

Precast Prestressed Concrete Stay-In-Place Deck Panel Construction



2011 Caltrans-PCMAC Consultants Bridge Workshop

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Brent R. Koch, P.E.

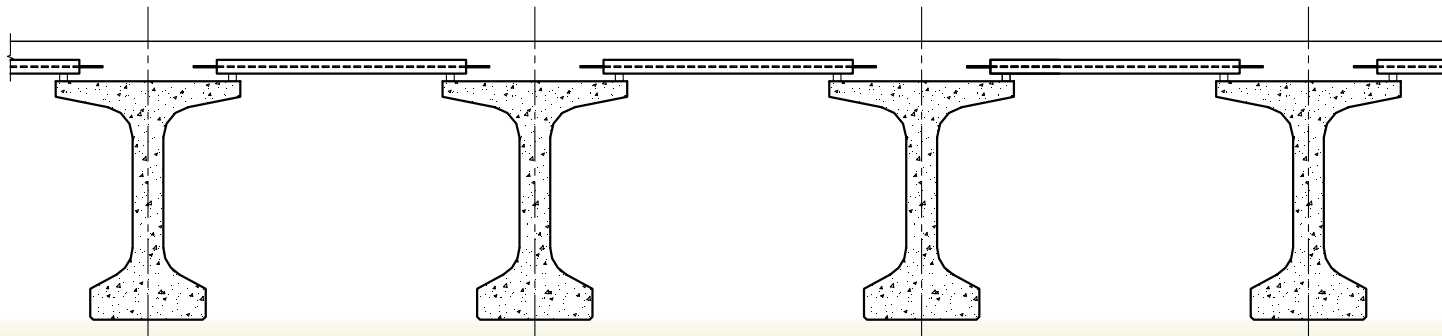
Con-Fab California Corporation

Introduction



Precast prestressed concrete stay-in-place (SIP) deck panels:

- Solid prestressed concrete slabs that span between bridge girders.
- Partial depth panels that serve as permanent structural formwork for the CIP concrete deck pour as well as providing the principal positive moment reinforcing for the precast/cast-in place composite deck.



Background



Use of SIP panels dates back to 1950's

Some of the States that have used PCPS Concrete SIP deck panels:

Washington	Utah	Arizona
Texas	Colorado	Indiana
Virginia	Indiana	Ontario (Canada)
New York	Georgia	South Dakota
California		

Partial depth SIP concrete depth panels have been utilized successfully, for a long period of time across the nation.

Advantages



Speed of Construction

Worker Safety

Public Safety

**Reduced
Construction Waste**

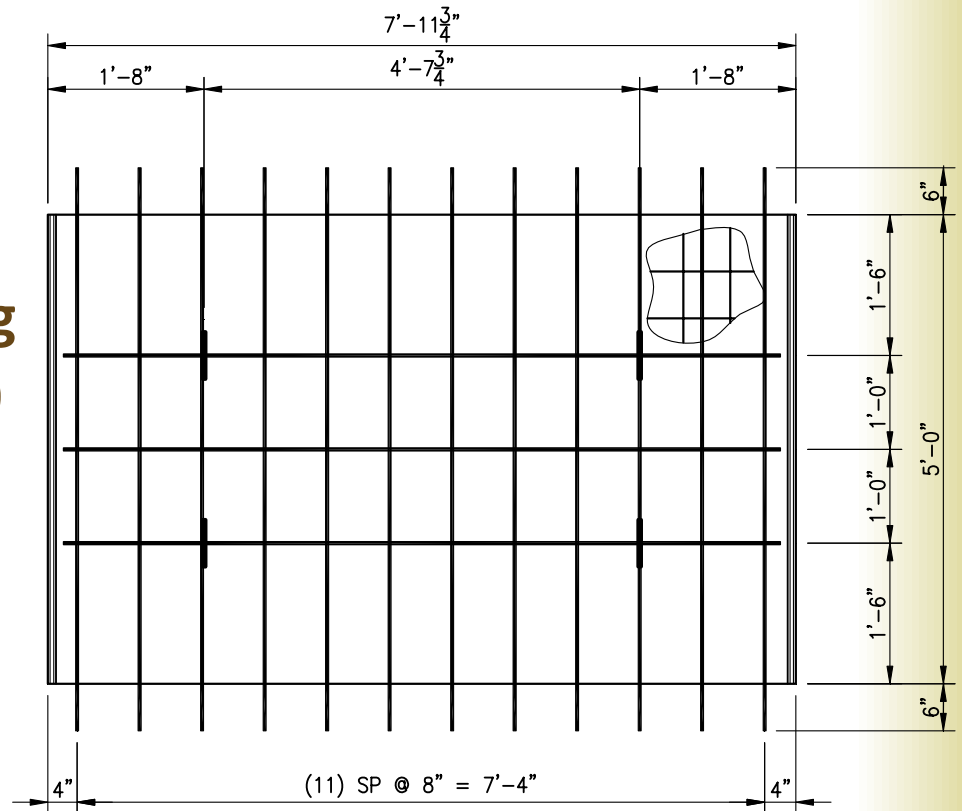
**High Quality
Concrete and
Soffit Finish**

