Willis Tower AKA Sears Tower Case Study

The Challenges of an EV Fire in a subterranean parking garage

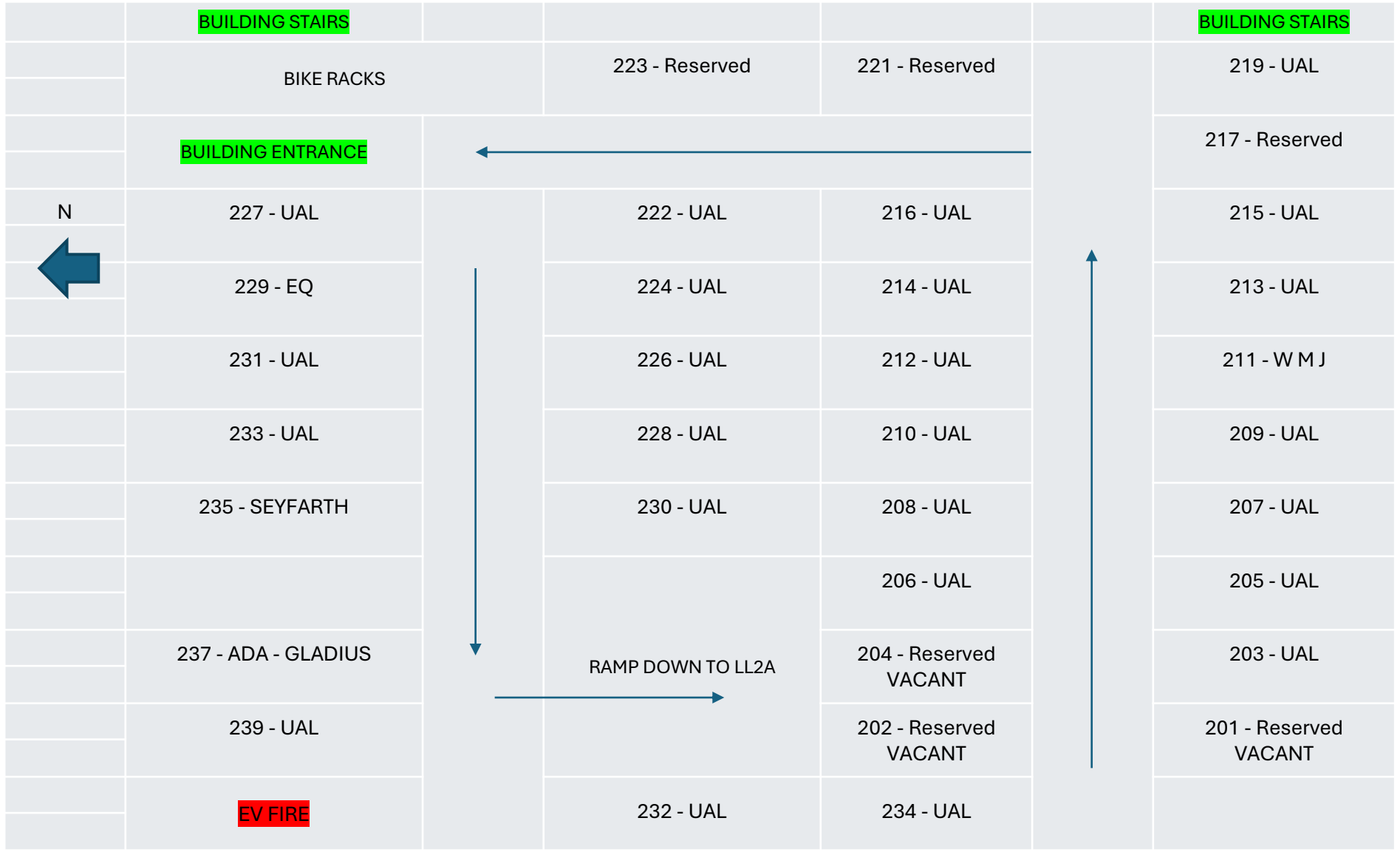
Willis Tower Overview

110 stories = 1,451 Feet, 1,729 feet to tip of antennas	Lowest level is 48 feet below street level	4.5 million square feet	4 core stairwells and 15 lower level stairwells
114 passenger elevators and 8 freight elevators	3 water tanks 1 – 10,000 gallon and 2 – 5,000 gallon tanks	Entire building sprinkler system	Garage has a sprinkler head in each parking space

