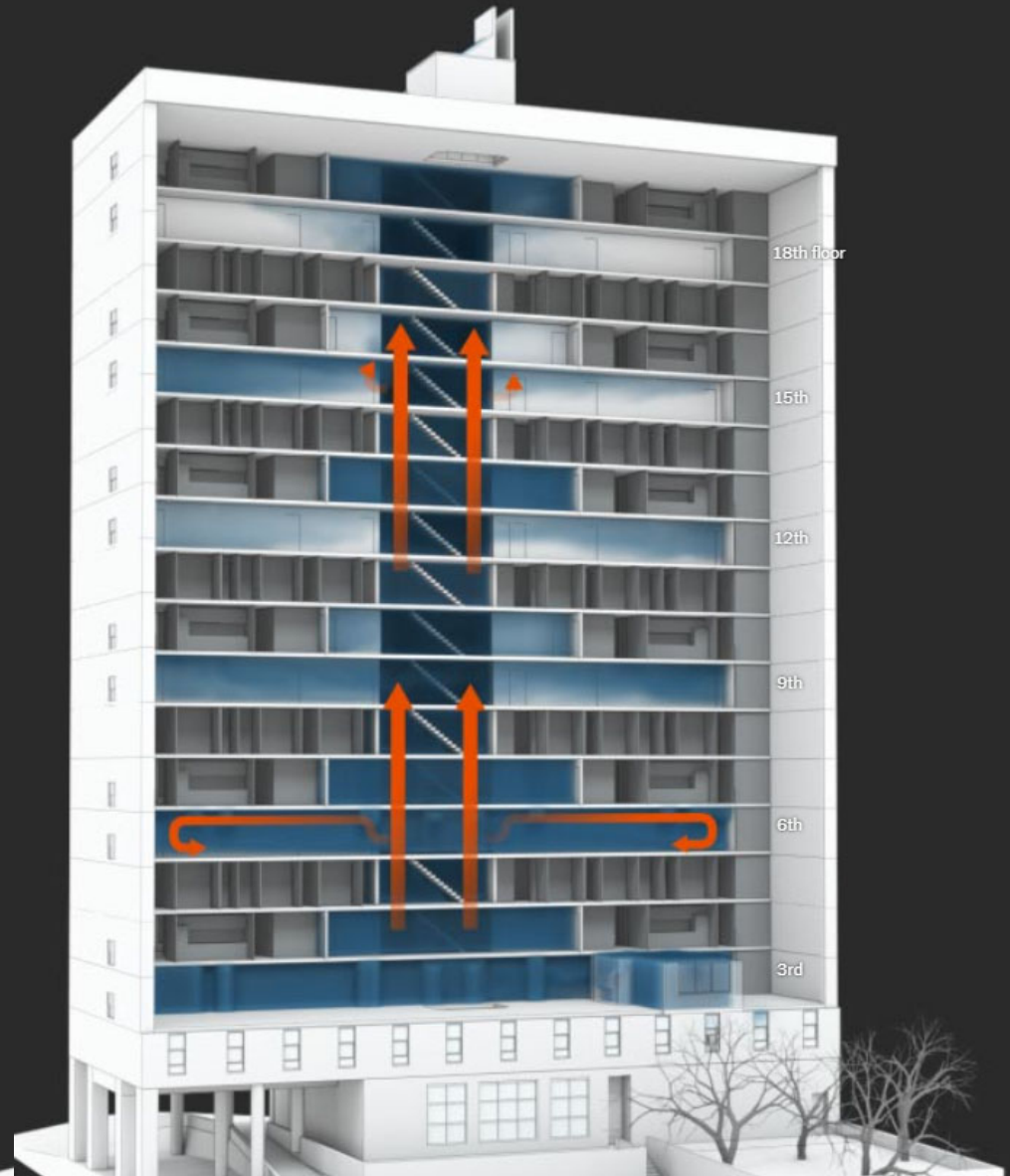
There's evidence that the stairwell doors on higher floors malfunctioned. A city official confirmed that the doors to Stairwell B on Floors 15 and 19 appeared to be open or partially open for a majority of the fire.



