

# UHPC Connections

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*Efficiency through technology and collaboration*





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## UHPC for PBE Connections

- Ultra-High Performance Concrete
- Prefabricated Bridge Elements
- Bridge Construction

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## Design and Construction of UHPC Field-Cast Connections

- FHWA-HRT-14-084
- What is UHPC?
- Example Connections
- Structural Design
- Construction
- Quality Assurance
- Deployments

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### Conventional vs UHPC Connections



Conventional Detail



UHPC Detail



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### UHPC Deck-Level Connection Testing (Video)





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### UHPC Deck-Level Connection Testing (Video)





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### Bondable Interface to Reduce Leakage



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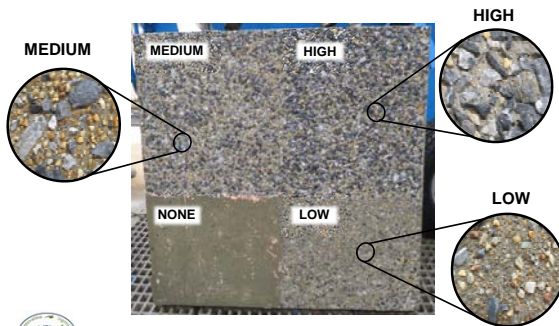
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### Bondable Interface to Reduce Leakage



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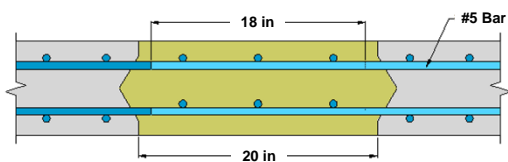
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### Conventional Closure Pour Connection



Closure Pour w/ Conventional Concrete



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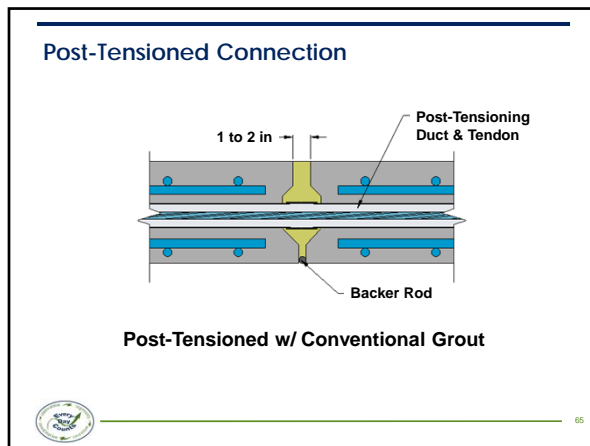
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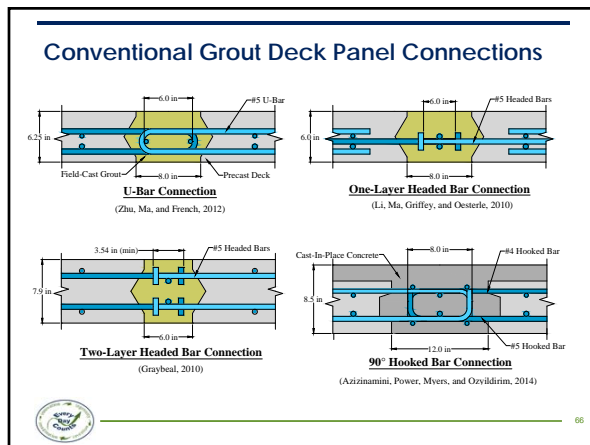
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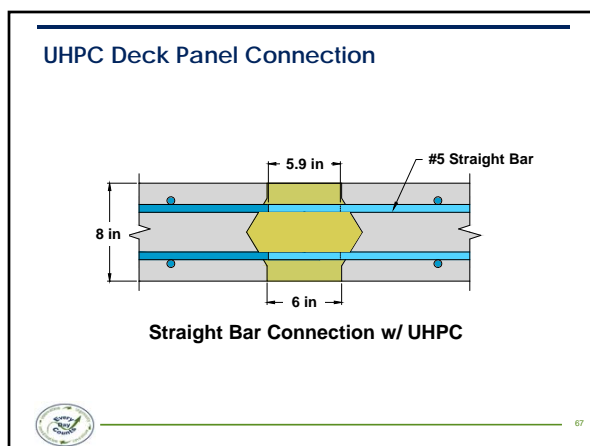
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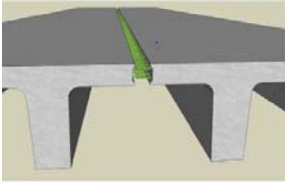

