

# Peggy Ryan Williams Center



Ithaca, New York

**AE Senior Thesis**

April 14, 2014

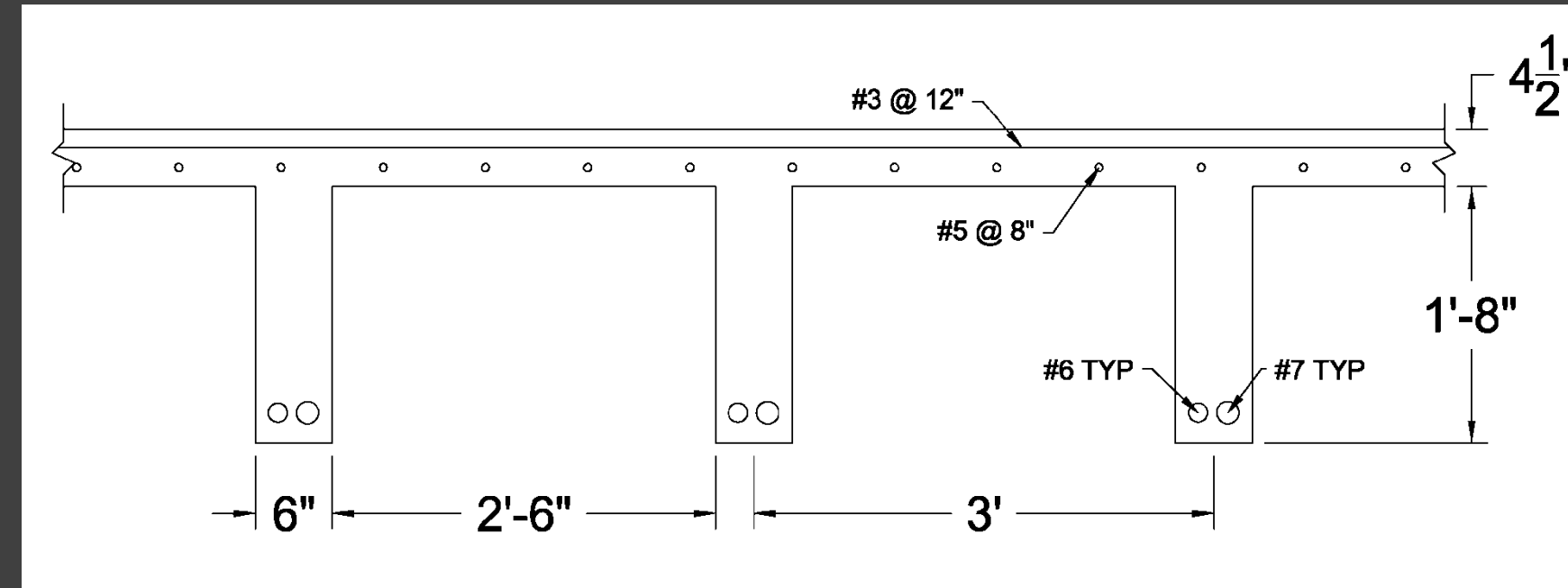
Angela Mincemoyer

Structural Option

Advisor | Dr. Boothby

# Peggy Ryan Williams Center

- Introduction
- Proposal
- **Structural Depth**
  - **Gravity System**
  - Lateral System
  - Bridge Truss
- Architectural Breadth
- Lighting Breadth
- Conclusion



- Determined floor system depth
- CRSI Manual
- Same joist size and spacing used throughout
- $F'_c = 4,000$  psi
- $F_y = 60$  ksi
- Minimum reinforcement in direction perpendicular to joist span

