

ITEM 10599.2734 - OPERATOR HOUSE
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DESCRIPTION:

Work includes – all architectural work for the Operator House, three Auxiliary Houses and the Generator House as shown on the drawings and specified herein. Work shall include all interior wall, and floor finishes, paints, windows, doors, interior partitions, metal stairs, ladders, hatches and furnishings.

MATERIALS:

Material specifications, fabrication details and manufacturer's catalogs and specifications shall be submitted for all materials. Submittals shall conform to the requirements for shop drawings as specified under each subsection.

Metal Doors and Frames:

Stainless Steel Doors: Exterior doors shall be panel type with exterior moldings and transom panel as shown on the drawings, 44 mm thick, of 1.6 mm thick AISI Type 316 Stainless Steel and panel permanently bonded to a vertically stiffened stainless steel core. Stiffeners shall be a minimum 1 mm thick stainless steel. All doors and transom panels shall be fitted with thermal insulation. Interior door shall be flush type. Bevel lock stiles of hinged doors at the rate of 3 mm in 51 mm. Reinforce doors with concealed stainless steel plates or rolled shapes of stainless steel, minimum 1 mm thick, to make them rigid and secure and as necessary to obtain satisfactory alignment. Fasten reinforcements with concealed stainless steel bolts or rivets, or with approved spot welding. The top edges of exterior doors shall be enclosed flush. Reinforce for hardware as specified herein. Provide countersunk stainless steel tamper-proof screws for securing exterior moldings.

Stainless Steel Frames: Frames shall be constructed of 2 mm thick AISI Type 316 Stainless Steel. Construct jambs and heads with integral transom panel from one piece of metal each; rabbeted and flanged as required for the various types of openings, and neatly mitered or inter-locked and welded together. Include all channel, angle and/or bent plate stainless steel reinforcing indicated or otherwise required, as per approved shop drawings. Provide stainless steel reinforcing in the heads of frames where shown or required. Provide counter sunk frames with anchors, using not less than three (3) at each jamb. Provide frames with caulking stops, filler pieces and/or trim where indicated on the drawings or required; integrally formed as part of the frame wherever possible. Applied caulking stops, filler pieces, etc., shall be neatly attached by spot welding. At butts, cut back jamb the thickness of one leaf or butt. Drill and tap reinforcement to template. Reinforce for hardware as specified herein.

Weatherstripping: All exterior doors shall be weatherstripped at head and jambs with spring stainless steel weatherstripping. All exterior doors shall be fitted at the bottom on the outer side with a break formed stainless steel rain drip.

Hollow Metal Interior Doors in the Operator and Generator Houses: Interior door shall be seamless, fabricated

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from 1.61 mm thick galvanized steel in accordance with SDI 100, galvanized by the hot dipped process. Doors shall be primed and painted as specified in this Item. Internal construction shall be manufacturers standard with internal sound deadening. Provide rabbeted frame to receive louver constructed of 1.6 mm thick AISI Type 316 Stainless Steel, free area as shown on the Contract Drawings. Shop apply paint after fabrication. Primer shall be rust-inhibitive baked on or air-dried compatible with the finish paint system.

Hollow Metal Interior Frame: Frames shall be fabricated from 2 mm thick galvanized steel, mitered or coped, welded and ground smooth. Frames shall be primed and painted as specified in this Item. Provide frames with anchors, using not less than three (3) at each jamb. Reinforce for hardware as specified herein. Shop apply paint after fabrication. Primer shall be rust-inhibitive baked on or air-dried compatible with the finish paint system.

Miscellaneous Anchors Hollow Metal Interior Frames: Supports and anchors shall be a minimum thickness equal to the frame, and galvanized. Inserts, bolts and fasteners shall be hot dipped galvanized in accordance with ASTM A 153, Class C or D.

Floor Hatch: Access door shall be AISI Type 316 Stainless Steel diamond plate pattern of a size indicated on drawings. The floor hatch shall have a single leaf as indicated on drawings, set in a stainless steel channel frame. All hardware to be stainless steel, including hinges, snap lock, gasketed cover plug and removable key wrench. Door shall have a vinyl grip handle and shall lock automatically in the vertical position by means of a heavy steel hold-open arm with a release handle.

Submit catalog cuts of all doors, hatches and frames including shop drawings showing construction and attachment. Submit door schedule coordinated with the Door Hardware schedule.

Door Hardware:

Exterior Door:

- (1) Hinges shall be 152 mm by 127 mm heavy-duty full mortise hinges, ball bearings, constructed of AISI Type 316 Stainless Steel and conforming to ANSI A5111. Hinges shall have 4 permanently lubricated non-detachable ball bearings. Tips, pins and bearings shall be stainless steel. Each hinge shall have 8 to 10 screws per butt. Finish shall be stainless steel, US32D. Each door shall receive 1-1/2 pair. Hinges shall have non-rising pin.
- (2) Door closers shall be surface mounted, full rack and pinion for high-frequency use doors. Case shall be cast aluminum, closer shall conform to ANSI A156.4. All components shall be of stainless steel, super alloy or zinc alloy for use in corrosive environments. Closers shall have hold-open option feature.
- (3) Mortise Lockset / Latchset shall be stainless steel, two cylinder heavy mortise, combined dead bolt and latch bolt lock. Dead bolt shall be forged brass with 25 mm throw. Latch bolt shall be stainless

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steel or brass with 16 mm throw. Front and case shall be stainless steel. Knob shall be stainless steel, knurled. Finish of all exposed surfaces shall be stainless steel, US32D. Lockset shall conform to ANSI A156.13 series 1000 Grade 1; functions shall be F05 classroom. Knob shall be 54 mm diameter, spherical with US32D finish. Rose shall be 86 mm in diameter, flat with US32D finish. Cylinders of locks shall be of proper length to fit the doors for which they are intended. Cylinders for all locks shall be cast bronze using a common standard diameter cast bronze rotating plug. The keyway shall be a paracentric type of single section with seven pins or multiple (four or more) sections with six pins capable of being masterkeyed and grand masterkeyed. All locks shall be keyed alike. Cores shall be interchangeable figure eight type with 626 finish and shall be compatible with the specified lockset.

- (4) Thresholds: Thresholds where indicated shall be fabricated of cast abrasive bronze, with bottom interlock.
- (5) Bottom raindrip attached to door face.
- (6) Spring-type weatherstripping.
- (7) Flush bolts and strikes for double doors.
- (8) Surface mounted astragal for double doors.
- (9) Stops shall be AISI type 316 stainless steel wall stop.

Interior Door: Interior door shall be equipped with 1-1/2 pair, 114 mm by 114 mm, heavy-duty full mortise, stainless steel hinges with 4 ball bearings. The cylinder lockset shall be the manufacturer's heavy-duty lockset with stainless steel knob and rose. Function F05 classroom.

Submit catalog cuts showing all hardware and materials, to Engineer for approval prior to installation. Submit hardware schedule.

Provide sinkages, cutouts, and concealed reinforcement and drill and tap for the proper installation and attachment of all hardware.

Steel Windows:

Heavy Intermediate Steel Windows, Fixed type and Project-out Ventilator type: Windows shall have maximum air infiltration of .034m³/min./m of crack length when tested according to ASTM E283. Windows shall have no water penetration for 15 minutes when window is subjected to a flow of 2.03 l/hr./m² with differential pressure across window unit of 0.3 kPa (80 kmph), as per ASTM E331.

