

SPEC NOTES:

- .1 This specification has been prepared to assist design professionals in the preparation of a comprehensive office master specification or a project specific specification for veneer masonry.
- .2 This specification section assumes the project manual will contain complete Division 1 - General Requirements sections and close coordination with it is required. If the project manual does not contain these sections, additional information should be included under appropriate articles.
- .3 This specification is directed to the General Contractor (or Construction Manager). Where there is no General Contractor substitute the term masonry contractor.
- .4 Review all requirements noted herein and carefully choose those that meet project requirements. The Specifier must choose one item from a series of items surrounded with [..] brackets and delete the remainder, including all SPEC NOTES and other items not required. Items surrounded with (..) brackets are additional information / comments that should be left in the specification.
- .5 Adding or deleting items in this specification must be done with care and caution. The onus of doing so rests with the Specifier who must have a complete and thorough understanding of what is required. Where additional information must be added to this specification the Specifier must ensure that such information is not only accurate but also in accordance with Masonry Institute of BC recommendations. Because of the above noted requirements the Masonry Institute strongly recommends that this specification be edited by a qualified specification writer.
- .6 This specification is set-up with auto-numbering. Any changes (additions or deletions) must be done correctly to ensure numbering and spacing is maintained to suit.
- .7 Revise header and footer to suit project requirements. As a suggestion insert project name particulars on left side of header and consultant name on bottom left and issue date on bottom right of the footer.
- .8 A final note: The Section number (04 23 15) including Section references noted under Related Work Specified Elsewhere is based on the MasterFormat 2005 numbering system. Section 04 21 13.13 – Clay Brick Veneer Masonry or Section 04 22 00.13 - Concrete Unit Veneer Masonry may also be used. The use of Section numbers based on MasterFormat 1995 are no longer applicable.

PART 1 GENERAL

1.1 Description:

- .1 **Section Includes:** All materials, equipment, labour, and services necessary for the supply and installation of non-structural masonry units as indicated on the drawings and as specified herein.
- .2 The work shall also include, but not necessarily be limited to the supply and installation of the following:

SPEC NOTES:

- .1 Review, amend, or delete following items not appropriate to the project.
- .2 Determine whether masonry contractor supplies and installs air barrier membrane and rigid or spray-applied insulation in veneer cavity, and add or delete in items .2 or .3.
 - a Site mixed or pre-mixed mortar.
 - b Masonry joint reinforcement and ties.
 - c Pre-cast elements hand-set in mortar bed such as copings, sills, etc.
 - d Loose steel masonry ledgers and lintels.
 - e Movement joints, excluding caulking and sealant.
 - f Thru-wall sheet metal, membranes, flashings and venting.
 - g [Rigid][Spray-applied] insulation in masonry cavity.

- .h [Air barrier membrane system when use in conjunction with rigid insulation in masonry cavity.]
 - .i Cutting and fitting of veneer masonry to accommodate the work of other trades during progress of masonry work only to extent noted herein.
 - .j Cleaning of exposed veneer masonry surfaces.
 - .k Application of Clear Water Repellent on exposed exterior veneer masonry surfaces.
 - .l Coordination with work of other sections.
 - .m Scaffolding and planks for masonry work only.
 - .n Provision of a masonry maintenance guide.
- .3 The work shall also include building in or around or coordinating work with products supplied by others, including the following:
- .a Firestopping and smoke sealing.
 - .b Structural penetrations
 - .c Pressed steel door frames.
 - .d Access doors and frames.
 - .e Louvres and vents.
 - .f Piping and/or duct sleeves.
 - .g Inserts, imbeds, and attachments for work of other trades.
 - .h Proprietary expansion control joints specified under Section 07 95 00.
 - .i Caulking and sealants.
 - .j Steel angle protection at masonry openings and corners as detailed on drawings (notably those subject to vehicle access).

SPEC NOTE: Use the following examples and modify as / if required where Separate, Alternative, or Unit Pricing for materials as required. Note that pricing indicated below uses the Section number as an aid to listing such pricing in a numerical order on the Bid Form. Specifiers may choose an alternate method.

