

EXPANSION JOINT SOLUTIONS FOR CHALLENGING ENVIRONMENTS

SEPT. 23RD 2025, CHRIS FANNING
SIKA WATSON BOWMAN ACME TRANSPORTATION



BUILDING TRUST

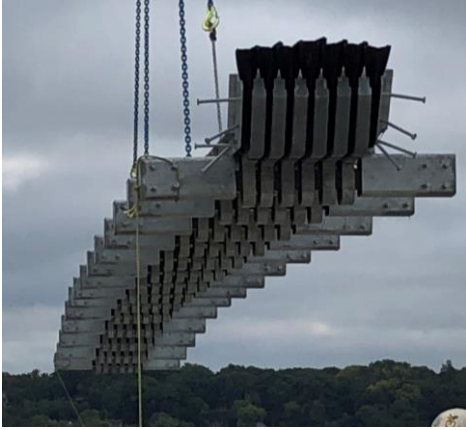


CONTENTS

- 01** Why Expansion Joints
- 02** Types of Expansion Joints
- 03** Rehabilitation Projects
- 04** Seismic Regions
- 05** Long Span Bridges

WHY EXPANSION JOINTS

WHY EXPANSION JOINTS



Movement

- Thermal
- 6 degrees of movement



Water Management

- Element protection
- Corrosion prevention

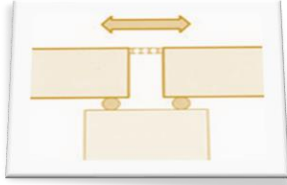


Spanning the Gap

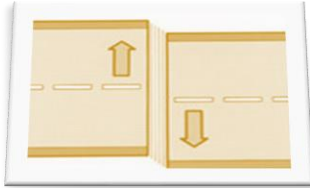
- Seismic regions
- Adjacent structure

WHY EXPANSION JOINTS

MOVEMENT



**Longitudinal
Movement**



**Transverse
Movement**



**Vertical
Movement**



**Rotation about "X"
Axis (fanning)**

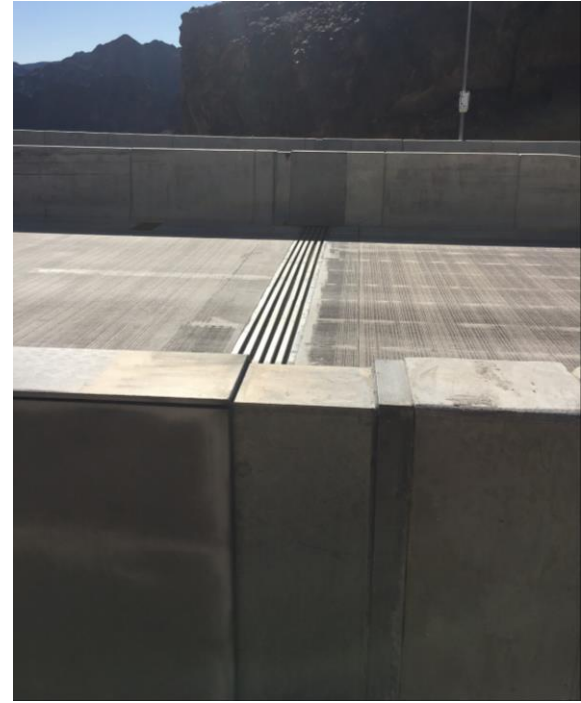


**Rotation about
"Y" Axis**



**Rotation about "Z"
axis**

WHY EXPANSION JOINTS MOVEMENT



WHY EXPANSION JOINTS

WATER MANAGEMENT



WHY EXPANSION JOINTS SPANNING THE GAP



TYPE OF EXPANSION JOINTS

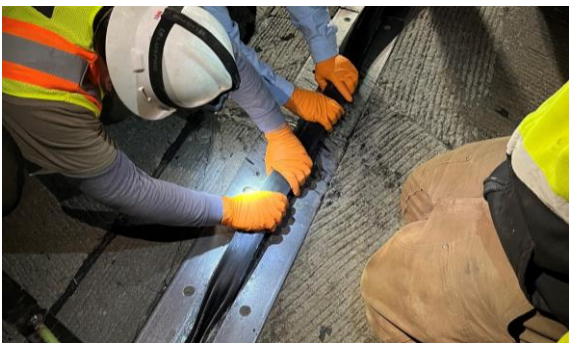
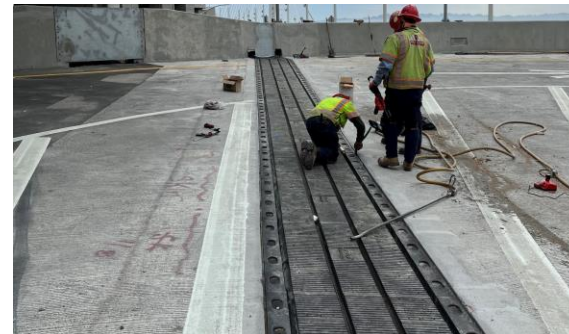
TYPES OF EXPANSION JOINTS

MOVEMENT CLASSIFICATION

Small Movement: 0 – 2 in.

Medium Movement: 2 – 4 in.

Large Movement: >4 in.



