The Best Bridge Joint

Is

No Bridge Joint

Use

Integral abutments

Slab over the backwall

Continuous Bridges
Sealed Joints - High Value

- Protect
  - Beam Ends
  - Bearings
  - Substructures
- All are very costly to rehabilitate or replace.
Joint Repair or Replacement

- Capital – Joints are only repaired or replaced through capital action if there is other work to be performed on the bridge.
- Maintenance – Bridge Maintenance has always been expected to perform maintenance/light capital work on the joint systems. We’re very good at major joint work, not as diligent with the more simple needs. This is changing.
Narrow Joint Openings
<1 inch

• Pour-In-Place
  • Preferred Movements <\(\frac{1}{2}\)"
  • Preparation Critical
  • Quick Installation
  • 5 Year Functional Life
• Problems – They just drop out!
• Best Solution – Eliminate Joint
Deck joints 1” to 3”

- Compression Seals 1” to 21/2”
  - Solid concrete headers (nosing) are a must to protect joint armor from plow damage. Elastomeric Concrete for thin applications.
  - Keeper bars for compression seals are very effective
  - Seal is turned up at the curb
  - Cleaned/flushed annually
  - Best performing joint
Compression Seals

- Maintenance
  - Simply replace seal (Spring or Fall)
  - Heat and/or mechanically straighten joint armor plates and replace seal
  - Replace joint armor
  - Good opportunity to address any other backwall issues
Deck joints 1” to 3”

- Gland Seals 21/2”-3”
  - Solid concrete headers
  - Seal is turned up at the curb
  - Sensitive to sand and debris
  - Have a tendency to rip on skewed bridges
  - Performance and longevity have been good
Gland Seals

• Maintenance
  • Similar to compression seals
  • Dealing with the extrusions is more complex and time consuming but not unreasonable
  • Cleaned/flushed annually – Very Important
Bridge Joints 3”+

- Finger Joints
  - All new finger joints are designed with a curtain wall system or a trough
  - Existing open finger joints are being retrofitted with curtain wall systems
Finger Joints

- Maintenance
  - Diligence – Clean and flush beam ends, bearings and bridge seats annually
  - Vigilance – Inspect and monitor fingers, bearings and beam ends frequently
Finger Joints

• **Maintenance**
  - Fingers become misaligned laterally occasionally and need to be cut
  - Fingers become misaligned horizontally due to wear on the bearing pin. Retrofit or replace bearings.
  - Extremely large finger plates when wet pose a hazard to motorist. Welded studs work well but are damaged quickly
Bridge Joints 3”+

- Modular Joints
  - My mother always said….”if you don’t have anything good to say about something then don’t say anything at all”…..So I won’t.
MaineDOT Level of Service Draft

- All open bridge joints that only require replacement of seals, which may include minor joint armor repair, shall be sealed within 12 months of discovery.

- All other open bridge joints that require significant joint armor repair or replacement will be placed in the next immediate biennial work plan.