- .4 **Separate Prices:** Provide the following Separate Price and note same on Bid Form:
- .a [**Separate Price 042315S-1:** for air barrier membrane to back-up wall surfaces.]
 - .b [**Separate Price 042315S-2:** for spray applied insulation to back-up wall surfaces.]
 - .c [**Separate Price 042315S-3:** for water repellent coating exterior masonry veneer walls using specified materials.]
- .5 **Alternative Prices:** Provide the following Alternative Price for following items pre-approved before Bid Closing and note same on Bid Form:
- .a [**Alternate Price 042315A-1:** for supply and installation of [concrete][clay] veneer masonry in lieu of specified [concrete][clay] veneer masonry.]
- .6 **Unit Prices:** Provide the following Unit Price and note same on Bid Form:
- .a Addition: [**Unit Price 042315U-1:** square metre cost for supply and installation of [each type of masonry veneer unit specified].]
 - .b Deletion: [**Unit Price 042315U-1:** square metre cost for supply and installation of [each type of masonry veneer unit specified].]

- .7 **Related Work Specified Elsewhere:** shall include, but not necessarily be limited to, building in products supplied by others, including the following:

SPEC NOTE: *This lists work directly related to this section but not to be included as part of this section. Delete, revise, or add to example sections listed below as required. This is not a comprehensive list. Refer to CSC MasterFormat 2004 for additional Sections that may be related and amend as required. Coordinate items with other Sections of Work in the Project Manual.*

Section 01 33 00 - Submittal Procedures
Section 01 35 40 - Environmental Program Requirements [LEED or other]
Section 01 45 00 - Quality Control (materials testing)
Section 01 50 00 - Temporary Facilities and Controls (bracing, scaffolding)
Section 01 57 20 - Project Waste Management
Section 01 57 21 - Environmental Controls / Procedures
Section 03 30 00 - Cast-in-Place Concrete (dovetail anchor slot inserts for veneer ties).
Section 04 22 00 - Concrete Unit Masonry
Section 04 22 70 - Glass Unit Masonry
Section 04 40 00 - Stone Masonry
Section 05 41 00 - Structural Metal Stud Framing
Section 05 50 00 - Metal Fabrications (ledger and lintel angles, seismic restraint angles, anchors to masonry, etc.)
Section 06 10 00 - Rough Carpentry (exterior wall framing and sheathing)
Section 07 21 00 - Thermal Insulation (cavity wall rigid insulation requirements)
Section 07 21 19 - Spray Applied Foam Insulation (within cavity)
Section 07 27 00 - Air Barrier Membrane
Section 07 60 00 - Flashing and Sheet Metal (parapet and coping flashing)
Section 07 84 00 - Fire Stopping and Smoke Sealing
Section 07 90 00 - Caulking and Sealants
Section 07 95 00 - Expansion Control (proprietary joint systems for building structure)
Section 08 11 13 - Hollow Metal Doors and Pressed Steel Frames (supply and setting of door frames for building in by this section)
Section 08 51 00 - Metal Windows (frames)
Section 09 10 00 - Exterior Steel Stud Framing System (including exterior sheathing)
Section 09 90 00 - Painting

SPEC NOTE: *Use the following only as required. Clauses may be revised to suit specification and/or form of Contract requirements as required.*

- .8 This Section along with the drawings forms part of the Contract and is to be read, interpreted, and coordinated with all other parts.
- .9 Division 00 – Procurement and Contracting Requirements and Division 01 - General Requirements form an integral part of this Section of Work.

1.2 References Standards:

- .1 The latest applicable edition of following reference standards and codes shall govern all work specified herein as appropriate:

SPEC NOTE: *Delete standards that are not appropriate to project. Refer to the appropriate Building Code*

for current applicable standards or use newer standard if necessary.

CAN/CSA A23.4-00, Precast Concrete - Materials and Construction (for precast concrete headers and sills, etc.).

CSA A82-06, Fired Masonry Brick made from Clay or Shale.

CSA A165.1-04, Concrete Block Masonry Units.

CSA A179-04, Mortar and Grout for Unit Masonry.

CSA A370-04, Masonry Connectors.

CSA A371-04, Masonry Construction for Buildings.

CSA G30.3-M1983 (R1998), Cold-Drawn Steel Wire for Concrete Reinforcement.

CSA-S304.1-04, Design of Masonry Structures.

CAN/ULC-S701-2001, Thermal Insulation, Polystyrene, Boards and Pipe Covering.

CAN/ULC-S702-1997, Thermal Insulation, Mineral Fibre, for Buildings.

CAN/ULC-S705.1-2001, Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification.

CSA-A3000-03 Cementitious Material Compendium

1.3 Quality Assurance:

- .1 The masonry contractor shall be a member in good standing of the Masonry Institute of BC, and be qualified under the Technical Masonry Certification (TMC) program.
- .2 The masonry contractor shall have a minimum of five years of experience on projects of similar size and magnitude, and shall provide continuous active supervision while masonry work is in progress.
- .3 Unless otherwise specified, construct all masonry work in accordance with CSA-A371.
- .4 Cooperate and assist with inspections and testing and provide access to masonry work as required.

