

CLAYBRICK MASONRY

GENERAL

1.1 Description of Work

- .1 Extent of each type of masonry Work is indicated on Drawings and schedule.
- .2 Types of masonry Work required include:
 - .1 Brick masonry

1.2 Quality Assurance

- .1 Re-use salvaged brick where possible from existing façade to construct walls between doors
- .2 Appearance and blend characteristics: provide face brick type to match existing face brick on building as closely as reasonable in colour type, colour range and blend percentage.
- .3 Single source responsibility for masonry units: obtain masonry units from one Manufacturer.
- .4 Single source responsibility for mortar materials: obtain mortar ingredients of uniform quality including colour for exposed masonry, from one Manufacturer for each cementitious component and from one source and producer for each aggregate.
- .5 Field constructed mock-ups: prior to installation of masonry Work, erect sample wall panels to further verify selections made for colour and texture characteristics, under sample submittals of masonry units and mortar, and to represent completed masonry Work for qualities of appearance, materials, construction and workmanship.
- .6 Build mock-ups for the following types of masonry in sizes approximately 1800 mm long by 1220 mm high, by full thickness.
 - .1 Typical exterior face brick wall

1.3 Submittals

- .1 Product Data: submit Manufacturer's Product Data for each type of masonry unit, accessory and other manufactured Products.
- .2 Compliance: submit certifications that each type of masonry unit complies with specified requirements.
- .3 Colour selection: for initial selection submit:
 - .1 Unit masonry samples showing full extent of colours and textures available for each type of exposed masonry unit required.
 - .2 Coloured mortar samples showing full extent of colours available.
- .4 Samples: for verification purposes submit:

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- .1 Unit masonry samples for each type of exposed masonry unit include full range of colour and texture to be expected in completed Work.
- .2 For selection of brick, submit products of all Manufacturers that the Manufacturers or their agents consider to be their closest match. Re-submit until match meets approval of Architect.
- .3 Coloured masonry mortar samples for each colour required showing the full range of colour which can be expected in the finished Work. Label samples to indicate type and amount of colorant used.

1.4 Referenced Standards

- .1 Comply with the applicable provisions of all codes, standards and Specifications referenced in this Section, except as modified by the requirements of these Contract Documents, including, but not limited to the following:

ACI 531 - Building Code Requirements for Masonry Structures

ACI 531R - Commentary on Building Code Requirements for Masonry Structures

ACI 530.1 - Specification for Masonry Construction

ASTM C-129 - Non-Load Bearing Masonry Units

BIA - Technical Notes on Brick Construction

NCMA - TEK Bulletins

1.5 Delivery, Storage, and Handling

- .1 Deliver masonry materials to project in undamaged condition. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, or other causes.
- .2 Limit moisture absorption of concrete masonry units during delivery and until time of installation to the maximum percentage specified for Type I units for the average annual relative humidity as reported by the Environment Canada station nearest project Site.
- .3 Store cementitious materials off the ground, under cover and in a dry location.
- .4 Store and protect aggregates where grading and other required characteristics can be maintained.
- .5 Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.6 Project Conditions

- .1 Protection of Work: during erection, cover top of walls with waterproof sheeting at end of each day's Work. Cover partially completed structures when Work is not in progress.
 - .1 Extend cover a minimum 600 mm down both sides and hold cover securely in place.

