

SECTION 03600**NON-SHRINK GROUTS AND MORTARS****03600.01 GENERAL****A. Description**

Non-shrink grouts and mortars shall include, but not necessarily be limited to, prepackaged, non-shrink, cement-based grouts and mortars requiring only the addition of water. The grouts and mortars shall be specifically formulated for use as a sealant around wall penetrations, for use under machine or column bases, for bolt anchorages, and similar applications where drying shrinkage would be detrimental. Non-shrink grouts and mortars shall be furnished and placed in accordance with the Contract Documents, where indicated on the Plans, or as directed by the Engineer.

B. Related Work Included Elsewhere

Mortar; Section 04100.

C. Quality Assurance

1. Inspection

The Engineer will inspect all materials before and/or after installation to ensure compliance with the Contract Documents.

2. Containers

All non-shrink grouts and mortars shall be furnished and stored in the manufacturer's original containers.

3. Installer Qualifications

Minimum 2-year experience installing similar products.

D. Submittals

1. Shop Drawings

Shop drawings shall be submitted as specified in the "General Provisions" for all non-shrink grouts and mortars furnished. The shop drawings shall include product description and storage, handling, mixing, and placing instructions or recommendations.

2. Certificates of Compliance

Certificates of compliance shall be submitted in accordance with the "General Provisions" for all non-shrink grouts and mortars stating that the material furnished meets the requirements specified in Section 03600.02.

3. Preparation instructions and recommendations.
4. Storage and handling requirements and recommendations.
5. Installation methods.

03600.02 MATERIALS**A. Materials Furnished by the County**

1. The County will not furnish any materials for non-shrink grouts and mortars.
2. The Contractor may obtain potable water from the County's potable water system for mixing with the dry material. The Contractor shall contact the Bureau of Utilities, Meter Section, for requirements.

B. Contractor's Options

Non-shrink grouts and mortars shall be non-metallic as specified in Article C.

C. Detailed Material Requirements

1. Water from Other Than Potable Sources

Water shall meet the pH requirements of AASHTO T 26, Method B. Water shall not smell or be discolored. Water suspected of questionable quality shall meet limits of the comparison tests with distilled water in accordance with AASHTO T 26. The chloride concentration of water used in mixing and curing of non-shrink grouts and mortars will be determined in accordance with ASTM D 512 and shall not have a chloride concentration exceeding 1000 ppm.

2. Non-Shrink Grouts and Mortars

Non-shrink grouts and mortars shall conform to the requirements of the Corps of Engineers specification CRD-C 588, Type 3.1, b or d., ASTM C 1090 Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic Cement Grout, ASTM C 1107 Standard Specification for Packaged Hydraulic-Cement Grout, and ASTM C-827 for Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures. The grout or mortar shall have a minimum compressive strength of 5000 psi in 7 days when tested in accordance with AASHTO T 106 except that the cube molds shall remain intact with the top firmly attached throughout the curing period. The non-shrink grout or

mortar shall have a minimum expansion of 0.0% after 7 days when tested in accordance with AASHTO T 160.

03600.03 EXECUTION

A. Preparation

1. All surfaces to receive non-shrink grout and mortar shall be cleaned of all oil, grease, dirt, and laitance down to sound concrete. Rust shall be removed from the underside of all plates and from all bolts or other embedment items by sanding or power brushing.
2. Where the concrete surface to receive the non-shrink grout or mortar is smooth, the surface shall be roughened with a small chipping hammer and then saturated with water prior to placing the grout or mortar.
3. Comply with Manufacturer's recommendations for preparation procedures.

B. Forms

When required, forms shall be furnished and placed to confine the non-shrink grout. The forms shall be strong enough to resist buckling and tight enough to prevent leakage.

C. Mixing

1. Mixing water shall be proportioned in accordance with the manufacturer's recommendations for the intended application. Use the stiffest mix possible consistent with placement methods.
2. Mixing shall be accomplished in water-tight containers following the manufacturer's recommendations.
3. Comply with Manufacturer's recommendations for mixing procedures.
4. All grouting materials (substrate) are within recommended temperature range of manufacturer immediately prior to mixing.
5. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing.
6. Non-shrink grouts shall be placed or packed only with the use of an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted. Non-shrink grouts may or may not be packaged with a bonding agent.
7. Admixtures: Use only admixtures and procedures that comply with The American Concrete Institute's Guide to Cold Weather Guide to Concreting (ACI 306R-16).

D. Jobsite Testing

Jobsite strength tests must use ASTM C-1107 specifications 2 in. (51 mm) metal cube molds. Do not use cylinder molds or plastic cube molds. Control testing based on achieving the desired flow rather than water content.

E. Pouring or Pumping Grout

Ensure air temperature is within recommended range of manufacturer within 24 hours of application and rain is not anticipated for at least 12 hours. Grout shall be poured or pumped into position in such a manner as to avoid air pockets and to fill the entire void. When necessary, use rods or other tools to compact the grout and remove all voids.

F. Placing Mortar

Carefully place the mortar in such a manner to avoid air pockets and assure that the material is in complete contact with all surfaces. There shall be a minimum 2 inches of concrete or mortar connection around the rubber gasket to permit proper consolidation around the gasket.

Unless otherwise specified, the finished surface shall be tooled smooth to match the adjacent area. Unused grout shall be discarded after 20 minutes and shall not be used or per manufacturer instructions.

G. Curing

The Non-shrink grout or mortar shall be cured for the time and in the manner recommended by the manufacturer. Monitor weather forecasts for temperature variances or rainfall that may interfere with the curing process. The American Concrete Institute-compliant concrete curing blankets to assist in heat retention during curing process can be used if manufacturer recommendations are followed.

03600.04 METHOD OF MEASUREMENT

Non-shrink grouts and mortars will not be measured.

03600.05 BASIS OF PAYMENT

Non-shrink grouts and mortars will not be paid for as a separate item but is considered incidental to other items of work. Payment will be included in other related items of work and will constitute full compensation for all labor, equipment, tools, and incidentals necessary to complete the required work.

END OF SECTION