Partie 1 General

1.1 RELATED REQUIREMENTS

.1 The list of Work in this division is indicative but non-limiting. It does not exclude Work described in other specification divisions shown on the drawings or required for full execution of the Work as intended on the drawings.

.2 Section 04 05 19 Masonry Anchorage and Reinforcing.

.3 Section 04 05 23 Masonry Accessories.

.4 Section 04 43 16 Granite Veneer Cladding.

.5 Section 05 50 00 Metalwork.

.6 Section 07 92 00 Joint Sealants.

.7 Section 09 63 41 Granite Flooring.

.8 Section 09 21 16 Gypsum Board Assemblies (lightweight cement board).

1.2 REFERENCES

.1 Waterproof slurry mortar, (pedestrian bridge) to ASTM International

.1 ASTM D695, Compressive Strength.

.2 ASTM C307, Tensile Strength.

.3 ASTM D522 (amended), Flexibility.

.4 ASTM E 96 Perms US, Water Vapour Transmission.

.2 Primer for original foundation and pipe trenches: to Canadian General Standards Board (CGSB or ONGC)

.1 CGSB-37-GP-9Ma, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.

.2 CAN/CGSB-37.50-M89, Hot Applied, Rubberized Asphalt for Roofing and Waterproofing.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for water repellents and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.3 Convene pre-installation meeting one week prior to beginning Work under this Section with Departmental Representative in accordance with Section 01 14 23 – Work Sequence and Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart to:

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordination with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect water repellents from humidity.

.3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.6 SITE CONDITIONS

.1 General:

.1 Protect plants and vegetation which might be damaged by water repellents.

.2 Protect surfaces not intended to have application of water repellents.

.2 Waterproof slurry mortar, (pedestrian bridge):

.1 Comply with manufacturer’s recommendations for installation conditions prior to application.

.3 Primer for original foundation (all types) and pipe trenches:

.1 Do not install hot-applied rubberized asphalt when air and deck temperature remains below –18°C.

.2 Install waterproofing on dry deck, free of snow and ice. Use only dry materials and apply during weather that will not introduce moisture into waterproofing system.

.3 Prepare and apply membrane in well-ventilated area.

.4 During service life, membrane and membrane accessories must not be exposed to temperatures consistently over 82°C (i.e., hot ducts, vents or steam exhaust chimneys).

.5 Primers contain petroleum distillates and are extremely flammable: do not breathe in fumes, use near an open flame or in poorly ventilated areas. Refer to labels and product data sheets for information on safe use.

.6 Keep waste materials (gas, grease, oil, solvents, mineral oil, vegetable oil, animal fat) away from membrane. Notify membrane manufacturer immediately in the event of contact with foreign matter or chemical fumes to determine impact on the performance of the waterproofing system.

1.7 ACCEPTABLE PRODUCTS AND MATERIALS

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

Partie 2 Products

2.1 MATERIALS

.1 Waterproof slurry mortar, (pedestrian bridge):

.1 Two-component, polymer-modified, cementitious slurry mortar:

.2 Colour: Concrete grey.

.3 Watertightness under hydrostatic pressure: less than 64 gr/m^2 • h.

.4 Flexibility ASTM D522: 8%.

.5 Water vapour diffusion coefficient: breathable.

.6 Bond strength ACI 503R-30: pull-off test.

28 days 1.0 MPA

.2 Primer for original foundation (all types) and pipe trenches:

.1 Hot-applied rubberized asphalt: to CAN/CGSB-37.50.

.2 Colour: black.

.3 Flash point: 240° C CGSB 37.50-M89.

.4 Water vapour permeance: 1.7 ng/Pa(s) m max CGSB 37.50-M89.

.5 Elongation: 1000% min ASTM D-5329

2.2 ACCESSORIES:

.1 For waterproof slurry mortar, (pedestrian bridge):

.1 Mortar bands: Synthetic fibre reinforced hydraulic repair mortar for resin/cement based concrete. Compressive strength 5 to 6 N/mm^2 after 1 day, at 5^{o}C, and flexural strength of 1 to 2 N/mm^2 after 1 day at 5^{o}C.

.2 Sealer: multicompound elastomeric sealing product, premium quality, polyurethane based, chemical curing, non-sag. To CAN/CGSB 19.24 – M90.

.3 Primer for sealer: surface conditioners and single-compound adherence enhancing base for polyurethane sealing products.

.4 PVC cones.

.5 Preformed compressible extruded closed cell polyethylene foam backer.

