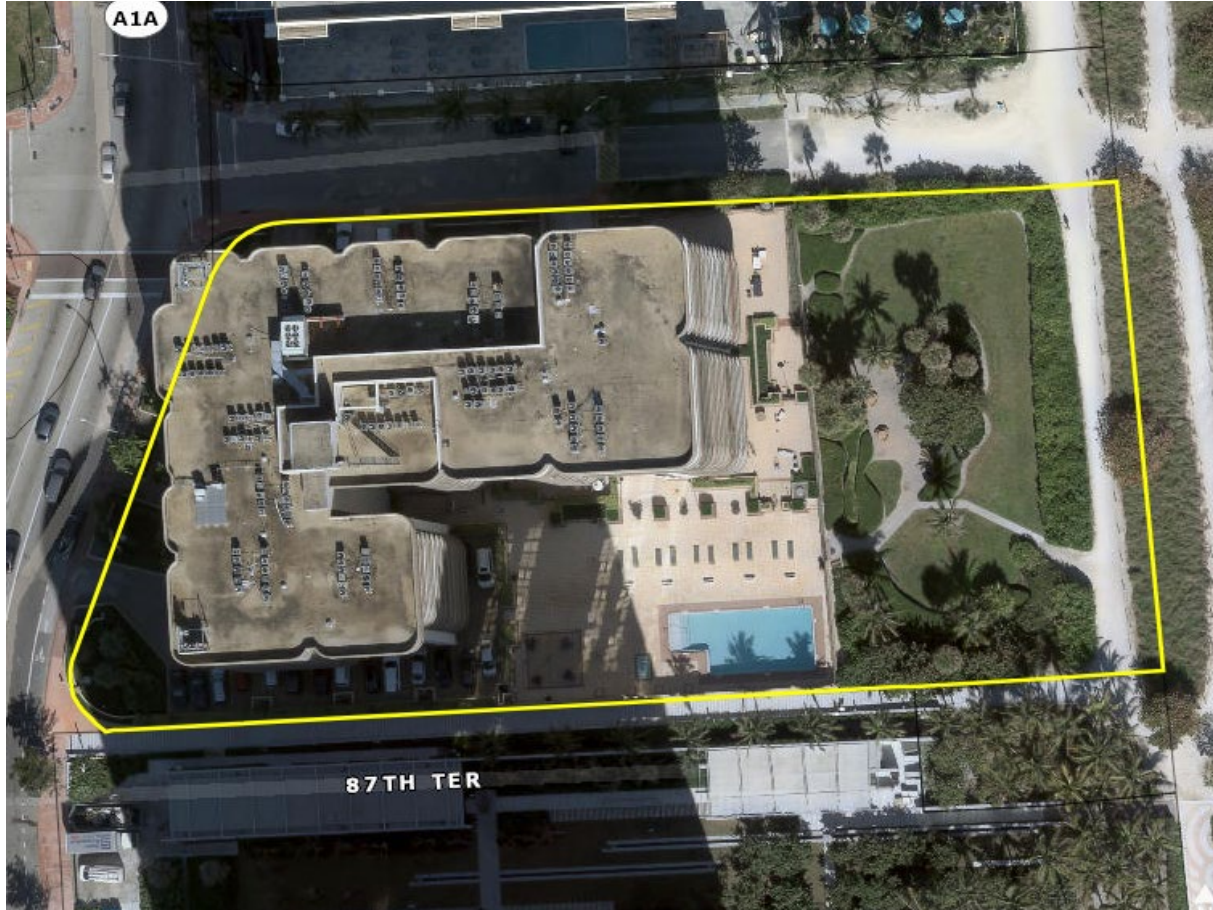


# Surfside: Buildings just don't fail like this!

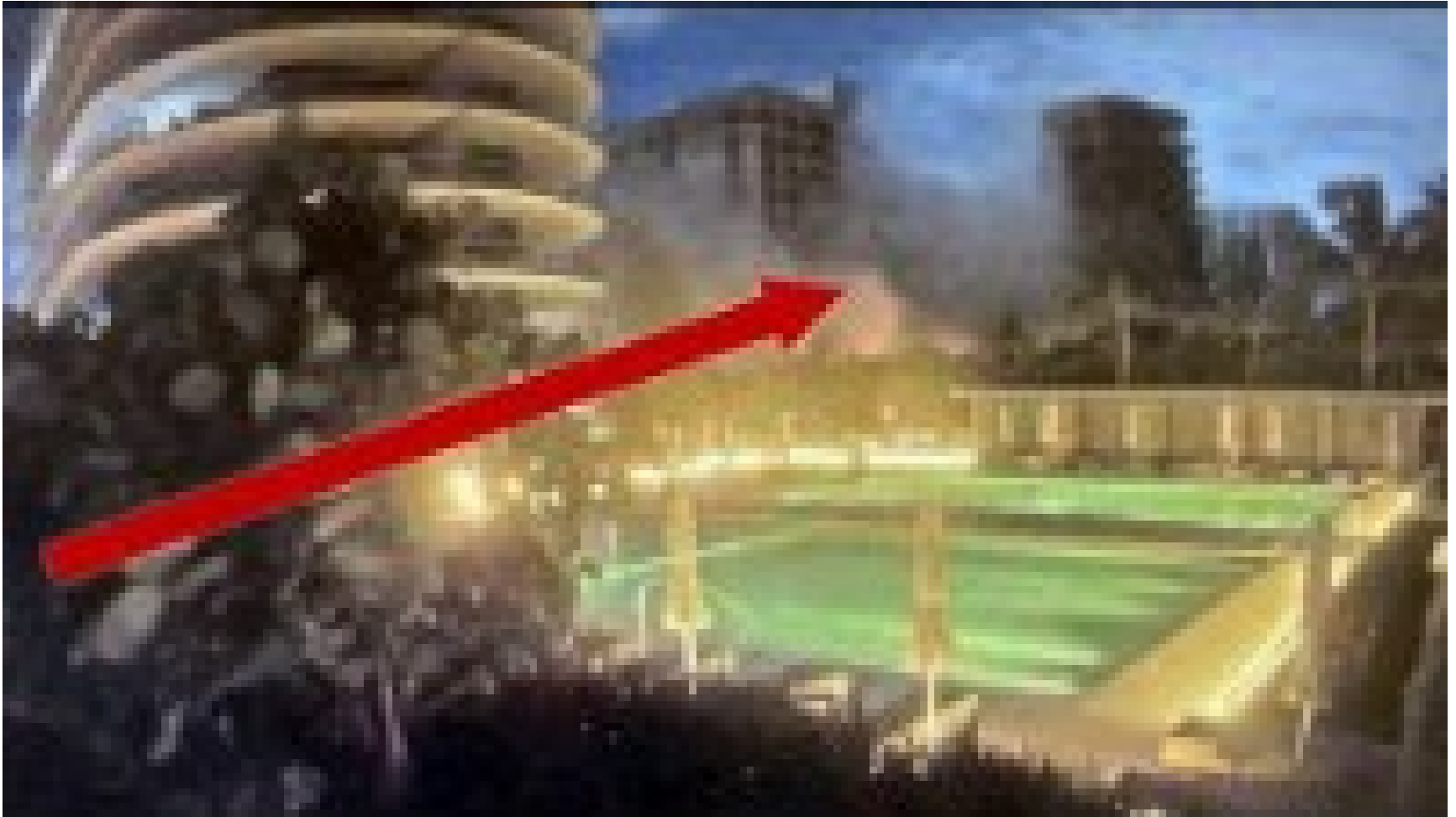
# Champlain Towers South

8777 Collins Ave, Town of Surfside, FL



June 24<sup>th</sup>, 2021 at about 1:25 a.m.

# Champlain Towers South Collapse



# Collapsed Portion of Building

- The collapse resulted in 98 Fatalities
- Approximately 102 made it out of the building
- A portion of building suffered catastrophic failure
- Lots of speculation about what triggered the collapse, at the time
- To date, reason(s) for the collapse remain unknown
- NIST is still working on forensics

Let's step back for a moment...

# Origins of the Recertification Program

On 8/5/1974, a building leased by the DEA located at 1201 NE 2 Ave., Miami collapsed and killed 7 people and injured 16 others.

THE NEW YORK TIMES, TUESDAY, AUGUST 6, 1974

## end Contract

The union gains after that strike were followed by enactment of a law by the City Council and Mayor John V. Lindsay on March 1, 1971. It set up the new Taxi and Limousine Commission and provided fare increases averaging 45 per cent to the present level of 60 cents for the first fifth of a mile and 10 cents for each additional fifth.

The fleets are asking for 70 cents the first sixth of a mile and 10 cents for each additional sixth, estimating that the average 2.4-mile ride would go up from \$1.98 to \$2.35. Mr. Gore said "a 20 per cent increase would still keep New York City's fares 15th or 16th lowest among the nation's 20 major cities."