- (1) Materials:

Frames: Heavy intermediate weatherstripped windows shall be manufactured from solid hot

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rolled steel shapes. Shapes made from new billet steel with flanges rolled integral at the mill. Perimeter frames and ventilator sections shall have glazing rebates providing an unobstructed glazing surface 19 mm height. Glazing rebate surfaces must be perpendicular to the web or stem of the section. Rebate surfaces that are tapered will not be acceptable. Combined weight of frame and ventilator sections shall be a minimum of 1.7 kg per 305 mm. The ventilator sections shall have an integral dovetail groove located on the inside bedding contact for the reception of weatherstripping. Muntins shall be bulb tee type 44 mm deep front to back, with a minimum 28 mm wide sight line flange, and weigh not less than 1.3 kg per lineal meter.

Glazing beads of heavy intermediate windows shall be extruded aluminum alloy AAMA 6063-T5, architectural grade, with a minimum thickness of 1.6 mm.

Weatherstripping shall be continuous extruded vinyl applied to the integral weatherstrip groove in the exterior contact surface of the ventilator surface and shall be on the same plane around the interior perimeter of the ventilated area.

Hardware shall be as follows: Fastener: Bronze cam fastener; or bronze spring catches for ventilators beyond reach. Provide aluminum pole for each spring catch. Ventilators shall be hung on heavy-duty steel arm brass friction shoes.

Insect Screens: Frames shall be roll-formed of minimum 1 mm thick electro-galvanized steel. Screens shall be .28 mm diameter woven aluminum wire.

Glazing: Windows shall be factory glazed with insulating glass conforming to ASTM 774-88. Each double-lite insulating unit shall have a one-piece welded aluminum spacer desiccant and dual seals of butylene and silicone. Each light shall be 6 mm laminated safety glass on the interior and 6mm clear tempered glass in the outside with a 13 mm air space for an overall unit thickness of 25 mm.

(2) Fabrication:

Frames: Fabricate heavy intermediate steel windows in accordance with approved shop drawings. Prior to fabrication, all hot rolled steel sections shall be cleaned by shot blasting. Corners of frame and ventilators shall be mitered or coped then solidly welded. Exposed and contact surfaces shall be finished smooth flush with the adjacent surfaces.

Glazing: All sashes shall be designed for inside glazing. Provide continuous snap-in glazing beads to suit the glass as specified. Glazing beads shall be extruded aluminum Alloy 6063-T5 architectural grade, with a minimum thickness of 2 mm.

Operable Hardware: Projected-in and projected-out ventilators shall be balanced on heavy-duty steel side arms securely pivoted to the vent and frame at each jamb. Friction shall be maintained by means of two brass shoes sliding in the channel of the frame section controlled by the compression springs enclosed in tubular housings. Provide crank for operation.

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Hardware shall be as follows: Fastener: Bronze cam fastener, or bronze spring catches for ventilators beyond reach.

Insect Screens: Screen frames shall be finished to match the sash. Screens shall be rewireable to allow for mesh replacement. Screen fastenings shall permit easy attachment and removal from the interior.

Factory Finishing: After fabrication, but prior to final assembly, steel windows, mullions, covers and trim shall be thoroughly cleaned, pickled and fluxed. All material shall then be completely immersed in a bath of molten zinc, as per ASTM A-123-89A. Following this pretreatment, one coat of a special primer is applied and oven cured. Following the prime coat, all windows shall be given a spray coat of aliphatic acrylic polyurethane, applied by an automated electro-static process and oven cured. Color shall be approved by the Engineer from samples matching those on the approved color boards.

(3) Shop Drawings:

Shop drawings shall be submitted for approval by the Engineer prior to installation. Shop drawings shall include a window schedule, construction, materials, operation, hardware and attachment details to houses.

Ceiling Tile:

Tile shall be 610 mm by 610 mm lay in tiles of mineral fiberboard with a polyvinyl chloride face. Tiles shall be resistant to damage and stainage. Tiles shall have a UL test rating of 25 or under. Ceiling panels shall have a factory-applied film. For damage resistance this material shall withstand the impact of a 250-gram weight having a 25 mm round tip, dropped from a height of 1 m with the sample placed on a 305 mm X 305 mm frame of a sufficient depth to allow deflection of the sample without contacting the surface on which the frame rests. The surface of the samples shall show no cracking, shall have a maximum indent 1.25 mm as measured from the surface of the sample. Color: white.

Grid Suspension System: System shall be exposed framing of extruded aluminum with clear anodized finish.

Framing: Framing shall be composed of 38 mm thick galvanized cold rolled 1.6 mm thick steel suspension channels, ASTM A446, Grade D, approximately 1.37 m on center supported by 6 mm diameter galvanized steel rods spaced maximum 1.37 m on center. Clips and attaching rods to channels shall be galvanized. Framing shall comply with ASTM A635, Standard Specification for Metal Suspension Systems for Acoustical tile and Lay-in Panel Ceilings. Suspension system shall be classified as heavy duty.

Submit catalog cuts on all materials used and shop drawings showing layout, for approval by the

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Engineer.

Gypsum Board Systems:

15.9 mm thick abuse resistant gypsum fiber panels with reinforcement throughout. Non-paper faced gypsum panels shall meet the following test requirements:

ASTM D-4977	–Abrasion Resistance
ASTM D-5420	–Indentation Resistance
ASTM E-695	–Soft Body Impact
ASTM C-1278	–Standardized testing for gypsum board
ASTM E-136	–Surface Burning
ASTM E-84	–Flame Spreads and Smoke Developed
ASTM E-119	–Fire Resistance

Moisture Resistant gypsum panels: 15.8 mm thick, 1 1/2 hour fire resistance rating complying with ASTM C630, with additives to enhance water resistance of the core; surfaced with water repellent paper on front and along edges.

Exterior gypsum ceiling board shall be 15.9 mm thick, with fire rated core, complying with ASTM C931. Batten strips shall be used over joints.

Fasteners: Self-tapping 16 mm steel screws conforming to ASTM C 646 with rust inhibitive coating. Fasteners shall comply with GA-216 and the attachments per ANSI A42.4 and the board manufacturer.

Metal Studs: Studs shall be 2 mm thick hot-dip galvanized cold rolled formed steel channel complying with ASTM C 645. Depth of sections shall be 92mm as shown on drawings. Runners shall match width.

Metal Accessories: Corner beads, trim, etc., shall be galvanized steel.

Metal Furring Channels: 2 mm thick galvanized.

Joint Treatment:

- (1) Tape: Plain or perforated as recommended by manufacture, complying with ASTM C475.
- (2) Compound: Adhesive with or with out fillers shall be asbestos free and complying with

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ASTM C475.

Control Joints shall be roll-formed zinc.

Perimeter Caulking: As recommended by manufacturer.

Gypsum Board Ceiling: Framing shall be composed of 38 mm deep galvanized cold rolled 1.6 mm thick steel suspension channels, ASTM A446, Grade D, approximately 1.37 m on center supported by 6 mm diameter galvanized steel rods spaced maximum 1.37 m on center. Clips attaching rods to channels shall be galvanized. Framing shall comply with ASTM A635. Suspension system shall be classified heavy duty. Exterior gypsum Ceiling Panels shall be 16mm thick Firecode panels conforming to ASTM C931.

