



# Lucas Oil Stadium

“Home of the Indianapolis Colts”

Architect: HKS, Dallas, TX

Engineer: Walter P. Moore

Location: Indianapolis, Indiana

Completed: August 2008

Cost: \$715.4million-\$719.6million

Seats: 74,000

Area: 1.8 million square feet



# Lucas Oil Stadium

“Multi-purpose Facility”

→ Home to NFL's Indianapolis Colts





# Lucas Oil Stadium

“Multi-purpose Facility”

→ Hosts NCAA men’s and women’s Basketball





# Lucas Oil Stadium

“Multi-purpose Facility”

→ Major conventions, trade shows





# Lucas Oil Stadium

“Aesthetics”

→ Inspired by Field House Design





800 FT

298 FT

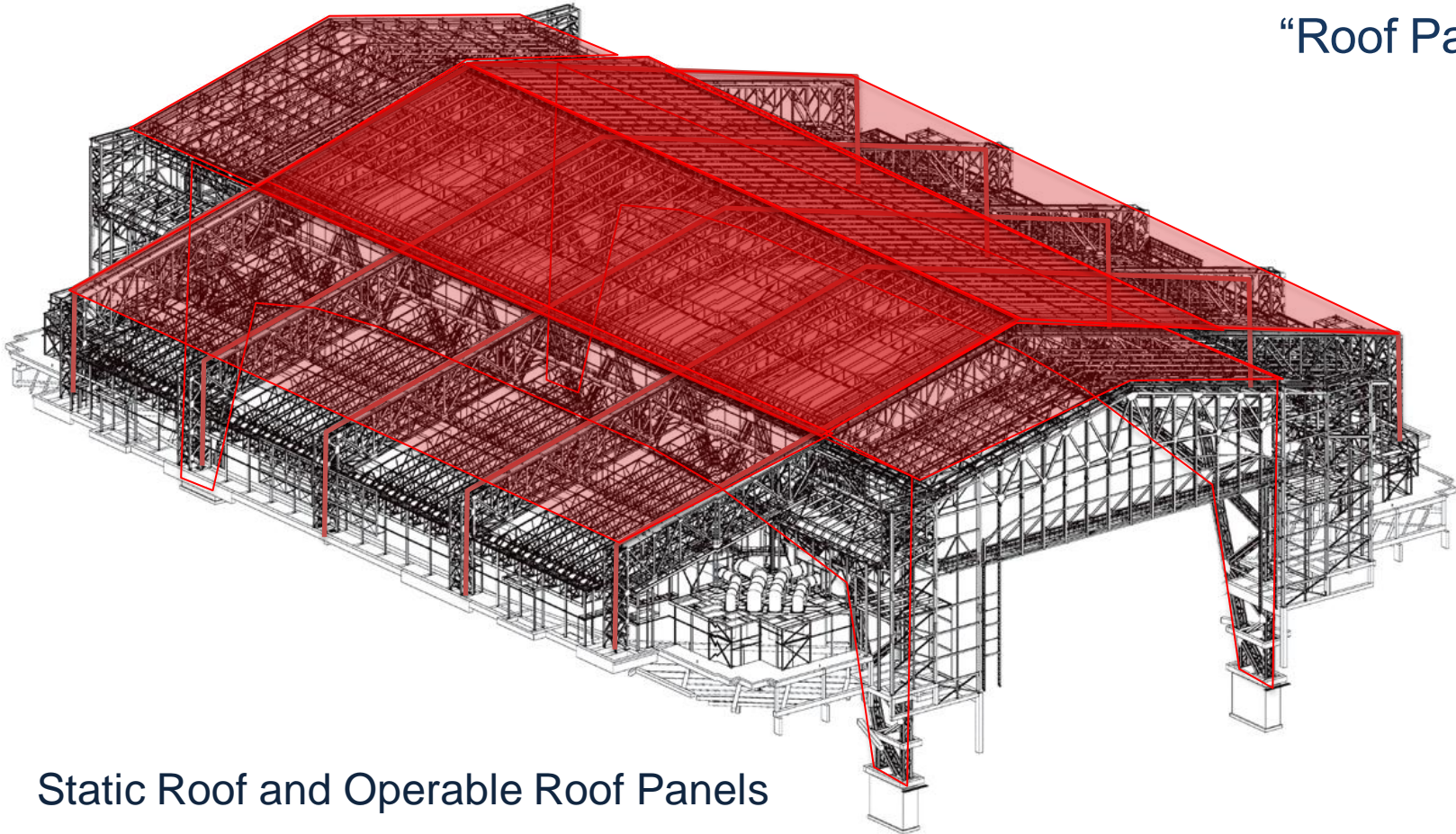
698 FT

850 FT

LUCAS OIL

# Lucas Oil Stadium

“Roof Panels”