1.4 Design Criteria:

SPEC NOTES:

.1 Responsibility of veneer tie design, type, and spacing to be by a registered structural engineer as part of this work by masonry contractor

.2 Location of vertical expansion joints shall also consider changes in wall heights and thicknesses, corners, offsets and wall intersections, as well as location of substrate expansion/control joints. Horizontal joints shall also accommodate a minimum 6 mm (1/4") reduction in clear opening between floors to accommodate shrinkage, creep and deflection movements as specified by structural engineer.

- .1 Design masonry connectors in accordance with requirements of CSA-A370.
- .2 Provide masonry veneer ties with type and spacing of ties to suit masonry materials and substrate conditions as specified herein. Tie spacings for concrete and masonry back-up systems are to be specified explicitly. Tie spacings for steel stud back-up must be verified with the design engineer for exterior steel studs (Section 05 41 00).
- .3 Provide vertical expansion joints in brick veneer masonry to accommodate thermal stresses and differential movement (shrinkage, creep, etc.) as shown on drawings. Width of joints to

be the same as mortared joints. Refer to drawings for details and/or locations.

- .4 Provide horizontal movement joints as shown on drawings.
- .5 All such joints shall be caulked (rodded) and sealed by others in accordance with the requirements of Section 07 90 00.

1.5 Submittals:

- .1 All submittals shall be in accordance with the requirements of Section 01 30 00.

SPEC NOTE: *Edit the following to suit project requirements.*

- .2 Submit product literature indicating veneer types, shapes, sizes, textures, (e.g., smooth and wire cut), colours, etc. for review and selection.
- .3 Submit product literature, testing data, and samples of each type of masonry connector, accessory, and flashing for review and selection.
- .4 Submit documentation and proof of use of products required to meet environmental program certification [LEED] [other] in accordance with requirements of Section 01 58 00 at time of product delivery and prior to Substantial Performance.
- .5 At completion of work, submit maintenance guide for masonry types installed (eg. MIBC Maintenance Guide)

1.6 Mock-Ups:

- .1 Prior to commencement of work, construct a minimum 1200 mm (48") square sample panel of each type and colour of masonry veneer from job run showing wall ties, through wall flashing, weep holes, jointing, coursing, mortar colour, cleaning, water repellent, and workmanship for review [on site at a location designated by the Contractor][at supplier's yard].

SPEC NOTE: *Include following if applicable to project.*

- .2 In conjunction with built-in windows, construct a sample panel of specified veneer masonry as noted above complete with a window specified in noted Section showing head, sill, and jamb details, including ledger angle, cast-in items (sill and head units as applicable), flashings, air barrier membrane, and caulking and sealant for testing purposes [on site at a location designated by the Contractor][at testing facility].
- .3 Approved sample panel shall become the standard for all work of similar construction and finish, and may become part of the work if built on site as part of the assembly. Mock-up panel not approved shall be removed. Do not commence work on site until panel has been approved by the Consultant.

1.7 Product Delivery, Storage, and Handlings:

- .1 Stack masonry units on pallets to avoid chipping, shrink wrap, and deliver to site in dry condition. Store off the ground under waterproof cover and protect from the elements.

- .2 Deliver cement, lime, and mortar in dry condition with manufacturer's labels intact, and store under waterproof cover and protect from the elements. Protect pre-mixed mortar as well.
- .3 Store cementitious materials in accordance with requirements of CSA A5 and aggregate in accordance with requirements of CSA A23.1.
- .4 Protect all materials from damage during installation and replace masonry units that are stained or chipped, and materials that are affected by inadequate protection.

1.8 Environmental Requirements:

- .1 Conform to requirements of CSA-A371 during hot and cold weather and protect masonry against drying too rapidly.

1.9 Protection:

- .1 Protect masonry and work of other sections from marking, mortar droppings and damage resulting from work of this section by use of non-staining coverings and/or other means as required.
- .2 Coordinate with the General Contractor to provide suitable enclosures and heating for masonry work as required during construction.
- .3 Until completed and protected by flashings or other permanent construction, keep recently constructed masonry dry using waterproof, non-staining coverings that extend over walls and down sides enough to protect from wind driven rain. Cover top of all work with polyethylene tarpaulin when work is discontinued.

SPEC NOTE: *Protection of completed masonry work is the responsibility of the General Contractor.*

PART 2 PRODUCTS

2.1 Masonry Units:

- .1 Provide [clay][concrete][Calcium Silicate] veneer masonry units of sizes and types as specified herein and as noted on Architectural and Structural drawings with all masonry units from the same manufacturer and from the same production run for this project to ensure minimum colour and texture variation.

