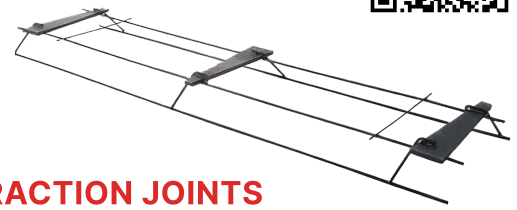


# AMERICAN ST™ BASKET ASSEMBLY



## SINGLE TAPERED PLATE DOWEL FOR SAW-CUT CONTRACTION JOINTS

Reliably deliver serviceable saw-cut contraction joints and achieve joint stability measurements of 0.01 inches (0.25 mm) in concrete flatwork applications with the American ST™ Basket Assembly. The specific size and tapered shape of the American ST™ Basket Assembly provide, positive load transfer, and continuity of surface profile to minimize joint spalling, eliminate tripping hazards, and improve joint filler performance without inducing restraint.

### American ST™ Basket Assembly Helps You:

- Reduce your call backs and save labor
- Optimize the amount of steel in your project
- Limit your liability
- Deliver cost-effective concrete flatwork

When used with the American Diamond™ System “strategic reinforcement” design, it helps optimize steel usage in your projects by placing the steel where it is needed most—at the joints. American ST™ Basket Assembly has delivered a significant return on investment for owners, designers, and contractors nationwide.

### Steel Options:

- All plates are manufactured from steel certified to meet ASTM A36 for corrosion resistance, Plates can also be manufactured with galvanized or stainless steel.

### Basket Dimensions:

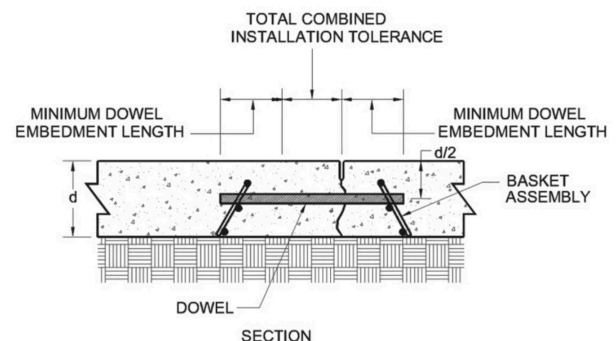
Average cross-sectional area of steel at the outside edge of the saw-cut installation tolerance

- 2" x 3/8" (50 mm x 10 mm)
- 2-1/2" x 1/2" (64 mm x 12 mm)
- 2-1/2" x 3/4" (64 mm x 20 mm)
- 12" (300 mm) plate for a 8 inch (200 mm) tolerance



### Efficient Constructibility:

- Deliver a construction tolerance for saw-cut placement without inducing restraint of -3 inches (75 mm)
- Reduce labor costs with a design that can be carried and installed by one person during concrete placement.
- Allow for accelerated construction schedules.
- Eliminate obstacles for the laser screed.
- Offer stable dowel support and reliable alignment with fully-welded basket assemblies.
- Allow for subgrade leveling after installation to prevent rutting, restraint, and cracking.
- Improve job-site efficiency with easy-to-handle bundled and skid-packed assemblies delivered on wooden pallets.
- Custom or stock baskets are available through a national distribution network.



#### NOTES:

- DOWELS SHOULD HAVE SQUARE END / EDGES AND BE DEBONDED.
- TOTAL COMBINED INSTALLATION TOLERANCE INCLUDES THE TOLERANCE FOR INSTALLING THE DOWEL BASKET ASSEMBLY AND THE SAW CUT ABOVE IT.
- THE MINIMUM DOWEL EMBEDMENT LENGTH VARIES FOR DIFFERENT GEOMETRIES.

*\*From ACI 330.2R-17 Guide for the Design and Construction of Concrete Site Paving for Industrial and Trucking Facilities*

# Performance-Based Engineering

All published engineering on the spacing of plate dowels at the saw-cut contraction joints is based on the size and geometry of the American ST™ Basket Assembly.

