

Drones to the Max

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#ENRTech

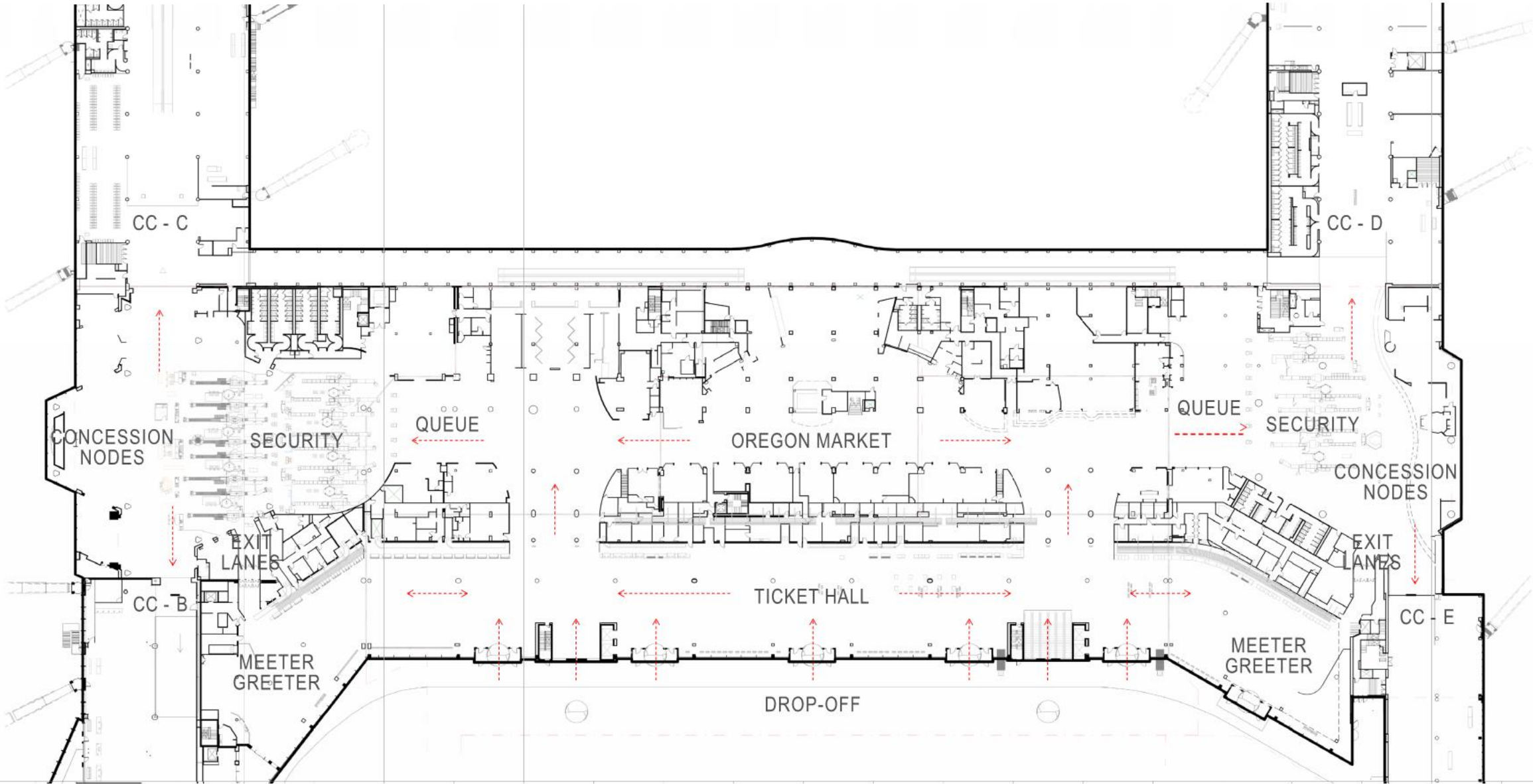
PDX T-Core Project



VIEW OF TICKET LOBBY



Original Layout



New Layout

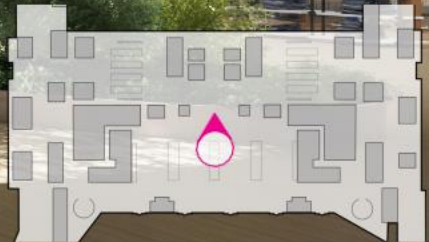


PDX T-Core Project





VIEW THROUGH SEAM FROM TICKET LOBBY





VIEW THROUGH SEAM LANDSCAPE





↑ Ticketing
↑ Baggage Claim
↑ Transportation Plaza
↑ Arrivals
← Estimated Wait Time North Security Check
2min General 3min TSA Pre-Check
Estimated Wait Time South Security Check
13min General 5min TSA Pre-Check



