JUNE POST MEETING – JUNE 14, 2023

ALBUQUERQUE, NEW MEXICO / EL PASO, TEXAS POSTS

Albuquerque Post
El Paso Field Chapter

Jon Pena, PE
Albuquerque Post President

Aubrey D. Semien II
El Paso Field Chapter President

Society of SAME American Military Engineers

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SAME

Albuquerque Post
El Paso Field Chapter

- Albuquerque Post Board of Directors

- El Paso FC President: **Aubrey D. Semien II**, PE, CFM
- Vice President: **Nancy Camarena**, Aztec Contractors, Inc.
- Appointed Directors

2023-2024 Board of Directors

Albuquerque Post & El Paso Field Chapter

2023 - 2024 Post Board of Directors

- ABQ Post President: **Jonathan Pena**, PE, NV5
- El Paso FC President: **Aubrey D. Semien II**, PE, CFM
- President Elect: **Sarah Bigger**, LATA
- Vice President: **LTC Jerre Hansbrough**, P.E, USACE ABQ District
- Treasurer: **Hank Rosoff**, Major USAF, Retired
- Assistant Treasurer: **Jenice Gallegos**
- Secretary: **Pam Lentini,** PE, NV5
- Assistant Secretary: **Edward Cordova**, PE Wilson & Company
- Past President: **W. Paul Waters**, AIA, Burns & McDonnell
- Director: **Stephen Rhutasel**, Siemens
- Director: **Jenice Gallegos**
- Director: **John D'Antonio**, PE, Wilson & Company
- Appointed Director: **Nancy Camarena**, Aztec Contractors, Inc.
- El Paso FC Vice President: **Nancy Camarena**, Aztec Contractors, Inc.
- SB Committee Chair **Thomas Knutson** (TK), SAMES

2023 - 2024 Post Board of Directors

Installation of New Board of Directors

Colleen Rust

SAME, Southwest Region Deputy Vice President

Project Manager / Senior Hydrogeologist - EA Engineering, Science, and Technology Inc.

Upcoming Events / Save the Date

Industry Day 2023
August 10, 2023, Industry Day
Sandia Casino & Golf Resort

July 12, 2023 Lunch Meeting
Intel Waterline
ABCWUA

Annual Scholarship Golf Tournament
August 11, 2023
Sandia Golf Resort

Todays Presentation & Speaker

Albuquerque Post
El Paso Field Chapter

McCarran (Harry Reid) International Air Traffic Control Tower and Terminal Radar Approach Control Center Facility Project

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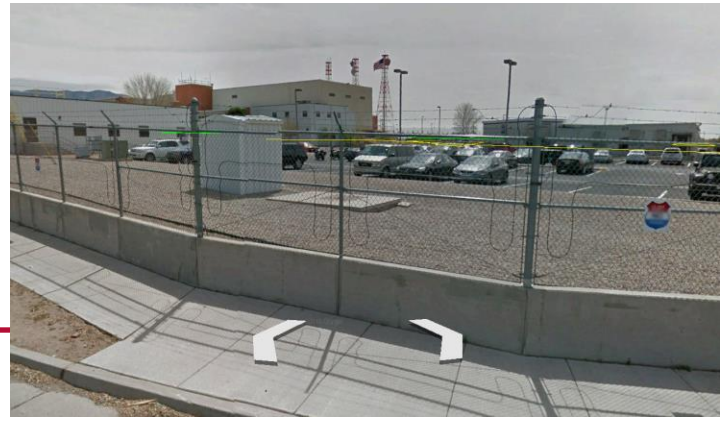
Project Summary

The demolition of the existing ATC and design and construction of new ATC, 58,000 SF Base Building and TRACON and parking structure.

Basics of Air Traffic Facilities

- ATC handle aircraft once they are on the ground and airport operations.
- TRACONs assist an aircraft until it reaches the edge of a facility's airspace, usually about 20 to 50 miles from the airport and up to about 17,000 feet as well as aircraft transiting between ARTCC's in their controlled airspace
- Air Route Traffic Control Centers (ARTCC) provide air traffic control service to aircraft operating on instrument flight rules (IFR) flight plans within controlled airspace and principally during the en route phase of flight, typically at cruise phase.