SPEC NOTES:

- .1 *Where more than one type or colour of brick is used, such as in a field and accent brick, the designer must provide details and indicate locations and patterns on drawings (assign a type number or letter to each and ensure that this is indicated on relevant drawings) and the specifier must differentiate these units in this specification.*
- .2 *Grade: EG - Exterior Grade; IG - Interior Grade. When no grade is specified type EG will be provided.*
- .3 *Type: S - Standard for general use; X - higher degree of precision and smaller permissible variation in size; A - Architectural – characteristic architectural effects resulting in non-conformity in size, colour,*

and/or texture of individual bricks. If Type A is selected chippage and tolerances should be specified or a sample approved. When no type is specified type S will be provided

.4 Unit dimensions can be given in two ways: "Nominal", including the mortar joint or "Actual" without. It is preferred to work with Nominal dimensions.

.2 **Clay Masonry Units:** to CSA-A82, with following properties:

- .a Grade: EG
- .b Type: [S] [X] [A].
- .c Nominal dimensions: [width] x [height] x [length] [e.g. 100 x 75 x 200 mm].
- .d Texture(s): [smooth] [wire cut] [other]
- .e Colour(s): [].
- .f Accent units: [indicate texture, profile, colour, etc.]

- [after due diligence and comparison insert acceptable products / manufacturers]

.3 **Concrete Masonry Units:** to CAN3-A165.1, classification H / [15,20,25,30]/[A,B,C,D]/ M.
[The following manufacturers are pre-approved.]

- .a Nominal dimensions: 100 x [100][200] x 400
- .b Texture(s) / Profile(s): [smooth] [split] [groundface] [ribbed] [other]
- .c Colour(s): [].
- .d Accent units: [indicate texture, profile, colour, etc.]
- .e Specialty units [Shouldice] [Pre-faced]

- [after due diligence and comparison insert acceptable products / manufacturers]

.4 **Calcium Silicate Masonry Units [Arriscraft]** ASTM C 73-99A

- .a Nominal dimensions: [width] x [height] x [length]
- .b Texture(s): []
- .c Colour(s): [].
- .d Accent units: [indicate texture, profile, colour, etc.]

- [after due diligence and comparison insert acceptable products / manufacturers]

.5 Provide solid units to avoid exposed cores when hollow brick veneer units are used.

.6 Provide manufacturer's [standard][custom] shapes (bullnose, chamfer, squint, dogleg, cap, cove and coping unit profiles) as indicated on drawings or as required to maintain coursing / bonds and even faces.

.7 **Pre-Cast Concrete Elements:** (capping, sills, etc.) continuous pre-cast concrete units to CAN / CSA A23.4, with Architectural grade A [smooth cast][sandblasted] finish of sizes and shapes to details and locations indicated on drawings.

2.2 Mortar Materials:

.1 **Cement:** normal Portland Type GU cement to CSA-A3001

.2 **Masonry or Mortar Cement:** to CSA A3002

- .3 **Hydrated Lime:** Type S to ASTM C-207.
- .4 **Mortar Pigments:** (for coloured mortar) inorganic mineral oxide, colour as selected by the Consultant.
- .5 **Mortar Aggregate:** to CSA A179, washed, clean, sharp and free of organic materials.
- .6 **Mortar Admixtures:** [as pre-approved by consultant]

SPEC NOTE: *Specific mortar admixtures are used to inhibit efflorescence and shrinkage, produce faster strength development and produce dirt and water resistant mortar.*

- .7 **Water:** Potable, free of deleterious matter and acids and alkalis.

2.3 Mortar Mixes:

- .1 Use product brands and materials from the same source for the entire project.

SPEC NOTE: *Use Type S mortar for structural masonry and for veneer masonry. Type N mortar was used for veneer but is not generally available.*

- .2 **Site Mixed Mortar:** Type S mortar by proportion specification in accordance with CSA A179 requirements [and complete with specified bonding agent where required] [with colour additive as selected by the Consultant].
- .3 **Pre-Manufactured Mortar:** quality-controlled, plant batched and mixed Type S mortar by property specification to CSA A179 complete with admixtures and with colour as selected by the Consultant. Mortar to be either delivered to job site for ready use as wet mortar or site mixed in a portable powered and controlled silo/mixer or as pre-bagged dry mortar manufactured off-site.

SPEC NOTE: *after due diligence and comparison provide following acceptable products]*

- .a [insert product name] by [insert manufacturer].
- .4 **Colour Additives:** as selected by the Consultant from manufacturer's range and mixed to achieve a constant colour to match pre-approved sample and mock-up.