Submit catalog cuts for approval by the engineer of all materials used.

Rough Carpentry:

Includes, blocking, and roof sheathing including preservative and fire retardant treatment.

Lumber: All lumber shall conform to the requirements of Section 594 of the NYSDOT Standard Specifications as applicable. Unless otherwise specified, each piece of lumber shall bear the grade mark, stamp, or other identifying marks indicating grades of material, and rules or standards under which produced. Such identifying marks on a material shall be in accordance with the rule or standard under which the material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be approved by the Board of Review and the American Lumber Standards Committee for the grade and species used.

All lumber: Unless otherwise specified, any species graded under the grading rules of an inspection agency approved by the Board of Review, American Lumber Standards Committee. Furring, blocking, nailers and similar items 102 mm and narrower shall be Standard Grade and members 152 mm and wider shall be No. 2 Grade.

Sizes: Lumber sizes shall conform to U.S. Department of Commerce, PS20. When size reference specified are nominal sizes, actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

Moisture Content: Moisture content of lumber at the time of delivery to site shall be not more than the following: Lumber 51 mm and Less in Thickness: 19 percent. Boards: 19 percent. Lumber 51 mm thick and thicker: 25 percent.

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Preservative Treatment: All wood members and plywood, furring, nailers, edge strips, curbs, cants, and other members used in connection with roofing and flashing materials, shall be preservative treated by the pressure method, in accordance with Section 594 of the NYSDOT Standard Specifications. Roofing Plywood shall be APA rated sheathing EXP 1 or better and marked with the APA designation, PS 1.

Plywood: Each sheet of plywood shall bear the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood. The mark shall identify the plywood by veneer grade, group number, span rating, durability classification, glue type, and compliance with National Bureau of Standards Product Standard, PSI. Plywood Sheathing: Rated Sheathing, Exposure 1 or Exterior for roof sheathing. Sheathing shall be 19 mm.

Rough Hardware: Anchors and bolts (with nuts and washers), straps, and hangers shall be galvanized; except bolts may be cadmium plated, or zinc-coated by electro-galvanized process. Bolt heads and nuts bearing on wood shall be fitted with washers. For work exposed to weather, washers shall be of a corrosion resistant material equivalent to AISI 316 Stainless Steel. Ties, anchors, framing connectors, hangers and similar items shall be packaged with special nails required for their intended use. Stainless steel grade shall be AISI 316/ASTM – A276.

- (1) Fastenings for Wood Grounds, Furring and similar items, to Masonry or Concrete, shall be metal and of a type and spacing best suited to conditions. Use hardened steel nails, expansion screws, toggle bolts, self-clinching nails, metal plugs, inserts or similar fastenings. Use of wood plugs or nailing blocks is prohibited. Power actuated drive pins may be used where practical.
- (2) Bolts (Lag, Toggle, and Miscellaneous), and Screws: Type, size, and finish as required for attachment to substrate materials and for intended use, except expansion bolts for studs anchored to walls shall be long enough to extend at least 64 mm into masonry and concrete.
- (3) Expansion Shields: Type and size as required for attachment to substrate materials and for intended use.
- (4) Nails and Staples: For sheathing, length of nails shall be sufficient to extend 25 mm into supports. In general, eight-penny or larger nails shall be used for nailing through one inch thick lumber and for toe nailing 51 mm lumber thick; 16 penny or larger nails shall be used for nailing through 51 mm thick lumber. All fasteners shall be corrosion resistant equivalent of AISI Type 316 stainless steel.

Architectural Woodwork:

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Timber Brackets: Timber brackets shall be of a size and material as indicated on the drawings. Wood shall be 38 mm thick, 2.0 E grade douglas fir Microllam (TM) laminated veneer. Submit shop drawings indicating all materials and attachments, for approval by the engineer.

Building Insulation:

Where thermal resistance ("R" value) is specified or shown for insulation, the thickness shown on the drawings is nominal. Use only insulation with actual thickness that is not less than that required to provide the thermal resistance specified. Where "R" value is not specified for insulation, use the thickness shown on the drawings. Where more than one type of insulation is specified, the type of insulation for each use is optional, except use only one type of insulation in any particular area.

Rigid (Mineral Fiber Board) Insulation: Conforming to ASTM C578-92, Type I. Mineral fibers and water-resistance binders formed into rigid, non-combustible: FS HH-I-558C, Form A

Mineral Fiber Insulation (Batt or Blanket) Glass fibers and resinous binders formed into flexible blankets or rolls; ASTM C 665. Batts for lay in tile ceiling shall be factory encapsulated in a 150 microns minimum polyethylene sheeting meeting ASTM D4397. The maximum perm rate shall be 3.7 g/m² per 24 hr.

Insulation: Rigid Insulation – low conducting, closed cell, extruded polystyrene with square edge.

Fasteners: Staples or nails – corrosion resistant and type best suited for purpose. Screws – corrosion resistant size and length best suited for purpose with washer not less than 51 mm in diameter.

Sealant tape shall be 76mm wide x 1mm thick continuous lengths adhered to rigid insulation face, behind channel brick anchors. Sealant tape shall conform to the following American Society of Test Materials (ASTM) standards:

ASTM D3767A –Thickness
ASTM D412 –Tensile Strength

Concrete Water Repellent: Concrete coating shall be a colorless, penetrating coating, which forms a breathable screen that does not trap moisture. The coating shall reduce surface erosion and corrosion resulting from water and water carried salts.

Coating shall conform to the following standards:

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American Society of Testing Materials (ASTM):

ASTM D3278 –Flash point: 34° c

Volatile Organic Compounds:

V.O.C. –Meets or exceeds NY State V.O.C. requirements.
376 grams/liter

Submit catalog cuts showing all types of insulation used, including thickness and "R" value, vapor barrier, tape, and fasteners, and provide technical data for the concrete water repellent, for approval by the engineer.

Copper Roofing:

Copper roofing system shall be a standing seam, pre-patinated, pan system as indicated on the drawings and as specified herein. Components shall consist of all ridges, caps, roof panels, gutters, flashing, trim and accessories. All fasteners shall be copper. Copper shall be produced in accordance with ASTM B 370, 99.9% pure copper, cold rolled temper weighing not less than .45Kg /.09 m².

Roof panels should be 5-ply double lock standing seam type. Seams shall be 25.4 mm high, spaced at 406 mm on center.

Zinc/Tin Alloy Coated Stainless Steel Roofing:

Zinc/Tin Alloy Coated Stainless Steel Roofing Panels and Components: System shall be a 25.4 mm double lock standing seam pan system as indicated on the drawings and as specified herein. Components shall consist of all ridges, caps, cleats, eaves, gutters, flashing, trim and accessories. ASTM 240, type 304 stainless steel coated, both sides.

Cleats: Stainless steel expansion and fixed cleats.

Roof Panels and Components: Roof panels and components shall be a minimum of .4 mm thick. Sheets shall be 508 mm wide, designed for concealed mechanical attachment.

Fasteners: All rivets, screws, bolts or ring shank nails, shall be stainless steel.

Underlayment:

Roofing felt – Asphalt saturated felt minimum weight 23 g / m².

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Building paper, rosin sized, unsaturated paper weighing 8 g / m².

