

**Partie 1        General**

**1.1            RELATED REQUIREMENTS**

- .1    Section 09 63 40 – Stone Flooring.
- .2    Section 03 30 00 - Poured Concrete Section.
- .3    Division 26 Electricity.

**1.2            SUMMARY**

- .1    Content of the section:
  - .1    Work in this section applies to the supply and installation of all stone components under «Aménagement extérieur».
  - .2    Work in this section applies mainly without being limited to the following:
    - .1    Cladding and coping.

**1.3            REFERENCES**

- .1    American National Standards Institute (ANSI)
  - .1    ANSI A108.1, Installation of Ceramic Tile (Incant ANSI A108.1A-C, 108.4-.13, A118.1-.10, A136.1).
- .2    ASTM International
  - .1    ASTM C144, Standard Specification for Aggregate for Masonry Mortar.
  - .2    ASTM C207, Standard Specification for Hydrated Lime for Masonry Purposes.
  - .3    ASTM C615/C615M, Standard Specification for Granite Dimension Stone.
  - .4    ASTM C920, Standard Specification for Elastomeric Joint Sealants.
- .3    CSA Group
  - .1    CAN/CSA-A370, Connectors for Masonry.
  - .2    CAN/CSA-A371, Masonry Construction for Buildings.
  - .3    CAN/CSA-A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .4    Terrazzo, Tile and Marble Association of Canada (TTMAC/ACTTM)
  - .1    Section 09 30 00 of TTMAC/ACTTM specifications, Tile Installation Manual.
  - .2    Hard Surface Maintenance Guide.
- .5    South Coast Air Quality Management District (SCAQMD)
  - .1    SCAQMD Rule 1168, Adhesive and Sealant Applications.

#### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for granite veneer cladding and weepholes and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Quebec, Canada and OIQ member.
  - .2 Indicate sizes and sections of granite, arrangements of joints and bonding, anchoring, dowelling, and cramping.
  - .3 Each section of granite indicated on shop drawings must bear corresponding number marked on its back or bed.
- .4 Samples:
  - .1 Submit verification samples for each finish product specified, 2 complete sets of stone, approximately 300 mm square, representing actual product, colour, texture, and patterns.
  - .2 Submit two plastic for facing stone weepholes.
  - .3 Coloured grout.
  - .4 Coloured sealant.

#### **1.5 QUALITY ASSURANCE**

- .1 Qualification
  - .1 Installer: must have experience and qualifications for cladding installation.
- .2 Inspection and tests
  - .1 Allow and enable Departmental Representative free access at all times to plant and work site, to laboratory to verify, examine, supervise quality of materials and manufacture, and to take samples for tests and analyses.
  - .2 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .3 Mock-ups:
  - .1 Construct mock-ups in accordance with Departmental Representative's on-site specification.
    - .1 Construct mock-up panel of granite veneer construction 1200 x 1800 mm, and weephole showing colors and textures, integration of lighting fixture, use of reinforcement, ties, through wall flashing, weep holes, jointing, coursing, mortar and quality of work.

- .4 Mock-up used:
  - .1 To judge quality of work, substrate preparation, operation of equipment and material application.
  - .2 Mock-up may be integrated into final work provided it meets Departmental Representative's requirements.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance 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 in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect granite veneer cladding from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## **1.7 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Do not install at temperatures below 12 degrees C or above 38 degrees C.
  - .2 Maintain temperatures at or above 12 degrees C until cementitious materials have fully cured.
  - .3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.
- .2 Field Measurements:
  - .1 Make field measurements necessary to ensure proper fit of members.

## **1.8 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

## Partie 2 Products

### 2.1 MATERIALS

#### .1 Physical properties of stone:

- .1 Walls B, D, E, G: “Picasso” granite for cladding and coping, quarry located in Magpie, QC, CA

Absorption by weight	ASTM C97	0.16%	0.16%
Compressive strength	ASTM C170	23,277 Psi	160.5 Mpa
Density	ASTM C97	165.2lb/ft <sup>3</sup>	2,646 kg/m <sup>3</sup>
Modulus of rupture	ASTM C99	2,364 Psi	16.3 Mpa

- .2 Walls A, H: “Laurentian Green” granite for cladding and coping, quarry located in Lac Apica, QC, CA

Absorption by weight	ASTM C97	0.12%	0.12%
Compressive strength	ASTM C170	22,038 Psi	152 Mpa
Density	ASTM C97	177.9 lb/ft <sup>3</sup>	2,849 kg/m <sup>3</sup>
Modulus of rupture	ASTM C99	1,707 Psi	11.77 Mpa

### 2.2 STONE CLADDING AND COPING

- .1 “Picasso” granite cladding, to ASTM C615, corresponding to following characteristics.

- .1 Size: see plan specifications.
- .2 Thickness: 38 mm.
- .3 Pattern: see plan specifications.
- .4 Finish: Flamed on exposed surfaces, sawn on sides and undersides.

- .2 “Picasso” granite coping, to ASTM C615, corresponding to following characteristics:

- .1 Size: see plan specifications.
- .2 Thickness: 38 mm.
- .3 Pattern: see plan specifications.
- .4 Finish: Flamed on exposed surfaces, sawn back, underside and joints.

- .3 “Laurentian Green” granite cladding, to ASTM C615, corresponding to following characteristics.

- .1 Size: see plan specifications.
- .2 Thickness: 38 mm.
- .3 Pattern: see plan specifications.
- .4 Finish: Flamed on exposed surfaces, sawn on sides and underside.

- .4 “Laurentian Green” granite coping, to ASTM C615, corresponding to following characteristics.
  - .1 Size: see plan specifications.
  - .2 Thickness: see plan specifications.
  - .3 Pattern: see plan specifications.
  - .4 Finish: Flamed on exposed surfaces, sawn back, underside and joints.