SPEC NOTE: *after due diligence and comparison provide following acceptable products]*

- .a [insert colour and product name] by [insert manufacturer].

SPEC NOTE: *Mortar joints can make up to 20% of a veneer brick wall face area. As a result the colour of mortar may have a significant effect on the overall appearance of the wall.*

- .5 Site mix mortar in strict accordance with requirements of CSA A179.
- .6 Incorporate admixtures into mortar mix in strict accordance with manufacturer's instructions.

- .7 Where specified use bonding agent in mortar mix to increase bonding strength at copings, caps and exposed sills.
- .8 Use all site mixed mortar within 2½ hours of mixing at temperatures under 25°C and within 1½ hours for temperatures over 25°C. Mortar may be re-tempered within 2 hours of mixing by using minimum amounts of water to replace water lost by evaporation.

2.4 Masonry Reinforcement:

- .1 **Joint Reinforcement:** galvanized flush or butt weld ladder type to CSA G30.3, minimum 3.6 x 3.6 x width 50 mm less than brick veneer unit width.

2.5 Masonry Ties:

- .1 **Ties:** [hot dipped galvanized] [stainless steel] [adjustable] type with corrosion resistance conforming to minimum requirements of CSA-A370 or better, complete with insulation retaining clip where applicable.

Note: The use of corrugated metal veneer ties is not permitted.

SPEC NOTE: *Use stainless steel ties only for walls over 13m in B.C. coastal areas. For other applications hot-dipped galvanized ties are acceptable.*

- .a **Ties to Steel Stud Walls:** type connecting directly to face of steel studs through sheathing materials.
 - *[after due diligence and comparison insert acceptable products / manufacturers]*
- .b **Ties to Wood Stud Walls:** type connecting directly to face of studs through sheathing.
 - *[after due diligence and comparison insert acceptable products / manufacturers]*
- .c **Ties to Masonry Walls:** face mounted or joint embedded ties.
 - *[after due diligence and comparison insert acceptable products / manufacturers]*
- .d **Ties to Concrete (mechanically fastened type):** hot dipped galvanized or stainless steel self-drill expansion anchors to manufacturer's recommendations for specific use and substrate and to Consultant's pre-approval.
 - *[after due diligence and comparison insert acceptable products / manufacturers]*
- .2 The use of brick veneer ties to wood framed walls, concrete block, and concrete walls shall be in accordance with and reviewed by the Consultant. This work shall be co-ordinated with appropriate Sections of work.
- .3 The use of brick veneer ties to exterior steel stud walls shall be in strict accordance with the requirements of exterior steel stud design criteria and certification requirements noted in Section 05 41 00 and as reviewed/approved by the steel stud Engineer. Note that the type and final spacing of veneer ties to steel studs shall be verified and/or pre-approved by exterior steel stud designer before installation.

SPEC NOTE: *The use of some proprietary type ties may reduce the requirement for masonry horizontal and vertical reinforcement, minimum stud gauge and stud spacing, as well as tie spacing. These are all subject to pre-approval by the Consultant.*

2.6 Accessories:

- .1 **Shelf and Lintel Angles:** [hot dipped galvanized] [painted] with sizes and connections as detailed on drawings and to the requirements of Section 05 50 00. Masonry Contractor to install loose lintel angles. Fixed lintels and shelf angles are supplied and installed by others.

SPEC NOTE: *Painted shelf angles should only be used in minimal exposure environments*

- .2 Install [bituminous membrane] [paint] [other] between galvanizing and mortar

SPEC NOTE: *Use following if a proprietary item is used. Refer to manufacturers product data for specific requirements and amend following to suit.*

- .3 **Proprietary Support Systems:** hot dipped galvanized components of following types supplied and installed by masonry contractor:
- .a **Adjustable Shelf Angles:** angle, adjustable brackets, and fasteners of sizes to suit requirements as recommended by manufacturer.
- [after due diligence and comparison insert acceptable products / manufacturers]
 - .b **Concealed Lintel Support:** internal plates, angles, rods, and fasteners of sizes to suit requirements as recommended by manufacturer.
- [after due diligence and comparison insert acceptable products / manufacturers]
- .4 **Exposed Flashing:** minimum [32 gauge stainless steel][24 gauge pre-finished galvanized steel] in accordance with requirements of Section 07 60 00.
- .5 **Base Flashing:** minimum 1.6 mm thick elastomeric sheet membrane to CGSB-37-GP-52M.
- [after due diligence and comparison insert acceptable products / manufacturers]
- .6 **Cross-Cavity Flashing:** assembled from both of the following:
- .a **Metal:** minimum 26 gauge galvanized steel.
 - .b **Elastomeric:** minimum 1.6 mm reinforced elastomeric bitumen membrane

Note: The use of PVC, aluminum, lead, and unfinished galvanized steel flashings are not approved.