MARKET HALL_FLOORING - TERRAZZO 2



↑ Concourse C
Restrooms
Food and Shops

CAFÉ

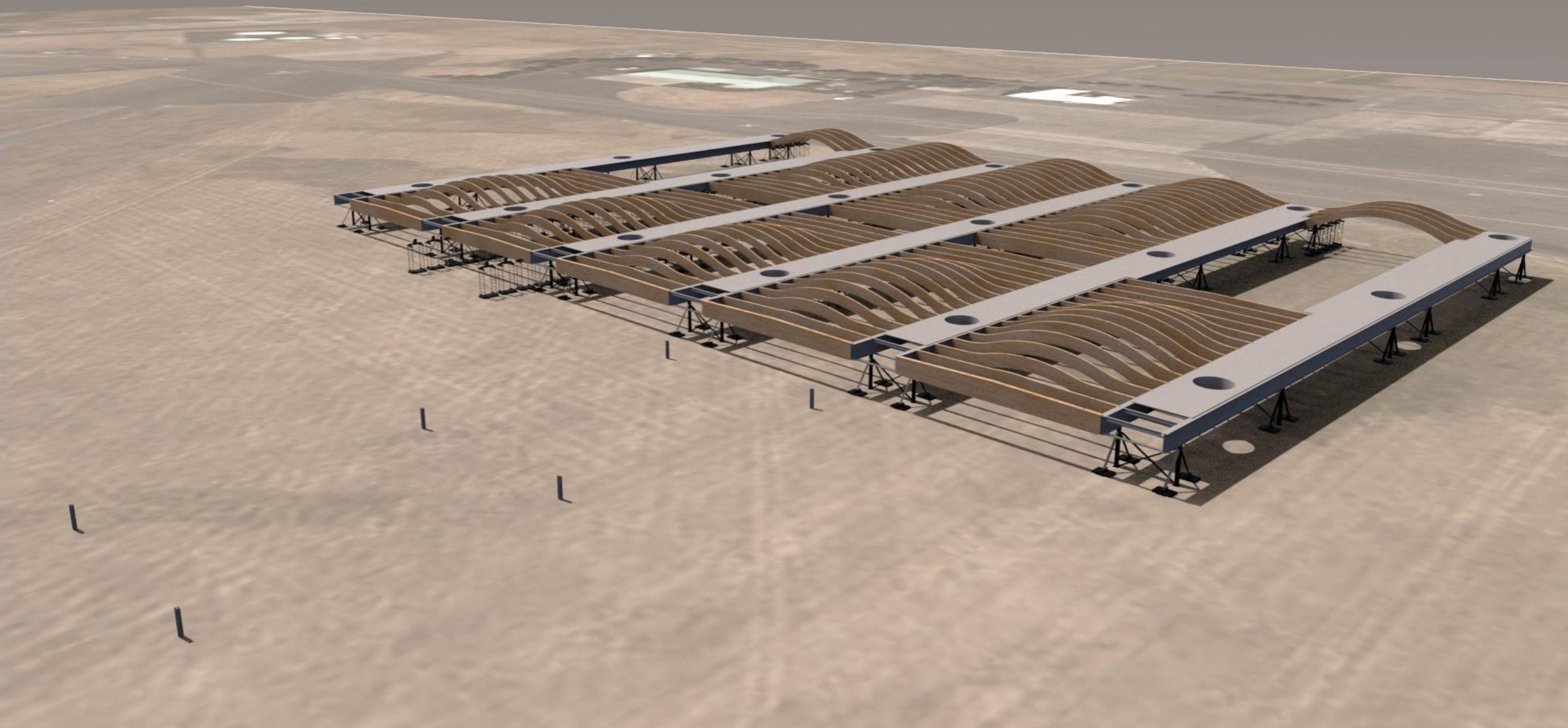
C

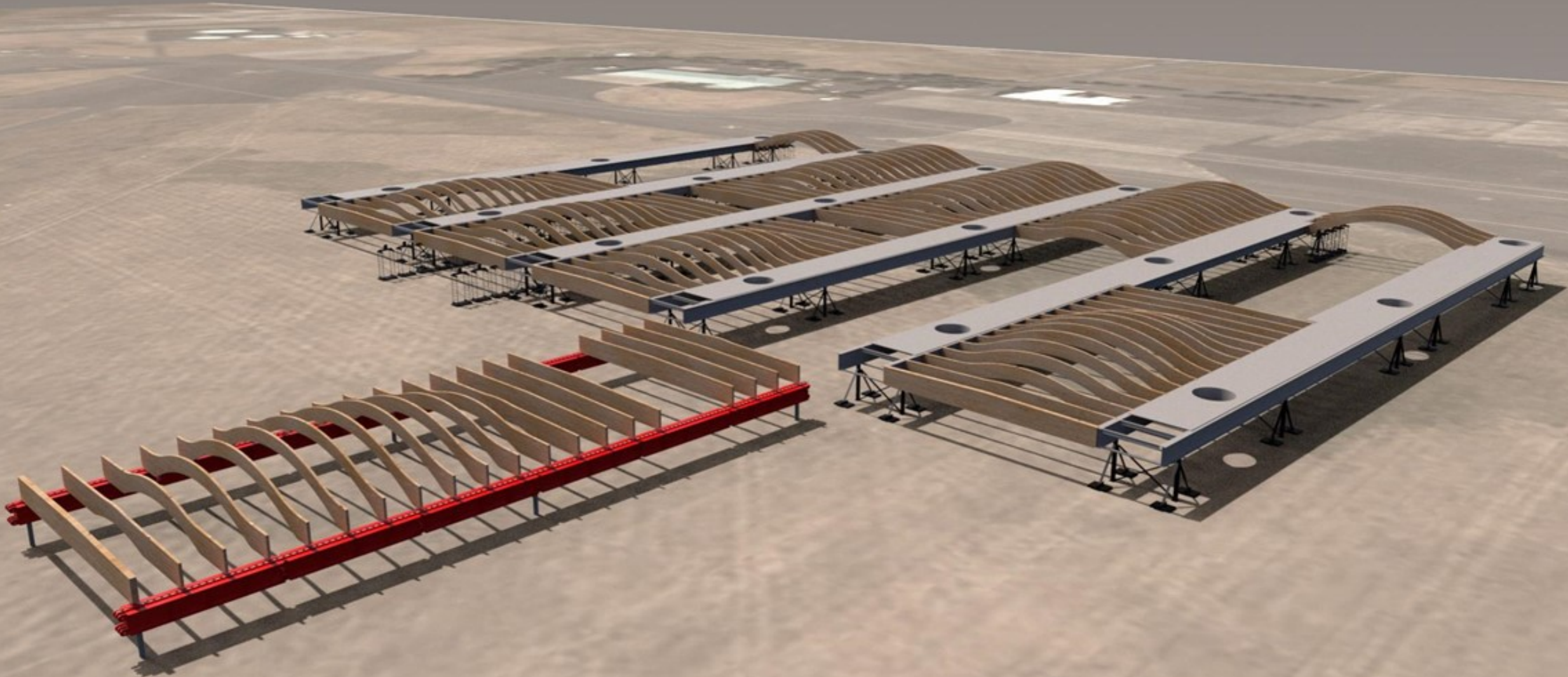