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- .2 Do not apply uniform floor or roof loading for at least twelve (12) hours after building masonry walls or columns.
- .3 Staining: prevent grout, mortar or soil from staining the face of masonry to be left exposed or painted. Remove grout or mortar in contact with such masonry immediately.
- .4 Do not apply concentrated loads for at least three (3) days after building masonry walls or columns.
- .5 Protect base of walls from rain-splashed and/or mortar splatter by means of coverings spread on ground and over wall surfaces.
- .6 Protect sills, ledges, and projections from droppings or mortar.
- .7 Cold Weather Protection:
 - .1 Do not lay masonry units that are wet or frozen.
 - .2 Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.
 - .3 Remove masonry damaged by freezing conditions.
 - .4 For clay masonry units with initial rates of absorption which require them to be wetted before laying, comply with the following:
 - .1 For units with surface temperature above 0°C, wet with water heated to above 21°C.
 - .2 For units with surface temperature below 0°C, wet with water heated to above 54°C.
- .8 Perform the following construction procedures while masonry Work is progressing. Temperature ranges indicated below apply to air temperature existing at time of installation, except for grout:
 - .1 For grout: temperature ranges apply to anticipated minimum night temperatures. In heating mortar and grout materials, maintain mixing temperature selected within 5.5°C.
 - .2 5°C to 0°C.
 - .1 Mortar: heat mixing water to produce mortar temperature between 5°C and 49°C.
 - .2 Grout: follow normal masonry procedures.
 - .3 0°C to -4°C:
 - .1 Mortar: heat mixing water and sand to produce mortar temperatures between 5°C and 49°C. Maintain temperatures of mortar on boards above freezing.
 - .2 Grout: heat grout materials to 32°C to produce in-place grout temperature of 21°C at end of Work day.

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- .4 -4°C to -7°C:
 - .1 Mortar: heat mixing water and sand to produce mortar temperatures between 5°C and 49°C. Maintain temperatures of mortar on boards above freezing.
 - .2 Grout: heat grout materials to 32°C to produce in-place grout temperature of 21°C at end of Work day.
 - .3 Heat both side of walls under construction using salamanders or other heat sources.
 - .4 Use windbreaks or enclosures when wind is in excess of 24 km/h.
- .5 -7°C and below:
 - .1 Mortar: heat mixing water and sand to produce mortar temperatures between 5°C and 49°C.
 - .2 Grout: heat grout materials to 32°C to produce in-place grout temperature of 21°C at end of Work day.
 - .3 Masonry units: heat masonry units so that they are above 7°C at time of laying.
 - .4 Provide enclosure and auxiliary heat to maintain an air temperature of at least 5°C for twenty-four (24) hours after laying units.
 - .5 Do not heat mixing water for mortar and grout to above 71°C.
- .9 Protect completed masonry and masonry not being worked on in the following manner: (temperature ranges indicated apply to mean daily air temperatures except for grouted masonry; if for grouted masonry, temperature ranges apply to anticipated minimum night temperatures.)
 - .1 5°C to 0°C.
 - .1 Protect masonry from rain or snow for at least twenty-four (24) hours by covering with weather-resistant membrane.
 - .2 0°C to -4°C.
 - .1 Completely cover masonry with weather-resistant membrane for at least twenty-four (24) hours.
 - .3 -4°C to -7°C:
 - .1 Completely cover masonry with weather-resistant insulating blankets or similar protection for at least twenty-four (24) hours; forty-eight (48) hours for grouted masonry.
 - .4 -7°C and below:

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- .1 Except as otherwise indicated, maintain masonry temperature above 0°C for twenty-four (24) hours using enclosures and supplementary heat, electric blankets, infrared lamps or other methods proven to be satisfactory. For grouted masonry maintain heated enclosure to 5°C for forty-eight (48) hours.

PRODUCTS

1.7 Masonry Units, General

- .1 Re-use face brick from existing façade to construct new façade. Ensure all re-used units are sound and clean, prepared for re-setting.
- .2 Obtain new masonry units where required from one Manufacturer, of uniform texture and colour for each kind required, for each continuous area and visually related areas.

1.8 Brick Made From Clay or Shale

- .1 General: comply with referenced standards and other requirements indicated below applicable to each form of brick required.
- .2 Size: provide brick manufactured to the following actual dimensions:
 - .1 Metric Modular Face Brick, 90 x 57 x 190
- .3 Provide special molded shapes where indicated and for application requiring brick of form, size and finish on exposed surfaces which cannot be produced from standard brick sizes by sawing.
- .4 For sills, caps, and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncored or unfogged units with all exposed surfaces finished.
- .5 Facing Brick: STM C-216, and as follows:
 - .1 Grade SW, .32 texture and colour: match building. Standard of acceptance: I-XL.