Within 20 minutes of the start of the fire, smoke shot up the stairwells, entering hallways on higher floors.

Paradoxically, the top floors were among the most dangerous. Of the 17 people who died, 14 had been on the 15th, 18th and 19th floors.

The hot air and combustion products of the fire — including deadly gases like carbon monoxide and hydrogen cyanide — made the stairwells and many hallways untenable. In addition to the deaths, which included eight children, more than 60 people were injured, according to the Fire Department.



Video captured by a witness that morning shows thick smoke gushing out of the 15th floor, confirming that compartmentation failed on the top floors, experts said.

Source: Video via Citizen

“That shows that everybody in the building is under threat,” Charles Jennings, an associate professor in the department of security, fire and emergency management at John Jay College of Criminal Justice, said after reviewing the video.





- The Twin Parks fire is one of the worst in NYC history
- Deadly combination of a space-heater fire and open doors on multiple floors that allowed smoke to spread throughout the building
- The investigation is likely to center around the self-closing doors
- City official said that when residents fled, the 3N apartment door remained stuck open, possibly from an extra layer of flooring
- The management company, said in a statement that the 3N door “was signed off as working properly” after an inspection last year.
- Third-floor stairwell door never latched after a building worker opened it and a 15th-floor stairwell door became stuck after a tenant opened it earlier.



- Majority of deaths (~14) occurred in floors 15+
- More than 100 occupants were rescued. Of the original 32 Red Tag (Critical/not breathing) victims, firefighters and EMTs saved 15.
- Twin Parks had an alarm system but was not connected to fire stations.
- Code compliant building when it was built, but no sprinklers present
 - The owners supposedly planned to upgrade it.
- Complicating factor – e-bike in apt not cause, but became involved in fire and complicated fire response.



Other hazards in residential fire environment?

- Portable rechargeable and fixed energy storage systems are seeing an exponential rise in growth in the residential environment.
 - Consumer Electronic and Mobility Devices
 - Residential Energy Storage Systems
 - Electric Vehicles
- FDNY is seeing an increase in li-ion battery fires with property damage, injuries, and deaths.
 - These fires have resulted in nearly 10% of NYC annual fire fatality rate with civilian and FF injuries similarly impacted
- This hazard requires change to response tactics and training.
- Safely releasing the scene may require extended operations, working with other agencies.

Other emerging hazards in the residential fire environment?

Are you prepared for large residential losses?

- What if your department had an incident requiring 60 ambulances?
- An overturned school bus –a fire in a hotel or church or other high occupancy structure or venue
- Can your hospital the patient load?
- How would you track resources?
- Street management plan?
- Staging area?

Ecosystem considerations for discussion:

Govt. Responsibility & Development - Use of Current Codes - Reference Standards - Investment in Safety

- Are elected officials as advised by community fire safety authorities and advocates providing substantive remedies via legislation or simply making noise via press opportunities and/or producing weak, non-impactful legislation
- How can fire service leaders educate (convince) elected officials to make difficult choices to foment legislation that will produce measurable results, recognizing cost impacts - i.e., retrofit sprinkler legislation

Preparedness and Emergency Response

- A review of the response timeline reflects a sizable response of fire and EMS resources in a short time to an occupancy type and building size fairly common throughout North America. More than 100 occupants were rescued. Of the original 32 Red Tag (Critical/not breathing) victims discovered firefighters and EMTs saved 15.
- How is "your" community prepared to respond to this type of an event or any event with 100+ patients requiring advanced pre-hospital and hospital care (highway bus collision or other scenario). Does the mutual aid plan contemplate such an event? What on-scene patient tracking capability exists, across multiple response agencies?

Informed Public & Code Compliance

- As an improperly used space heater was the cause and many self closing doors hadn't operated properly. As such the subsequent public education effort was focused on those concerns. In addition to community events, FDNY's fire safety resources blitzed social media with public service announcements.