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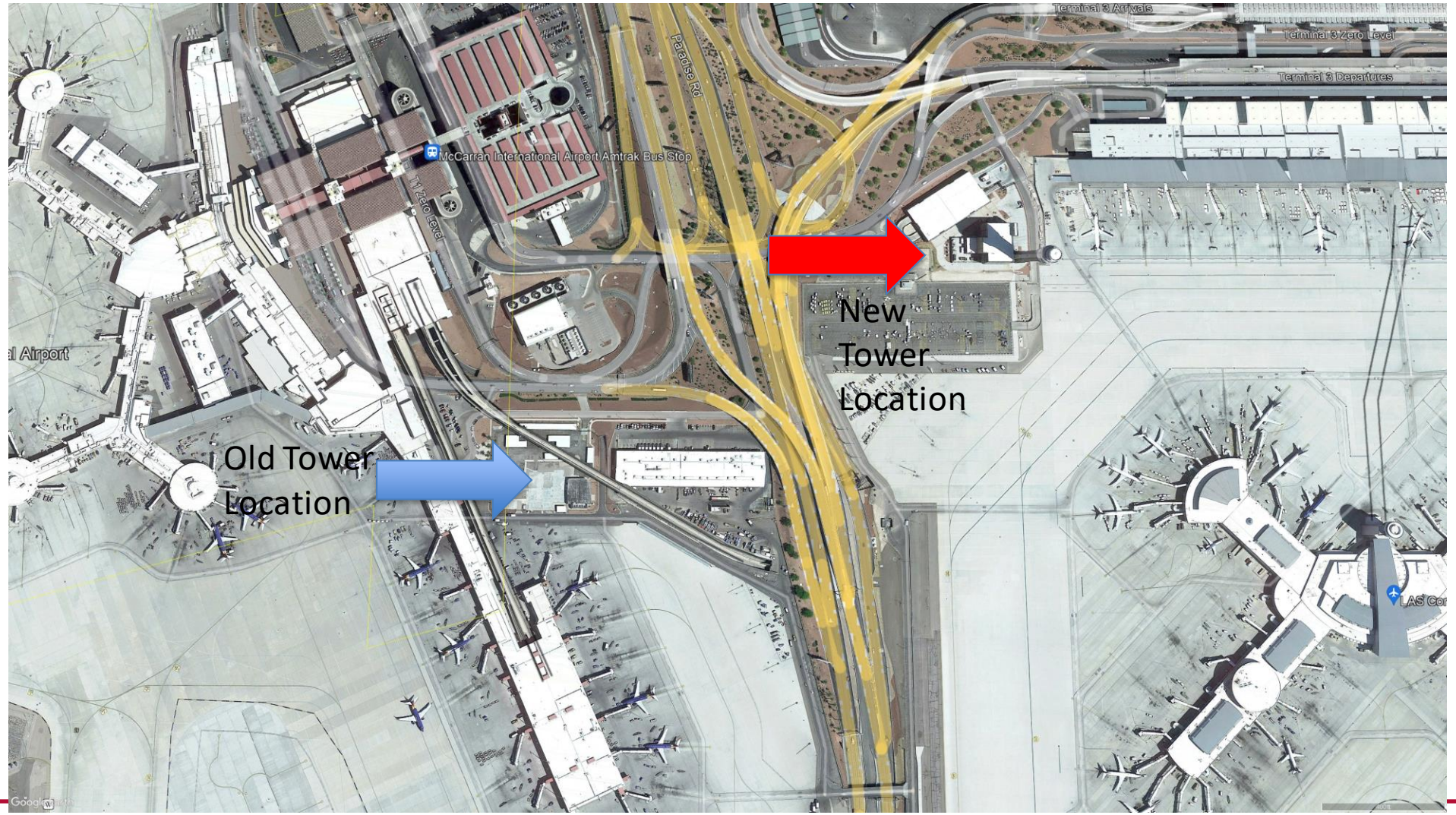

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- Existing tower ~220’
- Protype design similar to Sun Port
- Plane lands and takeoff from Henry
- Reid Every Minute

New Tower

- 334’ Cab Floor Height-2nd Tallest Tower in the US
- Cab 1,166 SF
- 32,773 SF Total, 22 Stories
- Total Construction Cost: $51M

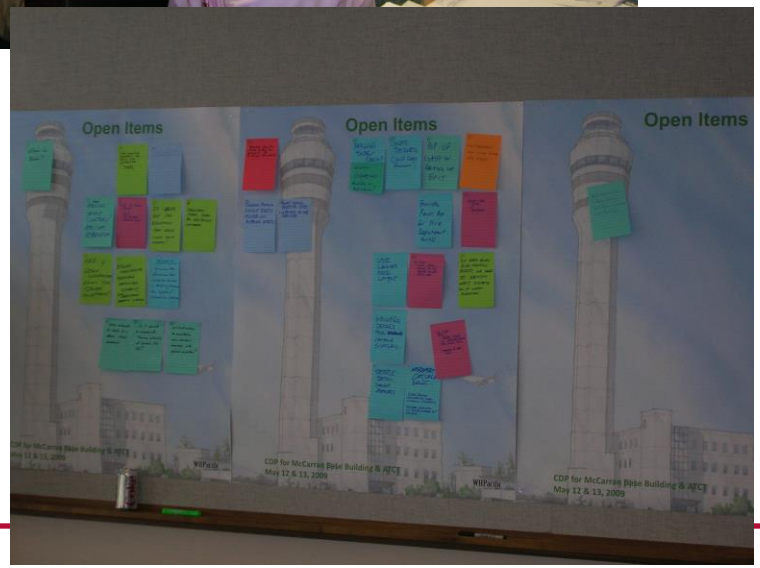
Base Building/Parking Structure

- 4 Stories -58,600SF
- Guard Station
- Multi-story Parking Structure
- ~200 Spaces
- Significant Electrical and Mechanical Rooms
- Offices for Staff
- TRACON
- ATC Simulator for Training

- Design Started in 2008
- Construction Completed 2015
- FAA Electronics Install 2015-2016
- Building house's some of the FAA's most sophisticated electronics systems to date.

Team

- FAA Engineer Team
- WHPacific-Architecture, Civil, Electrical, Mechanical, Structural for Base Building and Parking Garage
- Weidlinger and Associates-Tower Structural
- Kleinfelder-Geotechnical
- GC Wallace-Survey
- MRWM-Landscape
- Contractor-Archer Western
- Johnson Controls-Security



Building contained an array of complex building systems from the structural demands of its high-rise structure to the inherent critical needs of its mechanical and electrical systems and the need to the facility to operate for up to 2 weeks without grid power.

The FAA did not have a requirement to register the project with USGBC but asked that WHPacific use the LEED scorecard and recommendations to design the facility with LEED sustainable principles. Principles incorporated in the project include lighting controls, energy efficient lighting, LED lighting, low water use landscaping, shade structures, energy efficient HVAC equipment, and indoor air quality measures during and after construction.

Commissioned systems included HVAC&R systems; building controls (BAS), electrical distribution, emergency lighting and lighting controls, PA system, life safety, plumbing, central vacuum, emergency power fuel system; domestic water booster system, elevators, wedge barrier, O&M documentation, training manuals and videos for all buildings.