Solder – tin solder.

Snow Guards – Non-penetrating, screw attached to seams per SMACNA standards, and as per manufacturers recommendations. Materials shall be compatible with each type of roof materials used.

Submit shop drawings for all roofs including all plans and components.

Anti-graffiti Coating:

Coating shall be as indicated on the drawings.

Miscellaneous Metals and Flashing:

Stainless Steel flashing shall be AISI Type 316 Stainless Steel, dead soft temper, 0.7 mm thick. Finish shall be No. 4 in accordance with NAAM (National Association of Architectural Metal Manufacturers) Metal Finishes manual.

Stainless steel sills shall be formed of 2.8 mm thick stainless steel and as indicated on the drawings.

Flux and solder type and alloy shall be as per manufacturer's recommendations for use with metals to be soldered.

Rivets, Screws, Bolts and washers shall be stainless steel. Stainless steel nails shall not be less than 2.8 mm thick and shall be annular threaded. Rivets shall not be less than 3 mm diameter.

Expansion Shields shall be non-corrosive type.

Ventilation Louvers shall be provided at the eaves of roofs where shown. Sizes as shown on the drawings. Fabricate louvers of AISI Type 316 stainless steel. Provide with insect screens.

Stair and Railings:

(1) Stairs shall be fabricated as indicated on the drawings. Fasteners shall be concealed wherever possible. Exposed bolts and screws shall be countersunk heads with bolt and screw ends dressed flush after nuts are set.

(2) Treads: Cast iron, abrasive, non-slip type, with toe flange of profiles indicated. Equip

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each nosing with a carrier angle at each end. Countersink bolt heads. Abrasive grain shall be integrally cast into the wearing surface.

- (3) Nosings: Cast iron, abrasive, non-slip type, of profiles indicated, extending full length of concrete treads or other concrete edges to be protected unless otherwise indicated. Equip each nosing with expansion anchors located not more than 100 mm from each end of nosing and intermediate anchors spaced not over 380 mm apart. Countersink bolt heads. Abrasive grain shall be integrally cast into the wearing surface.
- (4) Steel Pipe: ASTM A53
- (5) Structural Steel: ASTM A 36
- (6) Welding as per AWS.
- (7) Painting shall be as specified in painting sub section.

Ladders:

- (1) Rungs shall be solid steel with bonded abrasive surface, welded to steel surface, welded to steel rails. Provide ladders as indicated on the drawings.
- (2) Steel rails per ASTM A-36
- (3) Welding as per AWS.
- (4) Submit catalog cuts of all fabricated items including shop drawings showing construction and attachments to Engineer for approval.

Sealants and Caulking:

Sealants: Sealants shall conform to the following: ASTM-C920 Polyurethane or polysulfide, Type S or Type M, Class 25, Grade NS, Shore A hardness of 25-40. Sealants used adjacent to exposed masonry shall match color of stonework. Color of sealants for other locations shall be light gray or aluminum, unless specified otherwise.

Caulking Compound: Caulking shall conform to the following: ASTM 834 acrylic latex or ASTM 1085 butyl rubber. Caulking shall be light gray or white unless specified otherwise.

Bond Breakers: Polyethylene tape or similar type and consistence as recommended by the sealant manufacturer for the particular application. Back-up rod shall be closed cell neoprene,

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butyl, polyurethane, vinyl, or polyethylene rod, as per ASTM D1056; diameter approximately 1-1/3 times the joint width.

Filler: Filler shall be mineral fiberboard Class 1, thickness to be the same as joint width. Depth shall completely fill void behind back-up rod.

Primer: Primer shall be stain type as recommended by the manufacturer of caulking or sealant materials.

Asphaltic roofing mastic shall be used for sealing joints in metal flashing.

Provide catalog cuts of all materials used, for approval by the Engineer.

Ceramic Tile:

Ceramic tile installation shall comply with the Tile Council of America (TCA) and ANSI reference standards. All tiles are to be of domestic manufacturer, standard grade conforming with TCA 137.1. Colors shall be as shown on the plans and approved by the Engineer prior to installation

Floor Tile: Porcelain type unglazed ceramic tile conforming to ANSI A137 with smooth all-purpose edge not less than 6 mm thick by 51 mm by 51 mm, as selected by Engineer. Average absorption not to exceed 1/2 of 1%. Tile shall be as manufactured by American-Olean Tile Co., Dallas Ceramic Tile Co., US Ceramic Tile Co., or approved equal.

Wall Tile: Glazed wall tile shall be standard 108 mm by 108 mm by 6.35 mm glazed tile meeting ANSI 137.1 non-vitreous body, matte glazed, cushion edged, with self-spacing lugs on all four edges.

Cove Base: Cove base tiles shall be of the same material, manufacture and color as floor tile, composed of a radius cove with a 19 mm minimum or 25 mm maximum radius and 51 mm by 51 mm tiles as specified above, to form a 152 mm high sanitary base.

Dry-set Mortar: ANSI A 108.5. Comply with TCA Formula 759 for impervious tile and TCA Formula 763 for use with non-vitreous tile.

Grout: ANSI A 108.10 for walls, A 108.6 for floors.

Portland Cement: ASTM C150 Type I

Hydrated Lime: ASTM C 206, Type S or ASTM C207, Type S

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Sand: ASTM C 144

Grout proportions: 1 Part Portland Cement, 1 part damp cement by volume.

Floor setting bed shall be in accordance with TCA F121-01.

Cement Mortar Bed: Thickness shall be 32 mm minimum to 51 mm maximum.

Waterproofing shall be liquid applied to meet ANSI A 118.10 standards.

Wall tile setting be shall be in accordance with TCA W211-01.

Mortar bed thickness shall be 10 mm to 19 mm maximum per ANSI A 108.1A.

Bond coat shall be a Portland cement paste on a workable mortar bed.

Thin-Bed Waterproofing / Crack Isolation Membrane: Waterproofing sheet for thin-bed installations shall be a composite Chlorinated Polyethylene (CPE) with high strength, non-woven fabric laminated to both sides to provide waterproofing and crack isolation meeting ASTM C 627. The extra-heavy 0.80 mm thick membrane shall be bonded to the substrate with adhesive conforming to the manufacturers installation instructions.

Organic Adhesive (for coved base only). ANSI 136.1 Type 1.

Tile colors shall be as indicated on the drawings.

Submit three samples of each: tile, base and grout, including catalog cuts for all materials used, to Engineer for approval.

Resilient Flooring:

Vinyl composition tile shall be 305 mm x 305 mm x 3 mm thick, slip resistant, fire and burn resistant tile.

Adhesives: All adhesives used for installation of flooring material, including field area, integral cove, end cuts, and cross seams, shall be those recommended by the flooring manufacturer to suit the grade level, subfloor conditions and usage conditions.

Leveling compounds, underlayments and patching compounds: As recommended or approved by resilient flooring manufacturer.

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Accessories: Integral cove trim: Cap strip as approved or recommended by the flooring manufacturer. Cove strip for integral cove: Minimum radius of 19 mm of wood, wax or plastic (minimum 22 mm for backing sheet flooring). Reducer strips: 25 mm wide, tapered to meet abutting materials. Fabricate stainless steel copy gauge matched perimeter edging to the interfacing edge of the floor system and the floor support of main equipment support beam. Countersink, tap and screw into edge blocking.