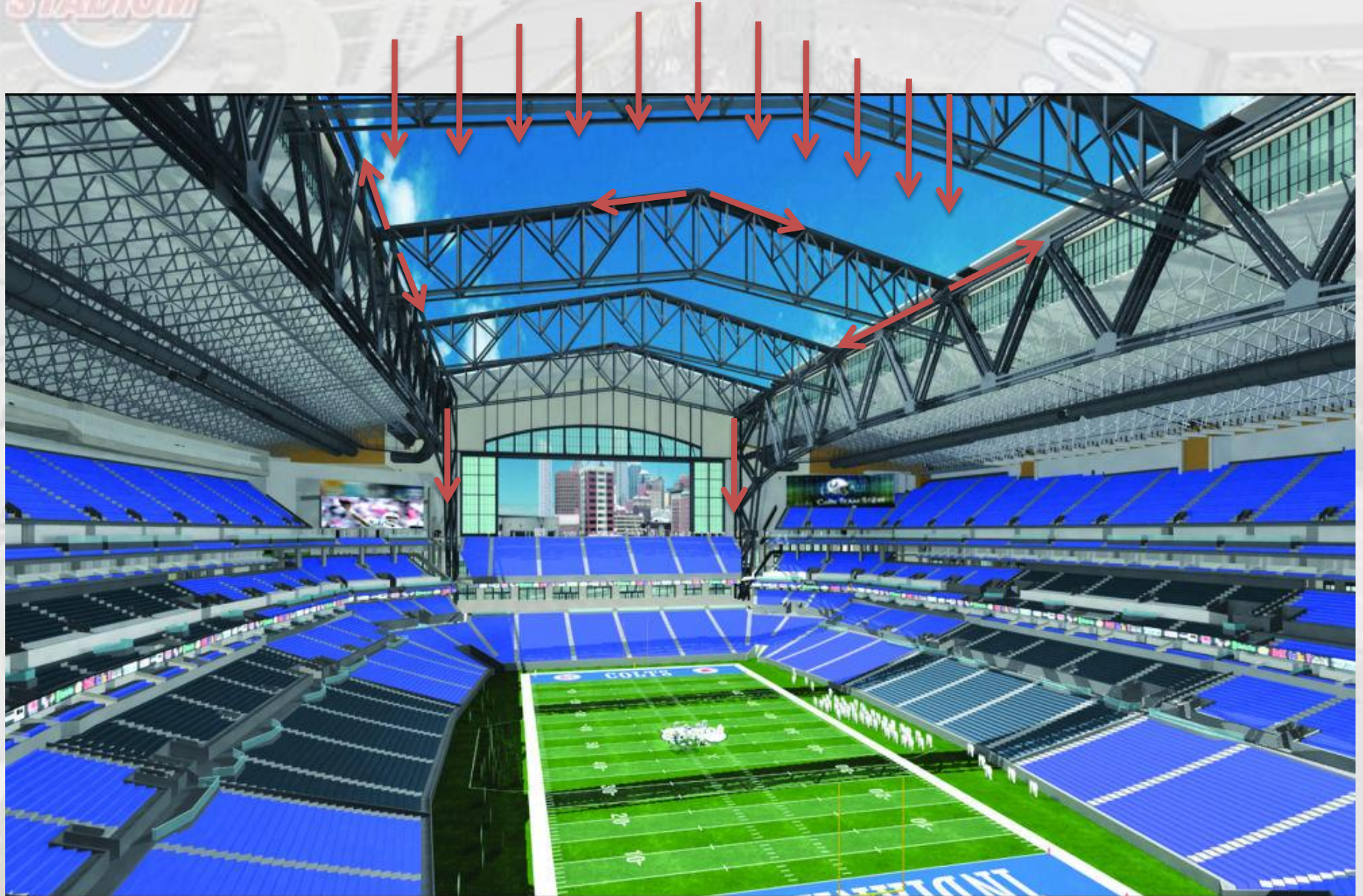
Static Roof and Operable Roof Panels

Transverse Trusses collect roof loads

Superframes collect loads from Transverse Trusses and transmit them to the ground