VIEW OF PORTAL TO CONCOURSE - C

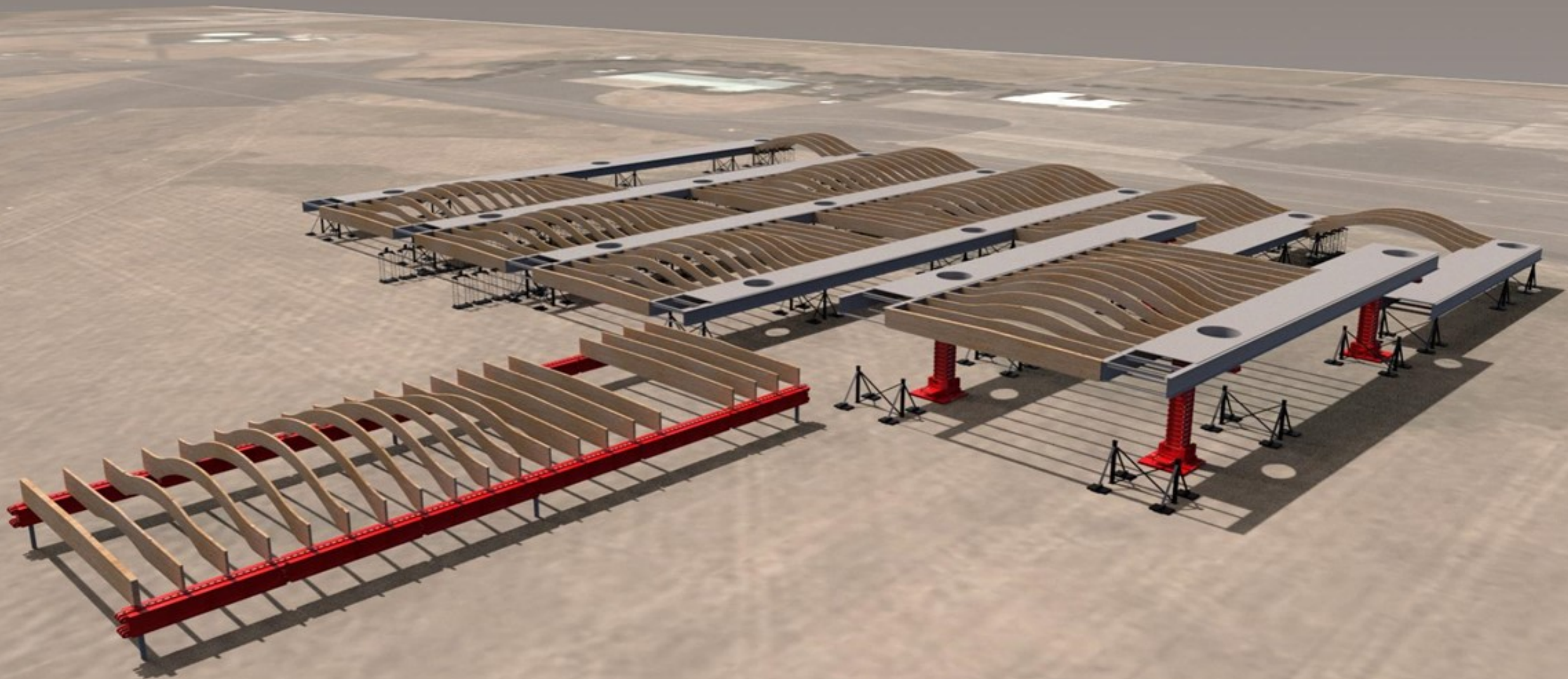


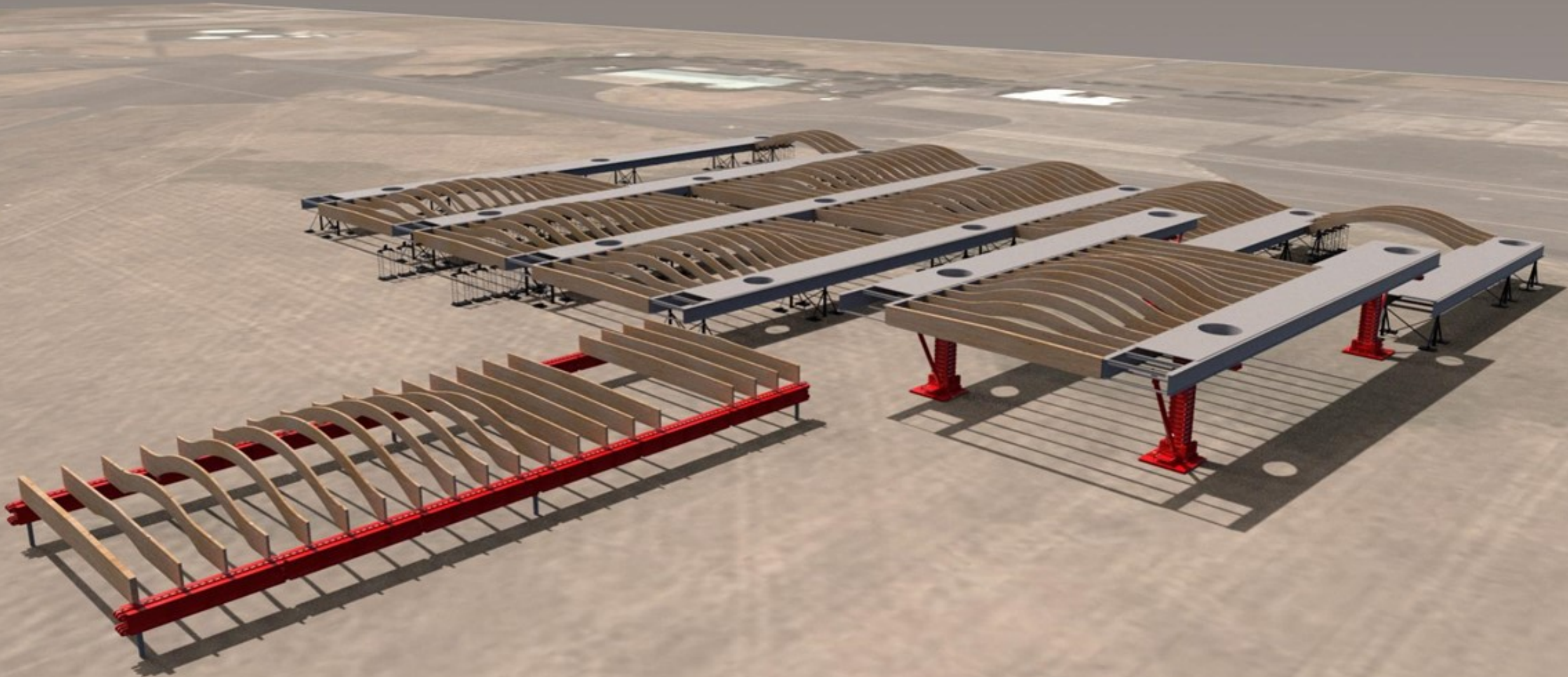
PDX T-Core Roof