Scenario: EV Fire in Parking Garage

- Thursday November 14 around 10am
- Sunny clear day and Skydeck is sold out
- Security and Engineering receive a water flow alarm in Lower Level 2 of the parking garage
- Security confirms a car fire through CCTV

Garage Level Map

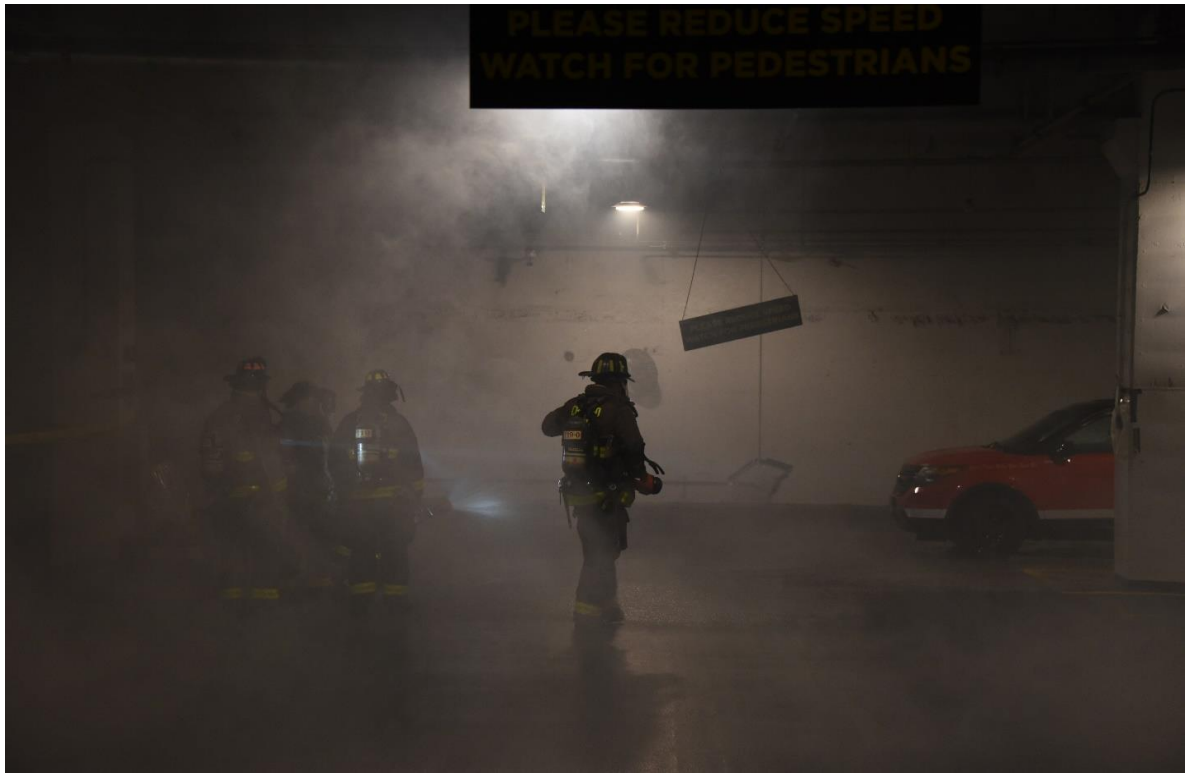


Fire Department Response

- 5 Engines
- 2 Truck Companies
- 6 Squad vehicles
- 1 Command van
- 3 Battalion chiefs
- 1 Deputy District Chief
- 2 Ambulance

Building Response

Report	• Report to Franklin Entrance and assist CFD
Respond	• Respond to Garage entrance on Lower Wacker
Make	• Make a PA announcement to building of CFD presence
Evacuate	• Evacuate LL2 tourist attraction area



The Fire Department arrives on Lower Wacker with 3 fire engines and enters the garage. Then proceeds to the fire on LL2 of the garage. An additional 2 engines arrive on Franklin


EXIT
EXIT
EXIT
CHICAGO
FIRE DEPT
CFD WANTS TO KNOW: ARE THE CARS EV, WHERE IS THE WATER SUPPLY, DRAINAGE POOL FIRE THREAT, VENTILATION SYSTEM, DANGEROUS AREAS (COMED), INJURIES

CFD Equipment