EXECUTION

1.9 Workmanship

- .1 Build masonry Work true-to-line, plumb, square, and level, with vertical joints in proper alignment.
- .2 Tolerances for exposed masonry Work shall be:
 - .1 Variation from mean plane: 3 mm under 2.5 m straight edge.
 - .2 Variation in masonry openings: 6 mm maximum.
 - .3 Variation from plumb: 9 mm in 6 m.

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- .3 Assume complete responsibility for dimensions, plumbs, and levels of this Work and constantly check same with graduated rod.
- .4 Masonry courses to be of uniform height, and both vertical and horizontal joints to be of equal and uniform thickness.
- .5 Construct walls upward in a uniform manner, no one portion being raised more than 1219 mm above another at any time. Build no more than 1500 mm of wall measured vertically in any one day.
- .6 Buttering corners of units, throwing mortar into joints, and deep or excessive furrowing of bed joints will not be permitted. Do not shift or tap units after mortar has taken initial set. Where adjustments must be made after mortar has started to set, remove mortar and replace with fresh supply.

1.10 Mortar and Pointing

- .1 Make all joints uniform in thickness, straight, in line, and with mortar compressed to form concave joints.

1.11 Building In

- .1 Build in door frames, steel lintels, sleeves, anchor bolts, anchors, nailing strips, and other items to be built into masonry.
- .2 Do not distort metal frames. Bed anchors of frames in mortar and fill frame voids with mortar or grout as walls are erected.

1.12 Control Joints

- .1 Provide continuous vertical control joints in veneer walls at locations indicated. Form control joints as detailed. Stop masonry reinforcing each side of joints.

1.13 Masonry Reinforcing

- .1 Veneer shall be continuously reinforced and tied together in bed joints with masonry reinforcing at 400 o.c.
- .2 Place masonry reinforcing in first and second bed joints above and below openings. Reinforcing in first bed joint shall be continuous. Second bed joint reinforcing shall extend 600 mm beyond each side of opening.
- .3 Place continuous reinforcing in second bed joint below the tops of walls.
- .4 Lap reinforcement minimum of 150 mm at splices and cut and bend corners.

1.14 Cutting Masonry

- .1 Cutting of masonry units exposed in finished Work is to be done with accepted type power saw. Where electrical conduit outlets and switch boxes occur, grind and cut units before services are installed.

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- .2 Obtain the Contract Administrator's permission before cutting any part of area which may impair appearance or strength of the Work.
- .3 Patching of masonry is not permitted without the Contract Administrator's authorization.

1.15 Provisions for Other Trades

- .1 Provide openings in masonry walls where required or indicated.
- .2 Accurately locate chases and openings and neatly finish to required sizes.
- .3 Where masonry encloses conduit, ducts, and piping, bring to proper level indicated and as directed. Do not cover any pipe or conduit chases or enclosures until advised that Work has been reviewed and tested.
- .4 Build masonry neatly around conduit, ducts, sleeves, and piping passing through.

1.16 Cleaning

- .1 On completion, remove any excess mortar and smears that may remain, using wood paddles or scrapers.
- .2 Point or replace defective mortar to match existing as required or directed.
- .3 Scrub surfaces to be cleaned using non-acid cleaning solution of type which will not harm constructed masonry. Consult with masonry unit Manufacturer for acceptable Product. Clean trial test area and obtain the Contract Administrator's permission to proceed.
- .4 Use large amounts of water and do cleaning in accordance with Manufacturer's instructions.
- .5 Repeat cleaning operations as often as necessary until Work is satisfactory.

END OF SECTION