Submit catalog cuts of all materials used. Submit three samples of flooring minimum 152 mm by 152 mm, to Engineer for approval.

Painting – General:

The prime, intermediate and finish coat for each finish system shall be the same manufacturer.

The Contractor shall verify the compatibility of the proper items furnished with manufacturers standard shop coats.

Interior Drywall: Latex Wall Primer shall be one of the following: Pro Mar 200 Primer as manufactured by Sherwin Williams, Acrylic Wall Primer as manufactured by Pratt & Lambert or Latex Primer as manufactured by Pittsburgh Paint. Alkyd Semi-Gloss Enamel for walls shall be one of the following: Pro Mar 200 as manufactured by Sherwin Williams, Cellutone as manufactured by Pittsburgh Paint Semi-gloss enamel by Pratt and Lambert.

Concrete Walls & Ceilings: Shall be Heavy Duty Block Filler, pure acrylic block filler as manufactured by Sherwin Williams.

Concrete Floor: Shall be Epolon II Multi-Mil Epoxy, high performance epoxy as manufactured by Sherwin Williams, VOC compliant, high build, self-priming catalyzed polyamide epoxy.

Miscellaneous Steel including hangers, hatch frames, covers, sleeves, and electrical boxes not receiving manufacturers paint or galvanizing, shall be painted in accordance with Section 572 of the Standard Specification for structural steel paint system. All steel within finished construction shall receive one prime coat and one finish coat. Steel exposed to the interior or exterior of the structures shall receive one prime coat and two finish coats.

Galvanized steel door and frame shall be primed and finished with a paint intended for galvanized surfaces.

All surface preparation, coating thickness, color/tinting, and application, shall be as per

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manufacturer's recommendations.

Colors shall be as indicated on the drawings.

Submit manufacturer's specifications for each paint and three-color chips of each paint to Engineer for approval.

Furnishings:

Single Pedestal Desk shall be 1.52 m wide by .76 m deep by .75 m high. Desks shall have two locking drawers. Lower drawer shall be full suspension file drawer. Desk shall have heavy-gauge steel construction with baked enamel finish, satin finished aluminum hardware and legs with heavy-duty laminate top. Laminate top shall be gray. Baked enamel shall be black. Desk shall be HON Series 80 or equivalent desks, Series 2000/3000 by All Steel or Stylerite metal desks.

Chairs shall have heavy-gauge steel frame with baked enamel finish, scuff plates, five star base and leather pattern vinyl upholstery (color: burgundy). Executive armchair shall have swivel base and tilt with posture back mechanism. Clerical chair shall have swivel base and posture back mechanism. Chairs for locker room shall be armless with leg base. All chairs shall be HON Series W or equivalent Series by All Steel or Traditional Series by United Chair.

Compact Bottled Water Cooler: Unit capacity shall be for 18.93 L bottle. Provide combination hot and cold water tap unit Oasis Model BLF1AHS or approved equal. Unit shall be 115VAC, permanently lubricated 37 watt compressor plus refrigerant system dryer using 134a (CFC free) refrigerant operating on 5.5 Amps with 1.83 meter cord with 3 prong head. Unit includes adjustable cold and fixed hot thermostats, insulated stainless steel reservoir and hot tank with 500 watt external heating element, recessed faucets constructed in a 1mm thick steel panel housing.

Fire Extinguishers:

Fire extinguishers shall be rechargeable dry chemical type for Class A, B, and C fires. Units shall contain 4.6 kg of mono ammonium phosphate powder in a steel cylinder with red corrosion resistant polyester epoxy paint finish approximately 127 mm diameter by 508 mm high. Units shall have pressure gauge, pull pin upright grip operation. Units shall comply with Factory Mutual, Underwriters Laboratories, and U.S. Coast Guard requirements.

Provide wall-mounting bracket as indicated on drawings.

Washroom Fixtures and Accessories:

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Shall be as shown on drawings and as specified herein:

- (1) Waterless hand cleaner with dispensing pump and wall mounting bracket. Capacity 3.79 liters.
- (2) Paper towel dispenser/disposal shall be surface mounted. Capacity shall be 525 multifold paper towels. Dispenser shall be constructed of Type 304 Stainless Steel with satin finish: Dimensions shall be 273 mm by 375 mm by 102 mm deep.
- (3) Toilet paper dispenser: Surface-mounted multi-roll tissue dispenser shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Door shall be secured to cabinet with two rivets and equipped with a flush tumbler lock. Unit shall dispense two standard-core toilet tissue rolls. Extra roll shall automatically drip in place when bottom roll is depleted. Unit shall be equipped with two, heavy-duty spindles.
- (4) Mirror: Mirror with 127 mm deep shelf welded to face frame. Mirror shall be 464 mm by 616 mm with one-piece 18-gauge stainless steel frame, 13 mm by 13 mm by 13 mm with satin finish and mitered corners. Glass shall be 6 mm polished tempered glass. Mirror shall have concealed wall hanger, which locks in place by two theft-resistant screws.
- (5) Robe Hook: Heavy-duty robe hook with concealed mounting with three stainless steel set screws. Hooks shall be solid brass, chrome plated with satin finish. Hook shall have 57 mm diameter flange and project 80 mm.
- (6) Mop and Broom Rack: Formed channel fabricated of 1 mm thick, type 304 stainless steel satin finish. 660 mm long with 3 rubber cam holders ribbed for grasping, and projecting 90 mm from wall.
- (7) Waste Receptacle: Waste receptacle shall be fabricated of 85mm thick stainless steel with hemmed edges at the top and bottom. Capacity: 26.5 L. Size: 355mm x 430mm x 165mm.
- (8) Natural gas fired incinerating toilet. 11.5 L storage/combustion chamber capacity. 168 KiloCalories/min at 127 mm manifold pressure gas rating. Atmospheric type burner with ported stainless steel tube. 9.5 mm NPT female inlet gas connection with standard gas controls, no power supply or open flame required for ignition, 152.5 mm male collar with standard taper flue connection. Provide double wall stainless steel vent with all components including vent pipe adapter, fire-stop and stack support,

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storm collar and rain drip.

Submit cuts of all items for approval by the engineer.

Unit Masonry and Accessories:

Brick shall be produced by Handfromatic to simulate hand thrown brick. It is then dried and placed in a kiln for burn-off. The appearance is a range of light tans and moss greens with interspersed folds.

Bond pattern shall be as indicated on the drawings.

Face brick shall be in accordance with ASTM C216, type FBS, minimum compressive strength 66.9 MPa.

Provide sample panel as indicated on the drawings.

Hollow Non-Load Bearing Concrete Masonry Units: ASTM C129, Type I. Size as indicated on the drawings.

Wall ties, (Mesh or Wire): Mesh wall ties formed of 1.61 mm thick stainless steel wire 38.1 mm by 12.7 mm mesh, 76.2 mm wide by 203.2 mm long, or rectangular wire wall ties formed of 3.51 mm thick stainless steel wire, 50.8 mm wide by 203.2 mm long.

Rigid Wall Anchors: Form from stainless steel not less than 25 mm wide by 4.76 mm thick by 610 mm long, plus 51 mm bends.

Individual Ties: Form from 4.76 mm diameter stainless steel rod to a rectangular shape not less than 50.8 mm wide by sufficient length for ends of ties to extend within 25.4 mm of each face to wall. Ties that are crimped to form drip will not be permitted.

