

PRODUCT DATA SHEET 3/8 IN TAPERED PLATE DOWEL

Product Description:

PolyDowel™ 3/8 in is a tapered plate dowel designed for load transfer across construction and contraction joints in concrete flatwork, using CF RTP composite purpose-designed for structural joint applications.

Engineered to directly replace steel and stainless steel tapered plate dowels, PolyDowel™ provides equivalent joint performance in a non-corrosive form at approximately 20% of the weight, based on full-scale testing conducted in an ISO 17025 accredited laboratory.

Key Advantages:

Drop-In	Direct replacement for steel tapered plate dowels.
Lightweight	20% of the weight of steel, simplifying transport and installation.
Non-Corrosive	Won't rust, combining stainless durability with steel practicality.
Safer Handling	Burr-free and tighter thickness tolerances for safer installation.
Non-Metallic	Non-conductive for sensitive or specialized facilities.
Sustainable	Steel-free, recyclable thermoplastic composite construction.

Materials:

PolyDowel™ is manufactured from a continuous fiber reinforced thermoplastic composite, or CF RTP. This next-gen material system enables non-corrosive, steel-free construction using durable, recyclable materials.

Proudly made in the USA 

Compatibility:

- Replaces steel 3/8 in tapered plate dowels.
- Installs with most 3/8 in pocket formers, or PolyDowel reusable cavity former (coming soon).

Availability:

- Currently offered in 3/8 in size only; additional sizes available upon request.
- For ordering, contact ReForm Composites or authorized distributors.

Placement Guidance:

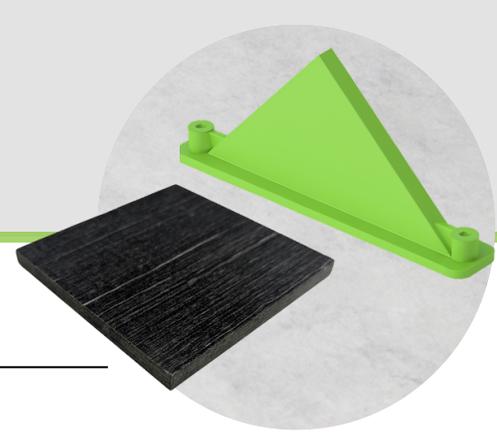
Slab Depth	Dowel Size	Dowel Spacing (Center-to-Center)
5-8 in (130-200 mm)	3/8 x 4 1/2 x 4 1/2 in (9 x 110 x 110 mm)	18 in (460 mm)

SOURCE MATERIAL:

ACI 360R-10, Design of Slabs-on-Ground, Table 6.1; ACI 302.1R-04, Guide for Concrete Floor and Slab Construction, Table 3.2 PCA 4th Edition, Table 6.2

NOTES:

1. Total dowel length allows for joint opening and minor positioning errors.
2. Not intended for saw-cut contraction joints due to placement tolerances.
3. Table values based on maximum opening of 0.2 in. (5 mm).
4. Proper alignment and support during concrete operations are critical.
5. Misaligned dowels may lead to joint cracking.



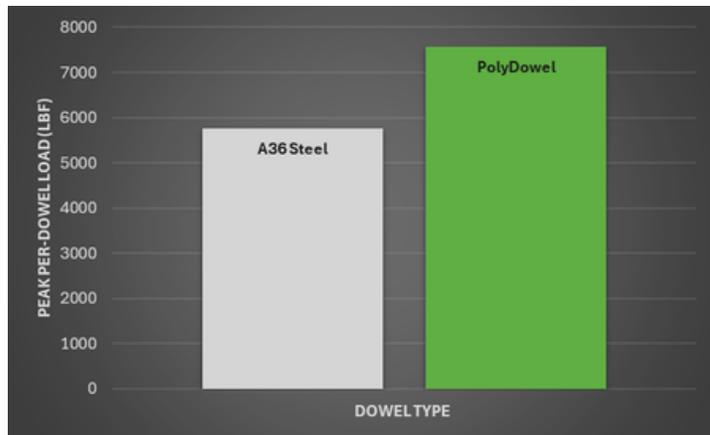
QUALIFICATION & SPECIFICATION SUMMARY

Structural Performance Summary:

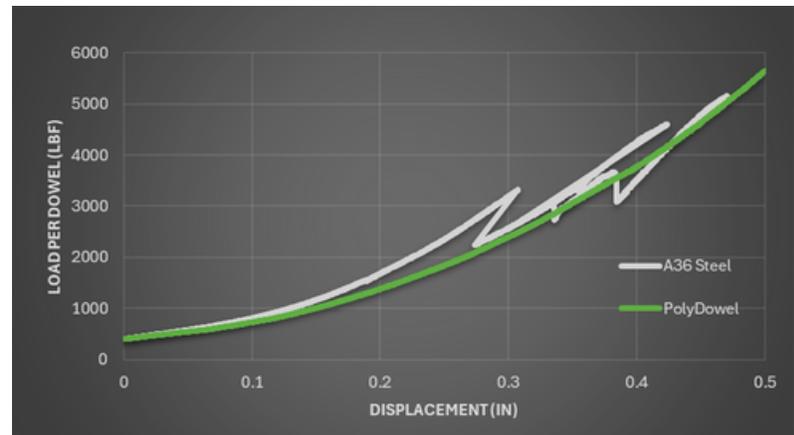
Structural performance is based on full-scale joint testing conducted using identical geometry, slab thickness, concrete strength, installation practice, and loading protocol for steel and PolyDowel™. Results demonstrate equivalent per-dowel load transfer capacity and equivalent stiffness through the slab-controlled service range. Representative capacity, load-displacement behavior, stiffness ratios, and governing failure modes are shown below.

Structural Performance Results:

Per-Dowel Load Transfer Capacity



Service-Range Load-Displacement Behavior



Stiffness Ratio (PolyDowel / Steel)

Joint Displacement (in)	Stiffness Ratio (PolyDowel™ / Steel)
0.01	1.05
0.02	1.00
0.05	0.97

Failure Behavior:

Full-scale joint testing in the 8 in slab configuration indicates stable, slab-controlled joint response for both steel and PolyDowel™ tapered plate dowels, with load transfer governed by concrete cracking rather than brittle dowel fracture. PolyDowel™ exhibited controlled internal laminate damage concurrent with concrete cracking, consistent with established tapered plate dowel practice.

Applicability:

PolyDowel™ 3/8 in is qualified as a direct structural replacement for 3/8 in steel tapered plate dowels in concrete flatwork slabs 5–8 in thick, based on full-scale joint testing.

Limits of Use:

Joint layout, spacing, and detailing follow ACI 302.1R, ACI 360R, ACI 330R, and project specifications. Use outside the qualified range requires evaluation by the engineer of record.

Limits of Applicability:

Performance values apply only to the tested configuration and shall not be extrapolated beyond slab thickness, joint geometry, or loading conditions without evaluation.

Design References:

- ACI 302.1R, Concrete Floor and Slab Construction
- ACI 360R, Design of Slabs on Ground
- ACI 330R, Design and Construction of Concrete Parking Lots
- ASTM A36 / A6, Steel tapered plate dowel reference practice