TYPES OF EXPANSION JOINTS

MARKET SECTORS



Bridges



Highways



Airports



Tunnels



Ports

TYPES OF EXPANSION JOINTS

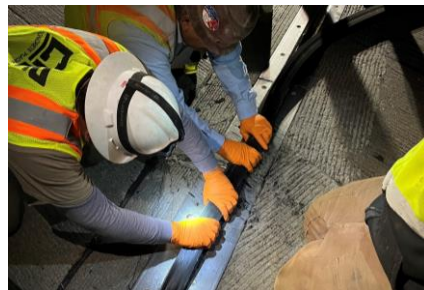
PRODUCT SOLUTIONS



SILICONE TECHNOLOGY



FOAM TECHNOLOGY



NEOPRENE SOLUTIONS



HEADER SOLUTIONS



JOINT SEAL ASSEMBLY



SEGMENTAL TECHNOLOGY



SEISMIC SOLUTIONS



TUNNEL SOLUTIONS

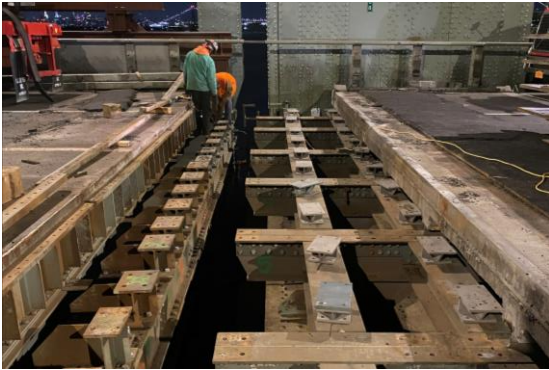
REHABILITATION PROJECTS



BUILDING TRUST



REHABILITATION PROJECTS



Considerations

- Understanding the project
- Repair or Replace
- Unknown
- Staging
- Night work
- Just in time changes
- Fitting new to old

REHABILITATION PROJECTS

HEADERS



- Adhesion / Bonding



- Support



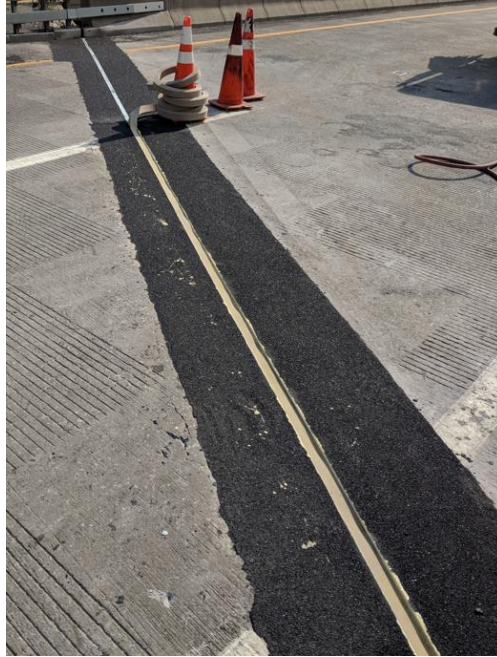
- No relief

REHABILITATION PROJECTS

HEADERS

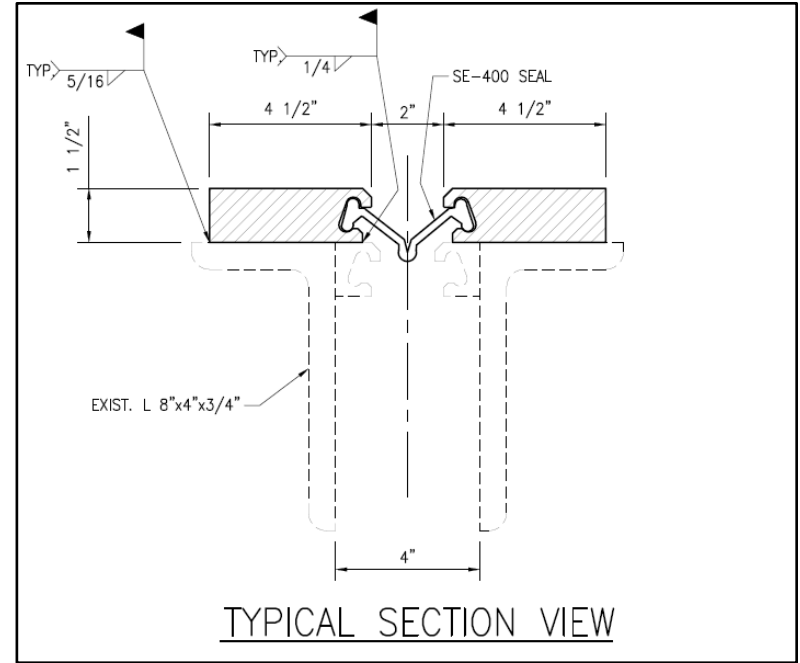
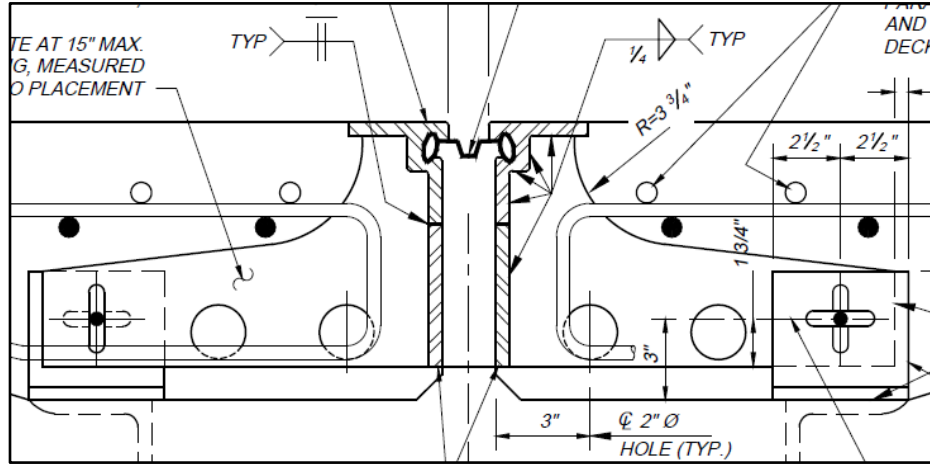
Types of Headers / Nosings

