

PART 1 GENERAL

1.1 SCOPE:

- A. This Section is to provide direction in the supply, use and placement of a variety of cementitious materials used in and on various public works construction projects.
- B. The Contractor shall provide a submittal on all cementitious materials to be used in the construction of the awarded project to the Engineer for approval. Submittal shall include Manufacturer's directions on use, preparation of base, application conditions and finishes. Further the Contractor shall be responsible to ensure he is submitting the proper product for the intended application.

PART 2 PRODUCTS

2.1 MORTAR:

- A. Mortars, made of hydrated lime, shall not be used in underground nor corrosive conditions.
- B. Mortar shall be as manufactured by Ross Island, or approved equal and conform to the requirements of ASTM C387.

2.2 NON-SHRINK GROUT:

- A. Non-shrink grouts shall be used for plugging of confined holes or spaces where expansion of the grout is not of a concern and where specified and shown on the plans.
- B. Non-shrink grout shall be as manufactured by Five-Star, Tamms or approved equal and conform to the requirements of ASTM C1107 and/or CRD C-621 (Corps. of Engineers).

2.3 PATCHING COMPOUNDS:

- A. Patching compounds used for holes where expansion is acceptable and cover over masonry surfaces, cracks, over Non-shrink grouts (as a confinement) and/or where specified and shown on plans.
- B. Patching compounds shall be as manufactured by Tamms (Speedcrete Red Line) or approved equal and conform to the requirements of ASTM C928.
- C. Bonding agent for patching compounds shall be as prescribed by the approved patching compound manufacturer. Water shall not be used as a substitute for the commercial bonding agent.

2.4 FLOWABLE GROUT:

- A. Flowable grout for use in filling of annular spaces of pipes, vaults and etc., underground for abandonment in place shall be lean redi-mix with a maximum aggregate size of 1/4-inch. The water-cement ratio shall be such to provide a consistent flowable mix. Admixtures for pumping and or strength are acceptable.
- B. Flowable grout shall have a minimum 28-day strength of 3,000-psi.
- C. This is not a digable mixture like that of Controlled Density Fill.

2.5 PORTLAND CEMENT GROUT:

- A. Furnish Portland cement grout consisting of one part Portland cement and three parts sand (by mass) thoroughly mixed with a minimum amount of water to produce a thick, creamy consistency. The sand shall conform to ODOT Specification for "Fine Aggregates" and Portland cement to Section 2000 of these Technical Specifications.

2.6 CONTROLLED DENSITY FILL (CDF):

- A. Controlled density fill (CDF) shall be a rippable mixture composed of Portland cement, fly-ash, aggregates, water and admixtures proportioned to provide a non-segregating, free-flowing material which will result in a hardened, dense, no-setting fill. This mixture shall be batched and mixed in accordance with ASTM C94.
- B. CDF shall have an unconfined compressive strength of 2000-psi at 28-days.
- C. Materials and testing shall conform to the following;
 - 1. Portland Cement: ASTM C150, Type I or II
 - 2. Fly-ash: Class F or Class C, ASTM C618
 - 3. Aggregates: Section 2300 and ASTM C33
 - 4. Water: Potable
 - 5. Admixtures: AASHTO M194 or ASTM C494 or ASTM C260

PART 3 EXECUTION**3.1 GENERAL:**

- A. Contractor shall have, on site, the Manufacturer's catalog sheet with directions and recommendations and make it available to the Engineer.
- B. Place material in locations as shown on the plans, to industry standards and in accordance with the Manufacturer's recommendations.
- C. Surface preparation is the most important part of the application process. Contractor shall follow manufacturer's directions implicitly and ensure the surface(s) to receive applications are clean, sound, roughened and stable.

- D. Do not mix up more products that can be used in the initial set times as indicated by the Manufacturer. Never add water or agent to attempt to regenerate material. Material not used within Manufacturer's set time shall be disposed of.
- E. Finish shall be as specified (wet broomed or trowel finish) and the work is done as directed by the Manufacturer.

3.2 MEASUREMENT AND PAYMENT:

- A. MORTAR – Unless otherwise specified in the Bid Proposal all grout work will be incidental to the work it is applied to.
- B. NON-SHRINK GROUT - Unless otherwise specified in the Bid Proposal all grout work will be incidental to the work it is applied to.
- C. PATCHING COMPOUNDS – Unless otherwise specified in the Bid Proposal all grout work will be incidental to the work it is applied to.
- D. FLOWABLE GROUT- Payment will be made on a unit price as specified in the Bid Proposal to the nearest 0.1 LF, CY or as otherwise indicated.
- E. Controlled Density Fill (CDF): Payment will be made on a unit price as specified in the Bid Proposal to the nearest 0.1 LF or CY or as otherwise indicated.

PART 4 TESTING

4.1 GENERAL:

- A. The Engineer may, at his discretion, select samples to be collected, tested and retained for quality assurance purposes.
- B. Testing samples, cubes, cylinders etc. shall be accomplished by a certified laboratory.

4.2 MORTAR:

- A. Mortar samples shall be tested in accordance with ASTM C109.

4.3 NON-SHRINK GROUT:

- A. Non-shrink grout samples shall be sampled and tested in accordance with ASTM C109.

4.4 PATCHING COMPOUNDS:

- A. Patching compounds shall be sampled and tested in accordance with ASTM C109.

4.5 FLOWABLE GROUT:

- A. Flowable grout shall be sampled and tested in accordance with ASTM C109.

4.6 CONTROLLED DENSITY FILL (CDF):

- A. CDF shall conform to testing of ASTM D4832.

END OF SECTION