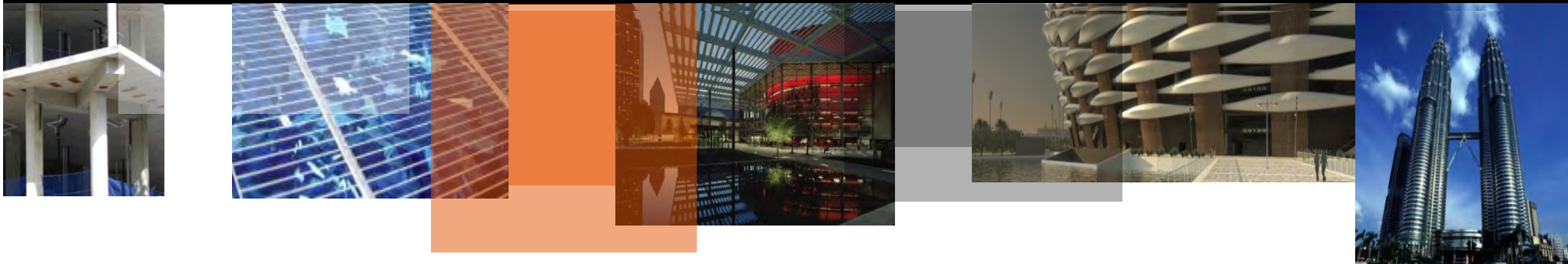


# Salesforce Transit Center Girder Repairs

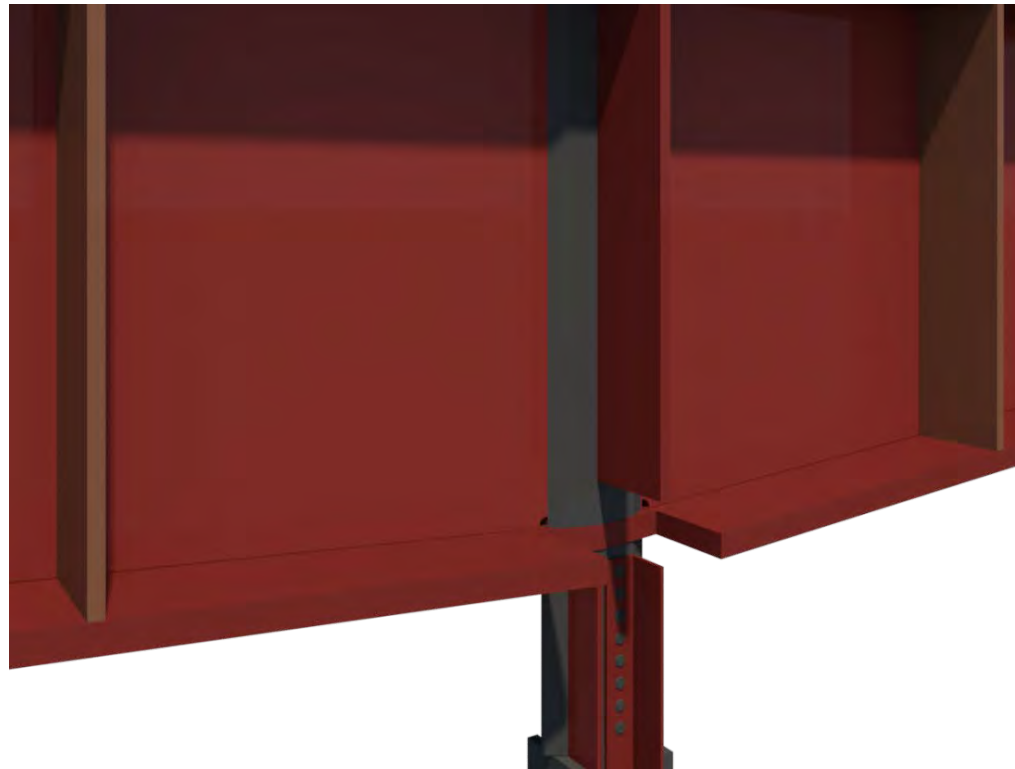


Bruce Gibbons, SE

December 13, 2018

## Fremont St. Girders - Repair

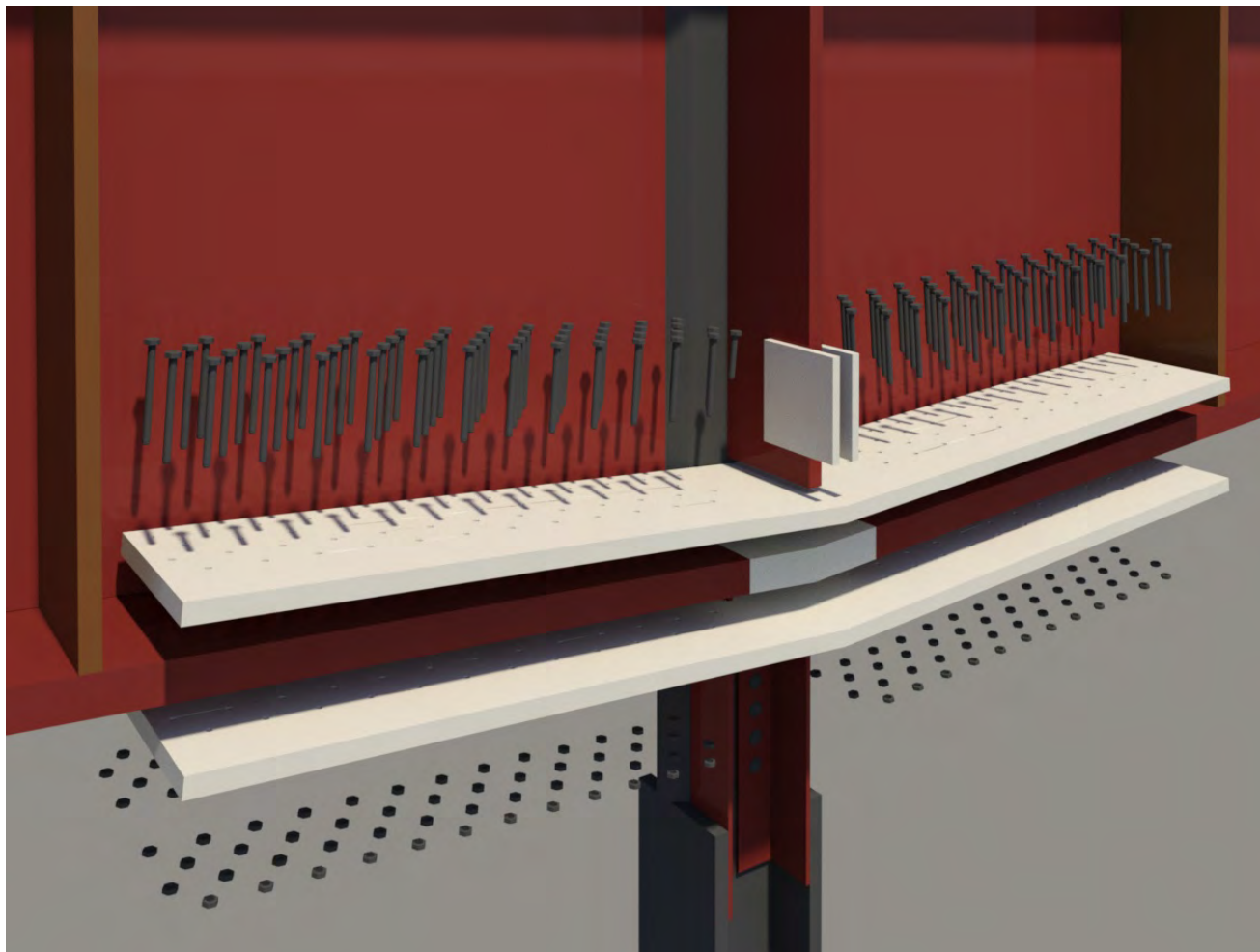
Objective: Restore the bottom flange to its original design capacity.



Grind the flame-cut surface of the web hangers to a smooth surface, and Magnetic Particle test.

# Fremont St. Girders - Repair

Install bolted cover plates to replace flanges



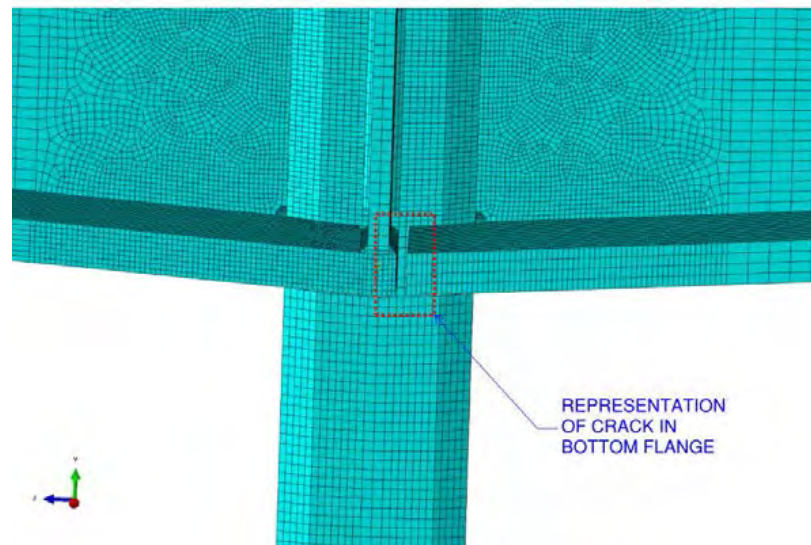
# Fremont St. Girders - Repair

Extent of repair is localized to the fracture area



# Load-Shedding Analysis

1. The cracked girders with reduced section had sufficient capacity to support the building dead loads and occupancy loads.



2. The actual forces in the girders were less than calculated using normal design procedures.

## Load-Shedding Analysis

3. Analyze load paths after the Fremont St girders cracked, considering:
  - a. Beam connection stiffness.
  - b. Bus deck slab and roof slab stiffness.
  
4. Conclusions:
  - a. Girders deflected 0.75" to 1" after cracking.
  - b. Amount of load shed from the girder was up to 10%.
  - c. Hanger loads reduced after cracking.
  - d. Adjacent beams and columns were not overstressed.
  - e. No indications of any damage, however we will test the integrity of girder bolted connections as a precaution.

Thank You