

PART 1 - GENERAL**SUMMARY**

This Section includes requirements for provision of all labour, materials, equipment and incidental services necessary to Provide mortar and grout for masonry.

RELATED REQUIREMENTS

Section 04050 – Basic Masonry Materials & Methods.

REFERENCE STANDARDS

1. American Concrete Institute: (ACI):
 - a. ACI 530.1-99/ASCE 6-99/TMS 602-99, Commentary on Specification for Masonry Structures
2. American Society for Testing and Materials (ASTM):
 - a. ASTM C207-18; Standard Specification for Hydrated Lime for Masonry Purposes
 - b. ASTM C494/C494M-19, Standard Specification for Chemical Admixtures for Concrete.
 - c. ASTM E119-20, Standard Test Methods for Fire Tests of Building Construction and Materials.
3. Canadian Standards Association (CSA):
 - a. CAN/CSA-A179-14 (R2019); Mortar and Grout for Unit Masonry.
 - b. CAN/CSA-A371-14 (R2019); Masonry Construction for Buildings.
 - c. CSA S304-14 (R2019); Design of Masonry Structures.
 - d. CSA-A3000-18; Cementitious materials compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

SUBMITTALS

1. Make Submittals in accordance with Section 01300 – Submittal Procedures.
2. Actions Submittals: Submit the following Submittals before starting any work of this Section:
 - a. Product Data Sheets: Submit Product Data Sheets indicating physical characteristics, test results confirming performance characteristics, finishes and compliance with referenced standards.

DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle masonry mortar and grout materials as follows:
 - a. Deliver prepackaged, dry-blended mortar mix to the Place of the Work in labelled plastic-lined bags each bearing name and address of manufacturer, production codes or batch numbers, and colour or formula numbers.
 - b. Maintain mortar, grout and packaged materials clean, dry, and protected against dampness, freezing, traffic and contamination by foreign materials.

PART 2 - PRODUCTS**MATERIALS**

1. Use same brands of materials and source of aggregate for entire Project.
2. Portland Cement: Type GU - General Use Hydraulic Portland Cement (formerly Type 10) in accordance with CAN/CSA-A3000, gray colour.
3. Blended Cement: Type GUB in accordance with CSA-A3002.

4. Hydrated Lime: Type S or SA in accordance with ASTM C207.
5. Supplementary Cementing Materials: In accordance with CAN/CSA-A3001.
6. Water: clean and potable in accordance with CAN/CSA-A179.

AGGREGATES

1. Mortar Aggregates: In accordance with CSA A179, and as follows:
 - a. Use same brands of Products and source of aggregate for entire Project.
 - b. Use washed aggregate consisting of natural sand or crushed stone for mortar that is exposed to view.
 - c. Use aggregate graded with 100% passing the 1.18 mm (No. 16) sieve for joints less than 6 mm (1/4") thick.
2. Grout Aggregates: In accordance with CSA A179.

ADMIXTURES

1. Cold Weather Admixture: Non-chloride, non-corrosive, accelerating admixture in accordance with CSA A179 and ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
2. Acceptable Products:
 - a. Morset by gcp Construction Products (formerly Grace Construction Products).
 - b. Trimix-NCA by Degussa ChemRex.

MORTAR AND GROUT MIXES

1. Do not use admixtures, including air entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures; unless approved in writing by the Consultant, and as follows:
 - a. Do not use calcium chloride in mortar or grout.
 - b. Limit cementitious materials in mortar to portland cement, mortar cement, and lime.
 - c. Limit cementitious materials in mortar for reinforced masonry to portland cement, mortar cement, and lime.
 - d. Add cold weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar colour is consistent.
2. Mix mortar ingredients in accordance with CAN/CSA A179 in quantities needed for immediate use.
 - a. Add admixtures in accordance with manufacturer's instructions.
3. Maintain sand uniformly damp immediately before mixing process.
4. Do not use anti-freeze compounds including calcium chloride or chloride-based compounds.
5. Do not add air entraining admixture to mortar mix.
6. Use a batch type mixer in accordance with CAN/CSA A179.
7. Re-temper mortar only within two hours of mixing, when water is lost by evaporation.
8. Use mortar within 2 hours after mixing at temperatures of 32°C (90°F), or 2-1/2 hours at temperatures under 10°C (50°F).
9. Pre-blended, Dry Mortar Mix: Provide dry mortar ingredients in form of a preblended mix; measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to the Place of the Work.
 - a. Use pre-blended mortar pre-packaged under controlled factory conditions. Ingredients batching limitations to be within 1% accuracy.
10. Mortar Colour: Natural.
11. Provide the following types of mortar for applications stated unless another type is specifically indicated on Drawings or needed to provide required compressive strength of masonry:
 - a. Parging Mortar: Type S.
 - b. Mortar for exterior masonry above grade, as follows:
 - c. Non-loadbearing: Type N.
 - d. Parapet Walls: Type N.

- e. Calcium Silicate Manufactured Stone Masonry: Type N 1:1:6.

- b. Products or work which fail to meet specified requirements may be rejected by the Consultant whenever found at any time prior to final acceptance of the Work regardless of previous site review or testing and inspection. If rejected, defective Products or work shall be promptly removed and replaced or repaired to the requirements of the Construction Documents as accepted by the Consultant, at no expense to the Owner.

PART 3 - EXECUTION

CONSTRUCTION

1. Do masonry mortar and grout work in accordance with CAN/CSA A179 except where specified otherwise.
2. Apply parging in uniform coating not less than 10mm (3/8") thick, where indicated on Drawings.

-END OF SECTION -

MIXING

1. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes.
2. Mixing by hand must be pre-approved by the Consultant.
3. Clean all mixing boards and mechanical mixing machine between batches.
4. Mortar must be weaker than the units it is binding.
5. Appoint one individual to mix mortar for duration of Project. In the event that this individual must be changed, mortar mixing must cease until the new individual is trained, and mortar mix is tested.

MORTAR PLACEMENT

1. Install mortar to requirements of:
 - a. Brick Masonry: Section 04 21 00.
 - b. Calcium Silicate Manufactured Stone Masonry: Section 04 73 13.
2. Remove excess mortar from grout spaces.

SITE QUALITY CONTROL

1. Testing and Inspection Agency:
 - a. The Owner will appoint the Testing and Inspection Agency to make inspections or perform tests as the Consultant directs.
 - b. Prior to commencing significant segments of the Work, give the Consultant and Testing and Inspection Agency appropriate notification so as to afford reasonable opportunity to review the Work. Failure to meet this requirement may be cause for the Consultant to classify the Work as defective.
 - c. Prior to commencement of construction, the masonry Subcontractor shall prepare and mix on-site, under supervision of the Consultant and the Testing and Inspection Agency, mortar samples to determine compliance with the Specifications.
 - d. Tests of such samples shall determine a ratio-by-mass value or "control value" for mortar mixes.
 - e. Subsequent sample ratio tests taken during the course of construction shall not vary from the control value by more than 15%.
 - f. Testing Frequency: One set of tests for each 450 m² (4500 ft²) of wall area or portion remaining.
2. Non-Conforming Work:
 - a. Where evidence exists that defective work has occurred or that work has been carried out incorporating defective Products, the Consultant may have additional tests, inspections or surveys performed, in order to determine if work is defective. Tests, inspections or surveys carried out under these circumstances will be made at the Subcontractor's expense in the event of defective Work or at the Owner's expense where Work is in conformance.