Challenges

- Housing of the homeless - 10x10 squares to house 1-2 people
 - Without running water, with electricity
 - Doesn't meet dwelling requirement in the code to regulate.
- Homeless encampment burned in LA
- Insurance focuses on insured losses - what about the buildings who's insurance lapsed a long time ago? Uninsured buildings are a big problem.
- A lot of inspectors stopped going in buildings during covid
- Socio-economic landscape presents a challenge



Challenges

- How do we allow this level of inadequacy of protection?
- Regulatory framework varies so much; many facilities are self-insured and have their own set of rules
- How do you force facilities with what we call “inadequate protection” now, to upgrade their systems when it was code compliant - at the time of being built?
- GSA requires evaluation of building safety every year. Could this approach be applied more broadly?
 - Private building - only upgrade safety upon renovation or change of occupancy.



Ecosystem Considerations

- Govt Responsibility
 - Challenges: not an appetite in US to federalize code requirements; fire and life safety systems are not seen as a fundamental building system (seen as added benefit; establishing minimum/tolerable level of acceptable risk; Recognize evolution of alternate living arrangement (e.g. housing that is one step above homelessness. How do you protect residential environments without power/water.
 - Solutions: mandate fundamental level of fire & life safety (alarm, sprinklers, egress. Compartmentation, inspection & maintenance); need equal level of safety; recertification model; not allow grandfathering; federal gov't owned/funded buildings should be the model for the rest of the country; requiring licenses/permits for retrofits, rentals, incentives for safety inspections. Create opportunities for inspection and certification; investigate safe solutions for these housing encampments.
- Development of current codes and standards
 - Challenges: we've allowed the fire environment to change, but have not required the new codes designed to meet these hazards. Amendments lead to inconsistencies in level of safety. Solutions: require frequent risk assessment to evaluate hazards, on a specific frequency; bringing these emerging alternate living arrangements into standards discussions



Ecosystem Considerations

- Reference standards
 - Challenges: hazards have evolved, have to keep in the standards. Inspection of fire doors was missed
 - Solutions: need to enforce up to date codes and reference standards
- Investment in safety
 - Challenges: Lack of willingness to spend resources on adequate level of safety. Competing priorities; complacency; access to funding opportunities is complex if not impossible to pursue available resources. Building owner often does have resources, but don't invest in safety.
 - Solutions: Drive public demand for safety. Education. Incentives to prioritize safety - e.g., discounts on insurance policies, tax incentives at federal level for upgrading safety systems. Need for research to make the financial case - ROI. Make insurance play in influencing/incentivizing safety



Ecosystem Considerations

- Skilled Workforce
 - Challenges: Not understanding what standards/reference standards are applicable. Lack of inspectors. Understanding of most critical aspects of the code that severely impact life safety - prioritizing action/urgency of building owner
 - Solutions: Requiring Licensure of designers, contractors, installers, inspectors doing building and fire inspections
- Code Compliance
 - Challenges: During covid, some inspectors stopped doing in person inspections. Challenge to force upgrades, when building was code compliant at the time. Priorities of the residents may take priority (e.g., heat, air, etc)
 - Solutions: Need to educate everyone (inspectors, owners, residents, workers, etc) on what is required for life safety, what the systems are, and how they are expected to operate. Train the building managers - put issues in writing and share - everyone becomes a stakeholder.



Ecosystem Considerations

- Preparedness and Emergency Response
 - Challenges: outside of NYC - the FD would have less resources - could have led to more casualties. Need pre-fire plans - particularly for buildings with challenges warehouse. Owner needs evacuation plans for residents; get emergency responders into the building more often, can have challenging resident populations
 - Solutions: Pre-fire Plans; Owner needs evacuation plans for residents; get FD more access to the building
- Informed Public
 - Challenges: socio-economic environment (e.g., bars on windows bc breakin is more present “threat”) and eliminates second means of egress. Who is most respected in the community to give this information - if it’s the FD, are they able to communicate it. Owner and resident needs to understand their own risk (e.g., residents didn’t understand what the open doors meant for safety in the Twin Parks Fire)
 - Solutions: Need for Public Authority to take a stance and explain what is needed for safety. Empower the community to understand fire and life safety hazards, to know what to fight for.