**Reduction in Field
Placed Reinforcing
and Concrete**

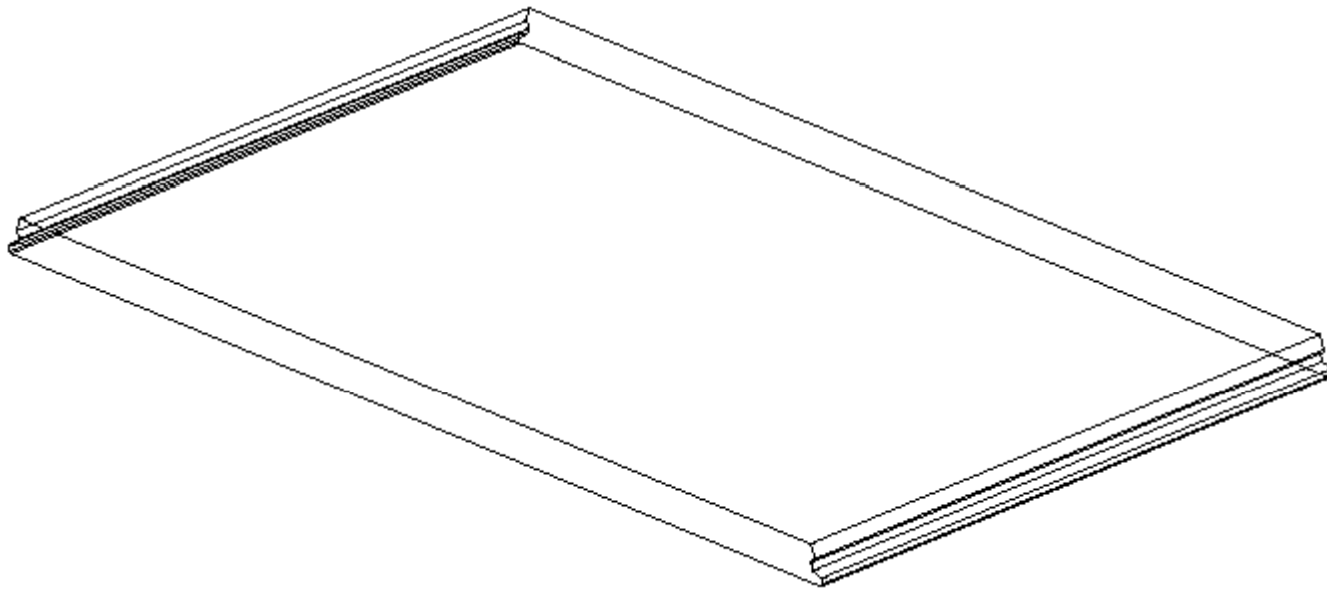
Anatomy of a Panel



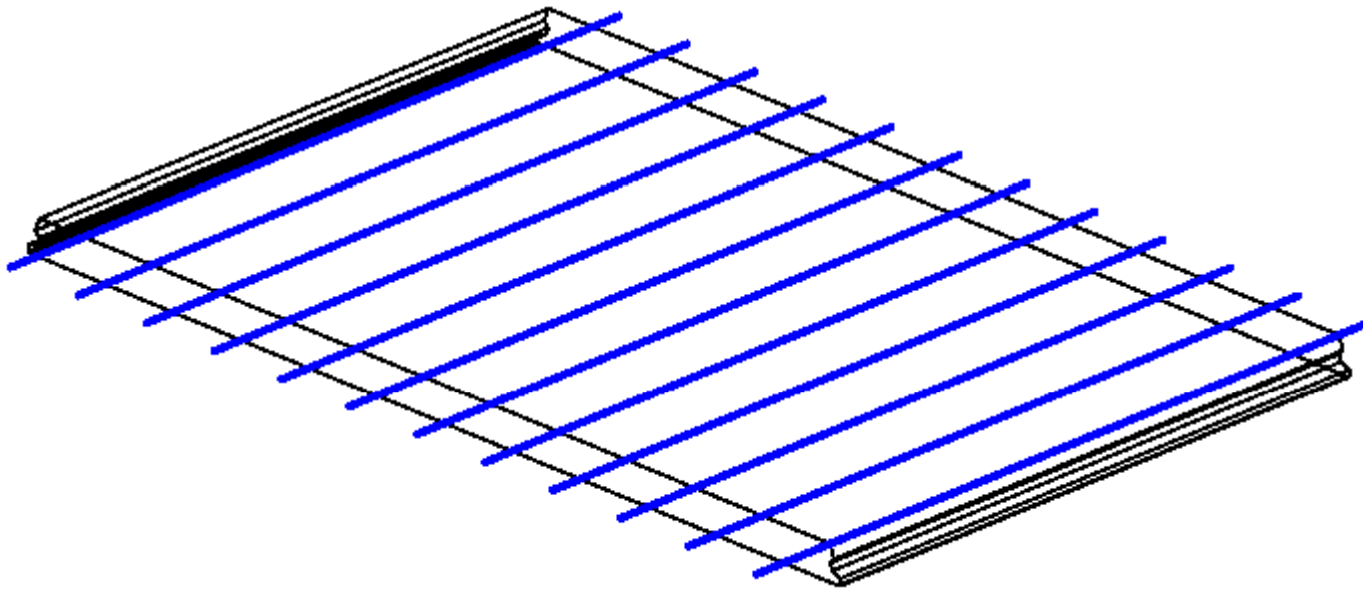
- Thickness 3.5 inches
- Laying length up to 8 feet
- Panel lengths up to 9'-6"
- 3/8" diameter prestressing strands at 6" (with 6" ext.)
- A few pieces of #3 mild reinforcing
- Single layer 6x6 – D4xD4 welded wire reinforcing