The industry estimates that every 1 per cent increase in fares leads to a 0.33 per cent loss of riders, Mr. Gore said. But the 1971 fare increase, he recalled, led to an unexpected loss of 24 per cent, with the riders returning only gradually and still down 18 per cent from the level before the increase.

Mr. Gore said the average fleet driver working five days a week, nine hours a day, grossed \$165 to \$170 a week, including tips.

The independent taxi owners' president, Mr. Baron, said that they feared that a 70-cent fare for the first drop of the taxi flag would "frighten away more business." He favored a lesser rise to 60 cents the first sixth of a mile.

Mr. Baron said the independent owner-operators had coped with rising costs by working longer hours—11 and 12 hours a day now, as against former 10-hour days.



United Press International

Rescue workers swarming over wreckage of cars that had been parked on roof of Federal office building in Miami

## Office Building Roof Collapses in Miami; 6 Killed, One Feared Dead

MIAMI, Aug. 5 (AP)—Six persons were crushed to death and a seventh was trapped and feared dead today when the roof of a Federal office building in downtown Miami collapsed sending tons of concrete and several parked cars crashing through the offices below.

The bodies of three women were recovered and policemen and firemen said they had seen three other bodies buried beneath the debris. A spokesman for the Drug Enforcement Administration said it would take hours to reach them.