## 2.3 MORTAR

- .1 Mortar for coping:
  - .1 Polymer-modified cement adhesive, mortar and additives. Polymer-modified Portland cement based flexible cement adhesive, to ANSI A118.4 and ISO 13007 C2ES2P2: Factory-prepared cement adhesive and latex additive.
- .2 Mortar mixture:
  - .1 Proportions and mixtures to manufacturer’s most recent written guidelines and applicable ANSI standards.

## 2.4 GROUT

- .1 Grout for coping:
  - .1 Quick set grout, sand free, polymer modified and to ANSI A118.6, ANSI A118.7 and ISO 13007 CG2WAF standards.
  - .2 Compressive strength no less than 12.5 MPa at 28 days. Maximum aggregate size and settling to CAN/CSA-A179.
  - .3 Polymer-modified, quick-set, superior quality, non-shrink, efflorescence free and colour consistent.
  - .4 Colours approved by Departmental Representative and adapted to following selected stones:
    - .1 Saint-Sébastien granite.
    - .2 Laurentian Green granite.
    - .3 Picasso granite.
- .2 Grout mixing:
  - .1 Mix premixed grout to CSA A23.1/A23.2.
  - .2 Do not use calcium chloride or other chloride admixtures.

## 2.5 MORTAR AND GROUT TESTS

- .1 Mortar test:
  - .1 Test prepared mortar following CAN/CSA-A179.
- .2 Grout test:
  - .1 Test prepared grout following product properties and mixing guidelines.

## **2.6 SEALANTS**

- .1 All vertical cladding joints: sealers:
  - .1 Elastomeric two-component, premium quality, polyurethane base, colours selected by Departmental Representative. Non-sag, chemical curing, self-levelling product.

## **2.7 ACCESSORIES**

- .1 Water: clean, cold and potable.
- .2 Anchors: 304 stainless steel.
- .3 Backup materials:
  - .1 Polyethylene, urethane, neoprene or vinyl foam foam.
    - .1 Open cell or extruded closed cell foam backer rods.
    - .2 Oversized by 30 to 50%.
- .4 Plastic weephole vents.
- .5 Drain membrane acceptable products:
  - .1 Miradrain from Solmax cie;
  - .2 Soldrain from Soleno cie;
  - .3 Drentex from Texsa cie;
  - .4 Replacement product approved by addendum in accordance with Instruction to Bidders.

## **Partie 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written requirements, recommendations and specifications, including available technical literature, product handling, storing and installation instructions, and indications and technical data sheets.

### **3.2 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for granite veneer cladding installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect surfaces/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.

### 3.3 PREPARATION

- .1 Cut granite to shape and dimensions and full to square with jointing as indicated.
- .2 Join and bed granite pieces as indicated. Make joints maximum 12 mm thick.
  - .1 Saw or cut beds and joints full square back from face at least two thirds of piece thickness. From that point bed may fall under square 40 mm in 300 mm maximum.
  - .2 Make bed joints free of large depressions.
- .3 Clean sawn backs and beds of rust stains and iron particles.
- .4 Execute moulded work from full size details. Make exposed arrises in true alignment and ease slightly to prevent snipping.
- .5 Cut granite for anchors, cramps, dowels. Provide Lewis pin holes in pieces which can not be manually handled. Do not cut holes in exposed surfaces.
- .6 Back-check granite coming in contact with structural members as indicated. Allow minimum of 25 mm clearance between back of stone and steel and concrete structural members. Shape beds of stone resting on structural work to fit supports.
- .7 Cut-in reglets for for lighting fixtures where indicated.

### 3.4 INSTALLATION

- .1 Construction in accordance with CAN/CSA-A371.
- .2 Clean granite removing dirt or foreign matter from edges and surfaces. Do not use wire brushes.
- .3 Carefully sort stones, removing chipped, cracked or stained stones and immediately notify the Departmental Representative.
- .4 Set granite plumb and accurately in position with anchors securely placed, as indicated on shop drawings. Orient stone veining in direction indicated on shop drawings.
- .5 Set facing firmly against angles and around accessories, appliances and other fixed elements to ensure continuity of joints. Size, cut and drill on site to ensure tight-fitting uniform joints with a maximum width of 12 mm.
- .6 Attach anchors to back-up wall and to granite. Fill anchor holes and encase anchors in mortar.
- .7 Make joints uniform and of indicated width. Place non-staining resilient cushions at least one joint width back from face to maintain joint width. Keep edges and faces aligned to respect indicated tolerances.
- .8 Use plastic weep hole vents approximately every 3.00 m on centre or as needed.
- .9 Prevent soiling, chipping or defacing granite. Remove mortar droppings and wash clean.

- .10 Pointing: remove dirt and loose mortar from joints by using pressure air stream.
  - .1 Dry joints for caulking with joint compound.
  - .2 Apply joint compound with appropriate tool, with slightly concave shape.
  - .3 Caulk with joint compound.
  - .4 Finish joints 1.6 mm beneath stone surface. Tool finish joints to eliminate surplus and shape as indicated.
- .11 Use a drain membrane behind the concrete low walls higher than 600 mm.

### **3.5 TOLERANCES**

- .1 Maximum flatness variations on polished, honed and fine rubbed surfaces at bed and joint arris line may not exceed one-sixth of specified joint width and one-fourth of joint width on surfaces having other finishes. Determine flatness with 1.2 m long straight edge applied in any direction of surface.

### **3.6 CLEANING**

- .1 Progress Cleaning: Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.
  - .1 At completion wash granite with soft fibre brushes, soap powder and clean water.

**END OF SECTION**