- Elastomeric
- Epoxy
- Polyester



REHABILITATION PROJECTS

OVERLAY RETROFIT



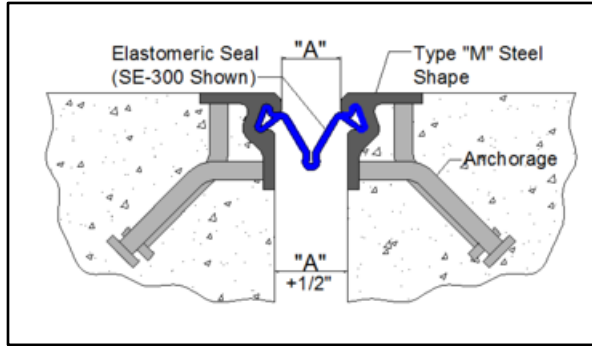
REHABILITATION PROJECTS

OVERLAY SOLUTIONS - ASPHALTIC PLUG JOINTS



REHABILITATION PROJECTS

STRIP SEAL EXPANSION JOINTS

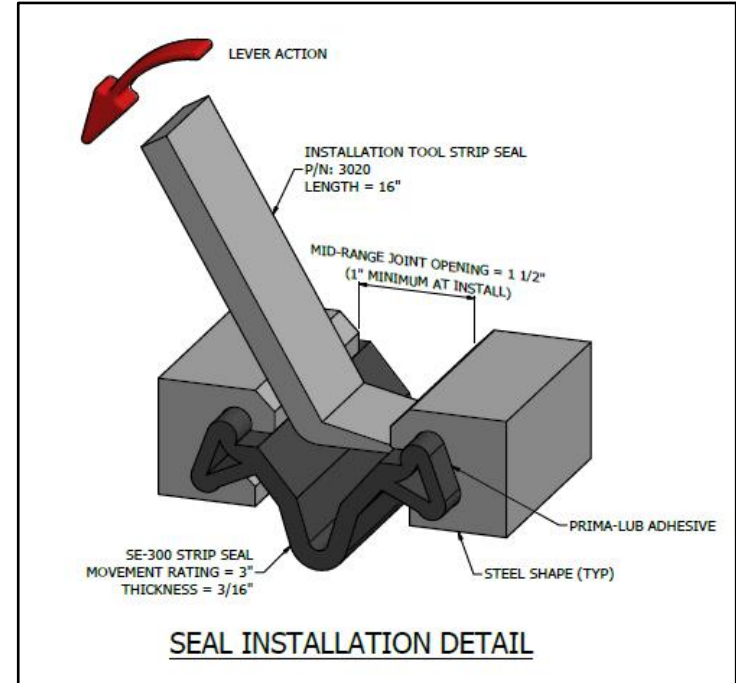


- Edge Member
- Sealing Element
- Anchorage



REHABILITATION PROJECTS

STRIP SEAL EXPANSION JOINTS – GLAND REPLACEMENT



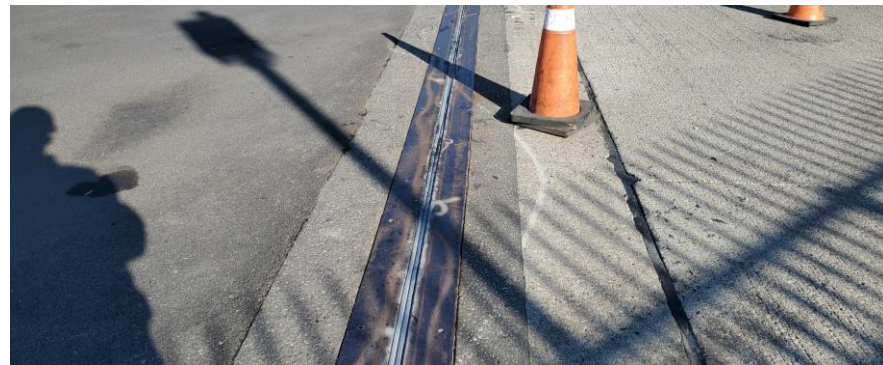
REHABILITATION PROJECTS

JOINT SEAL REPLACEMENT - PRE-COMPRESSED FOAMS



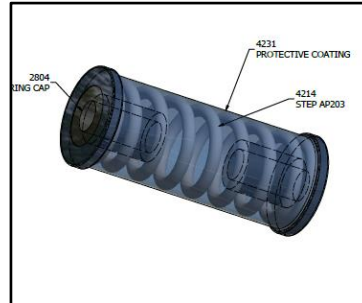
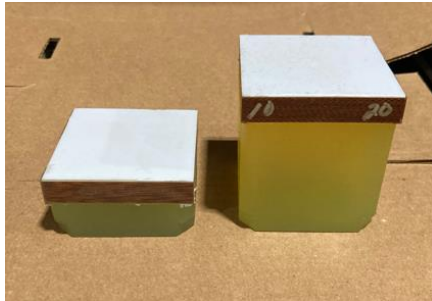
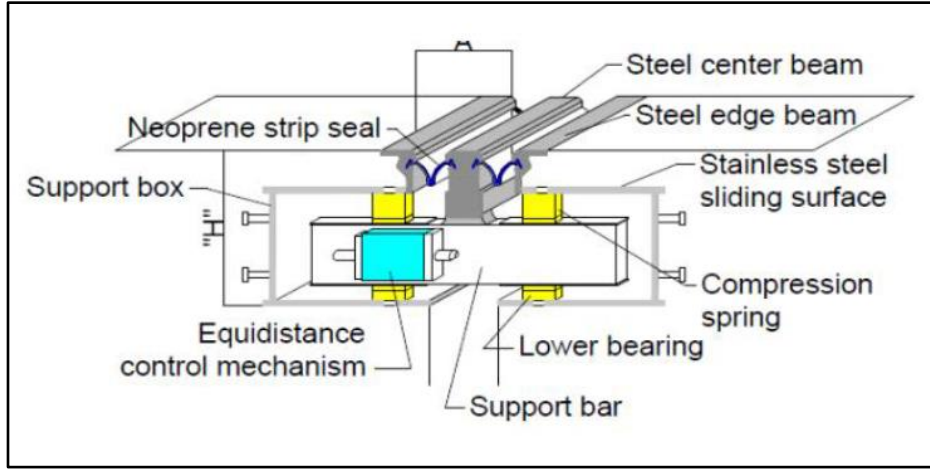
REHABILITATION PROJECTS