Due to the security needs of the project, force protection was a major design component of the base building. The design incorporated key security elements to ensure FAA operations would be protected in case of an explosive detonation or attack.

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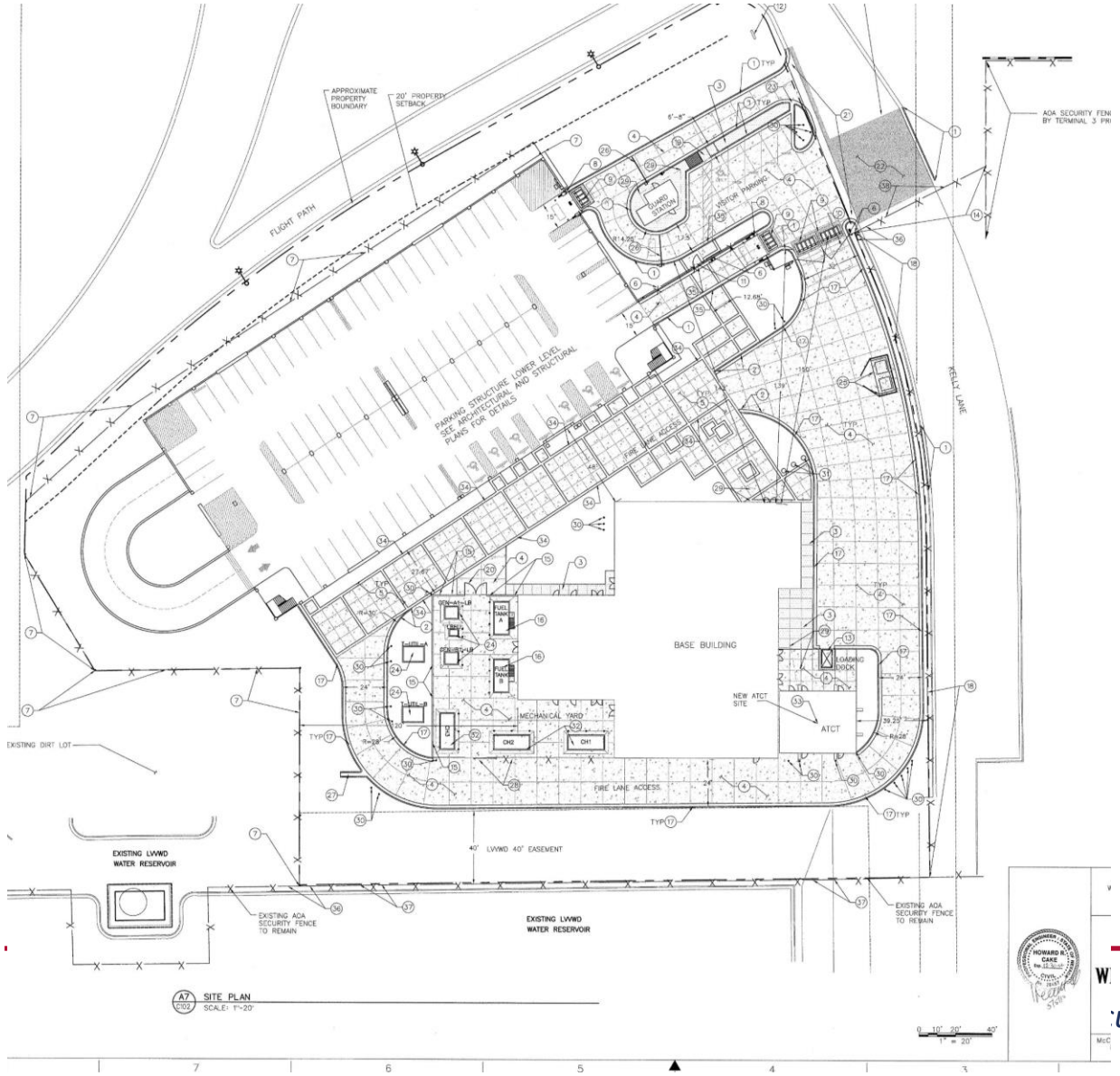