SPEC NOTE: *Metal is included in the cross-cavity flashing assembly to support the elastomeric bitumen membrane across the cavity. Without this support, the membrane will sag and create a trough which will keep incidental moisture inside the assembly.*

- .7 **Air Barrier Membrane:** in accordance with requirements of Section 07 27 00.

SPEC NOTE: Choose one of the following insulation types and delete all others.

- .8 **Cavity Wall Insulation / Air Barrier Membrane:** to CAN/ULC-S705, medium density spray-applied polyurethane foam insulation to requirements of Section 07 21 19, with total thickness or RSI (R) value as indicated on drawings or Wall Schedule.

- [after due diligence and comparison insert acceptable products / manufacturers]

OR

SPEC NOTE: Modify following insulation compressive strength and thermal values (but not water absorption value) as required.

- .9 **Cavity Wall Insulation:** to CAN/ULC-S701, Type III and/or IV extruded closed cell polystyrene with minimum compressive strength of [138 kPa (20 psi)], maximum water absorption of 0.7% in accordance with ASTM D2842 and a minimum 5 year "aged" thermal resistance value of [RSI 0.87 (R 5)] per 25 mm (1"), with total thickness or RSI (R) value as indicated on drawings or Wall Schedule.

- [after due diligence and comparison insert acceptable products / manufacturers]

OR

- .10 **Cavity Wall Insulation:** to CAN/ULC-S702, asbestos free, free draining mineral rock or slag fibre semi-rigid board insulation with a minimum density of 128 kg/m² (8.0 lbs/ft³), flame spread, fuel contributed, and smoke developed ratings of 0, and a thermal resistance rating of 0.75 RSI (R 4.2) per 25 mm (1"), with total thickness or RSI (R) value as indicated on drawings or Wall Schedule.

- [after due diligence and comparison insert acceptable products / manufacturers]

OR

- .11 **Cavity Wall Insulation:** to CAN/ULC-S704, Type I polyisocyanurate foam board faced on both sides with a trilaminate foil facing. Insulation to have a minimum compressive strength of 138 kPa (20 psi) in accordance with ASTM D1621 and a maximum water absorption of 1.0% in accordance with ASTM C209. Thermal value of insulation shall be based on a five (5) year "aged" thermal resistance value of RSI 0.98 (R 5.56) per 25 mm (1") with thickness as required to meet this value, with total thickness or RSI (R) value as indicated on drawings or Wall Schedule.

- [after due diligence and comparison insert acceptable products / manufacturers]

- .12 **Weep / Vent Hole Inserts:** Proprietary type. As per CSA-A371.

SPEC NOTE: Usually a mortarless joint between masonry units is sufficient for cavity drainage.

- .13 **Caulking and Sealants:** by others in accordance with the requirements of Section 07 90 00, with colour of caulking to match masonry units for vertical joints and same colour as mortar for horizontal joints. Colours shall be pre-approved before use.

SPEC NOTE: Specifier to ensure that the colours for caulking in masonry as noted above is noted in Section 07 90 00.

2.7 Masonry Cleaning Compounds:

- .1 **Masonry Cleaners:** in accordance with masonry manufacturer's recommendations for type of units supplied. Note that muriatic acid is not permitted.

- [after due diligence and comparison insert acceptable products / manufacturers]

2.8 Water Repellent Coatings

- .1 **Water Repellent Coating:** clear, breathable, penetrating type with a manufacturer's minimum five year written warranty for water repellency. Coating to be compatible with masonry units and acceptable to masonry unit manufacturer for use with their products.

- [after due diligence and comparison insert acceptable products / manufacturers]

SPEC NOTE: The use of an integral waterproofing admixture in concrete masonry does not eliminate the requirement for the use of a water repellent coating on exterior masonry.

Assess the suitability of a coating using ASTM E514 with the requirement for such typical results as:

1% dampness max after 4 hours

Moisture absorption tube (RILEM) test result of less than 1ml/hr

Life expectancy of coating is 7-10 years with fading performance over time. Scheduled maintenance necessary.

PART 1 EXECUTION

3.1 Examination:

- .1 Examine all drawings and coordinate installation of masonry veneer with General Contractor so that the work can be performed with a maximum efficiency.
- .2 Examine all site conditions and surfaces affecting the installation of veneer masonry such as openings, inserts and substrate surfaces. Report any potential problems to the General Contractor.
- .3 Commencement of installation constitutes acceptance of existing conditions.