# Load Tracing

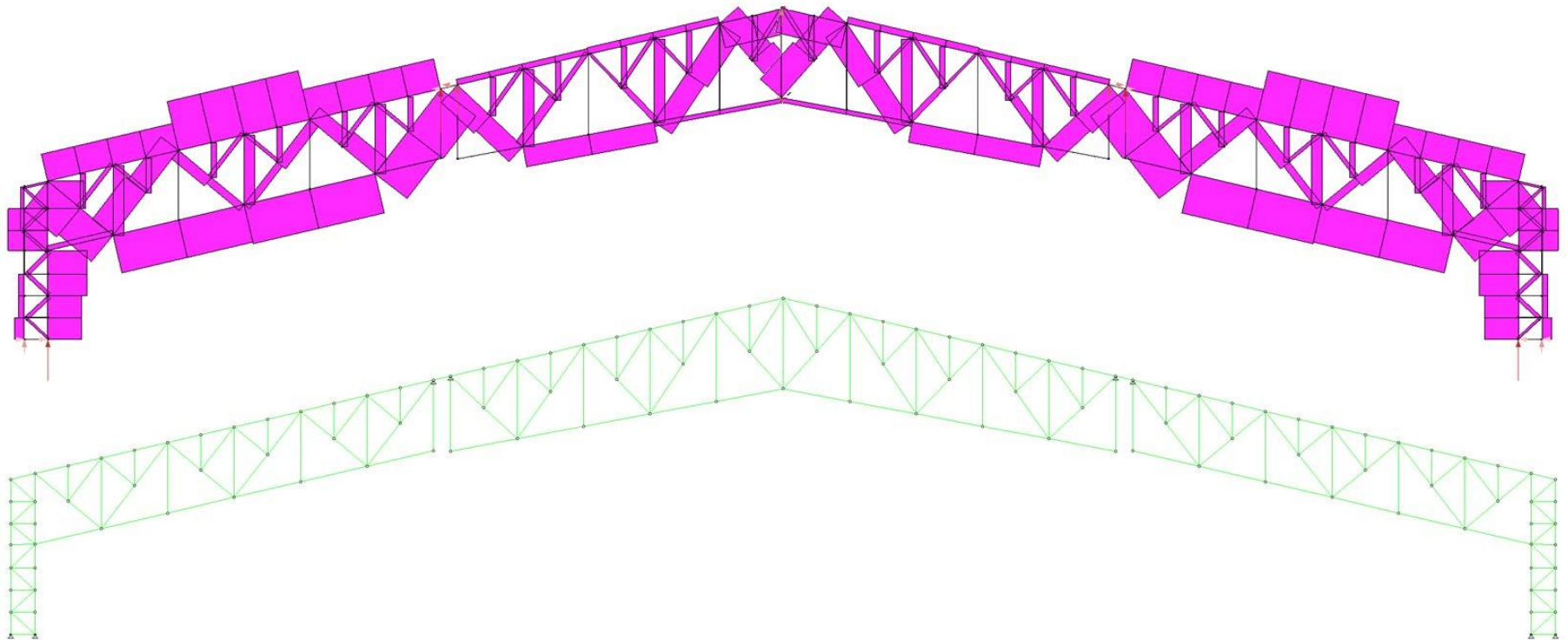






# Lucas Oil Stadium