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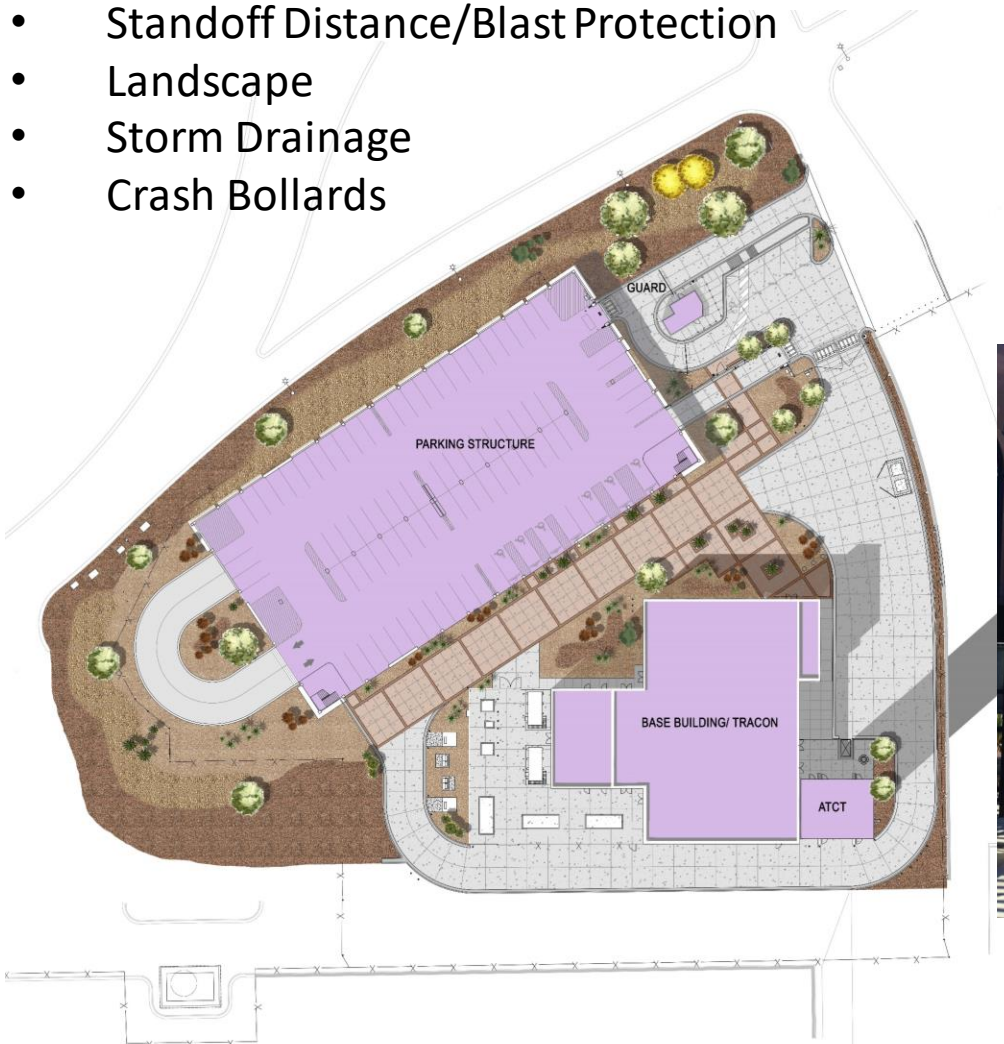
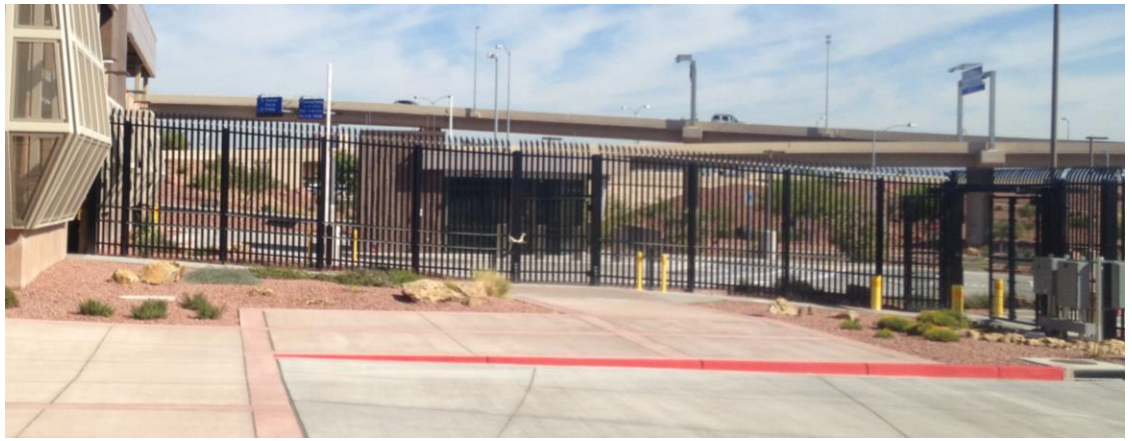
Security Elements

- Speed Gates
- K-12 Rated Wedge Barriers and Fencing
- Standoff Distance/Blast Protection
- Landscape
- Storm Drainage
- Crash Bollards



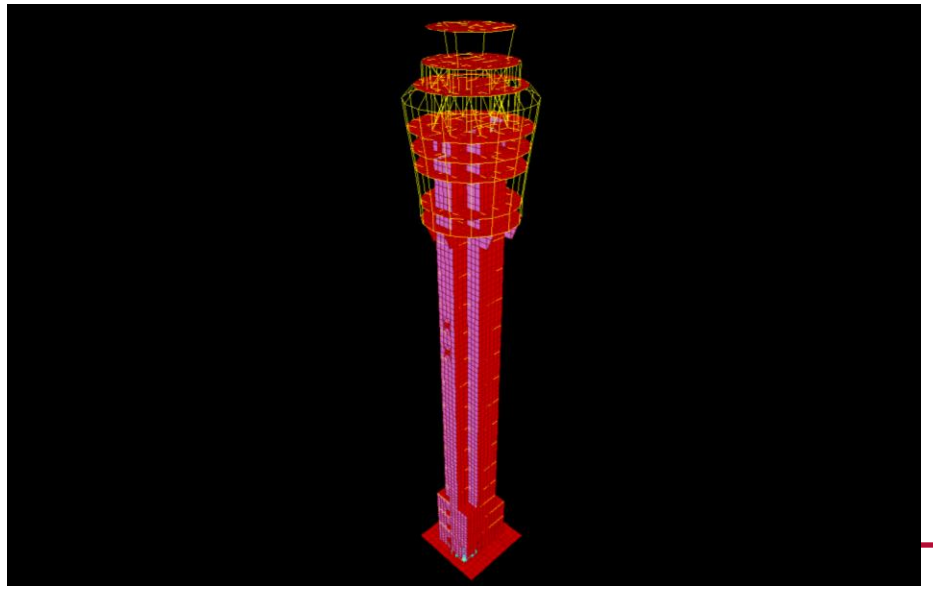


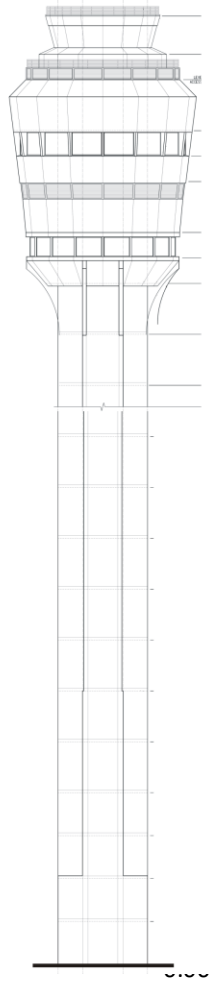
1:300 Scale Model of Proposed Tower Mounted on High-Frequency Response Strain Gauge Force-Balance