3.2 Preparation:

- .1 Establish all coursing and plumb lines and levels and protect from disturbance. All other lines and levels shall be established and maintained by the General Contractor.
- .2 Coordinate all work of this section with other related sections to establish continuity of building envelope elements.
- .3 Coordinate sequencing of air barrier membrane installation with adjacent trades to provide positive lapping of membrane edges around masonry openings. Install transition membranes as required.
- .4 Protect adjacent finished materials from damage due to masonry work.
- .5 Touch-up damaged [galvanizing] [paint] with a pre-approved coating.

3.3 Installation:

- .1 Construct brick veneer masonry work in accordance with requirements and tolerances of CSA-A371, including variation from mean plane, plumb, level, and position as well as variation of wall opening sizes.
- .2 Draw units from 2 or more pallets simultaneously to blend colour ranges.
- .3 Lay brick veneer in running bond with accurately spaced courses, true to lines and levels and plumb throughout and particularly for location and sizing of openings and columns. Maintain bond pattern / module layout below and above openings, at corners, and between floors.

SPEC NOTE: Refer to Masonry Manual Section 2.1.3 - Brick Modules for more on modular layout Stack Pattern is not recommended for the following reasons:
- poor seismic performance
- accentuates unit colour range
- accentuates unit size variations.

- .4 Install special units as may be required to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond pattern or module.
- .5 Brick veneer horizontal and vertical joints to be [10 mm] [12 mm] thick except where adjustments are necessary to maintain the bond pattern or to adjust coursing, with a coursing height of [three (3) courses in 200 mm] [four (4) courses in 300 mm], unless otherwise detailed on drawings.

SPEC NOTE: Nominal thickness of the mortar joints can be adjusted in the field for coursing to meet desired elevations. Mortar joint thickness may also have to be adjusted on site to account for tolerances in masonry unit sizing.

- .6 Apply mortar to masonry surfaces and do not over furrow. Closure units must receive "double buttering" to obtain full head joints. Apply sufficient mortar to obtain full bed and head joints.
- .7 Use face shell bedding for hollow veneer units. Use full bedding for head and bed joints for solid veneer units.
- .8 Shove veneer units into place so as to eliminate voids in mortar joints and tamp firmly into place. Avoid mortar droppings by bevelling inside (cavity) edge of bed joint.
- .9 Do not reset masonry units after laying. Where resetting of masonry is required, remove and clean units and reset in new mortar.
- .10 Where brick veneer extends to underside of structural systems (concrete, ledger angles, etc.) provide a clear joint sufficient to accommodate structural deflection in accordance with drawings and ready to receive caulking and sealant as noted herein.
- .11 Tothing of brick units is not permitted unless otherwise pre-approved by design authority

at specific locations. When toothing is necessary, ensure proper compaction of mortar.

- .12 At the intersection of brick veneer abutting dissimilar materials (concrete, stucco/steel stud walls, etc.) rake vertical joint 10 mm (3/8"), and tool square. Sealant shall be by others in accordance with Section 07 95 00.
- .13 After mortar has initially "set up", tool all joints, wipe wall surfaces with a suitable brush or burlap to remove mortar protrusions and re-tool the joints.
- .14 Fill all holes and cracks, remove loose mortar, repair defective work.
- .15 Exposed joints shall be concave, firmly pointed and compacted with round tooling bar. Use flush joints only where masonry units are not exposed to view.

SPEC NOTE: *Concave tooled joints provide the highest resistance to water penetration due to their shape, compaction and bond. Raked joints are not as weather resistant and are not recommended in moderate to high exposure situations.*

- .16 Provide protection of work from elements during construction
- .17 Protection of work following construction shall be the responsibility of the General Contractor (eg: between end of masonry work and capping of walls)

3.4 Built-in Work:

- .1 Build in miscellaneous items such as bearing plates, loose angles, bolts, anchors, inserts, sleeves and conduits. Supply and lay-out of these items to be done by others.
- .2 Bed anchors of frames in mortar and fill frame voids with mortar all around as wall is erected.
- .3 Fit masonry closely against electrical and plumbing outlets so that collars, plates, and covers will overlap and conceal all cuts.
- .4 Install pre-cast concrete elements set in mortar where indicated.
- .5 Cooperate and check with all other trades for materials to be built into masonry and the exact location of openings that will be required. Provide cutting and fitting of masonry required for incorporation of such items during the progress of masonry work only.