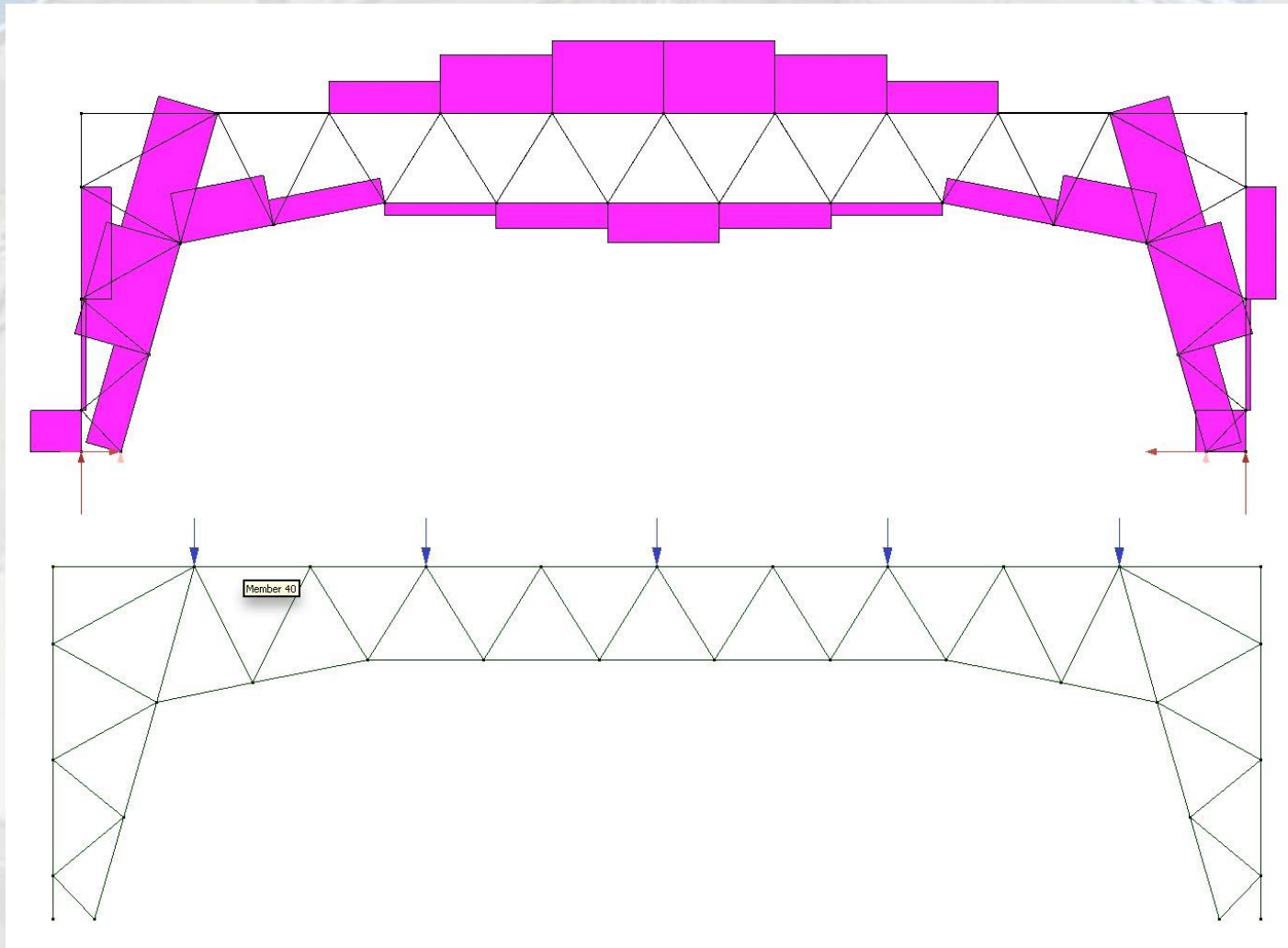
“Dead and Live Loads”





# Lucas Oil Stadium

"Loads Continued"