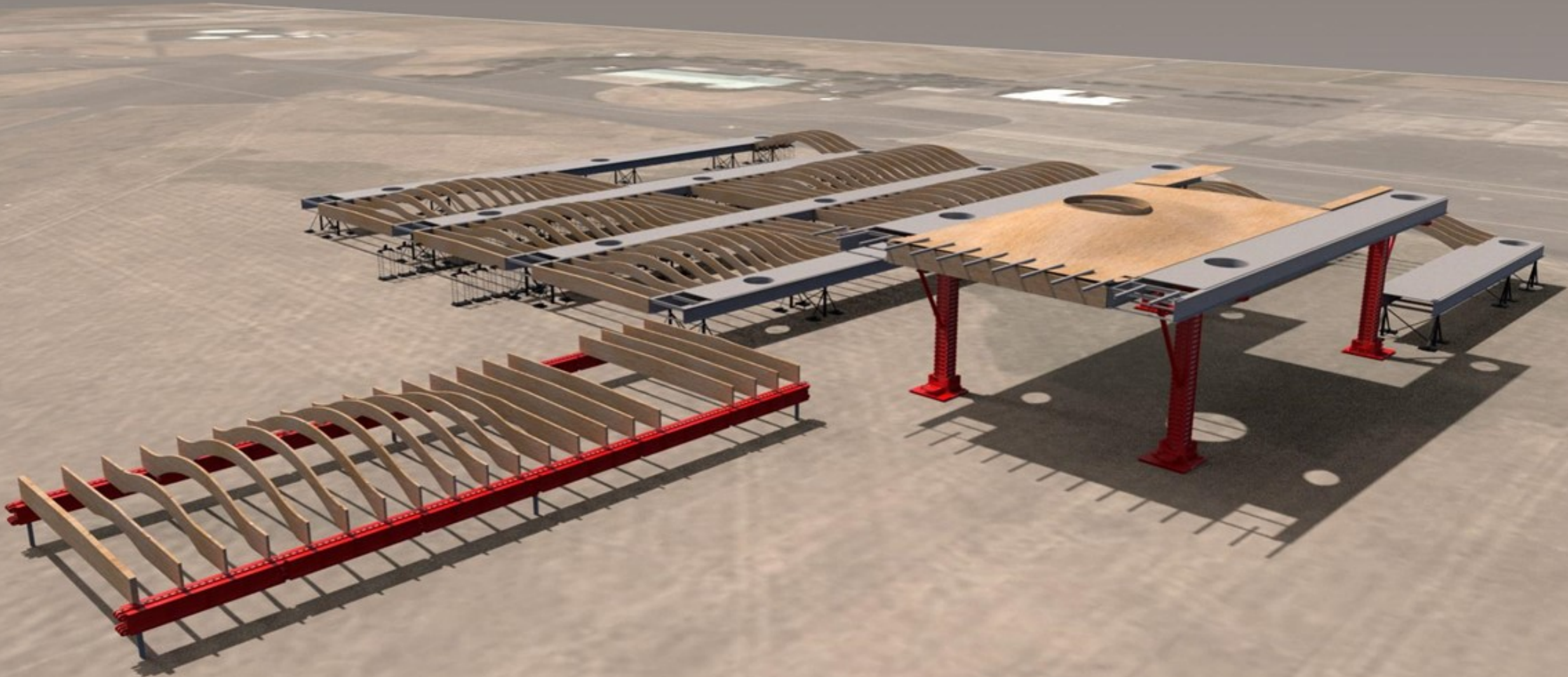










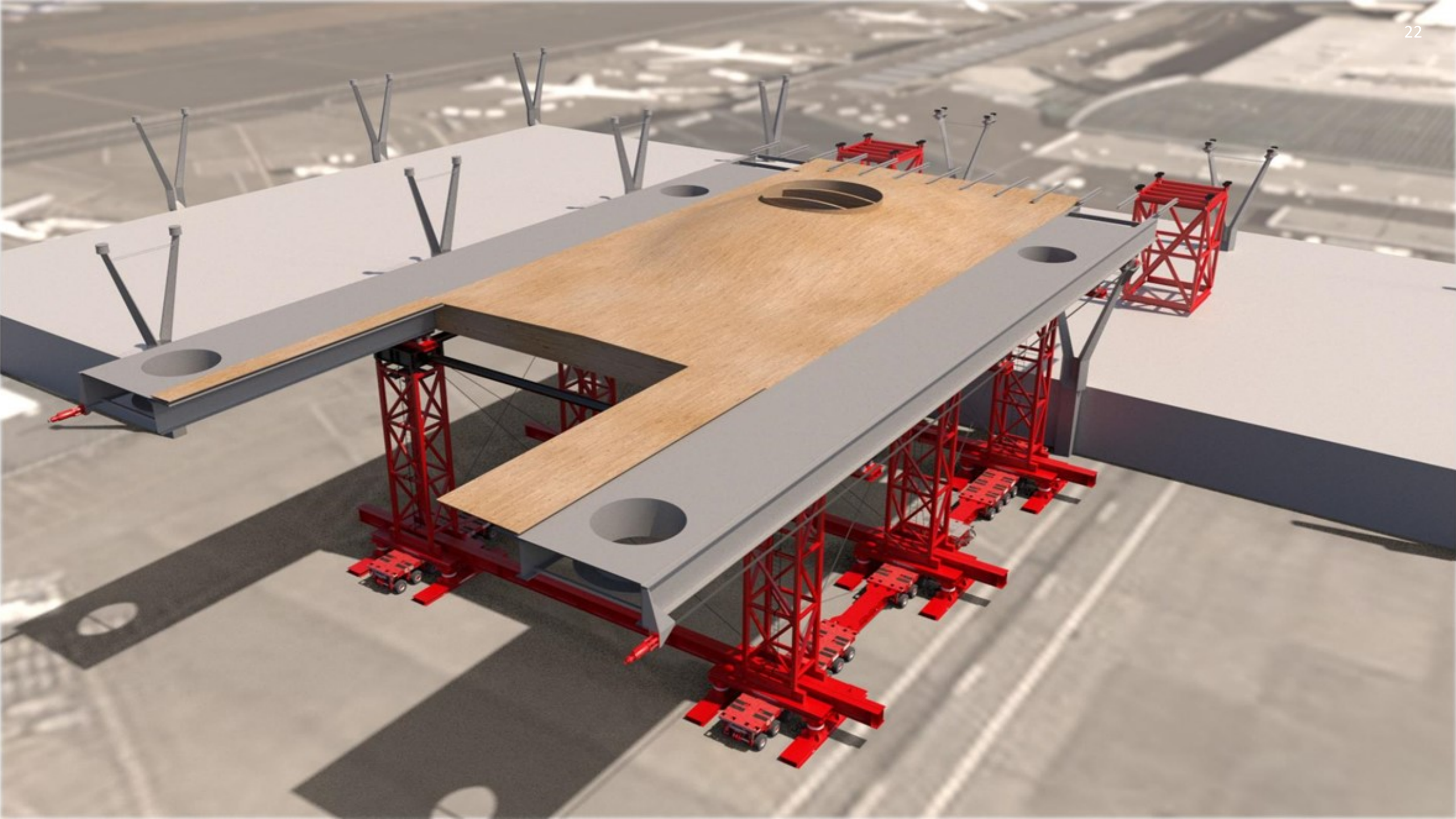




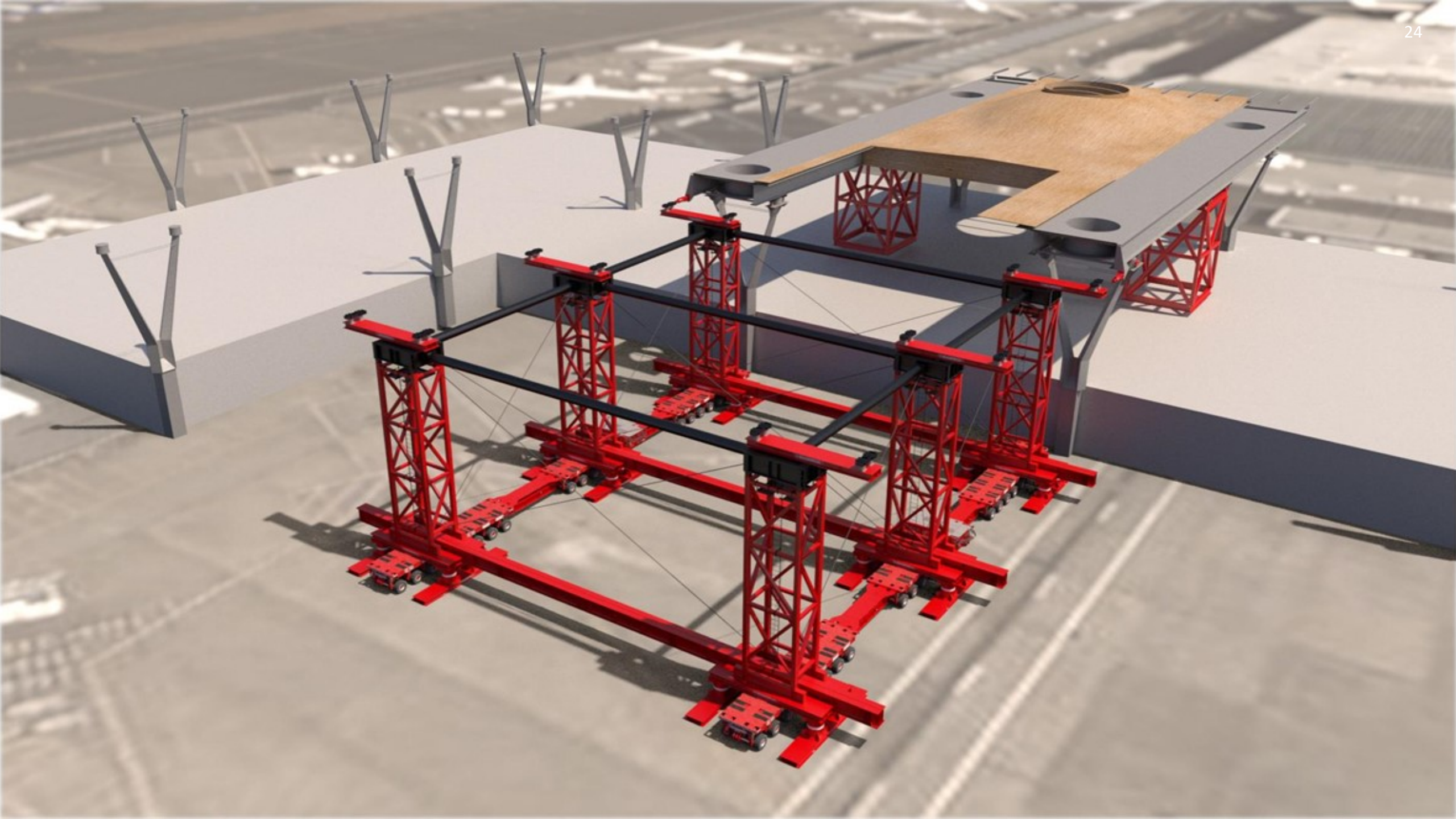




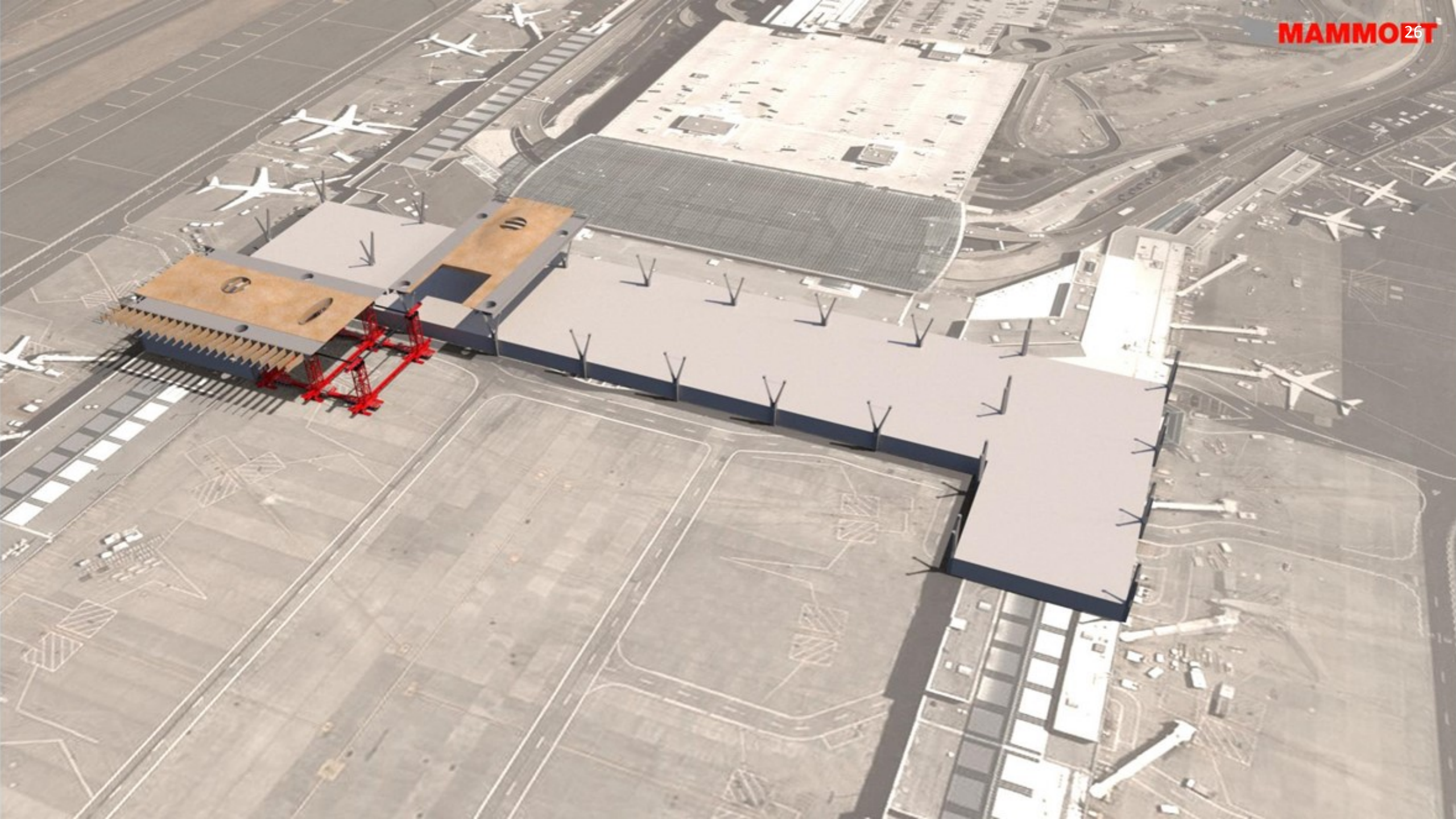