3.5 Masonry Connectors and Joint Reinforcing:

- .1 Install brick veneer ties / anchors, and fasteners in accordance with requirements of CSA A370.

SPEC NOTE: *The following noted tie / anchor quantities, sizes, and spacing are examples only and must be reviewed and revised by the structural consultant as required.*

- .2 Unless otherwise noted or indicated by design authority on structural drawings, provide masonry veneer ties in accordance with the following:

- .a Provide Shop drawings
- .b Space all veneer ties at maximum of 600 mm (24") vertically and 800 mm (32") horizontally (as per engineered design) ensuring that not more than 0.24 square metres (2.67 square feet) of brick veneer wall contribute to the loading of a single tie and with the first tie near a vertical edge not more than 300 mm (12") from that edge. Space ties at a maximum of 400 mm (16") around all openings. Refer to drawings for unique tie spacing requirements.
- .c Use specified ties and fasteners
- .3 Locate veneer ties at the centre of the veneer, ± 13 mm (1/2").
- .4 For stack pattern, install horizontal reinforcement as per CSA-A371

3.6 Movement Joints:

- .1 Provide vertical and horizontal movement joints as shown on the drawings.
- .2 Keep joints free of mortar, and ready to receive back-up rod and sealant by others.
- .3 At underside of shelf angels, provide a gap of [10 mm] [as required by structural engineer], and ready to receive back-up rod and sealant by others.
- .4 Back-up rod and sealant to be [by others] in accordance with the requirements of section 07 90 00

SPEC NOTE: Refer to Masonry Tech Manual section 2.4.2 for location of movement joints and choice of caulking colour.

3.7 Flashing:

- .1 Install flashing as shown on drawings and at the following locations:
 - .a under brick, stone or concrete copings.
 - .b under jointed masonry window sills.
 - .c over masonry window heads and door openings.
 - .d over shelf and lintel angles.
 - .e at base of exterior masonry walls.
- .2 Integrate flashing with building envelope assemblies.
- .3 Turn-up flashing a minimum of 150 mm (6"), attach to back-up wall beneath membrane. Seal flashing where it abuts vertical interfaces or continues around inside or outside corners.
- .4 Create flashing end "dams" at both flashing ends at lintels, sills and at wall ends.
- .5 Ensure that all flashing is watertight and that all water is led out through weep holes. If

flashing is pierced, waterproof these points carefully.

- .6 Install elastomeric bitumen membrane flashing 12mm back from the face of veneer masonry.
- .7 All architectural sheet metal work to be done by others.

3.8 Weep Holes:

- .1 Provide weep holes at a maximum spacing of 800 mm (31") horizontally at base of exterior walls and immediately above ledger angles, shelf angles, and horizontal flashings using [open joint][proprietary device specified].
- .2 Weep hole to be completely clear of mortar down to the flashing.

3.9 Cutting and Patching:

- .1 Do all cutting, fitting, drilling, patching, and making good of masonry veneer work for other trades during progress of masonry work. All exposed work shall be clean, true and free from spalls, chips, and similar defects. Patched areas shall use brick and mortar matching in colour, texture, and plane. Such work after completion of masonry work shall be at additional cost.

3.10 Cleaning:

- .1 Keep adjacent surfaces clean, dry, and free of mortar droppings and stains during laying using suitable protection.
- .2 Prior to full scale cleaning, confirm suitability of materials and methods by cleaning an inconspicuous test area.
- .3 Unless otherwise required by cleaning agent manufacturer, wet wall with clean water and flush off all loose dirt and mortar prior to cleaning.
- .4 Clean exposed masonry using specified cleaning agents in strict accordance with cleaning agent and masonry manufacturer's requirements.
- .5 When pressure washing, do not leave wand streaks.
- .6 Protect adjacent surfaces and work from damage and staining during cleaning process.
- .7 Unless otherwise required by cleaning agent manufacturer, rinse all areas thoroughly with clean water to remove all cleaning solutions and residue.

3.11 Water Repellent Coating:

- .1 All surfaces shall be clean, and free of scale, mud, or efflorescence, and cracks shall be filled prior to application of water repellent coating.
- .2 All surfaces shall be dry enough to meet manufacturer requirements at time of application.

- .3 Prior to application of water repellent coating, test an inconspicuous area with product to confirm suitability and to establish typical coverage rate and method of application.
- .4 Apply water repellent coating to wall surfaces in strict accordance with manufacturer's directions.
- .5 Protect adjacent surfaces and work from damage and staining during application.

END OF SECTION

For additional information on brick veneer masonry contact the Masonry Institute of B.C. at 604-291-1458.