

Part 1 General

1.1 RELATED WORK

- .1 Rough carpentry: Section 06101

1.2 SAMPLES

- .1 One month prior to start of work provide for consultants approval, duplicate 400x400 mm samples in accordance with Section 01330 Submittal Procedures of proposed stucco in colours and textures requested by consultant.

Part 2 Products

MATERIALS

- .1 Striplath: standard manufacture, expanded 0.50 mm (minimum) diamond mesh sheet steel, galvanized. Use primarily for parging areas.
- .2 Stucco wire: standard galvanized welded light gauge mesh, 50x50 mm square openings. Use for stucco areas.
- .3 Tie wire: galvanized, soft-annealed wire no. 18 I.W. gauge.
- .4 Metal accessories: such as J-moulds, corner beads, base screeds, expansion joints of standard manufacture with perforated or expanded flanges, fabricated from galvanized steel not lighter than 0.50mm. Include standard W-type control joint screeds.
- .5 Thermal studs: galvanized sheet metal studs used to attach board insulation boards to concrete foundations providing a thermal break between exterior and concrete. Typically insulation boards are scored vertically to accommodate studs.
- .6 Cornerite: standard manufacture, expanded 0.50 mm (minimum) galvanized sheet steel with 75 mm legs.
- .7 Water: clean, potable, and free from deleterious matter, acids or alkalis.
- .8 Sand: clean, coarse, sharp, well screened conforming to CSA specification A.82.57-M (latest).
- .9 Lime: hydrated finishing lime conforming to current CAS Specifications.

- .10 Stucco base coat. Neat base, water/weather resistant cement plaster requiring only the addition of sand aggregate and water.

2.1 MATERIALS (CONT'D)

- .11 Finish coat: Imasco bagged coloured cement stucco, weather resistant finish requiring only the addition of water. Colour form Imasco Dark colour range.
- .12 Portland cement: Symbol 10, fresh. Kept dry conforming to CAN/CSA-A5-9S (latest)

2.2 MIXING

- .1 Proportioning and mixing of materials shall be in strict accordance with material manufacturer's instructions.
- .2 Any change from such instructions shall be to the approval of the Consultant prior to commencement of application.

Part 3 Execution

3.1 EXAMINATION OF SURFACES

- .1 Before commencing work, examine surfaces and conditions affecting the proper installation of this work
- .2 Do not commence with this work until the work which is to receive it and site conditions are satisfactory

3.2 STUCCO REINFORCING

- .1 Install galvanized metal thermal stud framing where required to provide solid support for stucco reinforcing.
- .2 Install reinforcing with long dimension horizontal, lapping joints at not less than 25 mm, lapping upper courses over lower courses, and lapping ends.
- .3 At external corners, wrap reinforcing around corner and reinforcing with external corner reinforcement.
- .4 Every 2'-0" O.C. (min.) horizontally provide a 'V' reveal 3/4" wide, 1/2" deep. Provide every 12'-0" O.C. (min.) vertical joints with same 'V' reveal.
- .5 Stucco in two colours as indicated, separated by 'V' reveal.

3.3 CONTROL JOINTS

- .1 Install control joints on framing at locations as shown on drawings and at junctions of dissimilar materials. Where locations not indicated on drawings, request Consultant's direction.
- .2 Attach control joints to provide secure, true grounds for stucco

3.4 ACCESSORIES

- .1 Erect accessories straight, plumb, level, board and in the proper plane. Use full length pieces to minimize joints. Fit lengths together without gaps, accurately align and boardly secure each side of joints. Mitre and fit corners accurately, without rough edges.
- .2 Provide corner beads at external angles. Secure into position at maximum 200mm o.c.

3.5 STUCCO

- .1 Scratch Coat:
 - .1 Use sufficient material and force to form good key.
 - .2 Bring out to grounds, straighten to true surface, float, compact and leave sufficiently rough to ensure adequate bond for finish coat. Moist cure for 48 hours
- .2 Finish Coat/Dash Coat:
 - .1 Apply not sooner than 48 hours after installation of scratch coat, texture to match existing.
 - .2 Colours of stucco: to be selected by Consultant.
 - .3 Provide sample for approval prior to start of work.
- .3 Tolerance: true and even, level to within 3 mm in 1.5 m finished surface free of tool marks and other blemishes.