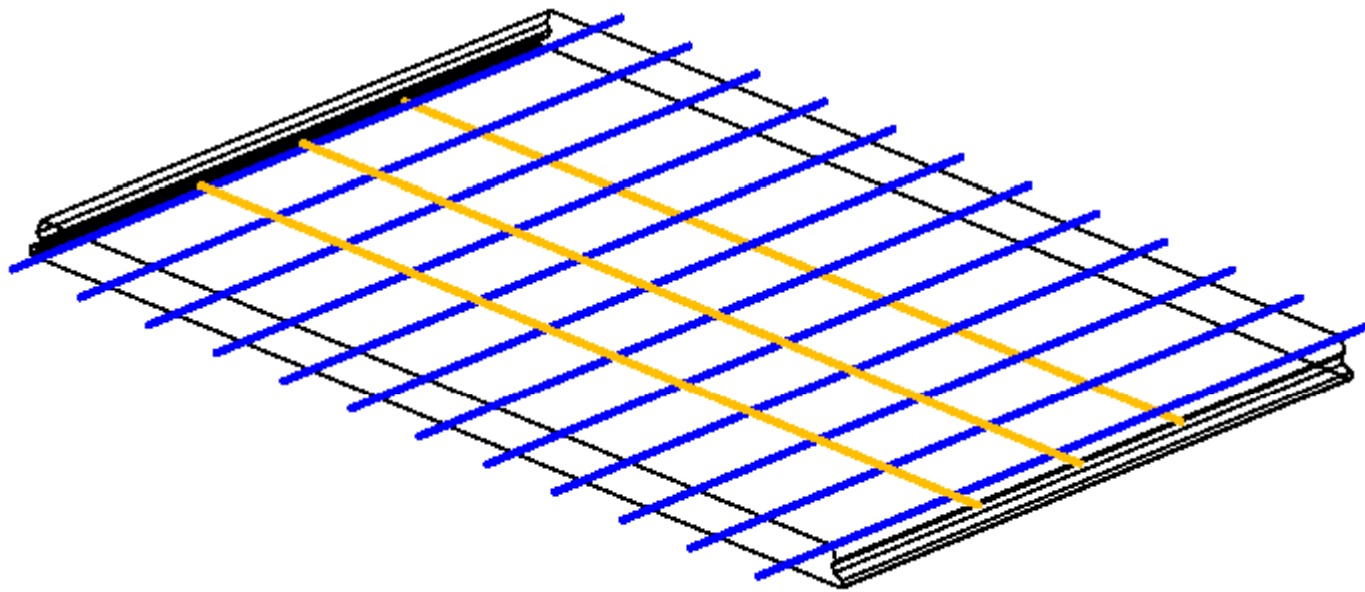
Panel



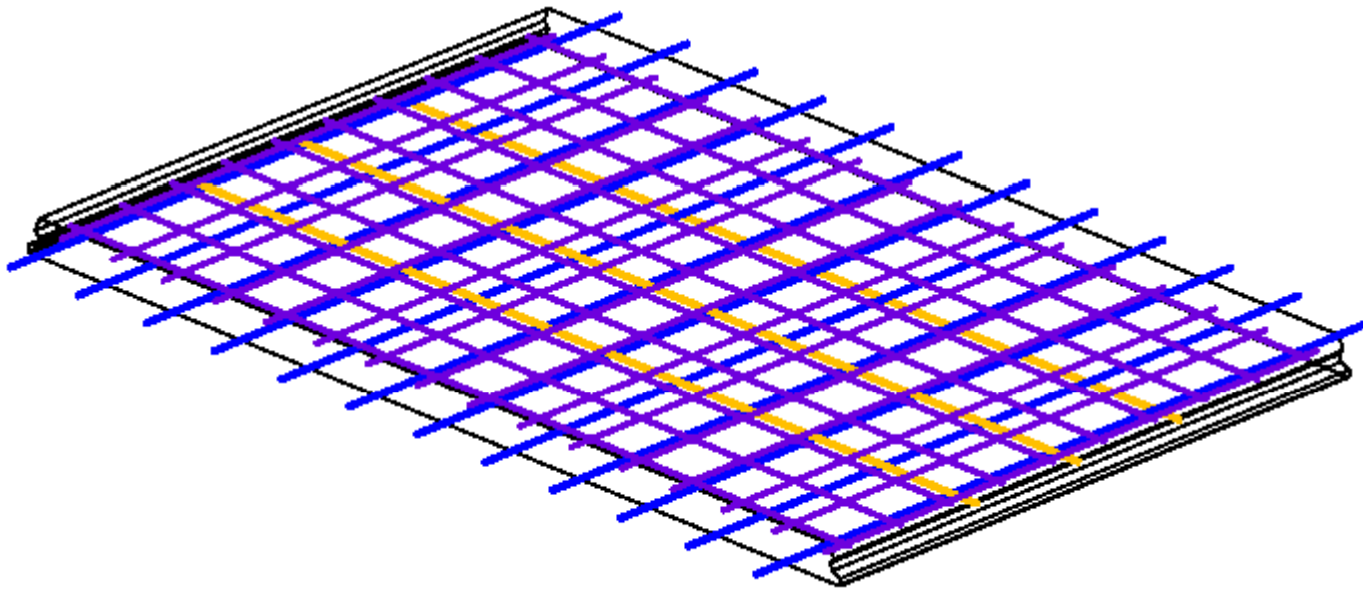
Panel + Strands @ 8" (mid-depth)