Shear Resisting Top Anchor: Anchor designed for replacement in a sash block. Anchor provides for vertical deflection of structural steel beams and for lateral shear resistance. The anchor consists of a plate for welding to the steel and a 9.53 mm diameter steel rod placed in a sleeve with an expansion filler. Do not drill holes into structural steel.

Channel brick anchors shall be type 304 stainless steel continuous adjustable channels with factory welded pronged legs to bridge rigid insulation. Provide stainless steel wire ties with inserts for use with channels. Channels shall be spaced a maximum of 406.4 mm on center both vertically and horizontally. Channels shall be positioned to allow for ties to be located a maximum of 203.2 mm from the top brick course, 203.2 mm maximum from corners, 203.2 mm

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maximum around openings, and 203.2 mm maximum from expansion joints.

Weep/vent holes: Weep/vent holes shall be honeycomb type that allows passage of moisture from cavity and restricts ingress of other foreign matter. Size shall be as indicated on drawings.

Submit cuts of all items for approval by the Engineer.

Mortar and Grout:

Mortar Conforming to ASTM C270: Test for compressive strength and water retention; ASTM C780. Mortar shall have compressive strengths at seven days and 28 days as follows: Type S – Minimum 7.58 MPa at seven days and 12.42 MPa at 28 days.

Grout Conforming to ASTM C476: Test for compressive strength; ASTM C780. Grout shall have compressive strength of 0.12 MPa at 28 days.

Stone and Brick Anchor Fasteners: Shall be type 304 stainless steel self-tapping concrete screw anchors.

Mortar Net: High density polyethylene or nylon woven mesh strand, 90% mesh, with dovetail shape that prevents mortar damming of weep holes. Provide thicknesses as indicated on drawings at all exterior wall flashing locations.

Submit cuts of all items for approval by the Engineer.

CONSTRUCTION DETAILS:

All work under these Items, including, but not limited to fabrication, inspection, transportation, and erection, shall be done in accordance with the provisions of the New York State Steel Construction Manual, and the New York State Building Code as applicable. The term "Structural Steel" in the New York State Steel Construction Manual shall include Stainless Steel. Shop drawings required for these items shall be prepared, in accordance with the provisions of the New York State Steel Construction Manual, and the applicable requirements of the NYSDOT Standard Specifications, Sections 555, 556, 564, 572, 701, 703, 708, and as required by the Engineer. The shop drawing submission shall include the name of the fabricator of the materials, the fabricator's technical specifications for them, and all installation details and methods. Shop drawings shall be forwarded to the Engineer for review and approval.

Metal Doors and Frames:

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Prior to installation of metal doors and frames, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that metal doors and frames may be installed in strict accordance with all pertinent codes and regulations, the original design, approved Shop Drawings, and manufacturer's recommendations.

Install all metal doors and frames in strict accordance with all pertinent codes and regulations, the approved Shop Drawings, and the manufacturer's recommendations, anchoring all components firmly in position for long term under hard use.

Set frames accurately, plumb and true.

Adjust any irregular or defective frame work.

Cutouts, Sinkages and Reinforcement for Hardware: Cutouts and sinkages shall be provided for butt hinges, lock fronts and strikes. Reinforcement for butt hinges shall be minimum 5 mm thick and extend 102 mm above and below hardware. Provide reinforcement for closers in doors, 102 mm high, 305 mm wide with nearest edge 102 mm from hinge line. Reinforcement in frame for bracketing door closer shall be 32 mm high by 254 mm wide located with nearest edge 152 mm away from hinge line. The stop of frame shall be provided with 5 mm reinforcement for corner bracket not less than 203 mm in horizontal length, 152 mm in vertical length located in the corner of frame. Provide 6 mm thick reinforcement for doorstop in door.

Door Hardware:

Hardware. All hardware shall be secured with suitable screws and bolts of the same material and finish. All hardware shall be mounted on doors and frames which have been reinforced, drilled and tapped ready to receive hardware as described in this section under steel doors.

Steel Windows:

Windows specified under this section shall be installed by experienced personnel.

Install windows in openings in strict accordance with approved shop drawings. Set units plumb, level and true to line, without warp or rack of frames. Anchor units securely to surrounding construction, maximum 457 mm on center, with approved fasteners. The exterior joints between the sash, trim and mullions shall be properly sealed watertight with an approved sealant and neatly pointed.

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Install all glazing units from the inside. Install glazing beads.

Attach ventilator hardware, as required, and adjust ventilators to operate smoothly free from twist and to be weathertight when closed.

Repair and refinish any abraded areas of the factory finish.

Ceiling Tile:

Ceiling suspension system. Install suspension system and framing according to ASTM C636 recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels. Install acoustical tile and panels according to manufacturer's recommended procedures.

Gypsum Board Systems:

Stud Framing: Securely attach studs to concrete surfaces with stub nails or power driven fasteners and to steel frames with pan head screws. Erect studs between runners. Attach with 13 mm pan head screws. Erect framing around windows, doors and other openings.

Gypsum Boards: Cut boards so that they slip easily into place. Butt all joints loosely. Place tapered edges next to one another. Set screws slightly below face of panel, spacing 406 mm o.c. and 305 mm o.c. for water resistant gypsum board. Apply corner beads. Apply layer of joint compound to fill channel formed by tapered edges of panel. Embed reinforcing tape. While embedding, apply a thin coat of joint compound over tape. Apply compound at beads and trim, minimum 152 mm wide. Let dry. Apply compound over fastener depressions. Apply second coat approximately 178 mm to 254 mm wide over taped joints, beads and trim. Spot fasteners. Let dry. Finish coat. Apply a thin finish (third) coat over joints, fasteners, beads and trim. Feather edges of third coats at least 51 mm wider than second coat. Sand lightly. Store all materials as required by the manufacturers.

Rough Carpentry:

Furring, blocking, nailers and grounds: Provide furring, blocking nailers and grounds where shown and where required to complete the work. Provide these items in the longest lengths practicable.

Secure wood nailers to structural steel members with bolts, placed one at each end of each nailer and at 610 mm intervals between endbolts. Countersink bolt heads flush with the surface of nailers.

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Architectural Woodwork:

Timber Bracket: Provide shop drawings showing all materials and attachments, for approval by the Engineer.

Building Insulation:

Building Insulation: Install insulation with the vapor barrier facing the heated side, unless specified otherwise. Install insulation with tight joints, filling framing voids completely. Seal cuts, tears, and unlapped joints with tape. Fit insulation tight against adjoining construction and penetrations, unless specified otherwise.

Apply sealant tape to clean and dry surface of insulation, in a continuous length. Roll on with even pressure from bottom to top of wall. Store material as required by the manufacturer.

Concrete Water Repellent: Protect all adjacent non-masonry surfaces from product. Surfaces should be clean and free of dust, dirt, oil, grease, moisture and other contaminants. Concrete shall be thoroughly cured before application. Apply with low-pressure airless spray, in accordance with manufacturers recommendations.

Metal Roofing:

Install roofing felts, lap a minimum of 102 mm. Install roofing sheets and flashings. Attach clips with two fasteners. Nail cleats a maximum of 305 mm on center. Complete seaming. Install snow guards. Roofing shall be fabricated to resist the negative pressure and uplift loads as per SMACNA manual, 5th edition. Details shall be in accordance with SMACNA standards.