3.6 CLEAN UP

- .1 Upon completion of this work, thoroughly clean and remove surplus stucco materials.
- .2 Inspect adjacent surfaces and remove all traces of stucco.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C36/C36M-01, Specification for Gypsum Wallboard.
 - .2 ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - .3 ASTM C514-01, Specification for Nails for the Application of Gypsum Board.
 - .4 ASTM C557-99, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
 - .5 ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
 - .6 ASTM C954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products
 - .7 ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 - .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.2 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
- .2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
- .3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.3 SITE ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.

- .2 Apply board and joint treatment to dry, frost free surfaces.
- .3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01330 - Submittal Procedures.
- .2 Submit duplicate 300 mm long samples of corner and casing beads insulating strip.

Part 2 Products

2.1 MATERIALS

- .1 Standard board: to ASTM C36/C36M regular, and Type X, 1200 mm wide x maximum practical length, ends square cut, edges beveled, thickness as indicated.
- .2 Abuse resistant board: to ASTM, C-36 regular, and Type X, 1200 mm wide x maximum practical length, ends square cut, edges beveled, thickness as indicated.
- .3 Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- .4 Resilient clips drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- .5 Nails: to ASTM C514.
- .6 Steel drill screws: to ASTM C1002.
- .7 Stud adhesive: to ASTM C557.
- .8 Laminating compound: as recommended by manufacturer, asbestos-free.
- .9 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, ABS, PVC, zinc-coated, aluminum coated 0.5 mm base thickness, perforated flanges, one piece length per location.
- .10 Sealants: in accordance with Section 07900 - Joint Sealers.
- .11 Acoustic sealant: in accordance with Section 07900 - Joint Sealers
- .12 Polyethylene: to CAN/CGSB-51.34, Type 2.

- .13 Insulating strip: rubberized, moisture resistant, 3 mm thick cork or closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
- .14 Joint compound: to ASTM C475, asbestos-free.

Part 3 Execution

3.1 ERECTION

- .1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
- .2 Do application of gypsum sheathing in accordance with ASTM C1280.
- .3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
- .4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- .5 Install work level to tolerance of 1:1200.
- .6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
- .7 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
- .8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
- .9 Furr openings and around built-in equipment, cabinets, access panels on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
- .10 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

3.2 APPLICATION

- .1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- .2 Apply single, double layer gypsum board to wood furring or framing using screw fasteners and laminating adhesive. Maximum spacing of screws 300 mm o.c..
 - .1 Single-Layer Application:

- .1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
- .2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
- .2 Double-Layer Application:
 - .1 Install gypsum board for base layer and exposed gypsum board for face layer.
 - .2 Apply base layers at right angles to supports unless otherwise indicated.
 - .3 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
- .3 Comply with gypsum board manufacturer's recommendations.
- .4 Brace or fasten gypsum board until fastening adhesive has set.
- .5 Mechanically fasten gypsum board at top and bottom of each sheet.
- .3 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.
- .4 Apply board using laminating adhesive on base layer of gypsum board.
- .5 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
- .6 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
- .7 Install gypsum board with face side out.
- .8 Do not install damaged or damp boards.
- .9 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3 INSTALLATION

- .1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre

and fit corners accurately, free from rough edges. Secure at 150 mm on centre using contact adhesive for full length.

- .2 Install casing beads around perimeter of suspended ceilings.
- .3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
- .4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
- .5 Splice corners and intersections together and secure to each member with 3 screws.
- .6 Install access doors to electrical and mechanical fixtures specified in respective sections.
 - .1 Rigidly secure frames to furring or framing systems.
- .7 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- .8 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
 - .1 Levels of finish:
 - .1 Level 1: Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.
 - .2 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
- .9 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- .10 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- .11 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

- .12 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

3.4 SCHEDULES

- .1 Construct fire rated assemblies where indicated.