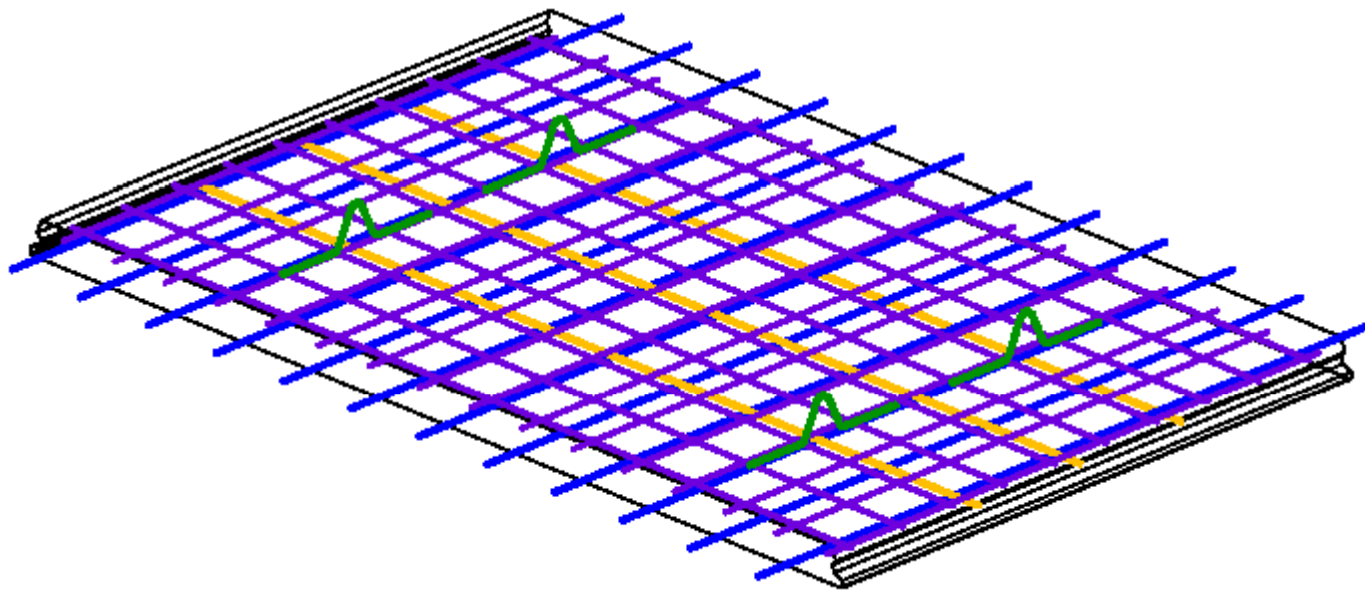
Panel + Strands @ 8" (mid-depth) + (3)#3



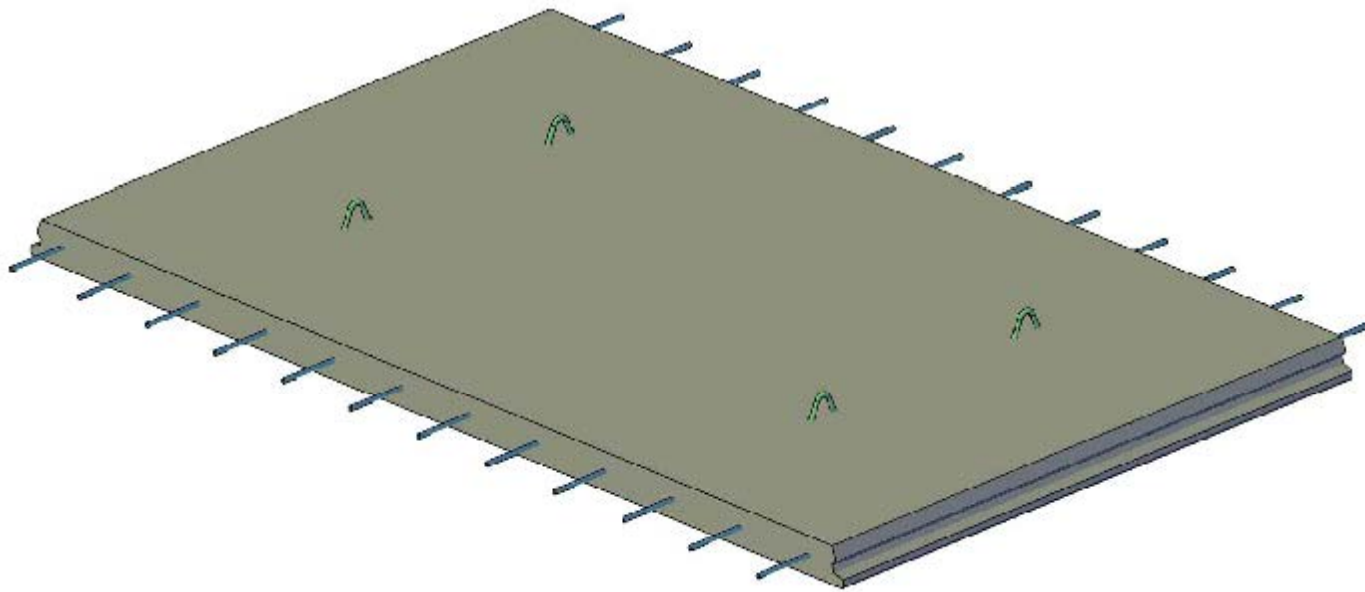
Panel + Strands @ 8" (mid-depth) + (3)#3
+ 6x6-D4xD4 deformed mesh