Anti-graffiti Coating:

The anti-graffiti coating shall be spray applied in conformance with the manufacturer's recommendations. Adjacent surfaces shall be protected during application.

Miscellaneous Metals and Flashing:

Fabrication:

- (1) Jointing: Surfaces of stainless steel required to be soldered shall be pretinned on both mating surfaces with solder for a width not less than 38 mm. Surfaces of other sheet metal work required to be soldered shall be treated in accordance with metal producers recommendation. Completely remove acid and flux after soldering is completed. In

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general, stainless steel joints, except expansion and contraction joints, shall be locked and soldered.

Joints shall conform to following requirements: Flat-lock joints shall be finished not less than 19 mm wide. Lap joints subject to stress shall be finished not less than 25 mm wide and shall be soldered and riveted. Unsoldered lap joints shall be finished not less than 102 mm wide.

Flat and lap joints shall be made in direction of flow.

- (2) Expansion and Contraction Joints: Provide expansion and contraction joints, fabricated in accordance with the Architectural Sheet Metal Manual recommendation for expansion and contraction of sheet metal work in continuous runs, spaced as specified. Provide expansion and contraction joints for stainless steel at intervals not exceeding 7.32 m. Expansion and contraction joints shall be slip-type or loose locked, and filled with plastic cement unless otherwise specified.
- (3) Fastenings: Fastenings shall be AISI Type 316 Stainless Steel for stainless steel. Direct nailing of sheet metal shall be confined to strips 305 mm or less wide. Flashings shall be nailed along one edge only. Nails shall be spaced not over 102 mm on center. Nails shall have large flat heads and needle points, and shall penetrate nailer at least 22 mm. Nails exposed to the weather shall have neoprene washers. Install bolts, rivets, band screws where indicated, specified or required in accordance with the Architectural Sheet Metal Manual (SMACNA). Rivets shall be spaced at 76 mm on centers in two rows in a staggered position.
- (4) Cleats: Provide cleats to secure flashing and sheet metal work over 305 mm wide and elsewhere specified or required. Cleats shall be evenly spaced not over 305 mm on centers. Secure one end of cleat over nail heads. Lock other end into the seam. Pre-tin cleats for soldered seams. Cleats shall be formed of the same metal and weights as the sheet metal being installed.
- (5) Drips: Form drips at lower edge of sheet metal counterflashings and fascias by folding edge back and bending out 45 degrees from vertical to carry water away from the wall. Form drip to provide hook to engage cleat for fastening.
- (6) Counterflashing shall be stainless steel. Form drip as specified at lower edge. Stiffen lower edge of counterflashing by 13 mm hem.

Installation: Install flashing and sheet metal items as shown in Sheet Metal and Air Conditioning Contractors National Association, Inc., publication, Architectural Sheet Metal Manual, except as

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otherwise shown or specified.

Surface Preparation: Apply sheet metal and other flashing material to surfaces that are smooth, sound, clean, dry and free from defects that might affect the application. Remove projections which would puncture the materials and fill holes and depressions with material compatible with the substrate, except cover holes or cracks in wood wider than 6 mm shall be covered with sheet metal compatible with the flashing material used. Apply a skim coat of mortar to surfaces of unit masonry to receive flashing material before the application of flashing.

Stairs, railings and ladders shall be shop fabricated in sections suitable for field conditions. All components except handrail brackets shall be steel, and handrail brackets shall be cast iron. All fasteners, including bolts and screws shall be concealed wherever possible. Exposed bolts shall have countersunk heads with bolt and screw heads dressed flush after nuts are set. Wherever possible, locate welds on unexposed side. Grind all welds smooth and remove welding splatter. Remove all sharp edges and burrs. Connections may be standard fittings designed for welding, or coped or mitred with full welds. Return ends of handrails to walls and close free ends.

Submit shop drawings showing all materials, details, dimensions, fabrication and flashing, to Engineer for approval.

Stair and Railings:

Ladders:

Sealants and Caulking:

Inspection: Inspect substrate surface for bond breaker contamination and unsound materials at adherent faces of sealant. Coordinate for repair and resolution of unsound substrate materials. Inspect for uniform joint width and confirm that the dimensions are within tolerances established by sealant manufacturer.

Preparation: Prepare joints in accordance with manufacturer's instructions and as per ASTM – C1193. Clean surfaces of joint to receive caulking or sealants leaving joint dry to the touch, free from frost, moisture, grease, oil, wax, paint, or other foreign matter that would tend to destroy or impair adhesion. Do not cut or damage joint edges. Apply masking tape to face of surfaces adjacent to joints before applying primers, caulking, or sealing compounds. Apply primer to sides of joints wherever required by compound manufacturer's printed instructions. Apply primer prior to installation of back-up rod or bond breaker tape using brush or other approved means that will reach all parts of joints.

Backing Installation: Install back-up material, to form joints enclosed in three sides as required for

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specified depth of sealant. Where deep joints occur, install filler to fill space behind the back-up rod and position the rod at proper depth. Cut fillers installed by others to proper depth for installation of back-up rod and sealants. Install back-up rod, without puncturing the material, to a uniform depth, within plus or minus 3 mm for sealant depths specified. Where space for back-up rod does not exist, install bond breaker tape strip at bottom of joint so sealant bonds only to two opposing surfaces taking all necessary steps to prevent three side adhesion of sealants.

Backing Installation: Sealant Depth and Geometry: At widths up to 6 mm, sealant depth equal to width. At widths over 6 mm, sealant depth 1/2 of the width up to 13 mm maximum depth at center of joint with sealant thickness at center of joint approximately 1/2 of depth at adhesion surface.

Installation:

- (1) General: Apply the sealants and caulking only when the ambient temperature is between 7 and 30 degrees Celsius.
- (2) Do not use polysulfide base sealants where sealant may be exposed to fumes from bituminous materials, or where water vapor in continuous contact with cementitious materials may be present. Do not use sealant type listed by manufacturer as not suitable for use in locations specified.
- (3) Apply caulking and sealing compound in accordance with manufacturer's printed instructions. Avoid dropping or smearing compound on adjacent surfaces. Fill joints solidly with compound and finish compound smooth. Tool joints to concave surface unless shown or specified otherwise. Apply compounds with nozzle size to fit joint width.
- (4) Test sealants for compatibility with each other and substrate. Use only compatible sealant.
- (5) For application of sealants, application of acrylic latex caulking, and of butyl rubber caulking, follow manufacturer's requirements, and as per ASTM C1193.

Cleaning: Fresh compound accidentally smeared on adjoining surfaces shall be scraped off immediately and rubbed clean with a solvent as recommended by the caulking or sealant manufacturer. After filling and finishing joints, remove masking tape. Leave adjacent surfaces in a clean and unstained condition.

Locations: Use sealant for vertical and inclined joints at:

- (1) Both exterior and interior joints, and recesses formed where frames of doors and louvers and the like adjoin other materials.

