SUGGESTED MASTER SPECIFICATION

Armor-Edge® Joint Assembly

PART 1 - GENERAL

1.1 SUMMARY

A. Products supplied under this section: Armor-Edge® joint assembly 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 Detailing Manual SP-66.
   2. ACI 302.1R-04 Guide for Concrete Floor and Slab Construction.
   3. ACI 360R-06 Guide for Design of Slabs-on-Ground

B. American Society for Testing and Materials International (ASTM):
   1. A 36 Standard Specifications for Carbon Structural Steel
   2. A 108 Standard Specifications for Steel Bar, Carbon and Alloy, Cold Finished.

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 joint protection systems.

B. Shop drawings: Indicate placement of Armor-Edge® joint assemblies.
   1. Indicate dimensions and spacings.
   2. Comply with ACI 302.1R-04, ACI 360R-06, ACI Detailing Manual (SP-66) and PNA installation guides indicating arrangement of armored joint accessories.

1.4 QUALITY ASSURANCE

A. Pre-installation meeting:
   1. Convene a pre-installation meeting ** two (2) ** _____ ** weeks 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 Armor-Edge® joint assemblies in manufacturer's packaging.
B. Deliver and handle materials to prevent damage or weakening to assemblies.
C. Prevent accumulation of rust, debris or deleterious materials on assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURER

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

2.2 ARMORED JOINT ASSEMBLIES FOR FORMED CONSTRUCTION JOINTS

A. Acceptable product: PNA Armor-Edge® Joint Assembly.
B. Material:
   1. Bars: Saw cut from cold rolled steel bar meeting ASTM A 108-03 grade 1018 to within 3/16" of specified length.
   2. Mounting brackets shall be manufactured from steel as provided by manufacturer.
   3. Shipping nut assembly to ensure alignment of armored joint assembly shall contain a nylon nut, bolt and ferrule.
C. Fabrication:
   1. Bolt 2 - 2" by 3/8" steel bars back-to-back with a 4" offset and drill holes to hold two plates in perfect alignment together at 2' spacing with shipping nut assembly.
   2. Use mounting bracket for installation only.
   3. Weld 4" by 3/8" headed studs at 12" on center to steel bars.
   4. Assembly length: 12'-0" with 24" offset

2.3 DIAMOND-SHAPED LOAD PLATE FOR CONSTRUCTION JOINTS

A. Acceptable product: PNA Diamond Dowel® System.
B. Material:
   1. Diamond-shaped load plate: 1/4" and 3/8" saw cut from hot rolled steel plate meeting ASTM A 36. 3/4" saw cut from cold rolled steel plate for acceptable tolerances meeting ASTM 108-03 grade 1018.
   2. Pocket former: High density plastic with internal collapsible fins and spacer that hold diamond shaped load plate in correct position and creates a void to its vertical faces. This void, in addition to its tapered shape, shall allow for differential movement and shall prevent horizontal stress accumulation at joint, thus reducing likelihood of random cracking.

      REFER TO ACI 302.1R-04 FOR SELECTION OF PLATE SIZE AND SPACING.

   3. Dimensions of plate: ** 1/4" by 4-1/2" by 4-1/2". ** 3/8" by 4-1/2" by 4-1/2". ** 3/4" by 4-1/2" by 4-1/2". ** (Fill in appropriate dimensions) **

PART 3 - EXECUTION

3.1 EXAMINATION

A. Notify Engineer at least 72 hours prior to placing armor joint assemblies to allow time for examination of accessories. Place no concrete in forms without

Engineer's acceptance of accessories.

3.2 INSTALLATION

A. Installation of armored edge joint assembly:

1. Set wood form 2" below top of slab. Stake form.
2. Mark chalk-line on wood forms 3/4" above slab center or minimally at top of form so center line of the Diamond Dowel® plate will be a minimum of 2-1/4" below top of slab.
3. Attach Diamond Dowel® pocket former onto wood form with pre-assembled nails. Align center line of dowel at mid-slab depth.
4. Secure the joint assembly to form at top and back of each assembly bracket with two 8d duplex nails per bracket. For long runs, join joint assembly at overlap using nylon nuts and bolts provided.
5. Check assembly for correct line and elevation and adjust if required. If the Armor-Edge® joint assembly will butt up to a saw-cut contraction joint, cut through the full depth (2") of the abutting bar to allow activation of the joint.
6. Place and finish first slab. Use internal vibration to consolidate concrete under Diamond Dowel® pocket former in accordance with industry guidelines. Remove concrete paste from top of bars during finishing.
7. Remove mounting bracket from joint assembly. Then strip form and bend nails that are protruding from pocket former so they are flush with joint face.
8. Insert Diamond Dowel® plate into slot created by 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.
9. Place and finish second slab. Use internal vibration to consolidate concrete under plate in accordance with industry guidelines. Remove concrete paste from top of bars during finishing. Threads of nylon nut will strip when concrete contracts.

3.3 PROTECTION

A. Protect Armor-Edge® joint assemblies from displacement and from damage until concrete casting is complete.

END OF SECTION