Nearly nine hours after the building collapsed, workers reached the first body, identified as that of Ann Poye, a 55-year-old cashier from Fort Lauderdale. The body of another woman pulled from the wreckage was identified as that of Anna V. Mousas, 24.

Source: The New York Times

# Origins of the Recertification Program

- On May 21, 1975, the Board of County Commissioners adopted and passed Ordinance No. 75-34, amending the South Florida Building Code (at the time) to require that all buildings, except single family residences, duplexes and minor structures, 40 years old or older be recertified as to their structural safety.
- Subsequent recertifications were required at 10-year intervals.



# Basic Intent of this Program

- Get a set of trained eyes to inspect and determine how the building is aging
- Identify any structural distress
- Recommend repairs so the building can continue to serve the use

# Working Towards Recertification

## Champlain's Structural Field Survey Report

- Built in 1981, Champlain Towers was due for the 40-Year Recertification in 2021.
- An engineering firm was hired in 2018 to perform a structural field survey of the building.
- The engineering firm reviewed architectural and structural documents. (Provided by the City of Surfside)
- The purpose was to survey the entire building's condition to understand and document the extent of structural issues.
- Provide a report and estimate cost of repairs to the condominium board.

# Structural Field Survey Report

## Observed Conditions:

- The report observed significant stucco cracking in the exterior façade between the top of the concrete slab and first course of masonry.
- Pool deck and entrance drive were observed with minor cracking at planter knee walls.
- Joint sealant needed replacement at pool deck.
- Waterproofing below the pool deck and entrance drive must be replaced.

# Structural Field Survey Report

## Observed Conditions:

- The failed pool deck waterproofing is causing major structural damage to the concrete slab below these areas, due to lack of drainage.
- Parking garage levels have abundant cracking and spalling in varying degrees in the columns, beams, and walls.
- Sizeable spalls were noted in the topside of the entrance drive ramp and underside of the pool/entrance/planter slabs.

# Structural Field Survey Report

- The report did not make any conclusions as to the eminent failure of the building other than raising concerns over the noted maintenance issues.
- The reported cost of repairs was over \$9M (\$15M)
- The engineering firm was hired in 2020 to start the 40-year recertification process.
- At the time of the collapse the roof repairs had gotten underway, but concrete restoration had not yet begun.

# Collapsed Portion of Building



# Unprecedented Task Force Deployment

- Florida Task Force 1, 2 & 3
- New Jersey Task Force 1
- Ohio Task Force 1
- Pennsylvania Task Force
- Virginia Task Force 2
- And other search and rescue teams from around the nation and the world (Israel and Mexico)
- Largest deployment outside of a natural disaster.

# Search and Rescue





# Search and Rescue



# Search and Rescue



# Search and Rescue



# Demolition of Remaining Building

- Instability of the remaining building was holding back the search and rescue mission, the remainder of the building needed to be demolished.
- At the time, a threat from Tropical Storm Elsa's could impact area.
- On July 4<sup>th</sup>, 2021, at 10:30 p.m. the remaining section of the building was imploded.

# Demolition of Remaining Building



- On July 4<sup>th</sup>, 2021, at 10:30 p.m. the remain building was imploded.

# Demolition of Remaining Building

# Speculations

- There are lots of speculations and theories as to the cause of the collapse.
- There are many videos on social media that offer analysis and reasons.
- National Institute of Standards & Technology (NIST) is currently working on determining what triggered the collapse but won't have report for some time.
- NIST collected structural samples that are being kept in a warehouse for analysis.

# NIST Investigation





# NIST Investigation



# Current Site



# Current Site



# Current Site



# Industry Meetings

- The International Code Council (ICC), Building Officials Association of Florida (BOAF), Building Owners and Managers Association (BOMA), and National Institute of Building Sciences (NIBS) held an industry meeting on August 17, 2021, in West Palm Beach, Florida for one day.
- The focus was on how communities monitor the safety of existing buildings, what guidance exists for building owners, and how future catastrophic events can be avoided.

# Changes to the Recertification Program

- Miami-Dade County Recertification Working Group
  - Initiated by MDC Regulatory and Economic Resources (RER) Department
  - Group comprised of County Department staff and local Building Officials
  - Develop enhancements to the current program

# Recent Changes

- Miami-Dade adopted a strengthened milestone inspection program that reduced the inspection cycle from 40 to 30 years.
- Florida recently enacted a new law that created a milestone inspection program across the entire state, it is currently limited to condominium and cooperative association buildings 3-stories or taller.
- Some Condominium and Cooperative reforms includes
  - Not being able to waive reserves
  - Providing a reserve study every 10-year to set maintenance reserve amounts

# In Closing

- A more in-depth structural review of the building may be warranted as it ages
- Perform Building maintenance on a regular basis
- Don't wait until a regulatory requirement to perform maintenance
  - Like the building code milestone inspections are minimums
- The NIST report will disclose more about what could have triggered this collapse
  - Recommendations to changes in structural design, codes, and/or inspections may be forthcoming
- Buildings just don't fail like this!



Thank you.