**SECTION 03 05 10 –CONCRETE POROSITY INHIBITING ADMIXTURE (“PIA”)-**

GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 03 Section "Summary."

SUMMARY

This section includes concrete Porosity Inhibiting Admixture (PIA) for all new concrete slabs, including slab-on-grade, elevated slabs, stair treads and landings.

Related Sections:

Division 01 Section: Sustainable Design Requirements”.

Division 03 Section "Cast-in-Place Concrete."

Division 07 Waterproofing Sections – for horizontal & vertical concrete applications in which waterproofing is to be applied over concrete substrates.

Division 09 Flooring Sections for all moisture sensitive flooring materials installed over **“power-troweled”** concrete substrates requiring nonporous adhesives.

DEFINITIONS

Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with specific mix design and ACI requirements.

REFERENCES

American Concrete Institute (ACI):

ACI 306R-10 Guide to Cold Weather Concreting

ACI 305R-10 Guide to Hot Weather Concreting

ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture Sensitive Flooring

ACI 308R-16 Guide to Curing Concrete

ACI 302.1R- 96 Guide for Concrete Floor Slab Construction (Topping Depth)

ACI 503R-93& 98 Use of Epoxy Compounds with Concrete

ACI 544 Fibers

SUBMITTALS

Product Data: Manufacturer’s Technical Data Sheet.

Sample copy of “Life of the Concrete” warranty with Adhesive Bond Consideration.

Safety Data Sheet. (SDS)

QUALITY ASSURANCE

Manufacturer will provide an on-site, contracted and independently certified ACI technical representative capable of randomly sampling each day’s placement.

Project Specific Slab Porosity Testing and Evaluation: ASTM D5084 and/or Army Corp of Engineers CRD C48-92 tested results are used by the manufacturer to determine whether the concrete slab is acceptable to receive flooring, coatings, etc.

Adhesive Bond Testing should be in basic compliance with ASTM F-710, the flooring, adhesive and possible underlayment manufacturer’s installation instructions and guidelines.

* + - * 1. Manufacturer's Product Performance Shall Meet or Exceed the below Testing Data.

Shrinkage Reduction- 65% or Greater per ASTM C-157

Corrosion Inhibitor- 70% or greater per ASTM C-1543

Strength- 10% increase or greater per ASTM C39

Permeability - ASTM D-5084 maximum of 6.10x-9

DELIVERY, STORAGE, AND HANDLING

Deliver “PIA” in manufacturer’s original, undamaged containers. Do not allow product to freeze.

Store “PIA” protected from exposure to harmful weather conditions and in a temperature-controlled area above 36F degrees.

Confirm with manufacturer that the product is within ideal shelf-life.

WARRANTY REQUIREMENTS:

Porosity Inhibiting Admixture (“PIA”) must be installed per the manufacturer’s published data sheet.

* + - * 1. Manufacturer’s Warranty Requirements Shall Meet or Exceed the following:

Term: “Life of the Concrete”.

ASTM D5084 Project Specific Testing

Repair and/or Removal of Failed Flooring System upon completion of a manufacturer’s authorized forensic investigation determination.

Placement of a Topical Moisture Remediation System in event that the PIA fails.

At manufacturer’s discretion, replacement of flooring materials like original installed to include material and labor.

PRODUCTS

MANUFACTURERS

Basis-of-Design: Porosity Inhibiting Admixture (PIA) by Barrier One Concrete Admixtures : 640 Garden Commerce Parkway, Winter Garden, Florida 34787. Phone: (800) 562-9986; Email: [info@barrierone.com](mailto:info@barrierone.com)

Local Representative: Dewayne Thomas; [dthomas@BarrierOne.com](mailto:dthomas@BarrierOne.com); (407) 374-0206

MATERIALS

“PIA” for interior slabs on ground and elevated decks ,shall be a non-toxic, liquid admixture that is free of volatile organic compounds (VOC) and sodium silicates. The PIA shall create a natural chemical reaction forming a permanent barrier (capillary break) that is integral to the concrete, insoluble, and irremovable.

Hydraulic conductivity: Project specific maximum of 6.0 E-9 cm/s per ASTM D5084.

Topical field treatments and/or systems and crystalline products are **“not equal”** or acceptable performance substitutes.

Moisture Vapor Reduction Admixtures (MVRA’s) that have Project specific maximum of 6.0 E-8 cm/s per ASTM D5084 are **“not equal”** or acceptable performance substitutes. As per ASTM D-5084, these products are 10-times less effective than PIA’s.

EXECUTION

INSTALLATION & CURING

As Per The Most Current PIA Technical Data Sheet.

FIELD QUALITY CONTROL

Testing and Inspecting: The manufacturer of the “PIA” will, at their expense, contract with a qualified independent agency to obtain project specific sample cylinders and independent certified laboratories for subsequent testing per ASTM D5084 and/or CRD C48-92.