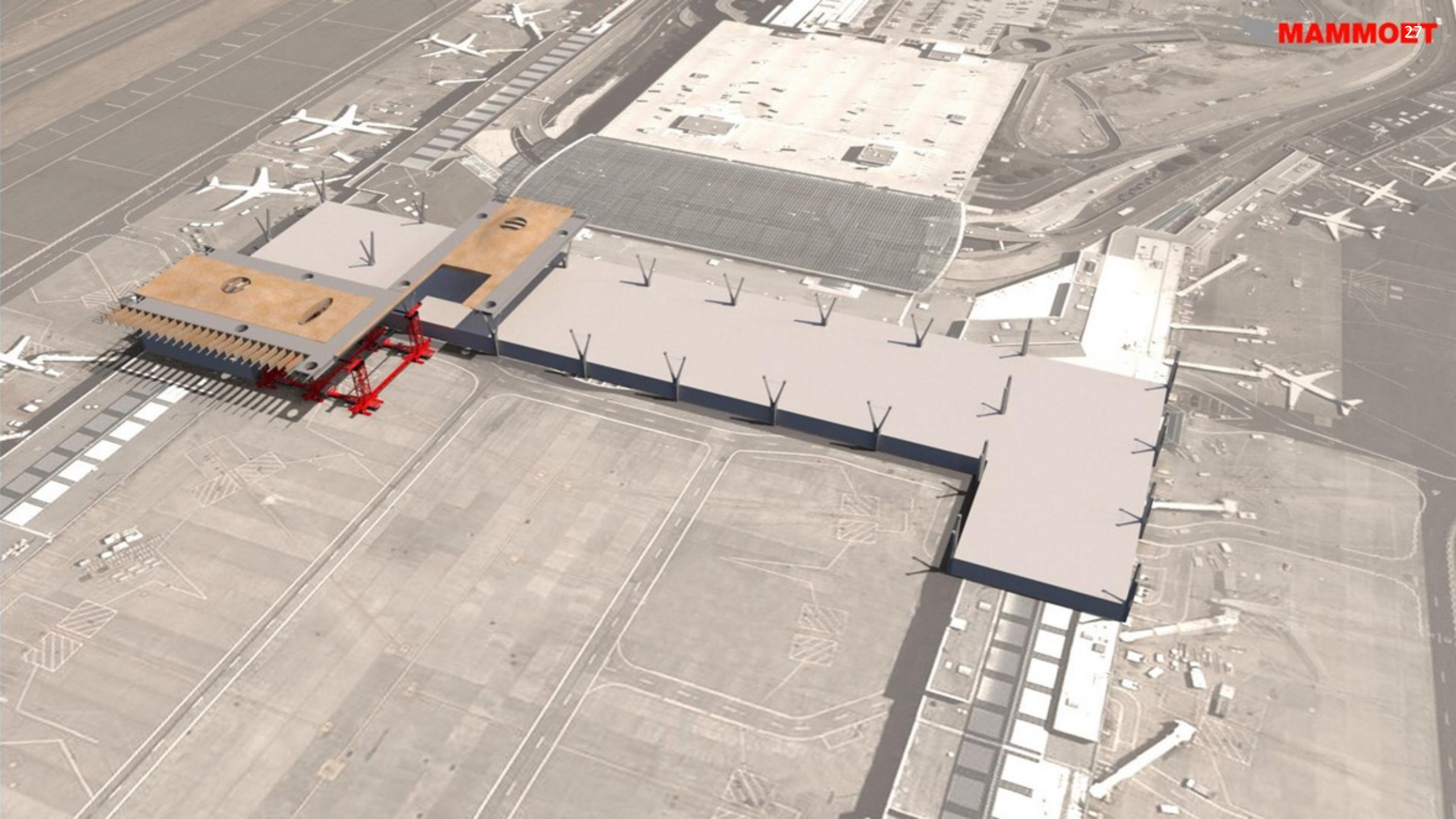




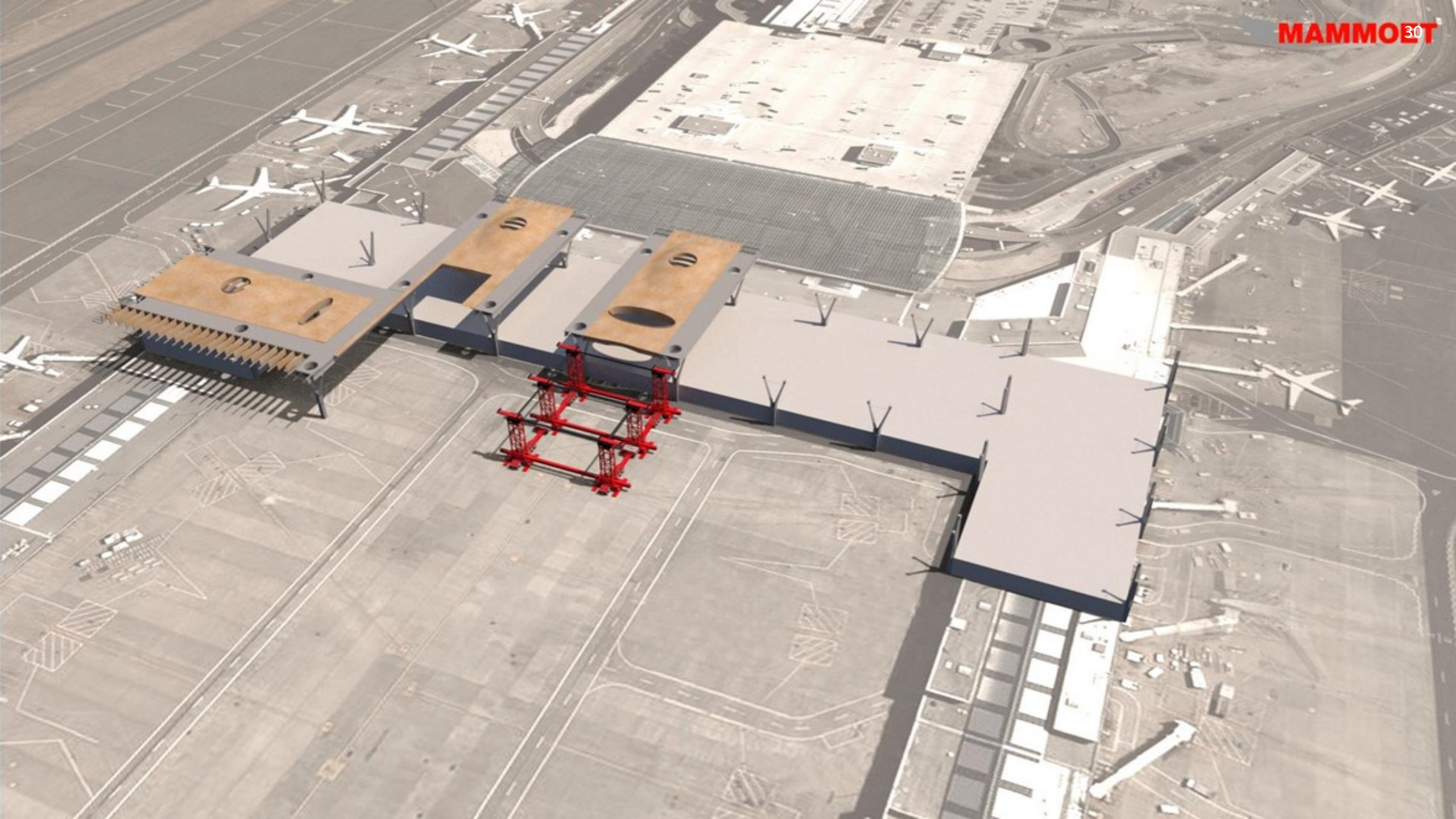


































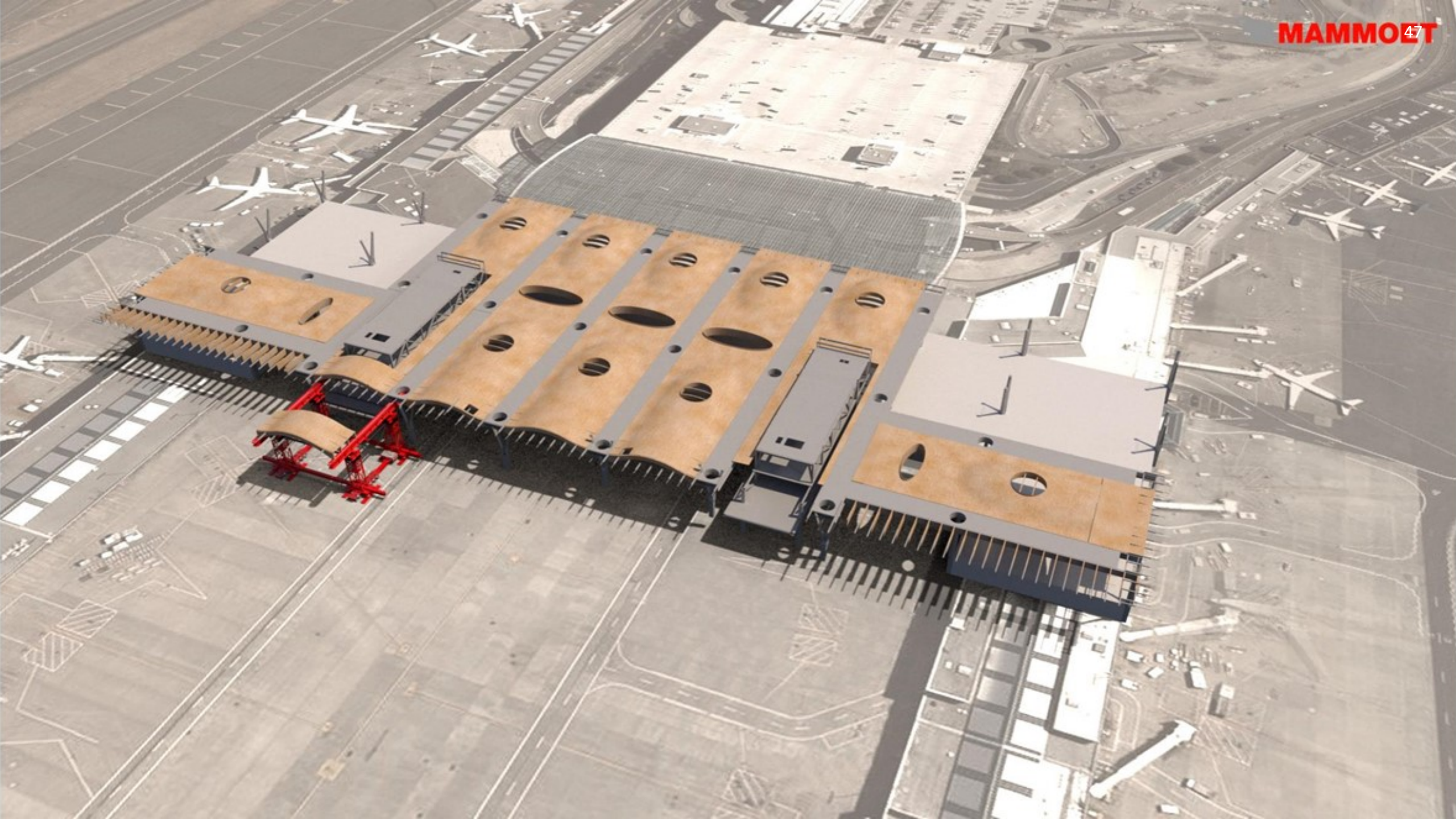


