END OF SECTION

Part 1 General

1.0 SUMMARY

1.1 Work Included

1. Rubber sports flooring
2. Adhesive and accessories required for installation and maintenance.

1.2 Related Sections

1. Section 03300: Cast in Place Concrete.
2. Section 07120: Dampproofing.

1.3 REFERENCES

1.3.1 American Society for Testing & Materials (ASTM)

1. ASTM D 2047: Standard Test Method for Static Coefficient of Friction of Floor Surfaces.
2. ASTM D 2240: Standard Test Method for Rubber Property—Durometer Hardness.
3. ASTM D 5116: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.
4. ASTM E 648: Standard Test Method for Critical Radial Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
5. ASTM E 662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
6. ASTM E 1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
7. ASTM F 970: Standard Test Method for Static Load Limit.
8. ASTM F 1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
9. ASTM G 21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

1.3.2 National Fire Protection Association

1. NFPA 101: Code for Safety to Life from Fire in Buildings and Structures.

1.4 SYSTEM DESCRIPTION

1. Provide a prefabricated athletic rubber flooring, dual durometer, vulcanized and calandered with a smooth texture finish and special embossing.
2. Provide athletic rubber flooring, which has been manufactured to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.5 SUBMITTALS

1. Product data, including manufacturer's information for specified products
2. Adhesive and line paint product data and manufacturer's certificate of approval for the proposed

application.

3. Selection and verification samples for finishes, colors and textures.
4. Shop drawings showing layout, profiles and product components.
5. Installation and maintenance instructions as published by the manufacturer.

1.6 QUALITY ASSURANCE

1. The manufacturer must have experience in the manufacturing of prefabricated rubber surface.
2. Installer must have performed installations of the same scale in the last three years.
3. Installer to be recognized and approved by the athletic rubber-flooring manufacturer.
4. Installation of mock-up must be deemed acceptable by City and Contract Administrator. Mock-up to be installed following the same procedure and material as per the actual floor.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Materials must be delivered in manufacturer's original, unopened and undamaged containers with identification labels intact.
2. Store material protected from exposure to harmful weather conditions, on a clean, dry, flat surface protected from all possible damage.
3. Recommended environmental condition for storage is a minimum of 55° F (13° C).
4. Material need not suffer excessive damage during handling (i.e. edge chipping, excessive warping etc).

1.8 SITE CONDITIONS

1. Maintain a stable room and sub-floor temperature for a period of 48 hrs prior, during and 48 hrs after installation. Recommended range: 60° F to 86° F (16° C to 30° C).
2. Installation to be carried-out no sooner than the specified curing time of concrete sub-floor (normal density concrete curing time is approximately 28 days for development of design strength).
3. Moisture vapor emission content of the concrete slab must not exceed the tolerance of the adhesive used when tested using the Calcium Chloride test as per ASTM F 1869.
4. Installation of athletic flooring will not commence unless all other finishes in the building have been completed.

1.9 WARRANTY

1. Provide manufacturer's standard warranty.
2. The athletic rubber flooring is warranted to be free from manufacturing defects for a period of three (3) years from the date of shipment from the manufacturer.

2.0 MAINTENANCE AND REPAIR

1. Provide additional amount of approximately 2% of the total floor surface, of each type and color.
2. Repair material must be from the same dye lot as material supplied for initial installation.
3. Maintain surface as per manufacturer's instructions (see Maintenance Instructions for Sport Impact Flooring)

Part 2 Product

2.2.1 Description

1. Prefabricated athletic rubber flooring, calandered and vulcanized with a base of natural and synthetic rubber, stabilizing agents and pigmentation, Resilient Athletic Flooring or approved equal.
2. Thickness: 3/8”
3. Color: 011/ medium grey, Mondo Sport Impact
4. Finish: Smooth Texture.
5. Manufactured in two layers, which are vulcanized together. The shore hardness of the top layer will be greater than that of the bottom layer; shore hardness of layers to be recommended by the manufacturer and the limits specified.
6. Available in: Rolls: 6’ (1.83 m) wide and 20’ to 33’ (6 m to 10 m) length,

