SECTION 03 62 16

METALLIC NON-SHRINK GROUTING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE INTERNATIONAL (ACI)

ACI 211.5R	(2014) Guide for Submittal of Concrete Proportions
ACI 214R	(2011) Evaluation of Strength Test Results of Concrete
ACI 311.4R	(2005) Guide for Concrete Inspection
ACI MCP SET	(2015) Manual of Concrete Practice

ASTM INTERNATIONAL (ASTM)

ASTM C1107/C1107M	(2014a) Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
ASTM C150/C150M	(2015) Standard Specification for Portland Cement
ASTM C33/C33M	(2013) Standard Specification for Concrete Aggregates

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Expansion; G

Compressive Strength G

;

SD-07 Certificates

Portland Cement; G

Expansive Admixtures; G

Expansive Grout; G

Aggregates; G

1.3 QUALITY CONTROL

1.3.1 Grout Placement Plan and Inspection Reports

Provide examples of grout placement and inspection reports in accordance with ACI 214R, ACI 211.5R, ACI 311.4R and ACI MCP SET. Show details of proposed methods of application, with written instructions from the manufacturer for the use of expansive admixture at least 4 calendar days prior to the start of expansive concrete operations.

Include a copy of records of inspections and tests as well as the records of corrective action taken. Include descriptions of preparation of cavities for placement of grout; proper mixing, placement, and curing of grout with methods of preventing discoloration.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Portland Cement

Provide portland cement grout conforming to ASTM C150/C150M for Cement, Type I.

2.1.2 Aggregates

Submit samples conforming to ASTM C33/C33M for aggregates and the gradation as directed.

2.1.3 Water

Provide potable water.

2.1.4 Expansive Admixtures

Use admixture consisting of an oxidizable metallic aggregate.

Submit samples to the Contracting Officer prior to commencement of work for review and acceptance.

2.1.5 Expansive Grout

Provide Type A grout containing an oxidizable metallic aggregate and an oxidation-promoting ingredient. Conform to the manufacturer's printed instructions.

PART 3 EXECUTION

3.1 PREPARATION

Prepare cavities for grouting by cleaning away foreign matter, laitance,

dirt, grease or oil. Clean all contact surfaces of concrete and masonry no less than 24 hours before grout application.

3.1.1 Mixing

Mix grout ingredients for both cementitious grout and epoxy grout in accordance with the manufacturer's written mixing instructions and recommendations.

Mix grout materials in proper mechanical mixers.

Mix grout as close to work area as possible.

3.2 APPLICATION

3.2.1 Placing Grout

Place grout in accordance with the manufacturer's written installation instructions and recommendations. Do not use grout which has begun to set or if more than one hour has elapsed after initial mixing.

Fill blind cavities by pressure injection under controlled venting. Start injection and continue with the vent open until waste grout is expelled through vent with the same consistency, then block the vent for pressurization to 60 psi. Use lower pressures when damage to construction may result.

3.3 FIELD QUALITY CONTROL

Provide testing and submit test reports in accordance with ASTM C1107/C1107M for the expansive grout to meet the following performance requirements:

Expansion: 28 calendar days - Percent maximum: 0.3

- Percent minimum: 0.0

Compressive Strength: 5,000 psi

3.4 PROTECTION

Protect freshly placed grout from premature drying and excessive cold or hot temperatures. Comply with manufacturer's requirements for cold-weather and hot-weather protection during curing.

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