

Diamond Dowel® System

Tapered Plate Dowels for Formed Construction Joints



Proven. Easy to Install. Cost Effective.

Achieve superior load transfer with the original tapered plate dowel system. Since 1996, contractors and engineers have used the Diamond Dowel® System in more than 1 billion square feet of placed concrete to deliver the durable, maintenance-free concrete flatwork customers expect.

The Diamond Dowel® System, helps you:

- Collect your retainage
- Reduce your callbacks and save labor
- Optimize the amount of steel in a project
- Limit your liability by using the latest ACI 302.1R-04 and ACI 360R-06 guidelines
- Deliver cost-effective slabs-on-ground

Faster, Easier Installation

- The Diamond Dowel® installation template and the tapered plate guarantee the fastest and most perfectly aligned plate dowel installation.
- Eliminates drilling forms, greasing/spinning dowels and removing/reinstalling dowels
- Allows for easy stripping of forms
- Ensures positive load transfer and eliminates cracking from restraint with reliable dowel alignment
- Reduces job-site trip hazards

More Cost Effective

- Reduces labor costs by at least 50 percent when compared to round dowel installation
- The Diamond Dowel® System allows use of locally available wood forms, reducing shipping costs

Optimizes Steel

Diamond Dowel® plates can be spaced farther apart than conventional dowels. Thus you achieve superior load transfer at the construction joint with less steel.

Better Engineering

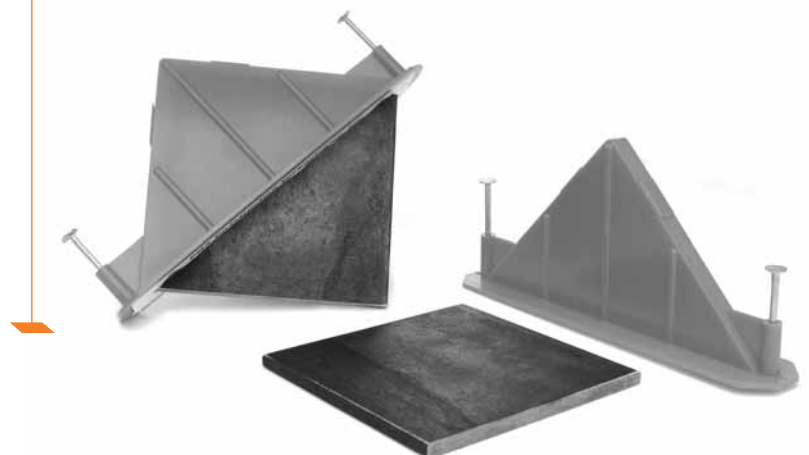
- When used in a “strategic reinforcement” design, it offers more efficient use of steel – lowering costs
- Provides positive alignment to ensure free movement of the joint and the diamond shape allows the slab to move horizontally in all directions without restraint
- Ensures load transfer, reducing joint-edge spalling
- Delivers continuity of surface profile across the joint
- Provides more steel at the joint where the bearing, shear and flexural stress are the highest
- Ensures dowel performance through Diamond Dowel® pocket former’s ABS molded plastic and vertical spacer

ACI 302.1R-04 Table 3.2

Dowel size and spacing for diamond-shaped load plates

Slab depth, in. (mm)	Diamond load plate dimensions, in. (mm)	Diamond load plate spacing center-to-center, in. (mm)
5 to 6 (125 to 150)	1/4 x 4-1/2 x 4-1/2 (6 x 115 x 115)	18 (450)
7 to 8 (175 to 200)	3/8 x 4-1/2 x 4-1/2 (10 x 115 x 115)	18 (450)
9 to 11 (225 to 275)	3/4 x 4-1/2 x 4-1/2 (19 x 115 x 115)	20 (500)

NOTES: Table values based on a maximum joint opening of 0.20 in. (5 mm).



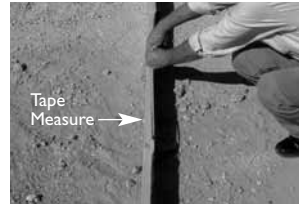
Instructions for Use

Install the Diamond Dowel® System per PNA's installation guide using a full-depth form. PNA does NOT endorse any other methods of installation for the Diamond Dowel® System, including the use of partial-depth EPS forms.

Step 1

Mark the center point for the spacing of each Diamond Dowel® pocket former on the top of the wood form along the entire length. Set the forms along the construction joints. The Diamond Dowel® System can be placed up to within 6 inches of the joint intersection per industry guidelines.

Installation template will ensure that the minimum requirement of 2 1/4" of coverage of concrete over the dowel is maintained.



Step 2

Insert the correct tube, if needed, in the installation template based on the slab depth. The orange template is used with the 1/4". The yellow template is used with the 3/8". The green template is used with the 3/4".

Orange 1/4" Slab Depth	Yellow 3/8" Slab Depth	Green 3/4" Slab Depth	Use
7"	9"	11"	REMOVE tube from template
6"	8"	10"	Slide WHITE tube onto template
4" or 5"	7"	9"	Slide BLACK tube onto template



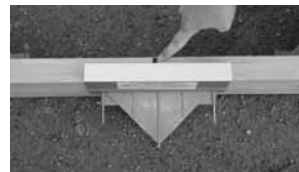
Step 3

Insert the Diamond Dowel® pocket former into the installation template.



Step 4

Line up the mark on the top of the wood form with the center of the installation template.



Step 5

Nail the Diamond Dowel® pocket former to the form and remove the installation template. Repeat at specified spacing, along the entire length of the form.



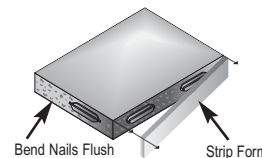
Step 6

Place and finish first slab. Use internal vibration to consolidate the concrete around the Diamond Dowel® pocket former per industry guidelines.



Step 7

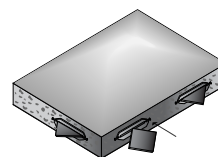
Strip the forms and bend nails flush with the joint face.



Step 8

Insert Diamond Dowel® plate into the slot created by the Diamond Dowel® pocket former. Center the corner of the plate in the middle of the label and push straight through the label into the pocket former.

Do not hammer, or use excessive pounding force, to insert Diamond Dowel® plate. Diamond Dowel® plate should be inserted within two weeks of concrete placement.



Step 9

Place and finish the second slab. Use internal vibration to consolidate the concrete around the Diamond Dowel® plate per industry guidelines.

LOAD TRANSFER SYSTEMS

➤ DIAMOND DOWEL® SYSTEM

➤ PD³ BASKET™ ASSEMBLY

➤ LOAD PLATE BASKET™ ASSEMBLY

JOINT PROTECTION PRODUCTS

➤ ARMOR-EDGE® JOINT ASSEMBLY

➤ ARMOR-EDGE® N2E JOINT ASSEMBLY

➤ ARMOR-EDGE® ALL STEEL JOINT

CURING COVERS

➤ HYDRACURE™ S16 – SINGLE-USE

➤ HYDRACURE™ M5 – MULTI-USE

OTHER

➤ 1/2" SQUARE DOWEL BASKET

➤ BOLLARD BASE



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