2.2.2 Physical Properties

1. Physical properties of the prefabricated athletic rubber floor, to conform to the following requirements:

Physical Properties	Standard	Specification
Hardness Shore A	ASTM D2240	80/77
Critical Radiant Flux	ASTM E648, NFPA 101	0.58 W/cm2, Type I
Optical Density of Smoke	ASTM E 662	< 450, Class I
Static Load Limit	ASTM F970	0.003 in.
Fungal Resistance Test	ASTM G21-90	No growth
Coefficient of Friction	ASTM D2047	> 1.2 dry, 0.67 wet
V.O.C. Compliance	ASTM D5116	Yes
Color Stability		Good
Light reflection		Average
Chemical Resistance		Good

2.3 MATERIAL

1. Provide athletic rubber surface Sport Impact, in rolls (as specified in subsection 2.2.1).
2. Provide adhesive certified by the manufacturer, P.U. 100 polyurethane adhesive or EP 55 epoxy adhesive (refer to Instruction Manual of Adhesives provided by manufacturer). Adhesive to be color coordinated with flooring.
3. Patching compound and line marking paint, to be supplied or approved/recommended by rubber sport flooring manufacturer.

Part 3 Execution

3.1 INSTALLERS

1. Refer to section 1.4 of this document for information on installers.

3.2 EXAMINATION AND PREPARATION

The following must be ensured prior to installation of the primary product:

1. Concrete or asphalt subfloors to be placed a minimum of thirty (30) days prior to the installation of athletic rubber floor.
2. No concrete or asphalt sealers or curing compounds are applied or mixed with the subfloors. The underlayment is adequate (if installing over wood subfloors). APA exterior grade plywood is recommended.
3. Water vapor membrane complies with specification in ASTM E 1745.
4. Alkalinity test and moisture test must be performed. PH level should be in the range of 7 to 8.5. Moisture content must not exceed the capacity of the chosen adhesive 3 lbs/1000 ft² per 24 hrs for PU 100 and 5 lbs/1000 ft² per 24 hrs for EP 55 (verify using the calcium chloride test as per ASTM F 1869).
5. Smooth, dense finish, highly compacted with a tolerance of 1/8" in a 10 ft radius (3 mm in 3.05m radius). Floor Flatness and Floor Levelness (FF and FL) numbers are not recognized.
6. Concrete or asphalt subfloors on-or below-grade are installed over a suitable moisture retardant membrane.

3.3 INSTALLATION

Review manufacturer's printed instructions prior to installation.

3.3.1 Sheet

1. Install athletic flooring in accordance with manufacturer's Installation Instructions.
2. Unroll sheet and allow relaxation.
3. Inspect sheet for any damages or defects.
4. Always install the flooring in the same direction.
5. Cut and adjust flooring prior to installation.
6. All edges must be straight-edged before adjusting the seams.
7. Mix adhesive in accordance with manufacturer's instructions.
8. Apply adhesive and lay sheets in accordance with manufacturer's instructions.
9. Roll flooring in both directions with a 100 lbs (45 kg) sectional floor roller.
10. Check for air bubbles and continue rolling if needed.
11. Roll the seam with a hand roller and remove any excess adhesive that may have come through the seam.
12. Hold all seams in place with suitable weights (concrete utility bricks 2" x 4" x 8") for a minimum of 24 hrs.
13. Repeat the same procedure for the rest of the installation.
14. Surface to be protected before, during and after installation until project's acceptance by the city or his agent.
15. Allow adhesive to set 72 hrs before the initial cleaning of the surface.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Painting Specifications Manual, Master Painters Institute (MPI).