Panel + Strands @ 8" (mid-depth) + (3)#3
+ 6x6-D4xD4 deformed mesh + **Lift loops**



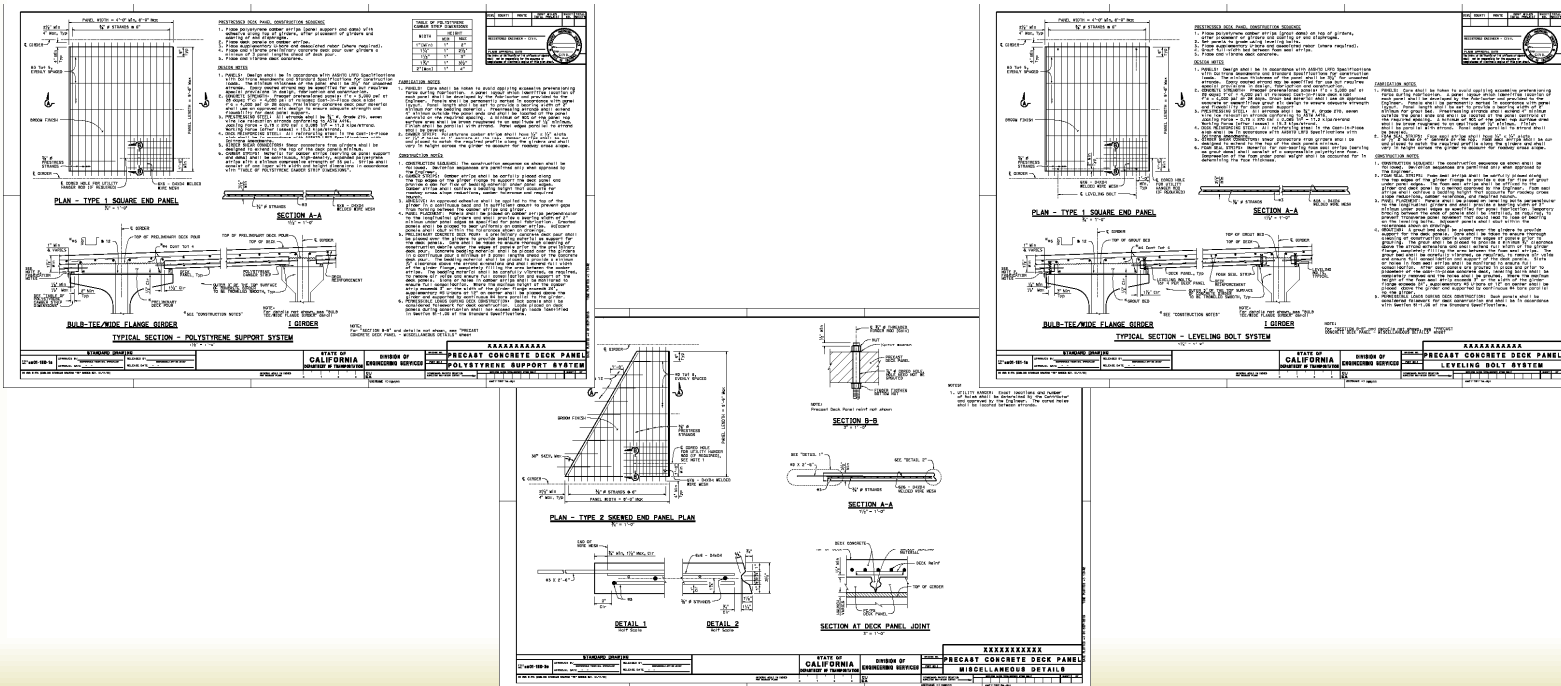
**Panel + Strands @ 8" (mid-depth) + (3)#3
+ 6x6-D4xD4 deformed mesh + Lift loops**



Design & Details



- Updated XS Sheets and Standard Special Provisions are close to publication (est. Summer 2012)