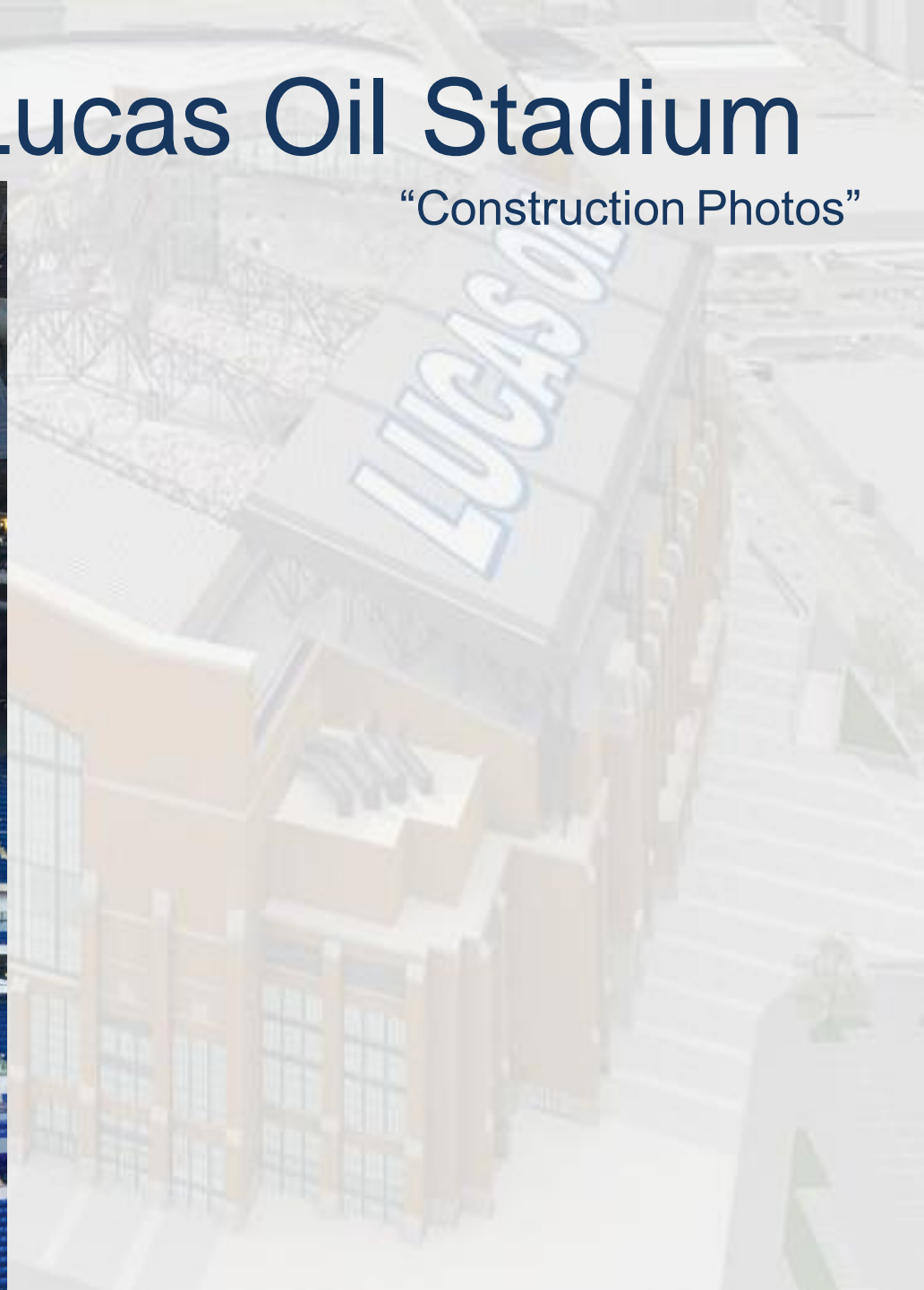
LUCAS OIL  
STADIUM

# Lucas Oil Stadium

“Construction Photos”



Two parallel superframes located 300 ft (91 m) apart and measuring 752 ft (229 m) in length provide the primary support for the roof. The intersection of the superframe columns and the main span features a varying centerline depth that reaches 84 ft (25.6 m) at the column support. Each chord, diagonal, and post member in the superframe is made up of four W 14 shapes that are laced together with angles to form a box truss member.