1.2 QUALITY ASSURANCE

- .1 Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.
- .2 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.
- .3 Conform to latest MPI requirements for interior painting work including preparation and priming.
- .4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with MPI Painting Specification Manual "Approved Product" listing and shall be from a single manufacturer for each system used.
- .5 Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and shall be compatible with other coating materials as required.
- .6 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Contract Administrator.
- .7 Standard of Acceptance:
 - .1 Walls: No defects visible from a distance of 1000 mm at 90° to surface.
 - .2 Ceilings: No defects visible from floor at 45° to surface when viewed using final lighting source.
 - .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.3 SCHEDULING OF WORK

- .1 Submit work schedule for various stages of painting to Contract Administrator for approval. Submit schedule minimum of 48 hours in advance of proposed operations.

- Obtain written authorization from Contract Administrator for any changes in work schedule.

1.4 SUBMITTALS

- .1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be used in accordance with Section 01330 - Submittal Procedures.
- .2 Upon completion, submit records of products used. List products in relation to finish system and include the following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 Manufacturer's Material Safety Data Sheets (MSDS).

1.5 SAMPLES

- .1 Submit full range colour sample chips in accordance with Section 01330 - Submittal Procedures. Indicate where colour availability is restricted.
- .2 Submit duplicate 200 x 300 mm sample panels of each paint, stain with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.
 - .2 13 mm birch plywood for finishes over wood surfaces.
 - .3 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
 - .4 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
 - .5 10 mm cedar, hardboard, plywood for finishes over wood surfaces.
- .3 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.6 DELIVERY, HANDLING AND STORAGE

- .1 Deliver, store and handle materials in accordance with Section 01610 - Basic Product Requirements.
- .2 Labels shall clearly indicate:
 - .1 Manufacturer's name and address.
 - .2 Type of paint or coating.

- .3 Compliance with applicable standard.
- .4 Colour number in accordance with established colour schedule.
- .3 Remove damaged, opened and rejected materials from site.
- .4 Provide and maintain dry, temperature controlled, secure storage.
- Observe manufacturer's recommendations for storage and handling.
- .5 Store materials and supplies away from heat generating devices.
- .6 Store materials and equipment in a well ventilated area with temperature range 7°C to 30°C.
- .7 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .8 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Contract Administrator. After completion of operations, return areas to clean condition to approval of Contract Administrator.
- .9 Remove paint materials from storage only in quantities required for same day use.
- .10 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
- .11 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.7 SITE REQUIREMENTS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces Perform no painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 °C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .2 Where required, provide continuous ventilation for seven days after completion of application of paint.
 - .3 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment

- if ventilation and heating from existing system is inadequate to meet minimum requirements.
- .4 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities shall be provided by Contractor.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by the specifying body, Paint Inspection Agency and the applied product manufacturer, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 °C.
 - Substrate temperature is over 32 °C unless paint is specifically formulated for application at high temperatures.
 - .2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
 - .3 The relative humidity is above 85% or when the dew point is less than 3 °C variance between the air/surface temperature.
 - .4 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
 - .2 Perform no painting work when the maximum moisture content of the substrate exceeds:
 - .1 12% for concrete and masonry (clay and concrete brick/block).
 - .2 15% for wood.
 - .3 12% for plaster and gypsum board.
 - .3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test concrete floors for moisture using a simple "cover patch test".
 - .4 Test concrete, masonry and plaster surfaces for alkalinity as required.
- .3 Surface and Environmental Conditions:
 - .1 Apply paint finish only in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
 - .2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.
 - .3 Apply paint only when previous coat of paint is dry or adequately cured.
 - .4 Apply paint finishes only when conditions forecast for entire period of application fall within manufacturer's recommendations.
 - .5 Do not apply paint when:
 - .1 Temperature is expected to drop below 10 °C before paint has thoroughly cured.

- .2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.
- .3 Surface to be painted is wet, damp or frosted.
- .6 Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
- .7 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
- .8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.
- .9 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of the Contract Administrator such that painted surfaces will have dried and cured sufficiently before occupants are affected.
- .4 Additional Interior Application Requirements:
 - .1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Part 2 Products

2.1 MATERIALS

- .1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Paint materials for paint systems shall be products of a single manufacturer.
- .3 Paints, adhesives, solvents, cleaners, lubricants and all other fluids shall be of specified manufacturer.
- .4 Acrylic epoxy coating shall be Cloverdale Paint specified number.