## REDUCE JOINT-EDGE SPALLING

- Ensures joint stability in line with industry standards, maintaining less than 0.01 inch (0.25 mm) and continuity of surface profile across the joint.
- Provides immediate positive load transfer, minimizing initial dowel looseness to 0.002 inches (0.05 mm) with a thin, even factory-applied debonding agent, eliminating on-site labor. Baskets can be plain steel or factory debonded.
- Reduces additional dowel looseness from repetitive loading to 0.00257 inches (0.065 mm) using an alternating tapered plate configuration, ensuring a consistent bearing area of embedded steel within 2 inches (50 mm) of the joint, positioned at the edge of the saw-cut installation tolerance where bearing, shear, and flexural stresses are highest.
- Minimizes elastic deflection due to loading to .00543 inches (.138 mm) with a minimum plate embedment of 3 inches (75 mm) into the slab on either side

## MINIMIZE RANDOM CRACKS AND ENSURE JOINT ACTIVATION

- Allows for joint activation and free horizontal movement of the concrete without restraint with 4° trapezoidal plate geometry.
- Ensures stable horizontal and vertical plate alignment with a fully-welded basket assembly fabricated to match the joint layout.

## PERFORMANCE-BASED DOWEL DESIGN

American ST™ Basket Assembly’s engineered performance criteria are unique components of the rational design approach for dowel spacing outlined in “Performance-Based Dowel Design,” Concrete Construction, January 2007.

This design utilizes slab depth and vehicle loadings to minimize total differential deflection between slab panels to 0.01 inches (0.25 mm) for hard wheels and 0.02 inches (0.50 mm) for air-cushioned rubber tires, delivering serviceable concrete flatwork while optimizing material use.

## PRODUCT PERFORMANCE CHARACTERISTICS:

### Processes

All steel is sawn or plasma cut full-depth per industry guidelines ensuring smooth plate edges that will not induce restraint.



AMERICAN ST™ BASKET ASSEMBLY IS PART OF:

**THE “STRATEGIC REINFORCEMENT” DESIGN**

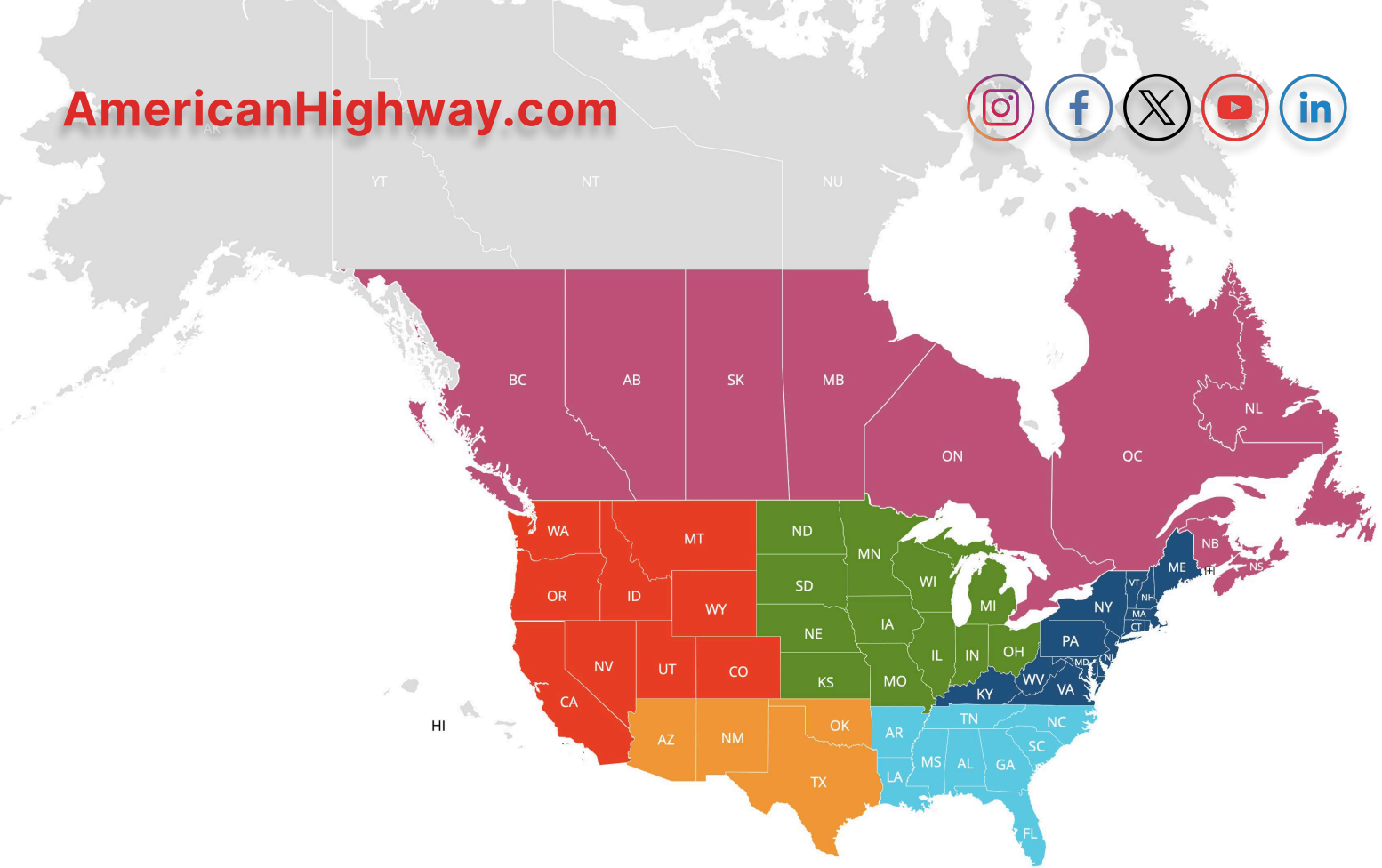
The “strategic reinforcement” design is a performance-based, cost-effective solution for interior and exterior concrete flatwork exposed to wheeled traffic. Applicable to a wide range of facility types, this design is trusted by owners worldwide. By removing steel from the mid-panel and placing American Highway tapered plate dowels where steel is truly needed—at the joints—you optimize materials, minimize joint spalling, and reduce random cracking.

Table 6.1—Dowel size and spacing for construction and contraction joints\*

Slab depth, in. (mm)	Dowel dimensions, in. (mm)				Plate dowel	Dowel spacing center-to-center, <sup>†</sup> in. (mm)		
	Construction joint		Contraction joint			Round <sup>‡</sup>	Square <sup>§  </sup>	Plate dowel
	Round <sup>‡</sup>	Square <sup>§  </sup>	Round <sup>‡</sup>	Square <sup>§  </sup>				
5 to 6 (130 to 150)	3/4 x 10 (19 to 250)	3/4 x 10 (19 x 250)	3/4 x 13 (19 x 330)	3/4 x 13 (19 x 330)	M/R <sup>#</sup>	12 (300)	14 (360)	18 (460)
7 to 8 (180 to 200)	1 x 13 (25 x 330)	1 x 13 (25 x 330)	1 x 16 (25 x 410)	1 x 16 (25 x 410)	M/R <sup>#</sup>	12 (300)	14 (360)	18 (460)
9 to 11 (230 to 280)	1-1/4 x 15 (32 x 380)	1-1/4 x 15 (32 x 380)	1-1/4 x 18 (32 x 460)	1-14 x 18 (32 x 460)	M/R <sup>#</sup>	12 (300)	12 (300)	18 (460)

\*From ACI 360R-10 Guide to Design of Slabs-on-Ground

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