EXPANSION JOINTS: BRIDGING THE GAP BETWEEN REPAIR AND REPLACEMENT

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SIKA / WATSON BOWMAN ACME TRANSPORTATION
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
REPLACEMENT / REPAIR
REPLACEMENT / REPAIR HEADERS

Types of Headers / Nosings

- Elastomeric
- Epoxy
- Polyester
REPLACEMENT / REPAIR

HEADERS

- Adhesion / Bonding
- Support
- No relief
REPLACEMENT / REPAIR
STRIP SEAL EXPANSION JOINTS

- Edge Member
- Sealing Element
- Anchorage
REPLACEMENT / REPAIR
STRIP SEAL EXPANSION JOINTS – GLAND REPLACEMENT
REPLACEMENT / REPAIR
PRE-COMPRESSED FOAMS
REPLACEMENT / REPAIR
PRE-COMPRESSED FOAM – STRIP SEAL REPAIR
REPLACEMENT / REPAIR
MODULAR EXPANSION JOINTS

- Large movement capacity
- Able to be installed on skew
- Longer length sections preferred
- Wearable componentry
REPLACEMENT / REPAIR
MODULAR EXPANSION JOINTS
REPLACEMENT / REPAIR
MODULAR EXPANSION JOINTS

- Gland & Equidisant
- Header / Spalling
- Centerbeam Issues
OVERLAY SOLUTIONS
OVERLAY SOLUTIONS

OVERLAY TYPES

- Asphalt Concrete
- Portland Cement-Based Concrete
- Latex Modified Concrete
- Epoxy Polymer Concrete
- Polyester Polymer Concrete
OVERLAY SOLUTIONS
ARMORLESS JOINT
OVERLAY SOLUTIONS
STRIP SEAL RETROFIT

TYPICAL SECTION VIEW
OVERLAY SOLUTIONS
ASPHALTIC PLUG JOINTS

Wabo® Expandex

- Flexible asphaltic plug joint system
- Provides a smooth riding transition between slabs
- Accommodates +/- ¾” movement
- Single pour application
OVERLAY SOLUTIONS
ASPHALTIC PLUG JOINTS
LOW-HEIGHT DECK SOLUTIONS
LOW-HEIGHT DECK SOLUTIONS
LOW-HEIGHT DECK SOLUTIONS
LOW-HEIGHT DECK SOLUTIONS
SEGMENTAL JOINT SYSTEMS

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
LOW-HEIGHT DECK SOLUTIONS
SEGMENTAL JOINT SYSTEMS
LOW-HEIGHT DECK SOLUTIONS
SEGMENTAL JOINT SYSTEMS
LOW-HEIGHT DECK SOLUTIONS
FINGER JOINT SYSTEMS

Wabo®FingerPlus
- Installed and maintained from top-side of deck
- Segments provided in smaller manageable segments
- Water management system can be integrated into both system
- Multi-directional movement can be integrated

Wabo®Trident
LOW-HEIGHT DECK SOLUTIONS
FINGER JOINT SYSTEMS
LOW-HEIGHT DECK SOLUTIONS
FINGER JOINT SYSTEMS
REPLACEMENT OF EXISTING FINGER JOINTS
REPLACEMENT OF EXISTING FINGER JOINTS
EXISTING TYPES IN MARKET

Cast in Place
- Cantilevered Fingers
- Permanently part of the structure
- Steel deflector plates
- Neoprene trough for water management
Extreme Movement

- Cantilevered Fingers
- Multi-point of support
- Steel deflector plates
- Multiple degrees of movement
REPLACEMENT OF EXISTING FINGER JOINTS
CUSTOM MODULAR EXPANSION JOINT SYSTEMS

Standard Product Solution
- Customer fit
- Integrated support
- Sealed water management

Project Specification Solution
- Customer fit
- Integrated support
- Sealed water management
- Specific testing
REPLACEMENT OF EXISTING FINGER JOINTS
CUSTOM MODULAR EXPANSION JOINT SYSTEMS
REPLACEMENT OF EXISTING FINGER JOINTS
MULTI-DIRECTIONAL MOVEMENT JOINT SYSTEMS

Wabo® MDM-TransFlex
- Unique sliding design
- Large translational movement
- Minimal noise
- Installation advantages
- Reduced traffic disruption
REPLACEMENT OF EXISTING FINGER JOINTS
MULTI-DIRECTIONAL MOVEMENT JOINT SYSTEMS
SUMMARY

01 Why Expansion Joints
02 Types of Expansion Joints
03 Replacement / Repair
04 Overlay Solutions
05 Low-Height Deck Solutions
06 Replacement of Existing Finger Joints
THANK YOU

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