

GUIDE SPECIFICATION Section 03 15 00

Manufacturer:

Adhesives Technology Corp.

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CSI 3 PART SPECIFICATION

DIVISION 03 — CONCRETE

The purpose of this guide specification is to assist the design professional in correctly specifying adhesive anchors and their installation. The design professional should carefully review and edit the guide specification to meet the specific needs of the project as well as local building codes. Delete items not required for the project.

PART 1 - GENERAL

1.1 SUMMARY

- A. Post-installed (drilled-in) adhesive anchors

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. AASHTO LRFD Bridge Design Specifications
 - 2. AASHTO M235 Standard Specification for Epoxy Resin Adhesives
- B. American Concrete Institute (ACI): Comply with the following ACI standards, as applicable:
 - 1. ACI 318-14 Building Code Requirements for Structural Concrete and Commentary, Chapter 17- Anchoring to Concrete
 - 2. ACI 349.2R Guide to the Concrete Capacity Design (CCD) Method – Embedment Design Examples
 - 3. ACI 355.4 Qualification of Post-Installed Adhesive Anchors in Concrete
- C. ASTM International (ASTM)
 - 1. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 2. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature

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3. ASTM A615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 4. ASTM A706 – Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
 5. ASTM C881 – Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2015
 6. ASTM E488 – Standard Test Methods for Strength of Anchors in Concrete Elements
 7. ASTM E1512 – Standard Test Methods for Testing Bond Performance of Bonded Anchors
 8. ASTM F1554 – Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
- D. International Association of Plumbing and Mechanical Officials (IAPMO):
1. Post-Installed Concrete Anchors
- E. International Code Council Evaluation Service (ICC-ES):
1. AC308 Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements

1.3 SUBMITTALS

- A. General: Submit in accordance with Conditions of the Contract and Section 01 30 00 – Submittal Procedure Requirements
1. Product Literature: Manufacturer's descriptive product literature shall be submitted and shall consist of detailed specifications, available performance test data, surface preparation instructions and application instructions.
 2. Installation methods. Note environmental limitations such as temperature, humidity, and ventilation to remain within conditions recommended by manufacturer. Do not install under environmental conditions outside manufacturer's limits.
 3. Engineering Design Data: For each structural application, provide data substantiating specified design requirements, signed by the design professional.
- B. Quality Assurance
1. Technical Data Sheet: Before delivery of the materials a copy of the manufacturer's Technical Data Sheet, attesting that materials meet the requirements specified, must be submitted to and approved by the contracting officer as an alternate proof of performance.
 2. Certificates: IAPMO Uniform Evaluation Services Report indicating conformance with current applicable ICC-ES AC308 acceptance criteria and ACI 355.4 performance criteria.

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1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, undamaged packages bearing the manufacturer's name, product identifiers and lot numbers.
- B. Store materials in a dry location according to manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Adhesives Technology Corp., 450 E. Copans Rd., Pompano Beach, FL 33064, Phone: 1-800-892-1880, Fax: 1-800 362-3320
Email: atcinfo@atcepoxy.com, Website: www.atcepoxy.com
 - 2. Substitution requests will be considered, as applicable, in accordance with provisions of section 01600.

2.2 MATERIALS

- A. Adhesive Anchors for Cracked and Uncracked Concrete
 - 1. An adhesive anchor shall consist of threaded rod or reinforcing bar insert and adhesive formula. Threaded rod inserts shall meet the minimum requirements of ASTM F1554 Grade 36 or ASTM A193 Grade B7. Reinforcing bar inserts shall meet the minimum requirements of ASTM A615 Grade 60 or ASTM A706 Grade 60. For exterior exposure the insert shall be stainless steel. Inserts in contact with preservative-treated and fire-retardant-treated wood shall be zinc coated in accordance with ASTM A153 Class C or D or stainless steel or demonstrated through tests to be equivalent to the coatings described.
 - 2. Adhesive anchors are post-installed anchors used to transmit structural loads by means of tension, shear, or a combination of tension and shear between: (a) connected structural elements; or (b) safety-related attachments and structural elements. Adhesive anchors shall be designed in accordance with ACI 318 Chapter 17 as amended by the specific design provisions of ICC-ES AC308. Adhesive anchors shall have an evaluation report issued by IAPMO and have been tested and qualified for performance in cracked and uncracked concrete in accordance with ICC-ES AC308.
 - 3. Adhesives shall be injectable, two-component, cartridge-type systems dispensed and mixed through a static mixing nozzle supplied by the manufacturer. Acceptable installation and performance temperature ranges shall be verified with manufacturer's literature prior to installation.

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4. Basis of Design – Acceptable product: ULTRABOND® HS-1CC by Adhesives Technology Corporation, high performance epoxy anchoring system, IAPMO-UES ER-591. Anchor Size range: 3/8 inch to 1-1/4 inches (9.5 mm to 32 mm) and No. 3 to No. 10 reinforcing bar. Conforms to requirements of ASTM C881/AASHTO M235 Types I, II, IV & V, Grade 3, Classes A, B & C.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Refer and comply with the manufacturer's safety data sheet and all local regulations.
- B. Inspect all areas involved in the work to establish the extent of work, access, and need for protection of surrounding construction.
- C. Do not begin installation until base materials have been properly prepared.
- D. Install only if environmental conditions are conducive to manufacturer's recommendations for installation conditions.
- E. Do not drill holes in concrete until concrete has achieved full design strength.
- F. Perform anchor installation in accordance with manufacturer instructions.

3.2 INSTALLATION

- A. Strictly follow manufacturer's recommendations and instructions for preparation of surface while following local regulations.
- B. Strictly follow manufacturer's recommendations and instructions for installation of adhesive anchors while following local regulations.
- C. Minimum age of concrete where anchors installation occurs shall be 21 days.

3.3 FIELD QUALITY INSPECTION

- A. Installation of adhesive anchors shall be installed by qualified personnel in accordance with the construction documents as determined by the design professional.
- B. The qualified personnel shall install adhesive anchors in accordance with the Manufacture's Printed Installation Instructions (MPII).
- C. Installation of adhesive anchors shall be inspected in accordance with the construction documents as determined by the design professional.

END OF SECTION