2.2 COLOURS

- .1 Contract Administrator will provide Colour Schedule.
- .2 Selection of colours will be from manufacturer's full range of colours.
- .3 Where specific products are available in a restricted range of colours, selection will be based on the limited range.

- .4 Where drawings indicate 'A' on stucco, these sections shall be painted with colour 1. Where drawings indicate unmarked areas of stucco, these sections shall be painted with colour 2.
- .5 Colours 1 and 2 will be typical of horizontal wall v-groove detailing around the entire surface of stucco.

2.3 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Contract Administrator's written permission.
- .2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.
- .3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.
- Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

- .1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following values:

Gloss Level Category	Units @ 60°	Units @ 85°
G1 - matte finish	0 to 5	max. 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

- .2 Gloss level ratings of painted surfaces shall be as specified herein and as noted on Finish Schedule.

2.5 INTERIOR PAINTING SYSTEMS

- .1 W/C stucco paint
 - .1 First coat: Cloverdale Towerthon, binds to stucco, elastic, moves with stucco to prevent cracking and shifting (20150) pt 1, pt 2, (dark colour) or equivalent substitution.

- a. Apply one coat
 - .2 Second coat: Cloverdale Towerthon clear coat – graffiti responsive sacrificial coating.
 - b. Apply one coat
 - .3 Interior painting system for Towerthon shall be as per manufacturer’s application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.
- .2 Mechanical, Janitors Room, and Storage room GWB paint
- .1 First Coat: Prime with Premium Classic HI-Hide Latex Drywall sealer (05250) by Cloverdale Paints.
 - a. Apply one coat.
 - .2 Second coat: Paint with Ecologic Waterbourne Semi Gloss (70623) by Cloverdale Paints.
 - a. Apply two coats.
 - .3 Interior painting system shall be as per manufacturer’s application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.

2.6 EXTERIOR PAINTING SYSTEMS

- .1 Stucco
 - .1 First coat: Paint with Cloverdale Towerthon Elastomeric Coating (20150) by Cloverdale Paints.
 - a. There will be two colours specified by ‘A’ and unmarked sections of Stucco on drawings.
 - b. Refer to Contract Administrator for colours.
 - c. Apply 2 coats of each colour.
 - .2 Second coat: Paint with Cloverdale Towerthon clear coat – graffiti responsive sacrificial coating.
 - a. two coats.

- .3 Exterior painting system shall be as per manufacturer's application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.
- .2 Aggregate Columns
 - .1 Clean aggregate with Pressure Washer at 800 PSI.
 - .2 Do not apply any coating to Aggregate.
- .3 Unpainted Wood Ceiling
 - .1 Clean Wood ceiling with Remove All Exterior Wood Cleaner and Brightener by Napier Environmental Technologies Inc.
 - a. Follow Manufacturers application instructions.
 - b. Rinse Product with Pressure Washer at 800 PSI.
 - .2 Paint with AquaSeal Clear Acrylic Water Repellent (43700) by Cloverdale Paints.
 - a. Apply 2 coats.
 - .3 Exterior painting system shall be as per manufacturer's application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.
- .4 Painted Wood Ceiling
 - .1 Strip Paint from Ceiling with Remove All Exterior Wood Paint Stripper by Napier Environmental Technologies Inc.
 - a. Follow Manufacturers application instructions.
 - b. Rinse Product with Pressure Washer at 800 PSI.
 - .2 Paint with AquaSeal Clear Acrylic Water Repellent (43700)
 - a. Apply two coats.
 - .3 Exterior painting system shall be as per manufacturer's application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.
- .5 Structural Steel elements
 - .1 First Coat: Prime with Ecologic Rustex Primer (70329) by Cloverdale Paints.
 - a. Apply one coat.
 - .2 Second Coat: Paint with Ecologic DTM (70401) by Cloverdale Paints.