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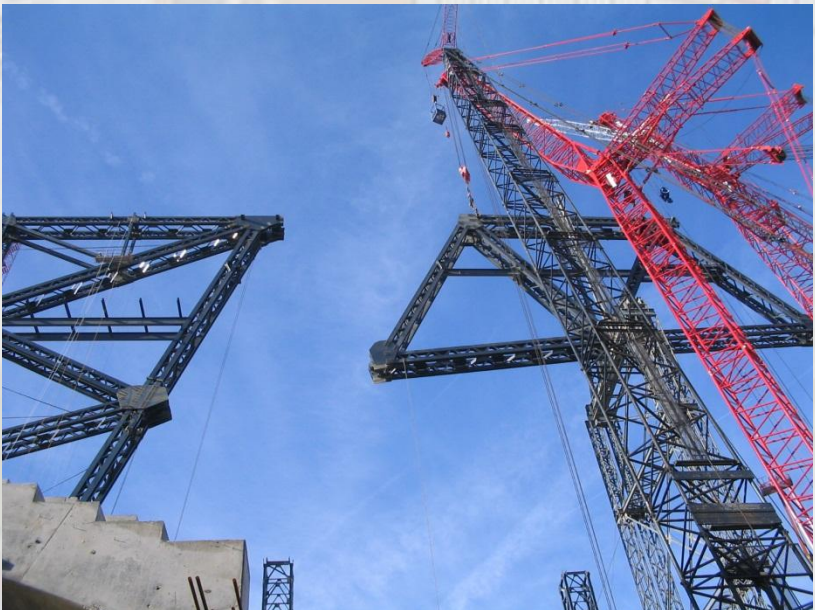
COMMERCE CENTER

COMMERCE CENTER



# Lucas Oil Stadium

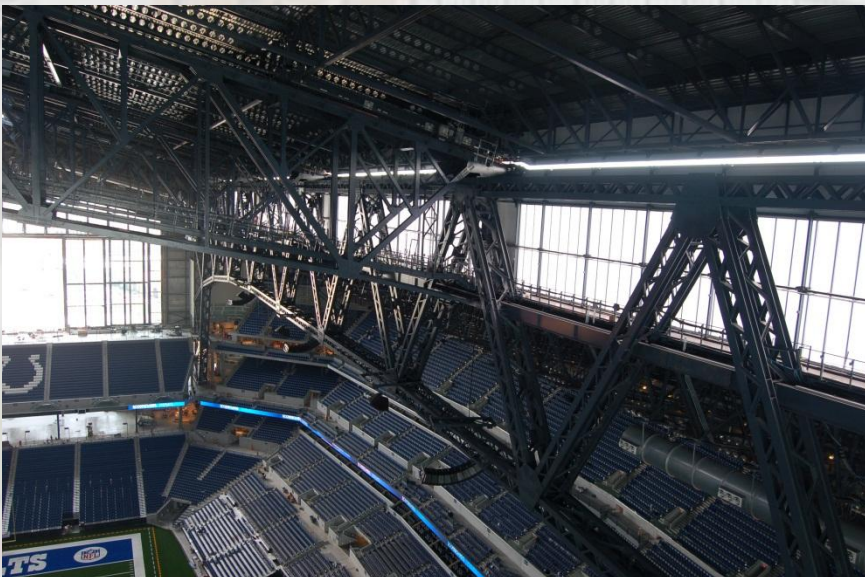
“Lateral Loads”



- **Lateral load**
  - The wind loads on the structure were determined by testing a scale model of the stadium in a wind tunnel
  - The rakers shape a moment-resisting frame and are used to resist the lateral forces from wind or seismic events.

# Lucas Oil Stadium

“Loads Loads”