JOINT SEAL REPLACEMENT - PRE-COMPRESSED FOAM



REHABILITATION PROJECTS

MODULAR EXPANSION JOINTS



REHABILITATION PROJECTS

MODULAR EXPANSION JOINTS



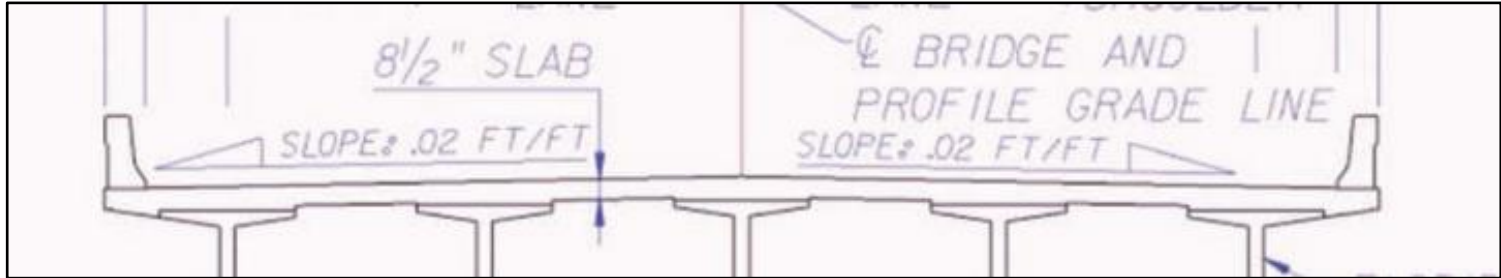
- Gland & Equidistant



- Header / Spalling



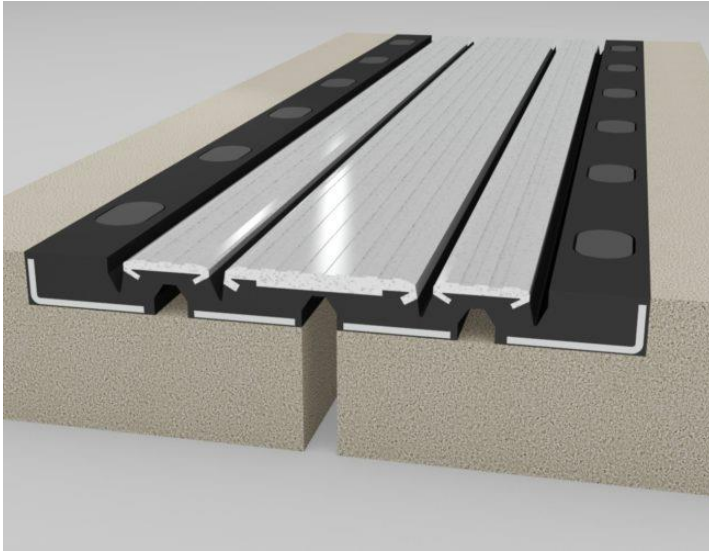
- Centerbeam Issues



Technical drawing of a bridge approach showing a cross-section of the roadway, bridge structure, and pier. The drawing includes various dimensions and labels for components like the joint seal, T&B 4x4x375 (A36), PL 1/2 x 5, Round Corners (Typ), MC10x28.5 (Typ), and 4x3/4 phi Stud. It also references 'See Detail A', 'See Detail B', 'See Detail C', and 'See Detail D'. The drawing is labeled 'Type 301 A' and 'Brg. Span 7 (Approach)'.