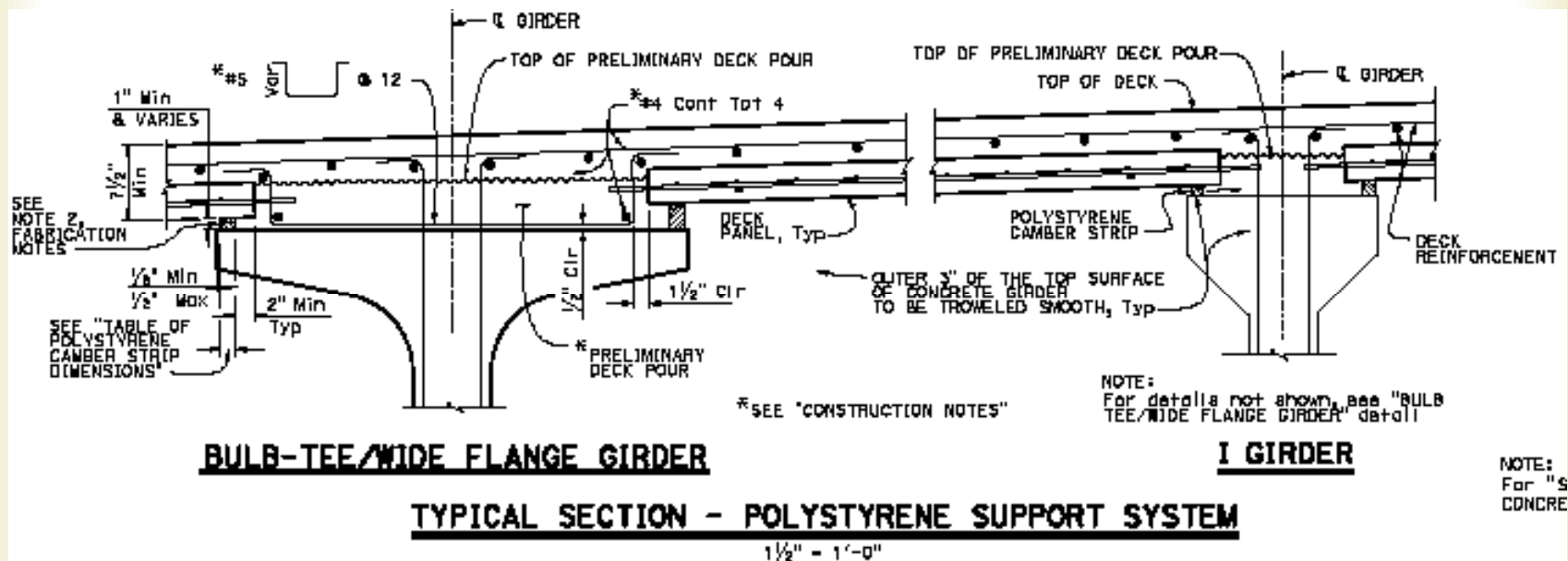


Bearing At Supports



Two alternate bearing systems:

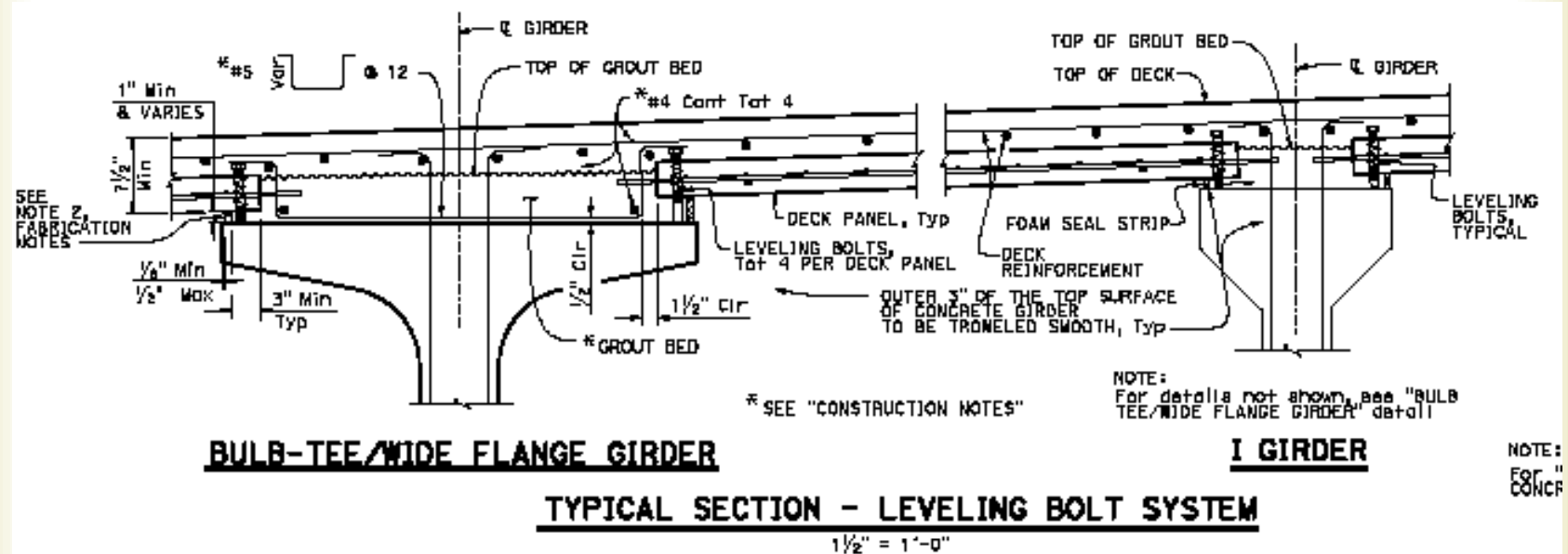
1) EPS Camber Strips



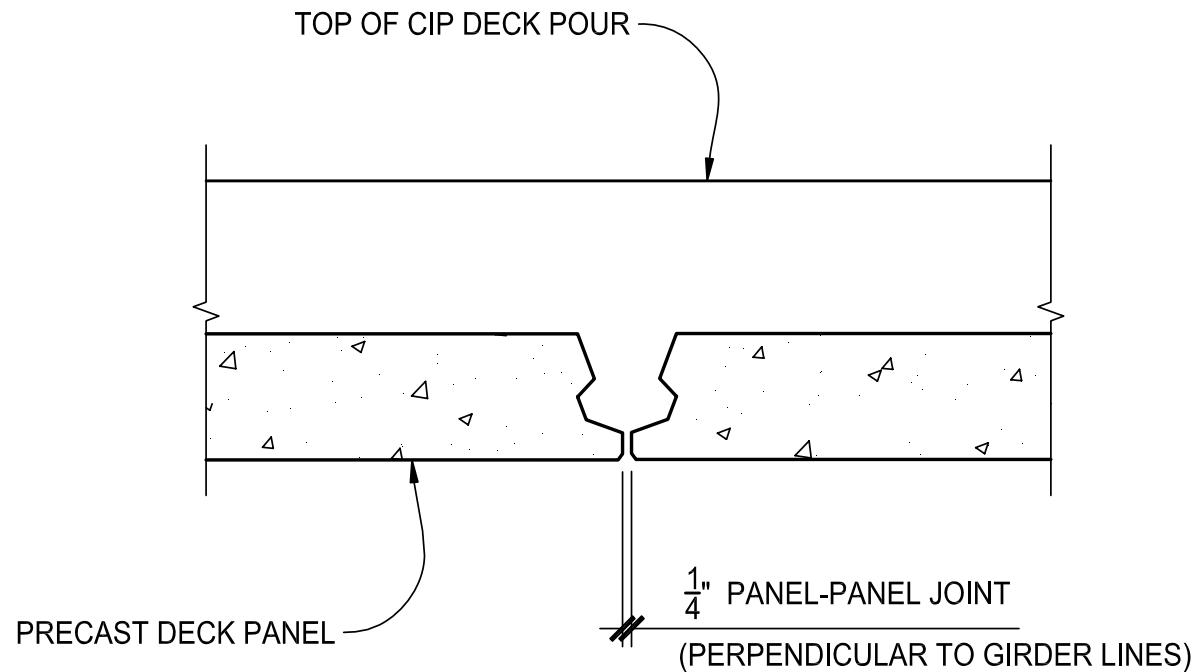
Bearing At Supports

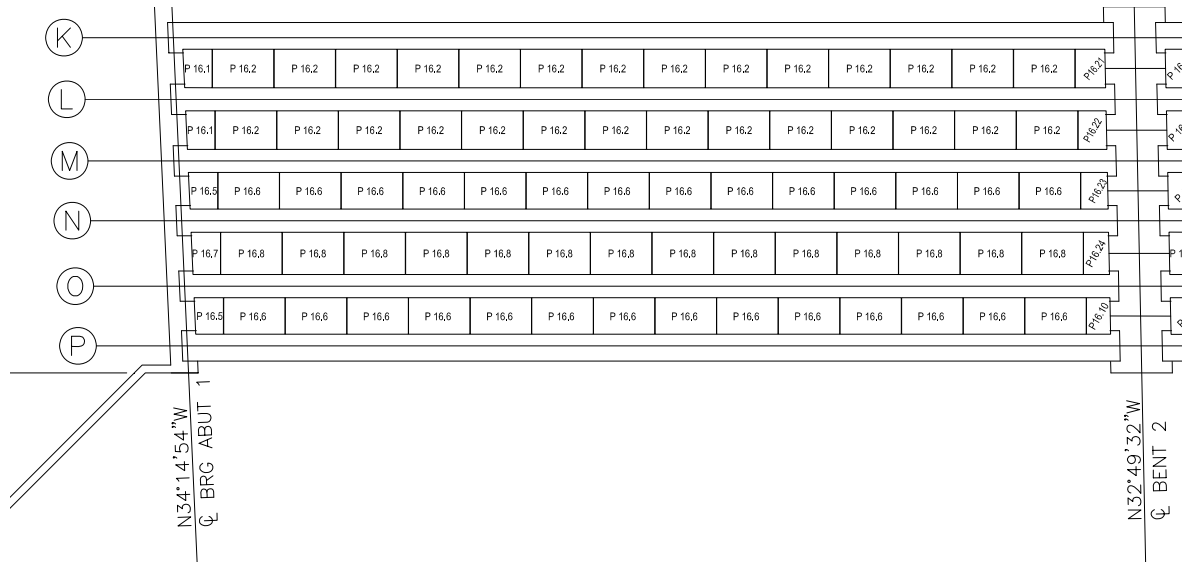
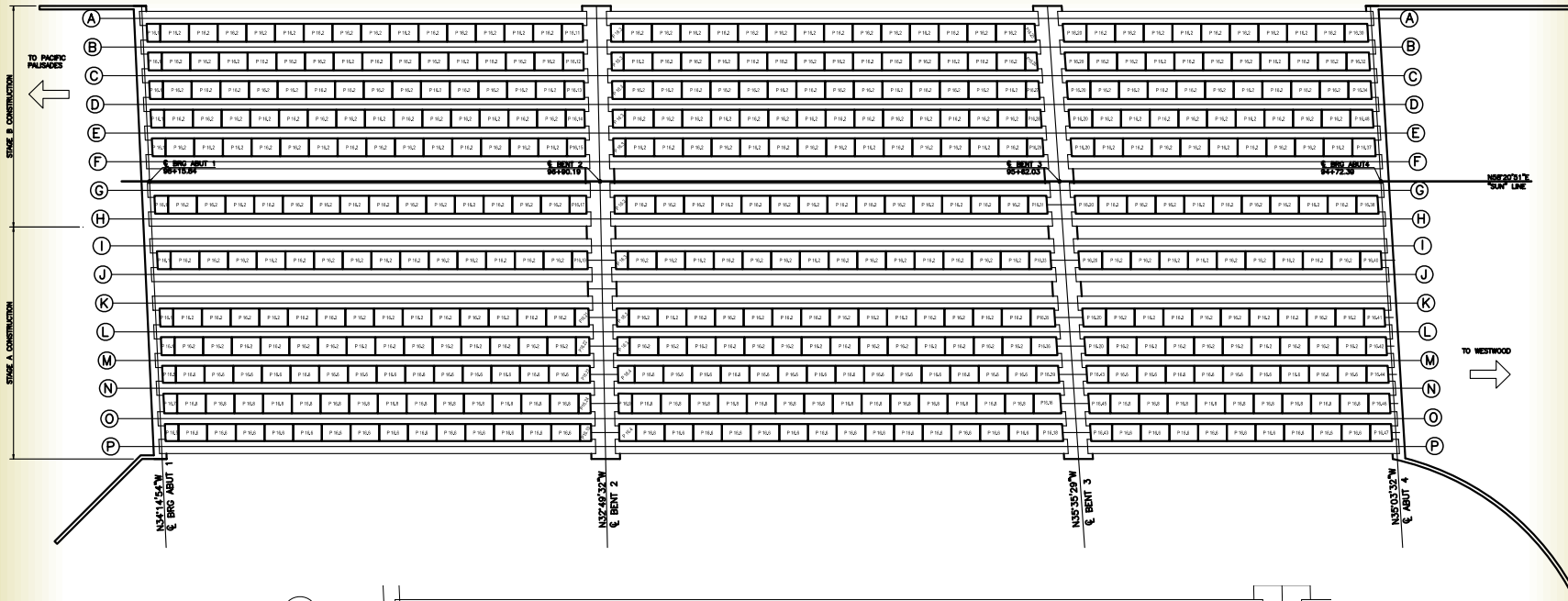