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- (2) Joints or recesses on exterior of building (including locations not specifically shown or specified) where sealing is required to prevent infiltration of water, moisture, and wind into building construction.
- (3) Where sealant is shown on drawings.
- (4) Concrete joints in which shelf angles occur.
- (5) Openings where pipes, conduits and similar items pass through exterior walls.
- (6) Bottoms of exterior doorway frames.
- (7) Seats of metal thresholds for exterior doors.
- (8) At penetration through flashings.
- (9) Use caulking compound for the following interior applications:
 - a. Openings 6 mm and less between walls and partitions and adjacent shelving, built-in or surface mounted equipment, plumbing and lighting fixtures.
 - b. Perimeters of frames of doors, access panels and the like which adjoin exposed interior concrete surfaces.
 - c. Exposed joints at top of full height walls and partitions where isolation seals occur.
 - d. Where caulking is shown on drawings.
 - e. Other interior locations where small voids between materials require filling for painting.

Ceramic Tile:

Preparation: All surfaces to receive tile shall be firm, smooth, level, plumb and square. Inspect all surfaces prepared by others before starting tile work and report all unsatisfactory conditions. Starting tile work shall be considered as acceptance of work of others.

Installation: Floor tile shall be set in a Dry-Set Mortar Bed as per Specification of Tile Council of America Handbook. Cove base tile to be set on walls shall be bonded with a cement paste as per Specification of the Tile Council of America Handbook.

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Grouting and Finishing: Where possible, tile should not be grouted sooner than 48 hours after setting, to permit complete evaporation of solvents in the adhesive. Clean all joints of dust, dirt, and excessive adhesive. Adhesive may be removed with a sharp knife or solvent.

Tile: Tile shall be installed in accordance with ANSI A 108.1A.

Grout: Grout shall be installed in accordance with ANSI A 108.10 for walls and ANSI A 108.6 for floors.

Resilient Flooring:

Install resilient flooring as per manufacturer's recommendations. Provide solid vinyl reducer strips at transitions of materials and around floor openings. Edging strip shall allow a proper sized, compatible caulk sealant joint be tooled to structural members passing through the finish floor.

Painting:

Drywall:

- (1) Remove dust, dirt, and other deterrents to paint adhesion. Fill cracks, holes and other depressions with patching compound, finished flush with adjacent surfaces. Remove fixtures, cover plates, hardware, and similar items before painting. Surfaces shall be dry, clean and smooth.
- (2) Paint Preparation: Thoroughly mix all painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition. No material shall be thinned, unless necessary for proper application and when finish paint is used for body and prime coats. Materials and the quantities used for thinning shall be in accordance with the manufacturer's printed instructions. Remove paint skins, then strain paint through commercial paint strainer to remove all lumps and other particles.
- (3) Application: Applying all coats with brush or roller (spraying will not be permitted) varying slightly the color of succeeding coats. Brush out or roll on first or prime coat; work well into surface. Each coat shall be inspected and approved and dry before proceeding with additional coats. Allow at least 48 hours for enamel and exterior oil paint to dry.
- (4) Paint finish: One coat of wall primer. Dry film thickness of 30 microns. Two coats of alkyd semi-gloss enamel. Dry film thickness of each coat to be 70 microns.

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Concrete/Concrete Block: Surface Preparation, thickness of coatings, application methods and conditions, shall be as recommended by the manufacturer.

Miscellaneous Steel: Steel shall be painted in accordance with the requirements of Item 572.010001. Steel concealed in walls shall receive one prime coat and one finish coat. Exposed steel shall receive one prime coat and two finish coats.

Furnishings:

No construction details specified.

Fire Extinguishers:

Bracket mounted attached to wall framing.

Washroom Fixtures and Accessories:

Waterless Hand Cleaner and Dispensing Pump with Wall Mounted Bracket: Attach bracket to wall framing.

Paper Towel Dispenser: Mount unit to wall with sheet-metal screws at points indicated by manufacturer. Predrill holes in wall and provide fiber plugs for use with sheet-metal screws.

Toilet Paper Dispenser: Mount unit to wall with sheet-metal screws at points indicated by manufacturer. Predrill holes in wall and provide fiber plugs for use with sheet-metal screws.

Mirror: Mount wall hangers on wall with sheet-metal screws at points indicated by manufacturer. Predrill holes in wall and provide fiber plugs for use with sheet-metal screws. Lock mirror to wall hangers by tightening locking screws in bottom of frame.

Robe Hook: Secure wall plate to wall with sheet-metal screws at points indicated by manufacturer. Predrill holes in wall and provide fiber plugs for use with sheet-metal screws. Secure hook to wall plate by tightening setscrews in flange.

Mop and Broom Rack: Secure unit to wall with sheet-metal screws at points indicated by manufacturer. Predrill holes in wall and provide fiber plugs for use with sheet-metal screws.

Waste Receptacle: No construction details specified.

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Natural Gas Fired Incinerating Toilet: Install unit on flat, level, hard surface. Air space between bottom of unit and floor must be kept clear from front to back. Manual shut off valve must be readily accessible when installation is complete. Use approved flexible gas supply tube with sufficient extra length to accommodate pulling unit away from wall for service access. After unit is assembled, fasten pipe adapter to vent collar with sheet metal screw provided. Drill 2.38 mm hole to install screw. Weight of vent stack must not bear on unit; support so that unit can later be disconnected from vent stack without disturbing roof caulking or storm collar. Use 152.5 mm diameter type "L" double wall stainless steel vent.

Tightly cover and protect fixtures and accessories against dirt, water and chemical or mechanical injury. At completion of all work, fixtures, exposed materials and equipment shall be thoroughly cleaned.

Unit Masonry and Accessories:

Face Brick:

- (1) Preparation: Wet brick before use as required. Before placing brick, clean reinforcement of loose rust, dirt, ice and other coatings.
- (2) General Erection: Lay exposed masonry in bond pattern. Bond unexposed masonry units in a wythe by lapping at least 51 mm. Pattern bond as indicated on drawings. Joining of brick as indicated on drawings where stone and brick abut. Prepare surface of masonry to be smooth and clear from projections that might puncture flashing material, and place through-wall flashing on bed of mortar. Provide expansion joints as indicated on drawings. Lay brick plumb and true to lines.

Ties: Attach brick veneer to backing with stainless steel brick ties. Use one tie for each 0.37m² of wall area. Maximum space between adjacent ties to be 406.4 mm vertically and horizontally. Embed ties at least 51 mm in horizontal joint of facing. Provide additional ties as required.

Anchoring: Anchor exterior brick walls facing or abutting concrete members with dovetail, flat-bar or wire anchors inserted in slots built into concrete.

Install weep/vent holes at 610 mm on center at all wall flashing locations and at one course below top of masonry coursing.

Expansion Joints: Provide expansion joints as indicated on drawings.

Install stone and brick anchor fasteners as indicated on the drawings, where required for attachment of anchors.

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Install channel brick anchors at 406 mm on center both vertically and horizontally, to allow for wire tie attachment.

Install mortar net behind the masonry face at the base.

Mortar and Grout:

Vibrate or agitate grout during and after placement to insure complete filling of grout space.

Clean all exposed unglazed masonry. Cut out any defective joints and holes in exposed masonry and re-point with mortar.

METHOD OF MEASUREMENT:

Payment for each of these Items shall be made on a lump sum basis.

BASIS OF PAYMENT:

The lump sum price bid for each item shall include the cost of furnishing all labor, materials and equipment for each item necessary to complete the work. No payment will be made for repair or replacement of damaged material, which was made necessary due to the Contractor's operations.