

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 04 05 19 – Masonry Reinforcement and Connectors.
- .2 Section 04 05 23 – Masonry accessories.
- .3 Section 04 22 00 – Concrete unit masonry.
- .4 Section 04 43 16 – Granite veneer cladding.
- .5 Section 04 43 26 – Precut stone cladding.
- .6 Section 07 92 10 –Joint Sealants

1.2 REFERENCES

- .1 CSA Group
 - .1 CSA A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CAN/CSA-A179-04(R2009), Mortar and Grout for Unit Masonry.
 - .3 CAN/CSA-A371-04(R2009), Masonry Construction for Buildings.
 - .4 CAN/CSA-A3000-08, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .2 International Masonry Industry All-Weather Council (IMIAC)
 - .1 Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
- .3 South Coast Air Quality Management District (SCAQMD)
 - .1 SCAQMD Rule 1168-05, Adhesive and Sealant Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data Sheets:
 - .1 Submit required data sheets and manufacturer's instructions for masonry mortar and grout .Data sheets must indicate product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements. Indicate VOC's mortar, grout, parging, colour additives and admixtures. Expressed as grams per litre (g/L).
- .3 Samples:
 - .1 Samples: submit unit samples in accordance with Section 04 05 00 - Common Work Results for Masonry, supplemented as follows:
 - .1 Submit two (2) samples of mortar.

- .2 Submit confirmation of source or product data sheet, prior to mixing or preparation of mortars, to Departmental Representative of:
 - .1 Aggregate: sand.
 - .2 Cement.
 - .3 Lime.
 - .4 Colour pigment samples.
- .4 Manufacturers' Instructions: submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties, and in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control and requirements of Section 04 05 00 - Common Work Results for Masonry.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal Requirements.

1.6 SITE CONDITIONS

- .1 Ambient Conditions: maintain materials and surrounding air temperature to:
 - .1 Minimum 5 degrees C prior to, during, and 48 hours after completion of masonry work.
 - .2 Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry work.
- .2 Works done in cold or hot weather: in accordance with CAN/CSA-A371.

1.7 ACCEPTABLE PRODUCTS AND MATERIALS

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

Part 2 Products

2.1 MATERIALS

- .1 Use same brands of materials and source of aggregate for entire project.
- .2 Cement:
 - .1 Premixed dry materials, in bag, for mortar: complying to standard CAN/CSA-A179, type N, with grey colored cement.
- .3 Aggregate: supplied by one supplier.
 - .1 Fine Aggregate: to CAN/CSA-A179, natural sand.
- .4 Water: clean and potable.

2.2 COLOUR ADDITIVES

- .1 Use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample. Admixtures to be approved prior to use. Use in accordance with the specific manufacturer's recommendations.
- .2 Powder: inorganic mineral oxide pigment colour as selected by Departmental Representative

2.3 MORTAR MIXES

- .1 Mortar for exterior masonry above grade:
 - .1 Mortar used in case of Non-Load Bearing walls: type N based on proportion specifications.
- .2 Mortar for interior masonry:
 - .1 Mortar used in case of Load Bearing walls: type S based on proportion specifications.
 - .2 Mortar used in case of Non-Load Bearing walls: type N based on proportion specifications.
- .3 Parging Mortar: type N to CAN/CSA-A179.
- .4 Following applies regardless of mortar types and uses specified above:
 - .1 Mortar for stonework: type N based on proportion specifications.
 - .2 Mortar for grouted reinforced masonry: type S based on proportion specifications.

2.4 MORTAR MIXING

- .1 Use pre-blended, pre-coloured mortar prepackaged under controlled factory conditions. Ingredients batching limitations to be within 1% accuracy.
- .2 Mix mortar ingredients in accordance with CAN/CSA-A179 in quantities needed for immediate use.
- .3 Maintain sand uniformly damp immediately before mixing process.
- .4 Add mortar colour in accordance with manufacturer's instructions. Provide uniformity of mix and colouration.
- .5 Do not use anti-freeze compounds including calcium chloride or chloride based compounds.
- .6 Do not add air entraining admixture to mortar mix.
- .7 Use a batch type mixer in accordance with CAN/CSA-A179.
- .8 Prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.
- .9 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.
- .10 Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 10 degrees C.

2.5 GROUT MIXES

- .1 Grout: Minimum compressive strength of 12.5 MPa at 28 days. Maximum aggregate size and grout slump: to CAN/CSA-A179.

2.6 GROUT MIXING

- .1 Mix batched and delivered premixed grout in accordance with CSA A23.1/A23.2
- .2 Mix grout ingredients in quantities needed for immediate use in accordance with CAN/CSA-A179 fine grout.
- .3 Add admixtures in accordance with manufacturer's instructions; mix uniformly.
- .4 Do not use calcium chloride or chloride based admixtures.

2.7 MIX TESTS

- .1 Testing Mortar Mix:
 - .1 Test mortar to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA-A179, for mortar based on proportion specification. Test prior to construction and during construction for:
 - .1 Compressive strength.
 - .2 Consistency.
 - .3 Mortar aggregate ratio.
 - .4 Sand/cement ratio.

- .5 Water content and water/cement ratio.
 - .6 Air content.
 - .7 Splitting tensile strength.
- .2 Testing Grout Mix:
 - .1 Test grout to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA-A179, for grout based on proportion specification. Test prior to construction and during construction for:
 - .1 Compressive strength.
 - .2 Sand/cement ratio.
 - .3 Water content and water/cement ratio.
 - .4 Slump.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for masonry installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION.

- .1 Plug clean-out holes with masonry units. Brace masonry before injecting grout under pressure.

3.3 CONSTRUCTION

- .1 Do masonry mortar and grout work in accordance with CAN/CSA-A179 except where specified otherwise.

3.4 MIXING

- .1 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers running on hydrocarbons are not permitted, due to fumes. Mixing by hand must be pre-approved by the Departmental Representative.
- .2 Clean all mixing boards and mechanical mixing machine between batches.
- .3 Mortar must be weaker than the units it is binding.

- .4 Contractor to 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.

3.5 MORTAR PLACEMENT

- .1 Install premix mortar to manufacturer's instructions.
- .2 Install mortar to requirements of CAN/CSA-A179.
- .3 Remove excess mortar from grout spaces.

3.6 GROUT PLACEMENT

- .1 Install grout in accordance with manufacturer's instructions.
- .2 Install grout in accordance with CAN/CSA-A179.
- .3 Work grout into masonry cores and cavities to eliminate voids.
- .4 Do not install grout in lifts greater than 400 mm, without consolidating grout by rodding.
- .5 Do not displace reinforcement while placing grout.

3.7 FIELD QUALITY CONTROL

- .1 Site Tests, Inspection: in accordance with Section 04 05 00 - Common Work Results for Masonry supplemented as follows:
 - .1 Test and evaluate mortar prior to construction in accordance with CAN/CSA-A179.
 - .2 Test and evaluate grout prior to construction to CAN/CSA-A179; test in conjunction with masonry unit sections specified.
- .2 Manufacturer's Field Services: in accordance with Section 04 05 00 - Common Work Results for Masonry.

3.8 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Remove droppings and splashings using clean sponge and water.
- .3 Clean masonry with low pressure clean water and soft natural bristle brush.
- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .5 Waste Management: separate waste materials for reuse/recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.9 PROTECTION

- .1 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.

END OF SECTION