.2 Primer for original foundation (all types) and pipe trenches:

.1 Non-woven polyester reinforcement for hot-applied rubberized asphalt.

.2 Polyethylene separator, 0.12 mm thick.

.3 Drainage panel: three-dimensional heterogeneous drainage system, crush resistant core, non-woven, needle-punched geotextile.

.4 Stainless steel 1.5 mm flashing as indicated on drawings.

Partie 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable in accordance with manufacturer's written instructions.

.2 General:

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

.3 Waterproof slurry mortar, (pedestrian bridge):

.1 Concrete surfaces must be clean.

.2 Steel and iron surfaces must be free from scale and rust.

.3 All surfaces must be as true and flat as possible.

.4 Primer for original foundation (all types) and pipe trenches:

.1 Ensure decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.

.2 Ensure piping and other penetrations are installed correctly and solidly before undertaking Work.

3.2 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 PREPARATION

.1 General:

.1 Prepare and clean substrate surfaces in accordance with water repellent manufacturer's printed instructions.

.2 Seal honeycombs, metal fastener holes, hollows and surfaces cracks with latex filler compatible with membrane.

.3 Clean deck of any contaminant that could damage adhesion of membrane materials; remove curing compounds, dust, paint, frost, form-release agents and loose particules from bonding surface before beginning Work.

.2 Waterproof slurry mortar, (pedestrian bridge):

.1 Prepare poured concrete substrate to obtain sandpaper-like surface (CSP 3).

.2 Steel and iron surfaces must be free from scale and rust.

.3 Treat surfaces to obtain surface to CSP 5 and remove traces of grease with degreasing product according to manufacturer’s specifications. Prepare surfaces to obtain adequate adhesion prior to application of slurry mortar.

.4 Remove all traces of grease, oil and loose particules from surfaces prior to application of slurry mortar.

.5 Maintain surface to be waterproofed at a temperature and humidity level (SSS) that complies with written instructions of waterproofing manufacturer.

.3 Primer for original foundation (all types) and pipe trenches:

.1 Block off honeycombs, metal fastener holes, voids and superficial cracks using latex-based caulk compatible with the membrane.

.2 Clean deck of any contaminant that could damage adhesion of membrane materials; remove curing compounds, dust, paint, frost, form-release agents and loose particules from bonding surface before beginning Work.

.3 Ensure concrete has cured at least 14 days prior to application of primer.

.4 Grind sharp edges at joints and changes in direction and/or remove loose stones; joints must be completely free of preformed compounds, sealant or joint fillers, to a depth equal to twice the joint width. For expansion joints, it is preferable that joint edges be chamfered.

3.4 APPLICATION

.1 Waterproof slurry mortar, (pedestrian bridge):

.1 For brush consistency: Apply the first coat of slurry mortar with horizontal brush stroked and leave to harden (4 to 8 hours). Apply the second coat with vertical brush strokes.

.2 Protect freshly applied product from sun, wind, rain and frost.

.2 Drainage composite:

.1 Install PVC and drainage strips after slurry mortar is applied and cured to support granite, as indicated on drawings. Drainage strips when installed will be twice the height of PVC strips.

.3 Joint sealant products, for granite slabs:

.1 Apply sealant primer to granite slabs prior to setting in place.

.2 Apply joint backing and sealants according to manufacturer's instructions, following permanent placement of granite slabs.

.4 Primer for original foundation (all types) and pipe trenches:

.1 Heat rubberized asphalt using doubled jacketed kettle indirectly heated, containing a heat transfer oil with a maximum flashpoint of 315°C (Sonoco No. 21) and equipped with a mechanical agitator and thermometers. Maintain membrane temperature in kettle between 180ºC and 190ºC without exceeding maximum.

.2 Seal cracks and joints over 1.5 mm but less than 6 mm in width: apply a 300 mm wide, 3 mm thick coat, centered over joint, and embed 150 mm elastomeric reinforcement strip; overlap and bond over 150 mm on ends. Remove air pockets. If necessary, secure membrane with fixing bar at vertical wall locations.

.3 Apply rubberized asphalt to provide a thickness of 3 mm over reinforcement to bond with membrane.

.4 Apply first layer to dry substrate, to CAN/CGSB-37.51 at a rate of 1 litre/4 to 6 m².

.5 Follow manufacturer's recommendations for expansion joint membrane and changes in direction.

3.5 FIELD QUALITY CONTROL

.1 After water repellent has dried, spray coat surfaces with water to verify coating coverage. Allow Departmental Representative to witness tests.

3.6 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by water repellent application.

END OF SECTION