- a. Apply 2 coats. (or as many required for uniform colour and thickness)
- .3 Exterior painting system shall be as per manufacturer's application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.

- .6 Wood Doors
 - .1 For Stain colour and product contact Contract Administrator.

 - .2 Seal with Clovasheild Gloss Acrylic Epoxy Enamel (83803) by Cloverdale Paints.

- .7 Concrete floor
 - .1 Prepare with Muriatic Acid. Refer to Manufactures application standards.
 - .2 First Coat: Seal with Clovasheild Gloss Acrylic Epoxy Enamel (83803) by Cloverdale Paints.
 - a. mix 1 lb silica sand to 1 gallon of Sealing Product.
 - .3 Second Coat: Seal with Clovasheild Gloss Acrylic Epoxy Enamel (83803) by Cloverdale Paints.
 - a. do not add silica sand to top coat.
 - .4 Exterior painting system shall be as per manufacturer's application instructions. Contractor will proceed with work only after review of painting system by Contract Administrator.

Part 3 Execution

3.1 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Painting Specifications Manual except where specified otherwise.
- .2 Preparation of Wood Ceiling surfaces both painted and unpainted and Aggregate column surfaces will be cleaned with Pressure wash of 800 psi after according cleaning procedures have been executed. Refer to Painting systems (2.6) for cleaning procedures.
- .3 Apply all paint materials in accordance with paint manufacturer's written application instructions.
- .4 Remove or protect Aluminum and other metal doors, windows and fixtures.

3.2 EXISTING CONDITIONS

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Contract Administrator damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- .2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Contract Administrator. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Maximum moisture content as follows:
 - .1 Stucco, Plaster and Gypsum Board: 12%.
 - .2 Concrete: 12%.
 - .3 Clay and Concrete Block/Brick: 12%.
 - .4 Wood: 15%.

3.3 PROTECTION

- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Contract Administrator.
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products and equipment.
- .4 Protect building occupants in and about the building.
- .5 Removal of electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings shall be done prior to undertaking any painting operations by Contractor. Items shall be securely stored and re-installed after painting is completed by Contractor.
- .6 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
- .7 As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Contract Administrator.

3.4 CLEANING AND PREPARATION

- .1 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

- .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
- .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
- .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
- .4 Allow surfaces to drain completely and allow to dry thoroughly.
- .5 Prepare surfaces for water-based paint. water-based cleaners should be used in place of organic solvents.
- .6 Use trigger operated spray nozzles for water hoses.
- .7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

- .2 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air, or vacuum cleaning.
- .3 Concrete floors must be prepared with Muriatic Acid to make porous and ready to accept clear sealant.
 - a. When using product, no substance should fall onto surrounding ground area
 - b. When finished using product, no substance should be washed away onto surrounding ground area. All waste is to be diluted with water and disposed of under the advisement of the Contract Administrator.
- .4 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.
- .5 Do not apply paint until prepared surfaces have been accepted by Contract Administrator.

3.5 APPLICATION

- .1 Method of application to be as approved by Contract Administrator. Apply paint by brush/ roller. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
 - .1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple unless approved by Contract Administrator.
 - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Contract Administrator. Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .5 Sand and dust between coats to remove visible defects.
- .6 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .7 Finish closets and alcoves as specified for adjoining rooms.
- .8 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6 MECHANICAL/ELECTRICAL EQUIPMENT

- .1 Unless otherwise specified, do not paint any mechanical or electrical equipment.
- .2 Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.

- .3 Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- .4 Do not paint over nameplates.
- .5 Keep sprinkler heads free of paint.
- .6 Do not paint interior transformers and substation equipment.

3.7 FIELD QUALITY CONTROL

- .1 Advise Contract Administrator when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

3.8 RESTORATION

- .1 Clean and re-install all hardware items removed before undertaken painting operations.

Remove protective coverings and warning signs as soon as practical after operations cease.

- .2 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .3 Protect freshly completed surfaces from paint droppings and dust to approval of Contract Administrator. Avoid scuffing newly applied paint.
- .4 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Contract Administrator.

END OF SECTION