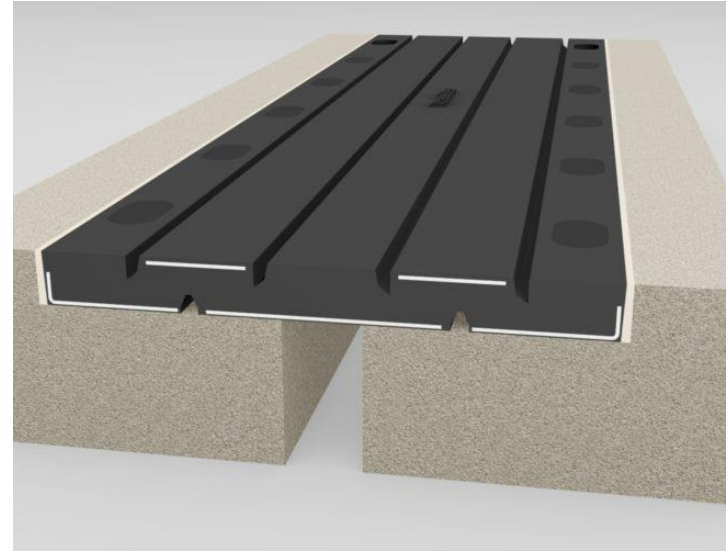
REHABILITATION PROJECTS

LOW HEIGHT CLEARANCE – SEGMENTAL JOINTS



Wabo®Flex

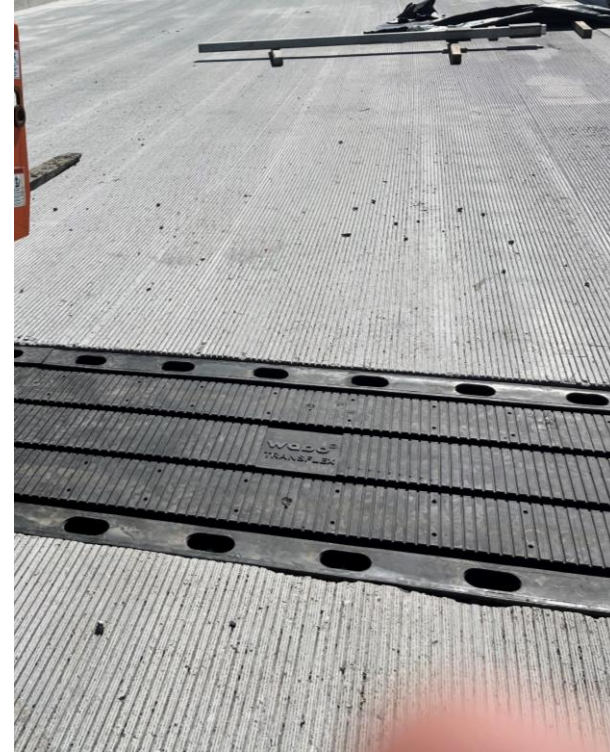
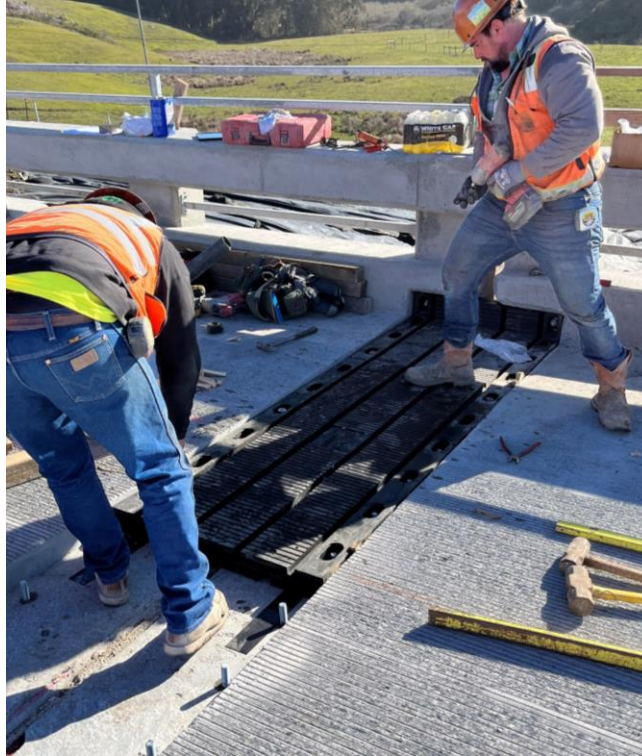
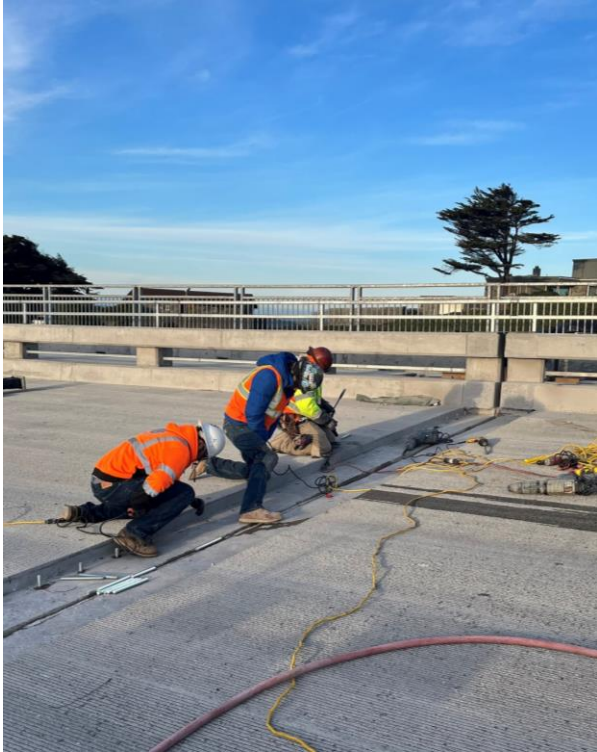
- Reinforced elastomeric molded rubber expansion joint system
- Reduced expansion cavities to limit debris accumulation
- Movement classification from 2" up to 13"