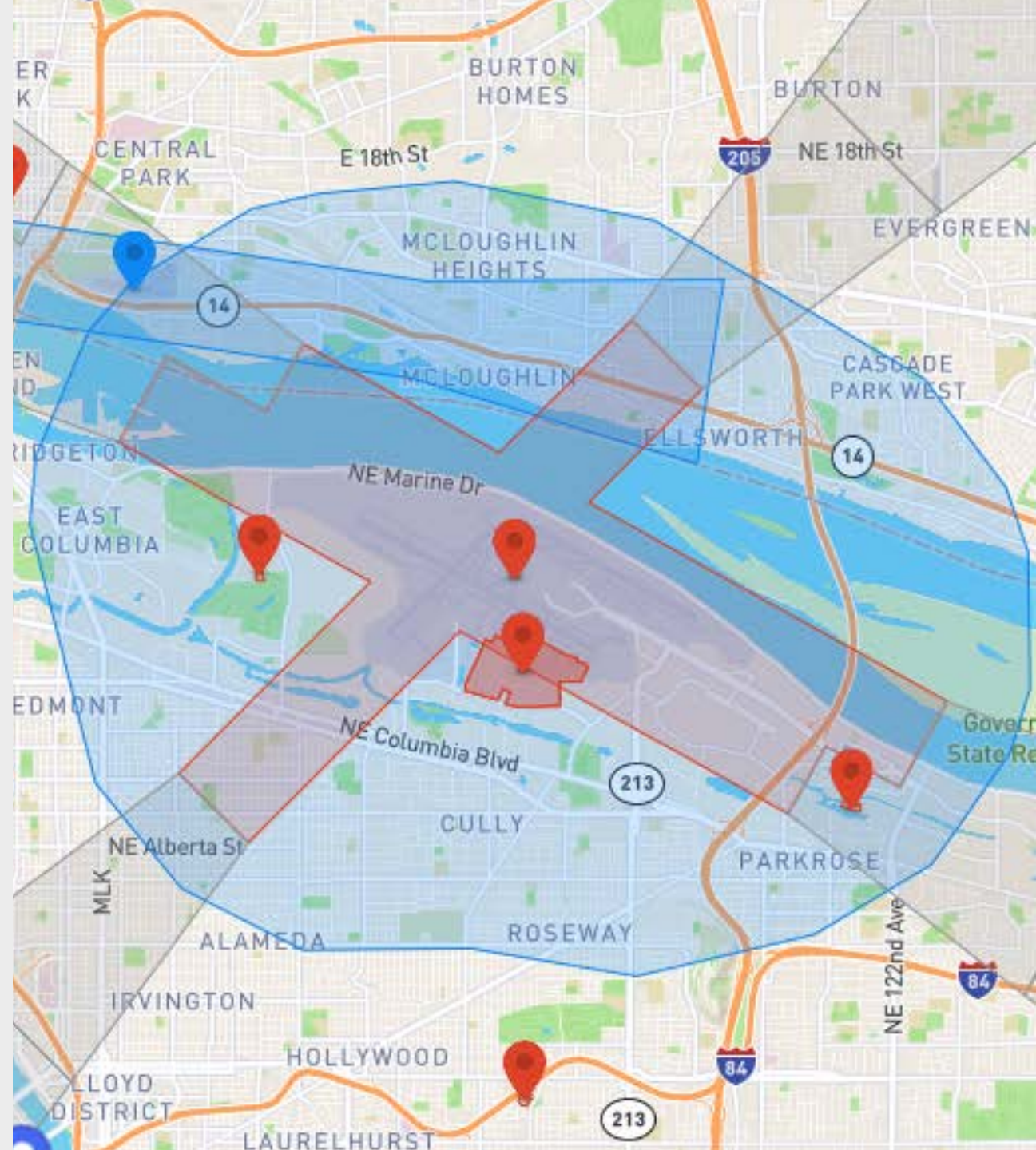






Approval Process

- Port of Portland Support
- Airspace Authorization
- Port Specific Request Form
 - Mission Details and Safety Plan
 - Pilot Registration and ID
 - Drone Registration
 - Insurance
 - FAA Authorization
- DJI Custom Unlock Request