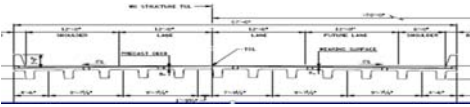
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### NEXT Beam





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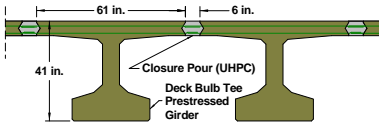
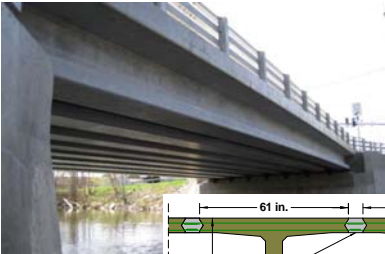
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### UHPC Connections b/t Deck-Bulb-Tee Girders



SR 31 over  
Canandaigua Outlet  
Lyons, New York



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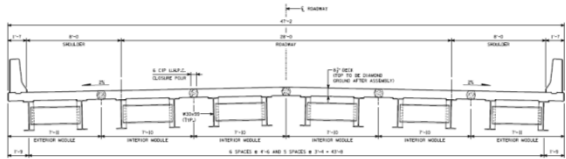
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### UHPC Connections b/t Modular Decked Units



U.S. 6 over Keg Creek  
Pottawattamie County, Iowa



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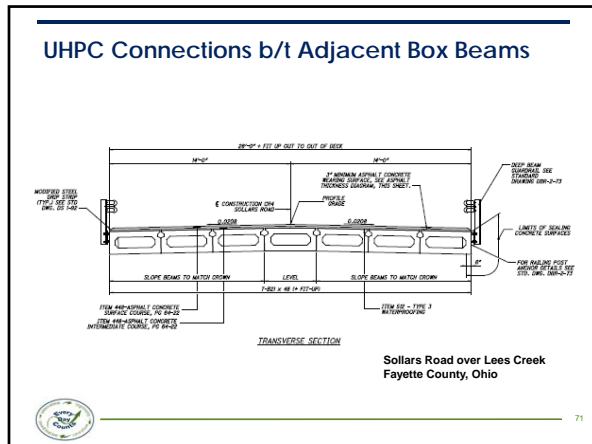
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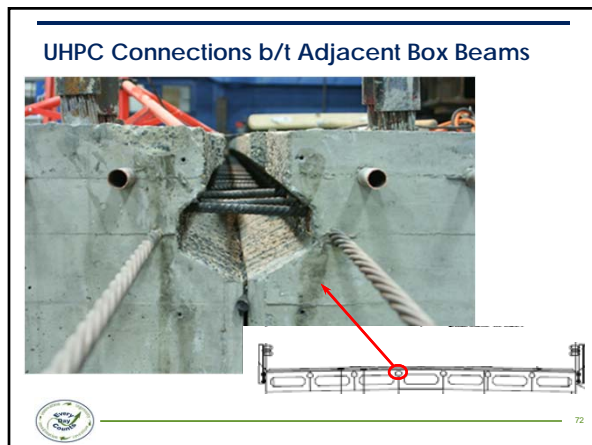
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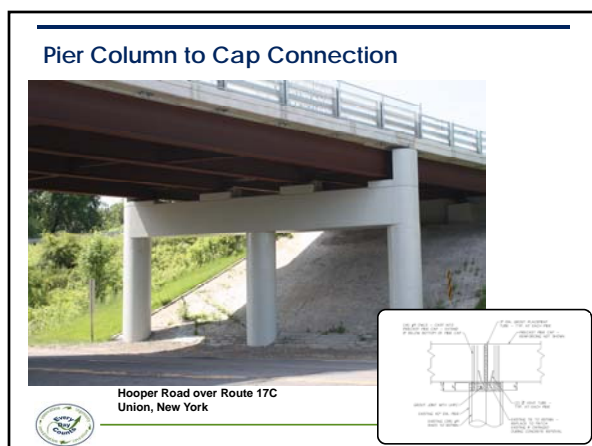
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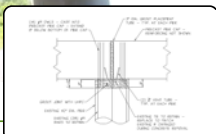
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### Pier Column to Cap Connection