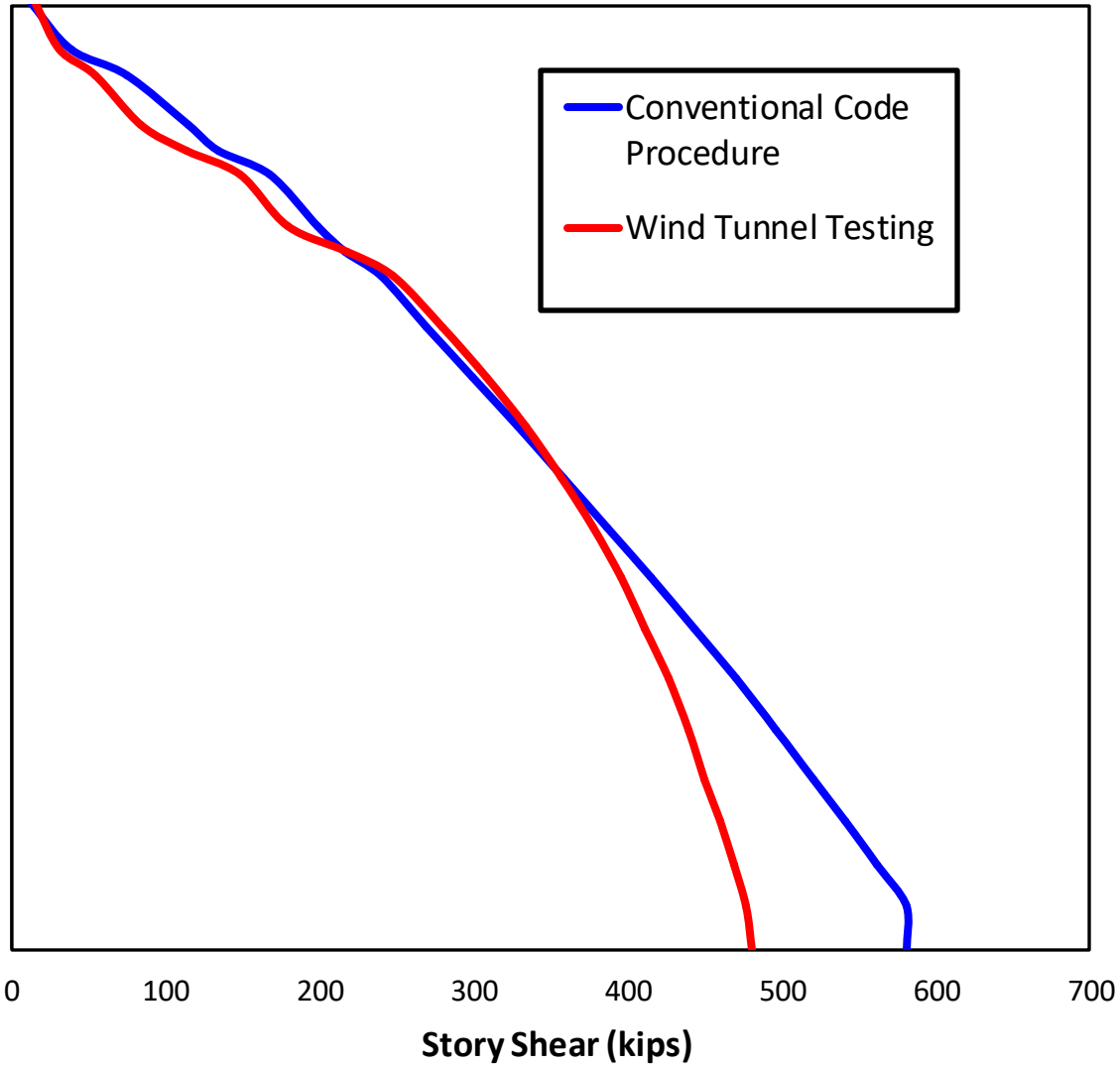
Tested in Boundary Layer Wind Tunnel for 36 Wind Directions a 10 Degree Intervals in a Fully Simulated Turbulent Wind

