

SECTION ____ - GROUTING MORTAR FOR EQUIPMENT AND METALWORK

____ GROUTING MORTAR FOR EQUIPMENT AND METALWORK

a. General. - ¹(Nonsettling grouting mortar and) grouting mortar shall be furnished and placed as required and shall be in accordance with this paragraph.) ¹(Except where nonsettling grouting mortar is shown on the drawings or specified in these specifications, the mortar used for grouting shall be grouting mortar.)

¹[b. Nonsettling grouting mortar. - Unless inspection is waived in each specific case, the weighing and preblending of the aluminum powder and cement for the nonsettling grouting mortar and the mixing and placing of the nonsettling grouting mortar shall be performed only in the presence of the Government inspector.

Nonsettling grouting mortar shall be composed of cement, water, sand, and aluminum powder. Cement shall be type I, II, or III ²(, or type V) portland cement in accordance with ASTM designation: C 150, and shall meet the false-set limitation specified therein. Water and sand shall be in accordance with paragraphs ____ (Water) and ____ (Sand), respectively, except that sand passing a No. 16 screen shall be used when clearances are such that the specified grading for sand is not suitable. Aluminum powder for use in the mortar shall be ground; shall contain no polishing agents, such as stearates, palmitates, and fatty acids; and shall effectively produce the desired expansion.

Mix proportions of the nonsettling grouting mortar shall be 1 part cement to 1-1/2 parts sand, by weight, for a fluid mortar; and 1 part cement to 2 parts sand, by weight, for a plastic mortar; each containing a small amount of aluminum powder as specified below. The water-cement ratio of the mortar shall not exceed 0.50, by weight, and the slump of the mortar shall be the lowest practicable for the space to be filled. The exact mix proportions and water-cement ratio for the mortar will be determined by the Contracting Officer.

The quantity of aluminum powder to be used in the mortar will be governed by the quantity and characteristics of the cement used, and will vary as the placing temperature varies, from about 2 grams of aluminum powder per bag of cement for 90 EF placing temperature to about 5 grams at 40 EF placing temperature. After weighing, the aluminum powder shall be thoroughly preblended with a small amount of portland cement before adding to the grouting mortar. This preblended material shall be a uniform blend of 1 part aluminum powder to 50 parts cement, by weight.]

c. Grouting mortar. - Grouting mortar shall be composed of cement, water, and sand. Cement shall be type I, II, or III ²(or type V) portland cement in accordance with ASTM designation: C 150, and shall meet the false-set limitation specified therein. ³[Water and sand shall be in accordance with paragraphs ____ (Water) and ____ (Sand), respectively, except that sand passing a No. 16 screen shall be used when clearances are such that the specified grading for sand is not suitable.] Grouting mortar shall be mixed in the proportion of 1 part of portland cement to 2-1/2 parts of sand, by weight, and to the consistency

prescribed by the Contracting Officer. ⁴[Water shall be free from objectionable quantities of silt, organic matter, salts, and other impurities. Sand shall consist of clean, hard, dense, durable, uncoated rock fragments that are free from injurious amounts of dirt, organic matter, and other deleterious substances. Sand shall meet all requirements of ASTM designation: C 33 for fine aggregate.]

⁵[d. Grouting for equipment furnished and installed under other contracts. - The Contractor shall furnish all materials and perform all work as directed by the Contracting Officer for grouting under the bases of certain equipment to be furnished and installed by other contractors for the ⁵(powerplants) (pumping plants). The Contractor shall coordinate his grouting operations with the Contracting Officer and the work of the other contractors to permit timely installation of the equipment. The equipment includes but is not limited to the following for ⁵(powerplant) (pumping plant) structure:

- (1) _____.
- (2) _____.
- (3) _____.
- () _____.
- () _____.
- () _____.]

⁷[____.] Preparation of surfaces and placing mortar. - Before placing mortar, the surfaces of base concrete to which the mortar will be bonded shall be roughened and shall be cleaned of all laitance, loose or defective concrete, curing compound and other coatings, and other foreign material by effective means, followed by thorough washing with water. If any delay occurs between the washing of the concrete and placing of the mortar, the surfaces of the concrete shall be lubricated by washing with water immediately before placing of the mortar. ¹(Forms shall be used, where required, to confine the nonsettling grouting mortar.) The mortar shall be placed, completely filling spaces adjacent to equipment and metalwork as shown on the drawings.

⁷[____.] Curing. - The exposed surfaces of mortar shall be cured for 72 hours by keeping them covered with moist burlap, damp sand, or by other effective means approved by the Contracting Officer.

Loads shall not be applied to the mortar sooner than 72 hours after placement and shall be applied only after the mortar has attained a compressive strength of at least 3,000 pounds per square inch. The time required for the mortars used to attain this strength will be determined by the Government ⁸(in advance for all such work to be performed under these specifications through the medium of tests of at least two 6- by 12-inch cylinders for each mortar mixture.

The cylinders will be made and tested in accordance with applicable ASTM standards.) Care shall be taken when applying loads on the hardened mortar, and the Contractor shall be responsible for any damage thereto resulting from impact loads when positioning equipment or metalwork.

f. Cost. - ¹(Except for nonsettling grouting mortar required for metalwork and equipment installed by the generator contractor,) the cost of all work in connection with placing mortar, and the cost of the cement, ¹(aluminum powder,) water, and sand for mortar shall be included in the prices bid in the schedule for the items of work for which the mortar is required. ¹[Nonsettling grouting mortar required for metalwork and equipment installed by the generator contractor will be paid for as provided in paragraph ____ (Concrete in Blockouts).]

¹Delete if nonsettling grouting mortar is not required.

²Include type V if it is specified in Cement (or Cementitious Materials) paragraphs.

³Include in specifications which have concrete paragraphs to reference for water and sand requirements.

⁴Include in specifications where there are no concrete paragraphs to reference for water and sand requirements.

⁵Include this subparagraph if grouting is required of the completion Contractor. List equipment required to be grouted by the completion Contractor.

⁶Revise or delete as required.

⁷Number as required.

⁸Delete if amount of mortar is small.

7-20-87 Revision: Subparagraph c.