## Pan Joist System

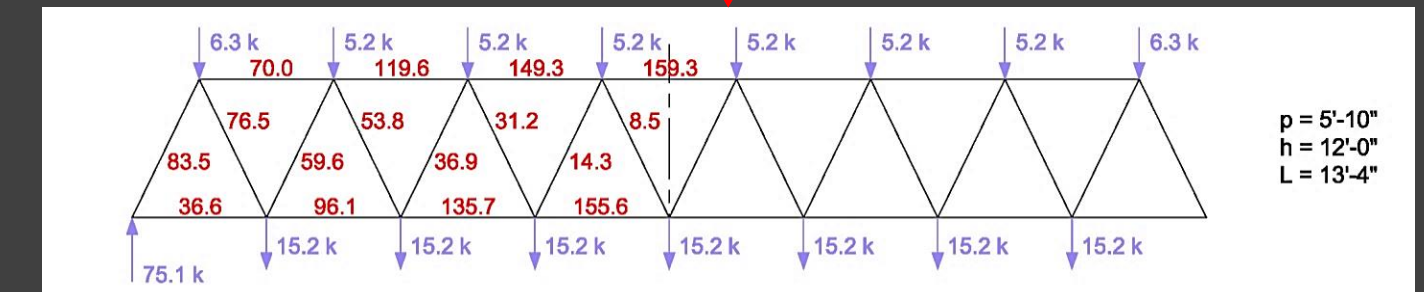
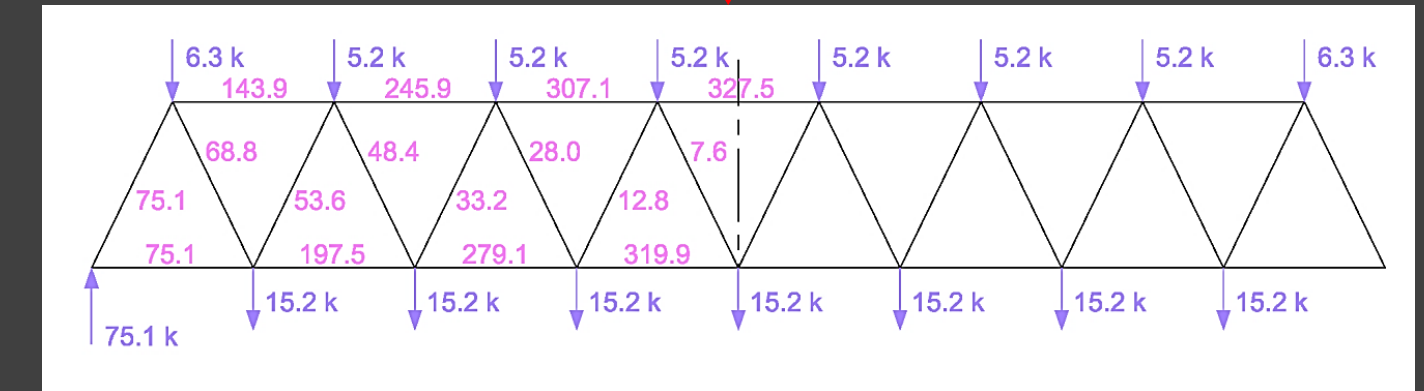
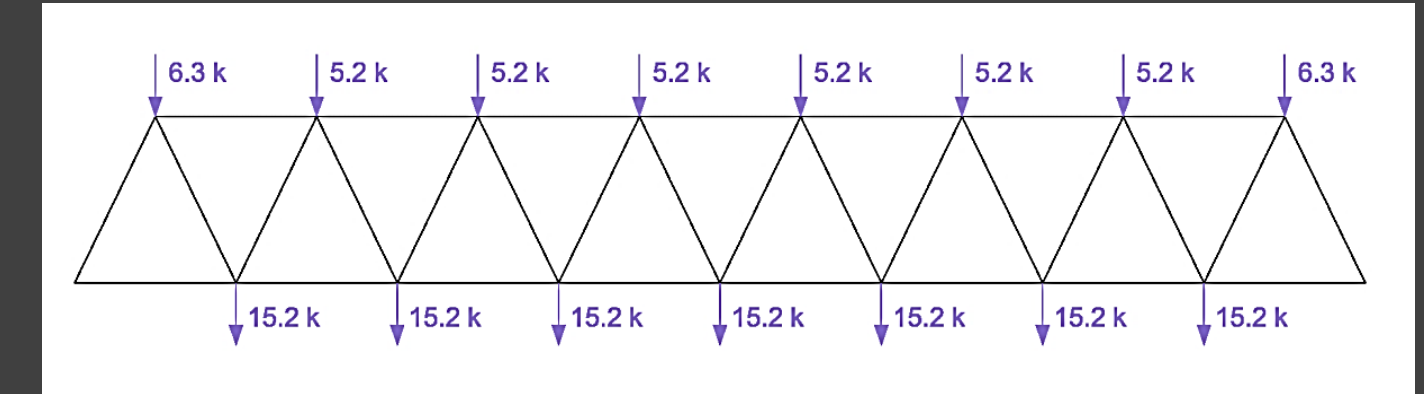
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- Indexing Method
- Loading all panel points
  - Produced worst case force in top chord, bottom chord, and far left diagonal
- Use of geometry to determine member forces
- Method of Joints to verify Indexing Method forces
  - Indexing Method is an accurate method of analysis