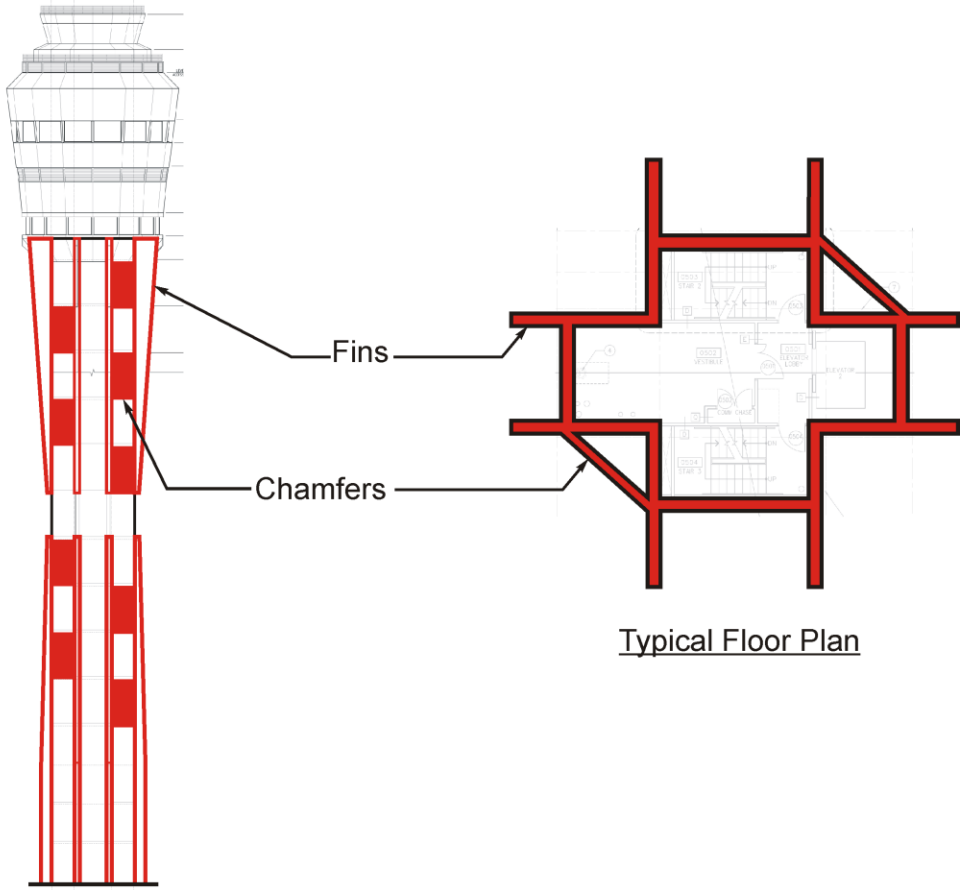
Corrected for the Effects of Flexibility of the Nominally Rigid Model.

Tuned Mass Dampener Added to Level 15









Increase Wall Thickness

Levels 1-6, 30 inches

Level 7-18, 24 inches

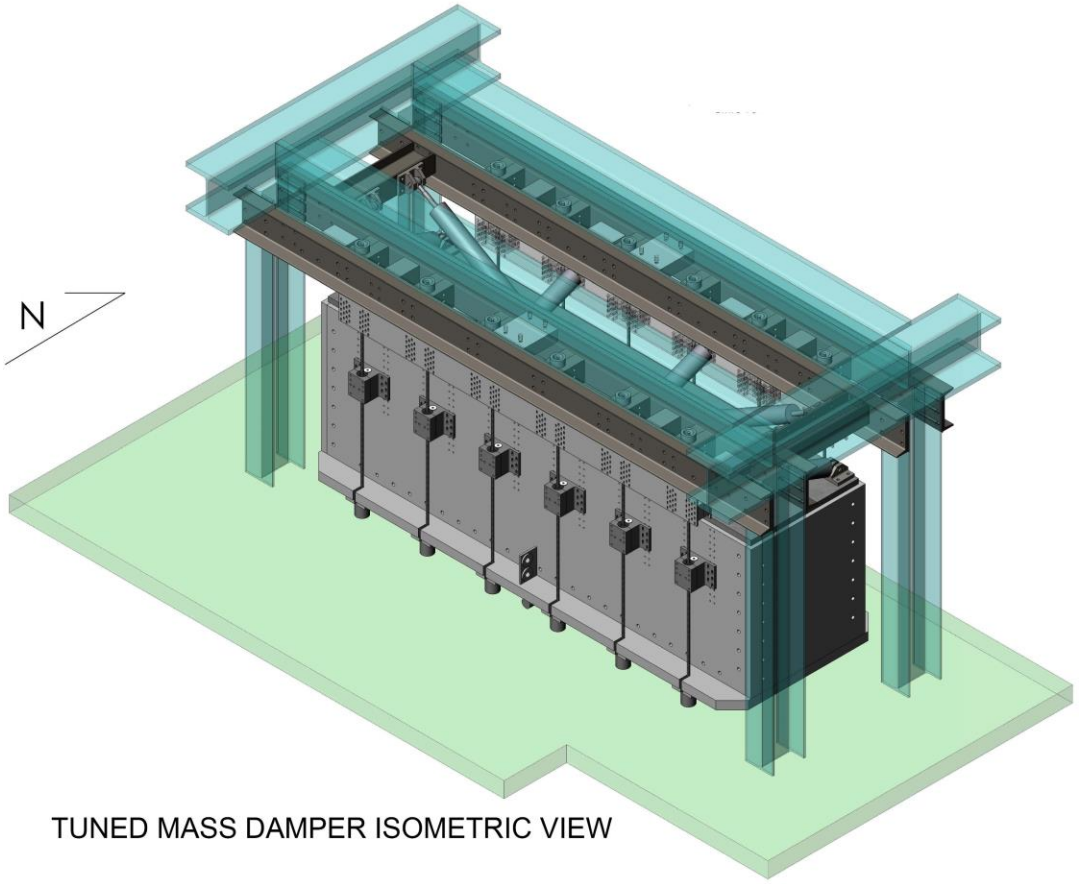
Level 19, 18 inches

Additional Mass at Upper Floors

Fins Provide Additional Stiffness

120 Tonne Mass (8 x 8 Steel Cube)
Placed at Level 15

Frequency of Pendulum Support
Tuned to Counteract Tower Motion



TUNED MASS DAMPER ISOMETRIC VIEW

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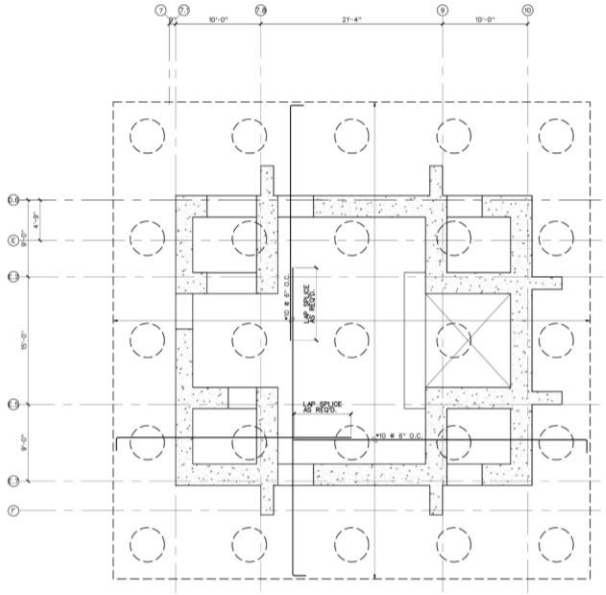