Hooper Road over Route 17C  
Union, New York




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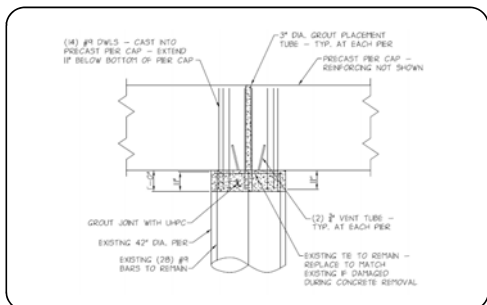
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### UHPC Connection for Substructures



Hooper Road over US 17C in Union, New York



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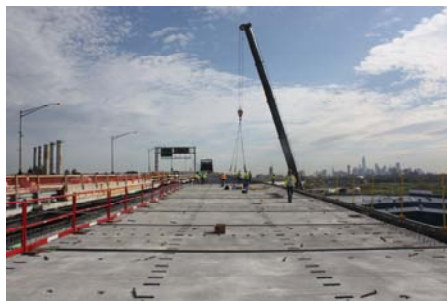
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### Precast Deck Panel Connections



Pulaski Skyway  
Newark, New Jersey




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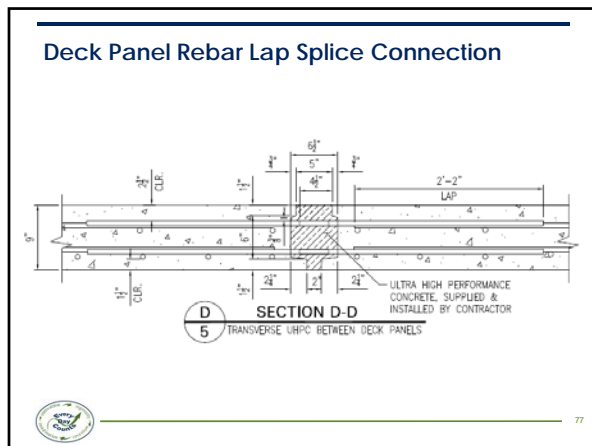
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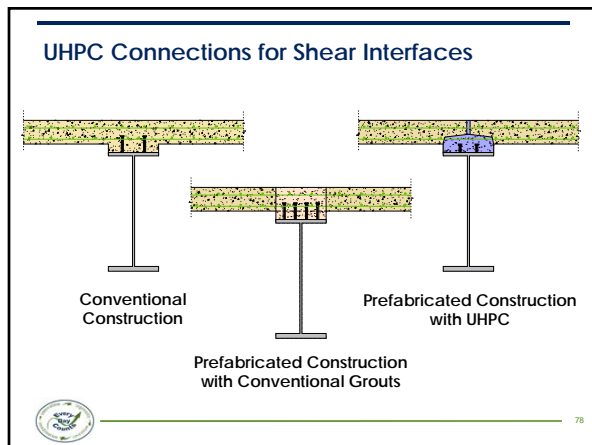
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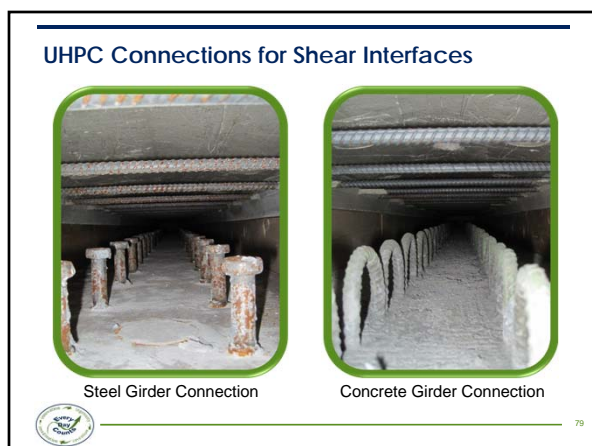
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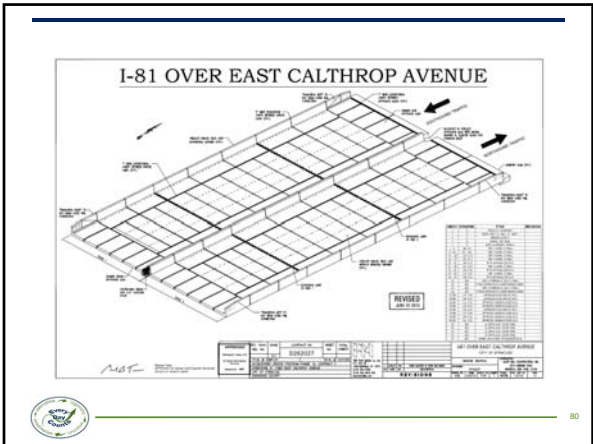
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**Deck-to-Deck Connection**