## Member Force Determination

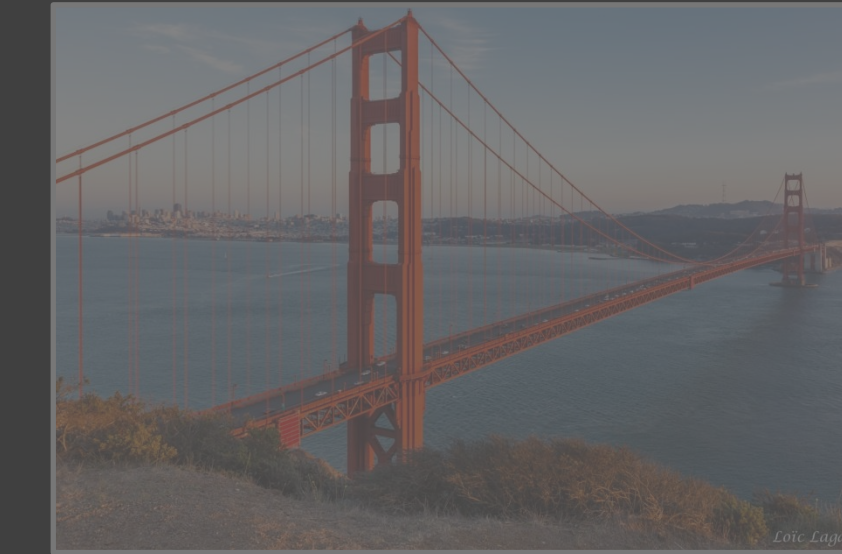
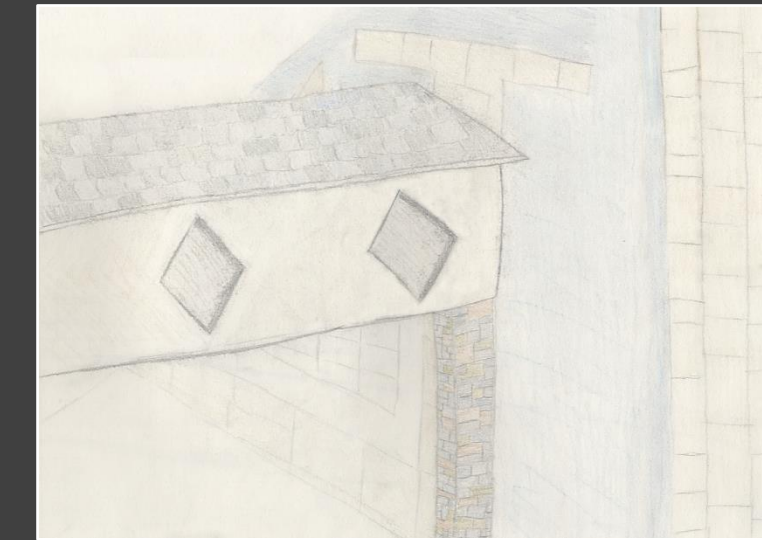
$$1.2 D + 1.6 L + 0.5 S$$





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The Newfield Bridge

The Golden Gate Bridge