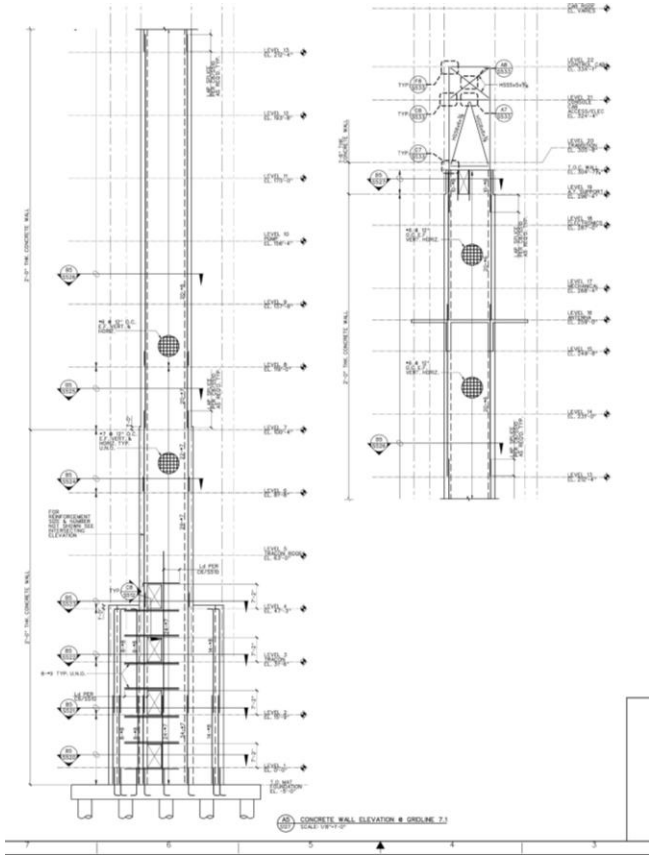

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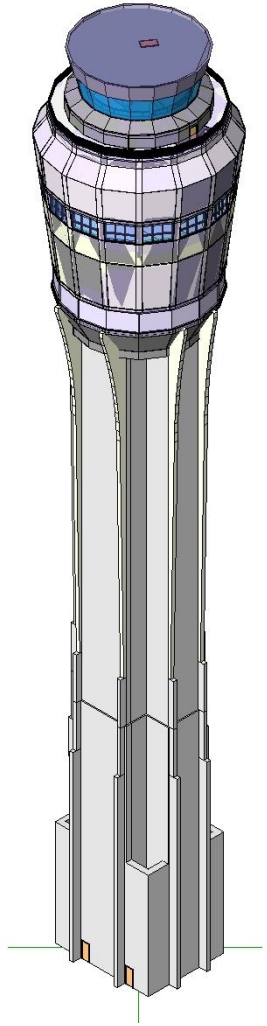