Wabo®TransFlex

REHABILITATION PROJECTS

LOW HEIGHT CLEARANCE – SEGMENTAL JOINTS



REHABILITATION PROJECTS

EXPANSION JOINT REPLACEMENT – FINGER JOINTS



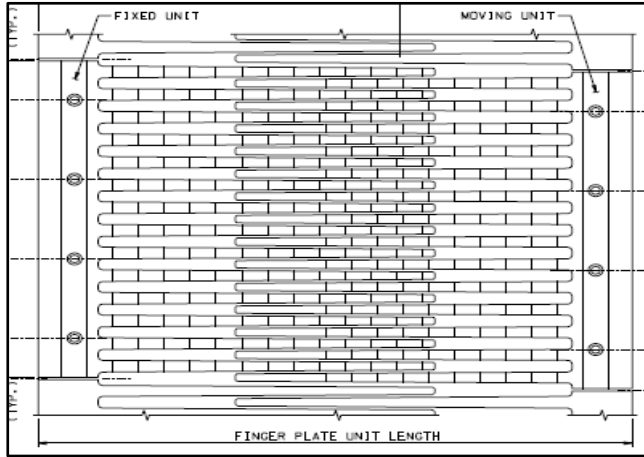
Cast in Place

- Cantilevered Fingers
- Permanently part of the structure
- Steel deflector plates
- Neoprene trough for water management



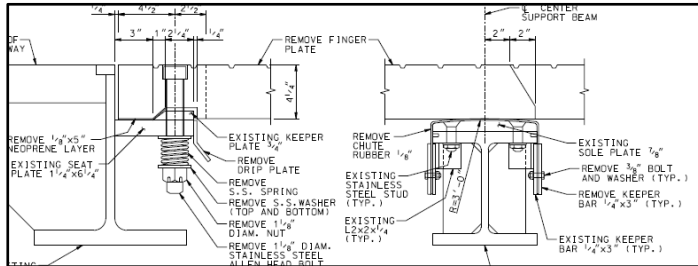
REHABILITATION PROJECTS

EXPANSION JOINT REPLACEMENT – FINGER JOINTS



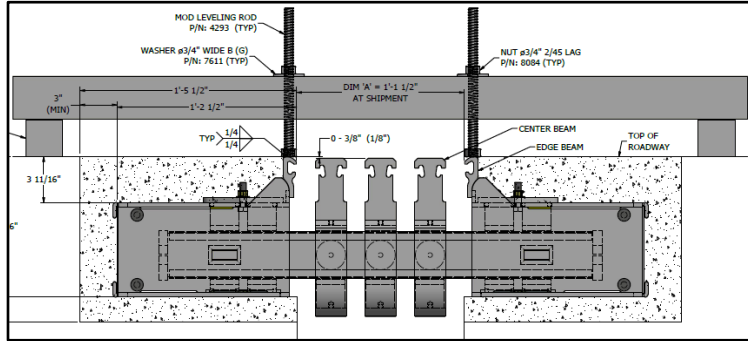
Extreme Movement

- Cantilevered Fingers
- Multi-point of support
- Steel deflector plates
- Multiple degrees of movement