Safety and Risk Mitigation

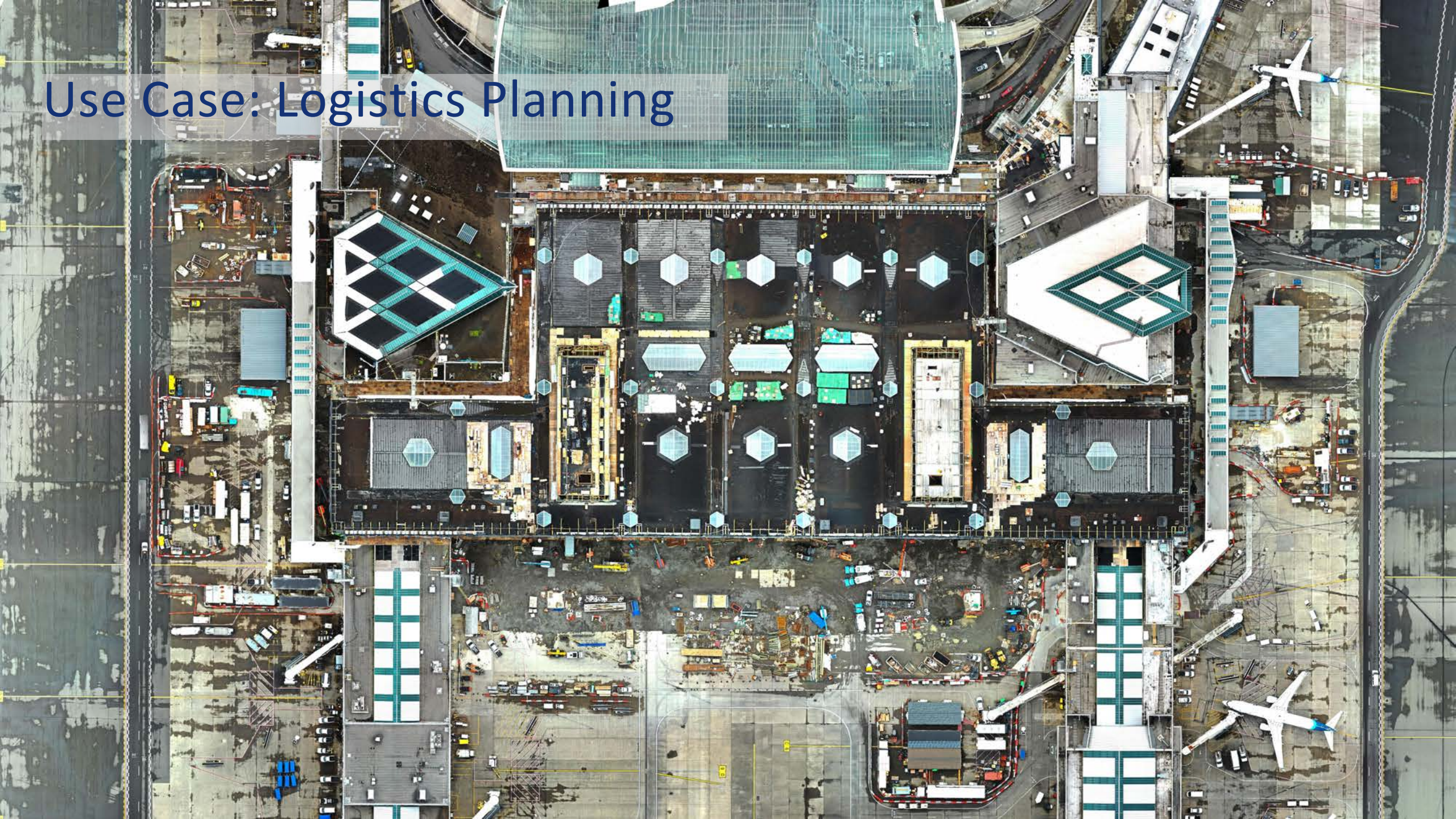
Day of Procedures

- Drone preflight checks performed
- Radio check or comms check
- Discussion of mission with the team
- Visual Observers in place
- Port operations calls ATC for final clearance



Use Case: Roof Installation and Documentation

Use Case: Logistics Planning



Use Case: Inspections

Inspection Types

- Demo of existing structure
- Port Animal Control Inspection
- Inspections of parapet, head condition, expansion joints and curtain wall at 90ft AGL
- Final roofing progress



Future Tech Highlight: Luma Model

- Build interactive model from a single drone flight
- Highly efficient low fidelity model creation



Airport Specific: Runway Inspections and Ramp Markings

Runway Inspections

- Use the drone to fly the runways and inspect for damage
- Reduce runway closure from 1 week to 1 day

Ramp Markings

- The Port had to walk to each gate when unoccupied and take photos from ground level
- Drone can capture content from above and compare to CAD drawings



Airport Specific: High Angle Rescue

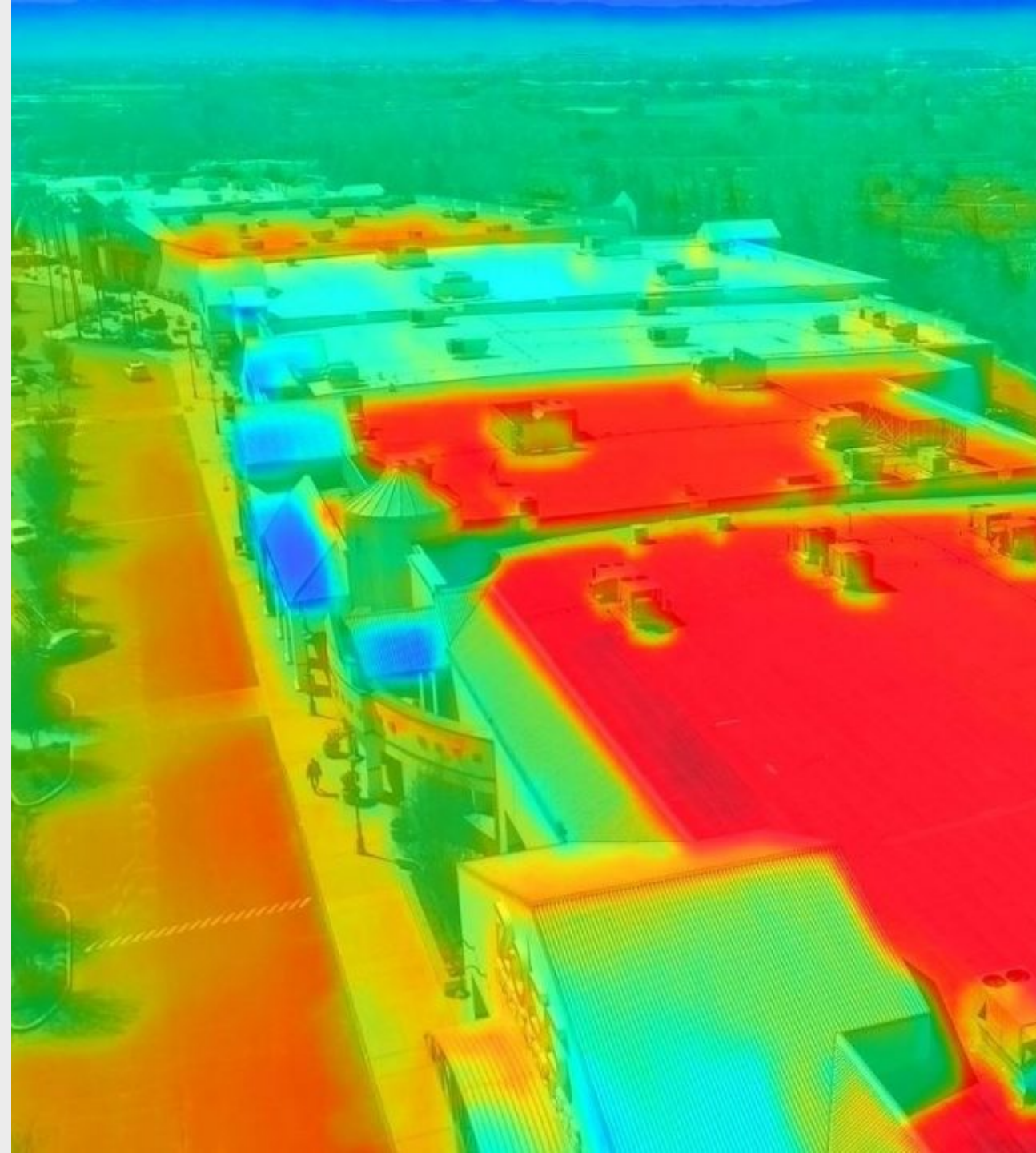
Future Tech: IR Building Envelop Inspections

Construction Phase

- Make sure we have a sealed building envelop and meet specs

Maintenance Inspections

- Help detect water in roofing system
- High heat from HVAC units
- Using heat at joints



What's Next?



ENR FutureTech

Engineering News-Record

CONSTRUCTION'S LEADING TECHNOLOGY FORUM

HILTON UNION SQUARE
SAN FRANCISCO