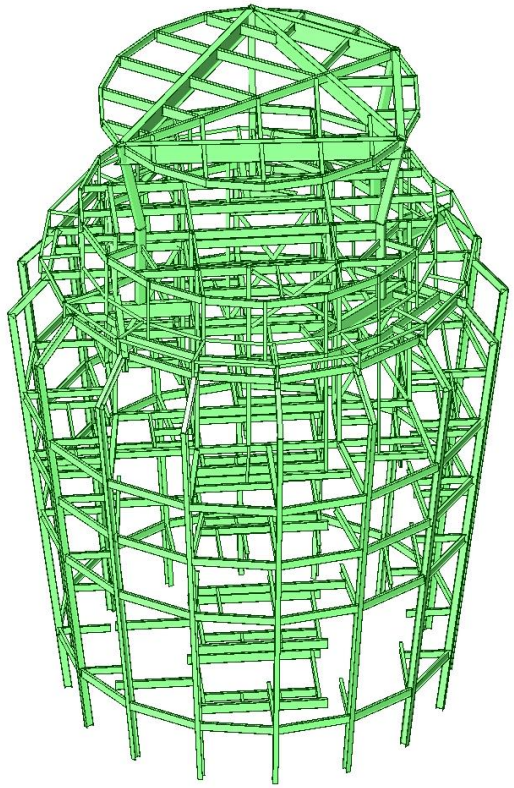

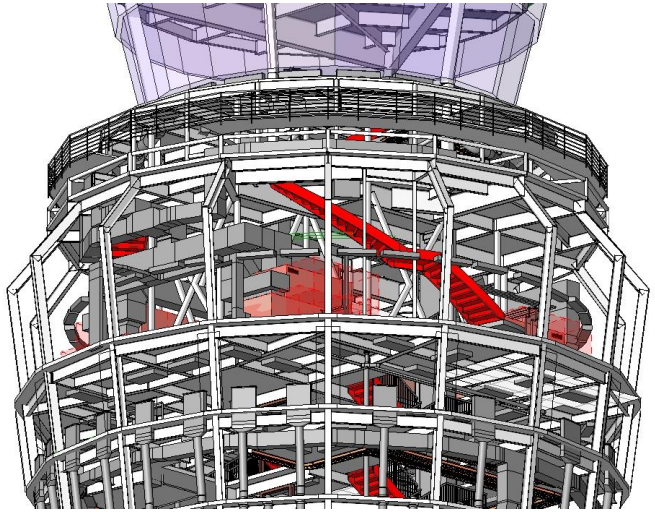

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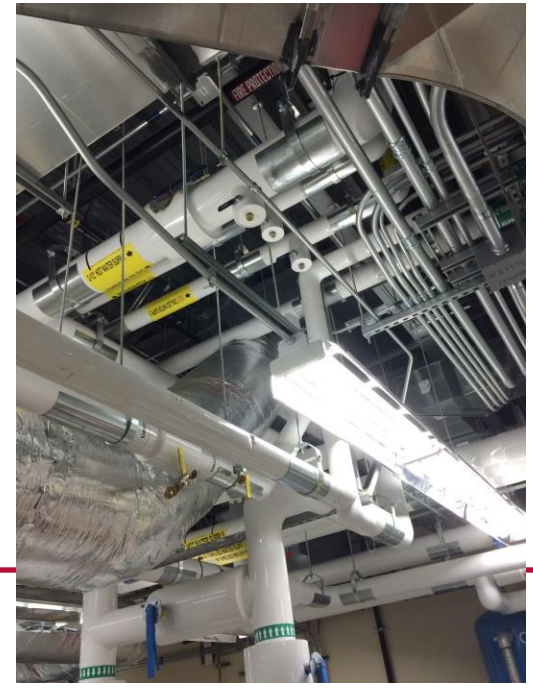

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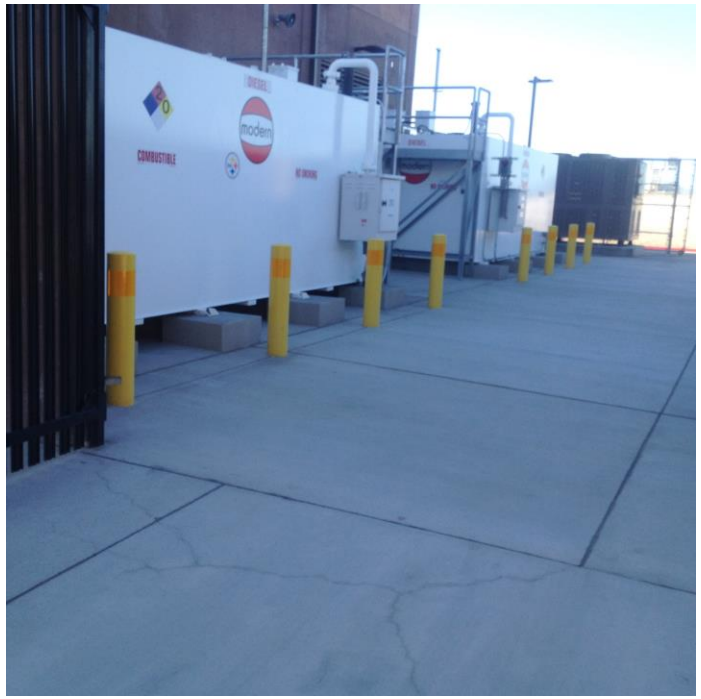
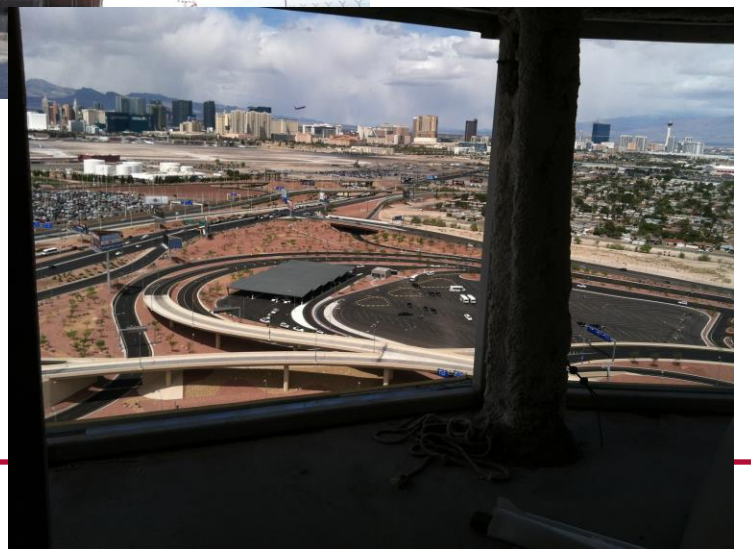


Construction Challenges

CAB Glass

Anti Microbial Coating in Duct Work

Construction Delay

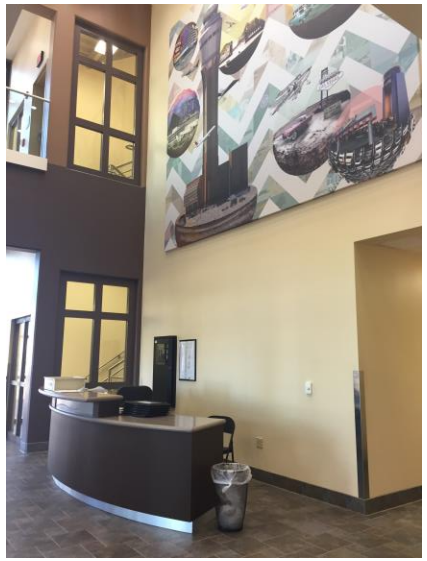


AWARDS / CLIENT TESTIMONIALS

ACEC 2017 Engineering Excellence Award – Grand Conceptor

"In the end, the FAA can rest assured that each component of the electrical, mechanical, and life safety systems will act and react appropriately to all of the various initiating and failure scenarios"

Darren Brinker, Project Engineer, FAA



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