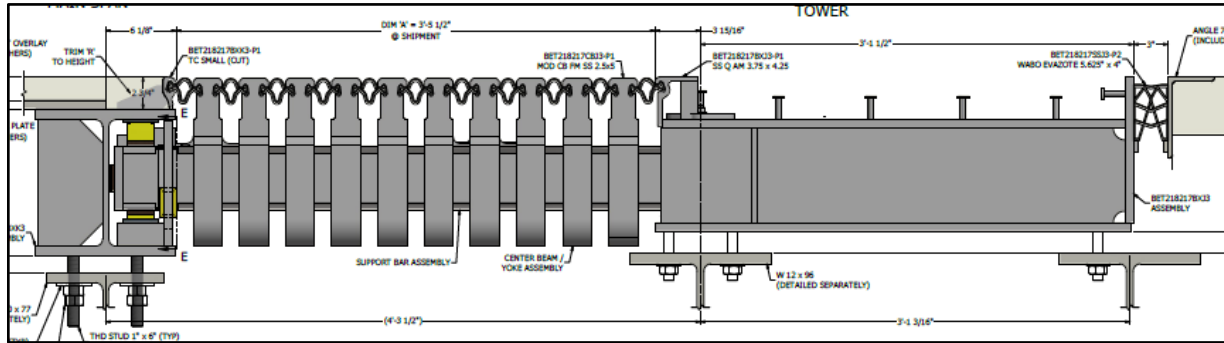
REHABILITATION PROJECTS

EXPANSION JOINT REPLACEMENT - MODULAR EXPANSION JOINTS



Standard Product Solution

- Customer fit
- Integrated support
- Sealed water management

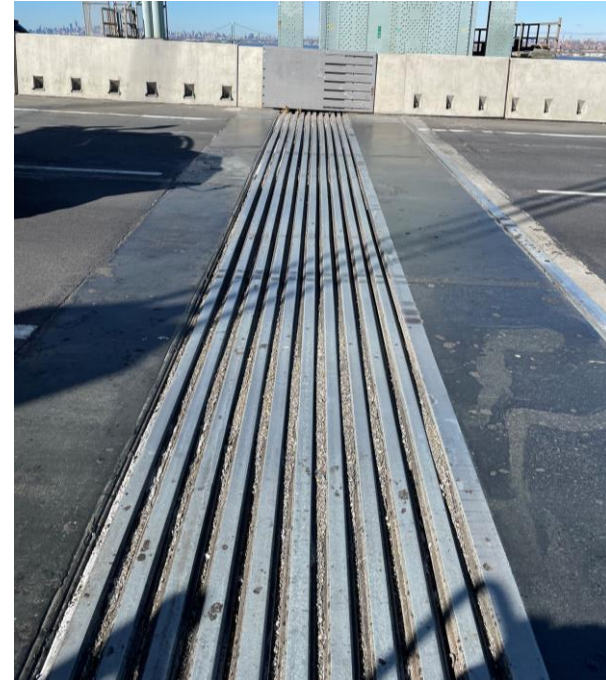
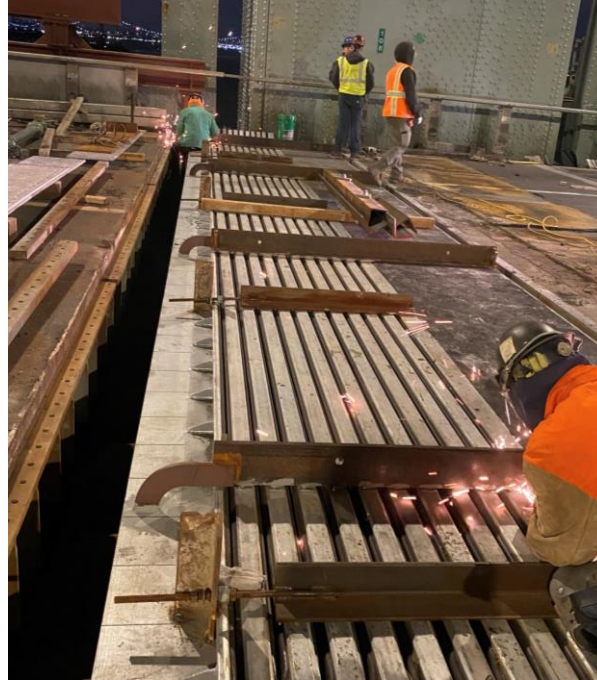
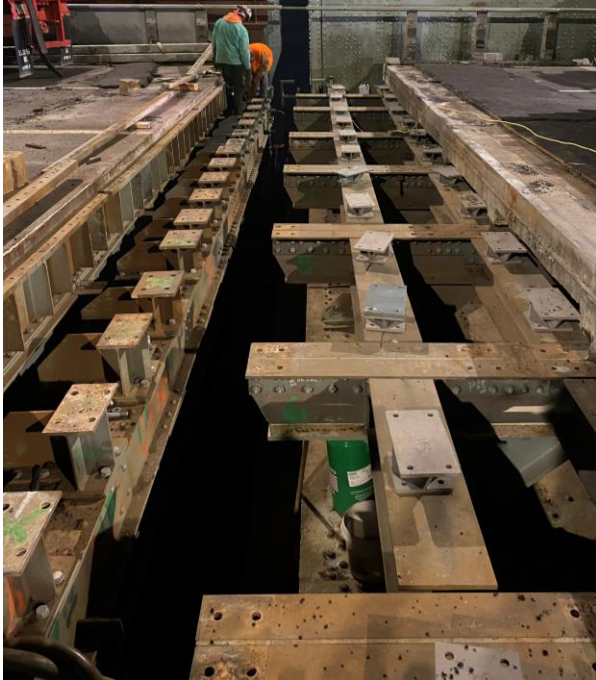


Project Specification Solution

- Customer fit
- Integrated support
- Sealed water management
- Specific testing

REHABILITATION PROJECTS

EXPANSION JOINT REPLACEMENT - MODULAR EXPANSION JOINTS



SEISMIC REGIONS

SEISMIC REGIONS



Considerations

- Large Movements
- Multi-directional movements
- Accelerated movements
- Post event accessibility

SEISMIC: WABO TRANSFLEX MDM

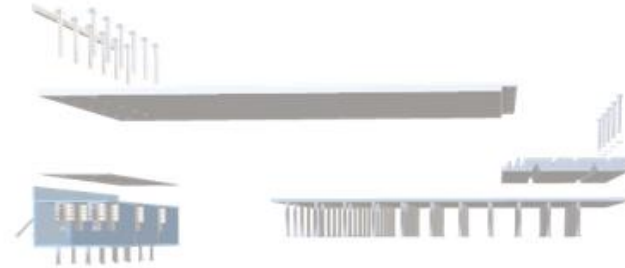
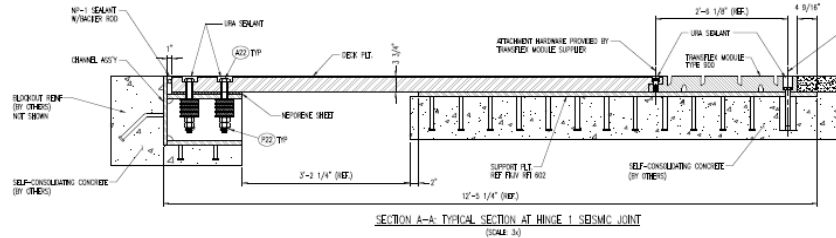
CAPELL CREEK BRIDGE REPLACEMENT PROJECT