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**Deck-to-Deck Connection**

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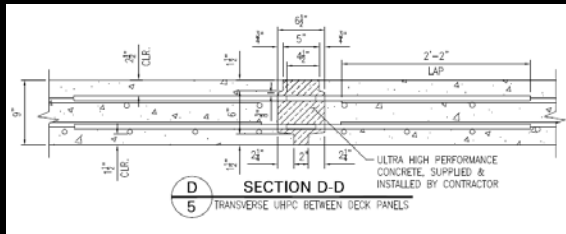
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**Deck-to-Deck Connection**

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**Deck-to-Girder Connection**

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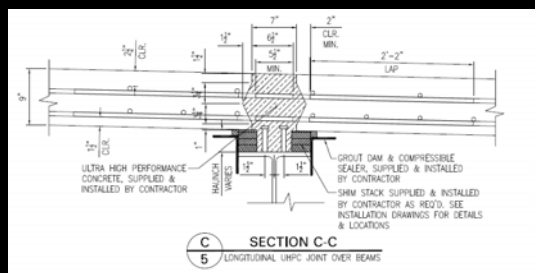
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**Deck-to-Girder Connection**

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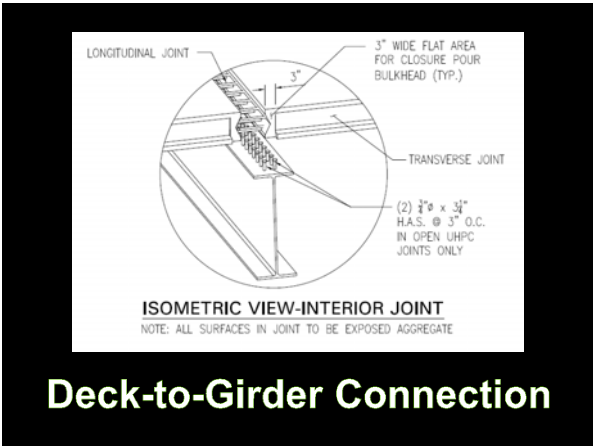
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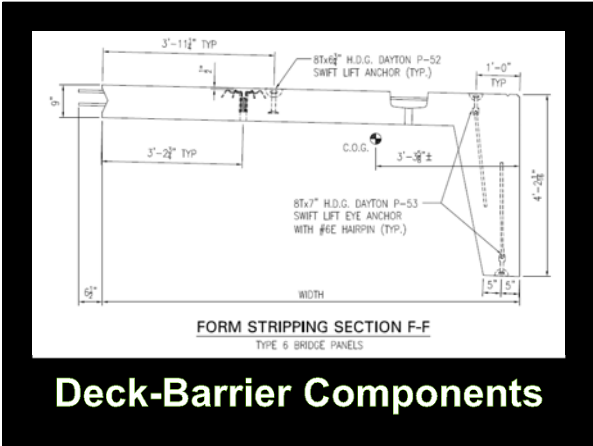
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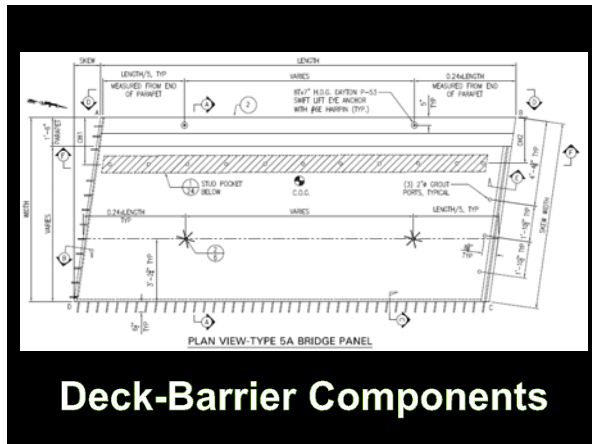
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**UHPC for PBE Connections**

- Ultra-High Performance Concrete
- Prefabricated Bridge Elements
- Simple, Robust Solution

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