2) Leveling Bolts



Panel to Panel Joints



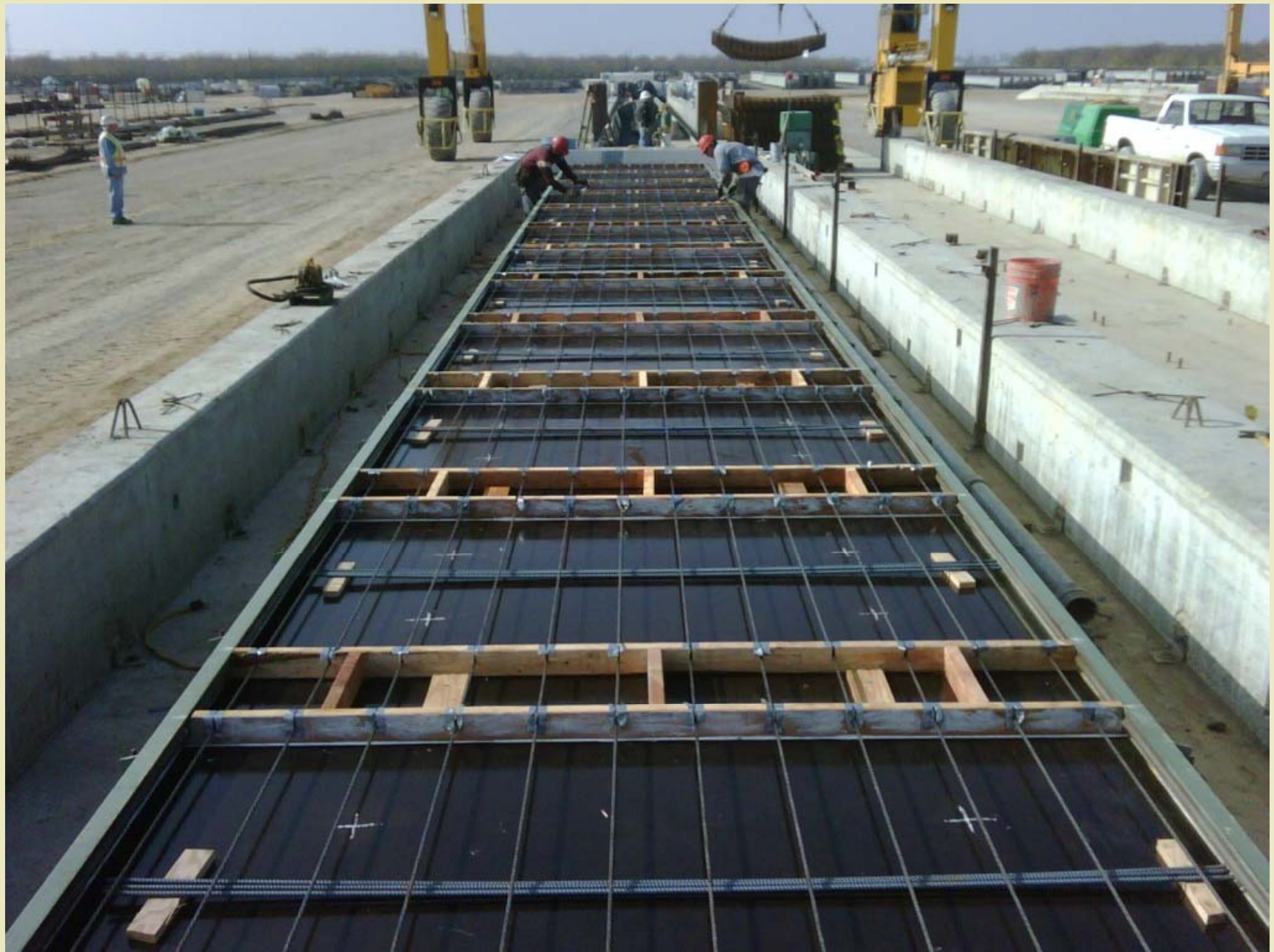


Panel Fabrication

























Installation



















Thank You



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