SEISMIC: WABO TRANSFLEX MDM

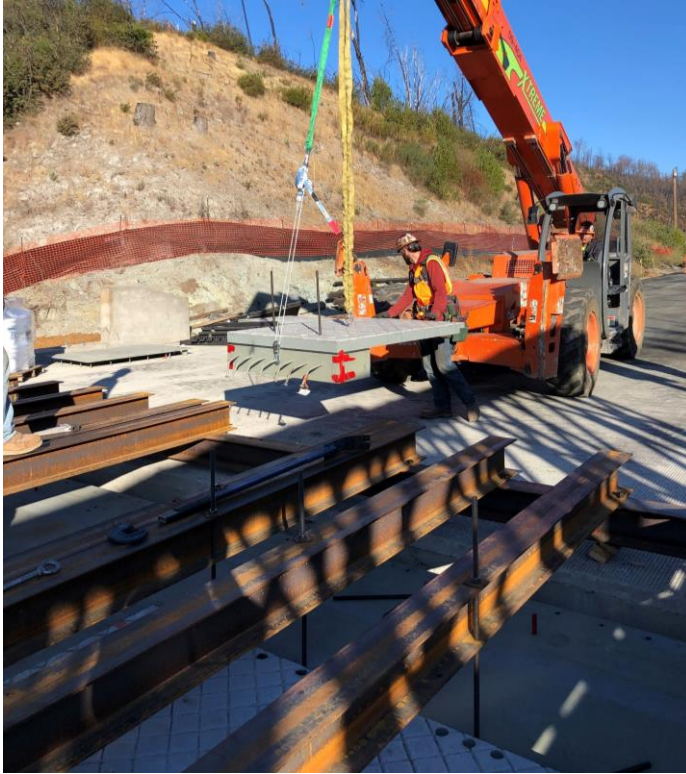
CAPELL CREEK BRIDGE REPLACEMENT PROJECT

Multi Directional Segmental System Seismic



WABO TRANSFLEX MDM

CAPELL CREEK BRIDGE REPLACEMENT PROJECT



WABO TRANSFLEX MDM

CAPELL CREEK BRIDGE REPLACEMENT PROJECT



LONG SPAN BRIDGES

LONG SPAN BRIDGES

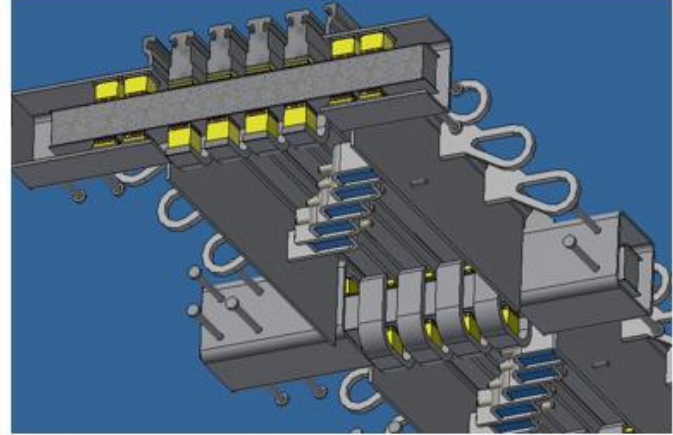


Considerations

- Large Movements
- Multi-directional movements
- Hogging and Sagging
- Access
- Handling
- Field work
- Auxiliary components

LONG SPAN BRIDGES

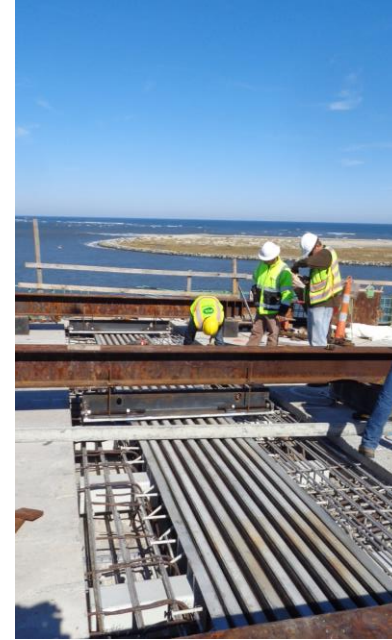
MODULAR EXPANSION JOINTS



- Large movement capacity
- Able to be installed on skew
- Longer length sections preferred
- Wearable componentry

LONG SPAN BRIDGES

MODULAR EXPANSION JOINTS - ENVIRONMENT



LONG SPAN BRIDGES

SUPPLY & ACCESS



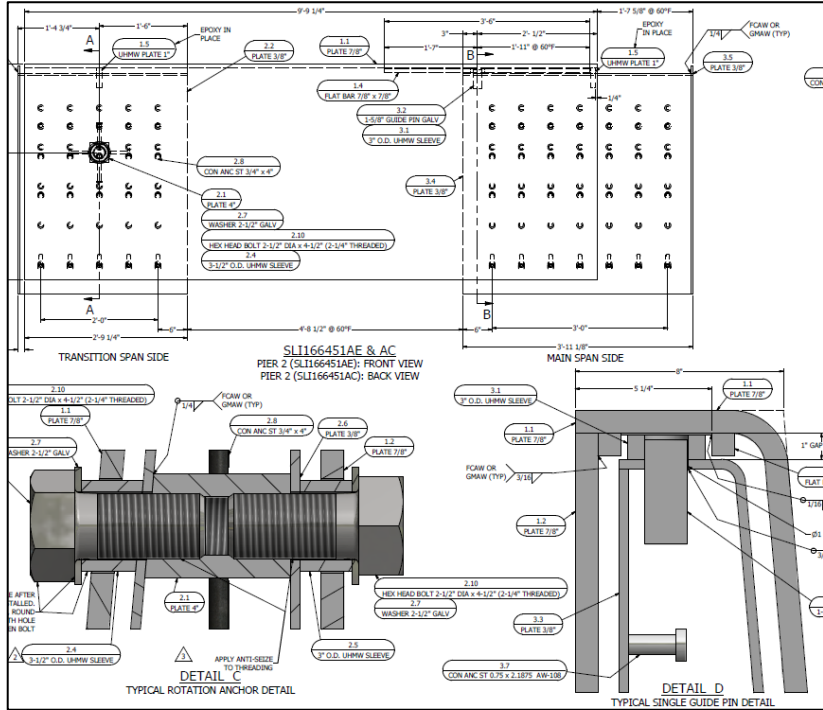
LONG SPAN BRIDGES

SUPPLY & ACCESS



LONG SPAN BRIDGES

BARRIER PLATES



SUMMARY

- 01** Why Expansion Joints
- 02** Types of Expansion Joints
- 03** Rehabilitation Projects
- 04** Seismic Regions
- 05** Long Span Bridges

Panel



Beau Harrison
Southeast Regional
Sales Manager



Chris Fanning
National Sales
Manager



Chris Smyth
West Regional
Sales Manager



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