



SUGGESTED MASTER SPECIFICATION

PNA Square Dowel, Aligner and Square Dowel Clip™ for New Construction

PART 1 - GENERAL

1.1 SUMMARY

- A. Products supplied under this section: PNA Square Dowel, Dowel Aligner and Square Dowel Clip™ for formed construction joints.
- B. Related sections:
 - 1. Section 03100 - Concrete forms and accessories.
 - 2. Section 03200 - Concrete reinforcement.
 - 3. Section 03300 - Cast-in-place concrete.

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 315R-18 Detailing Manual SP-66.
 - 2. ACI 302.1R-15 Guide for Concrete Floor and Slab Construction.
 - 3. ACI 360R-10 Design of Slabs-on-Ground.
- B. American Society for Testing and Materials International (ASTM):
 - 1. A36 Standard Specifications for Carbon Structural Steel.

1.3 SUBMITTALS

- A. Product data: Manufacturer's product data with application and installation instructions for proprietary materials and items, including but not limited to load transfer systems.
- B. Shop drawings: Indicate placement of square dowels and clips.
 - 1. Indicate cross-sectional area and length of square dowels and clips and spacing. Indicate size of dowel aligner; 1/2", 3/4" or 1".
 - 2. Comply with ACI 302.1R-15, ACI 360R-10, ACI 315R-18 (SP-66) and PNA installation guides indicating arrangement of accessories.

1.4 QUALITY ASSURANCE

- A. Pre-construction meeting:
 - 1. Convene a pre-construction meeting before installation of PNA products. Require attendance of parties affecting the work of this section, including Contractor, Engineer, and installers.
 - 2. Review installation procedures and coordinate with other work.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver square dowels, dowel aligners and square dowel clips™ in manufacturer's packaging.
- B. Deliver and handle materials to prevent damage or weakening to systems.
- C. Store in an appropriate place to avoid accumulating rust, debris, or deleterious materials on assemblies. Store off ground and under cover.



PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Acceptable manufacturer: PNA Construction Technologies, www.pna-inc.com; 800-542-0214.

2.2 SQUARE DOWELS AND CLIPS FOR REPAIRS AND RENOVATIONS

- A. Acceptable product: PNA Square Dowel, Dowel Aligner, and Square Dowel Clip™.
- B. Material:
 1. Square dowels: Full-depth sawn and deburred per industry guidelines from hot rolled steel bar certified to meet ASTM A36 to within 3/16" of specified length.
 2. Dowel Aligner: Manufacturer by injection molding the unit.
 2. Square dowel clips: Extruded from ABS plastic. Clip holds compressible foam on each vertical side of the dowel in place during construction to allow limited horizontal movement parallel and perpendicular to joint. Length shall be +/- 3/16" of 1/2 total dowel length.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Notify Engineer at least 72 hours prior to placing concrete dowel system to allow time for examination of assemblies. Place no concrete in forms without Engineer's acceptance of concrete dowel systems.

3.2 INSTALLATION

- A. Installation of PNA Square Dowel, Dowel Aligner and Square Dowel Clip™ for formed construction joints:
 1. Drill oversize holes in form to be used to form construction joint with at least a 1/2" drill bit, at spacing of square dowels indicated on shop drawings. Do not locate dowel within 1'-0" of intersection of joints.
 2. Drill over-sized holes to allow installation of the dowel to within +/- 1/4" of mid-slab depth.

Dowel Size	Dowel Aligner	Drilled Hole Size
1/2" Dowel	DA750 with 1/2" converter	1-1/4" hole
3/4" Dowel	DA750	1-1/4" hole
1" Dowel	DA1000	1-5/8" hole
1-1/4" Dowel	Not available	1-3/4" hole

3. Push dowel aligner into hole and nail to form; duplex nails are recommended.
4. Set forms.
5. Insert square dowel into dowel aligner centering dowel perpendicular to form. Minimum embedment into each slab shall be equal to half dowel length +/- 1".
6. Place and finish first slab. Use internal vibration as necessary per industry guidelines.
7. After first slab is cast, pull nails and remove dowel aligner to facilitate form removal.
8. Install square dowel clips with the plastic covering the top of the dowel and the side foam vertical to faces of bars. The plastic clip should extend the full length of the exposed dowel.
9. Place and finish second slab. Use internal vibration as necessary per industry guidelines.

3.3 PROTECTION

- A. Protect PNA Square Dowel, Dowel Aligner and Square Dowel Clip™ from displacement and from damage until concrete casting is complete.