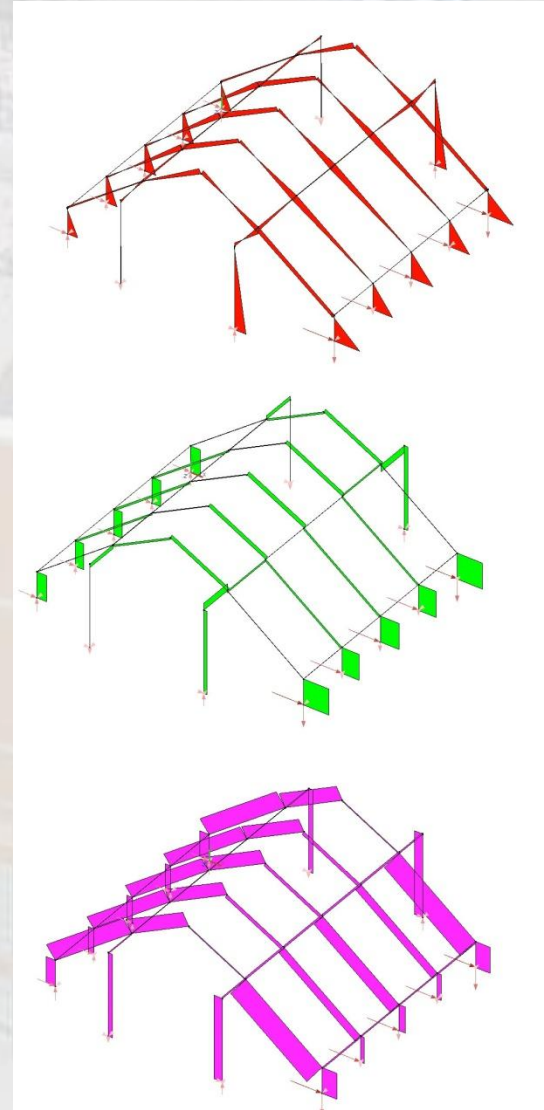
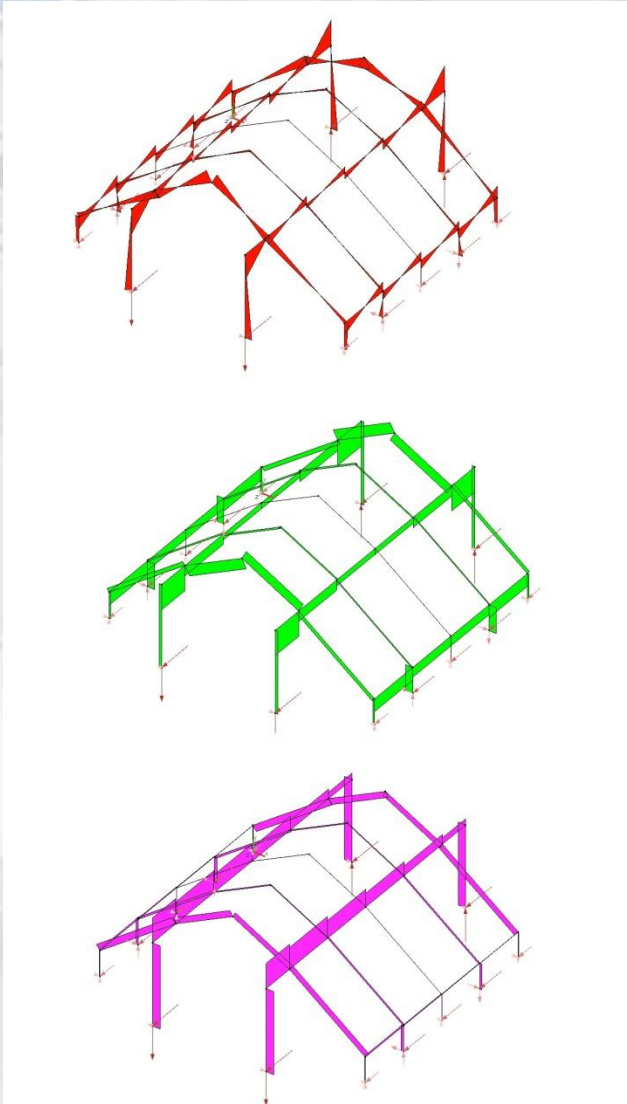
## ○ Lateral load

- The main systems for resisting seismic forces in this stadium take the form of ordinary reinforced-concrete moment frames and ordinary steel moment frames.
- The roof deck and concrete slabs act as diaphragms to transmit the lateral forces into the trusses and concrete raker frames.
- Because, the perimeter trussed columns are 66 ft tall and are hinged at the base, only the front column transmits lateral and axial loads.



# Lucas Oil Stadium

“Lateral Loads”





# Lucas Oil Stadium

“Foundation”

## ○ Foundation

- Most of the foundation mats are rectangular in plan
- The measure of the mats are 69 ft in the north–south direction and 53 ft in the east–west direction and are 9 ft thick.



# Lucas Oil Stadium

“Foundation Continued”



## ○ Foundation

- The shape of the southeastern mat foundation had to be trapezoidal rather than rectangular in plan to avoid a section of an aging but crucial 42 ft wide underground sewer outfall beneath the stadium. Because the outfall, which drains into the White River, could not be modified or damaged in any way.

# Questions?

