

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 74 21 Construction/Demolition Waste Management And Disposal

1.02 REFERENCES

- .1 ASTM International
 - .1 ASTM E96/E96M-12 Standard Test Methods for Water Vapor Transmission of Materials
 - .2 ASTM D4060-10 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
 - .3 ASTM D4541-09e1 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
 - .4 ASTM C1028-07e1 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
 - .5 ASTM D523-08 Standard Test Method for Specular Gloss
- .2 Underwriters Laboratories of Canada
 - .1 CAN/ULC-S102.2 Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies
- .3 Health Canada – Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS)
- .4 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual – February 2004
 - .2 Standard GPS-1-05, MPI Green Performance Standard for Painting and Coatings
- .5 National Fire Code of Canada

1.03 QUALITY ASSURANCE

- .1 Qualification
 - .1 The Contractor must have at least five (5) years of experience in the execution of similar work, with references.
 - .2 The painting work must be done by workers qualified according to the regulations existing in the local market.

- .3 Apprentices can also be employed, on condition that they work under direct supervision of a qualified worker, in compliance with the regulation of that field of work.
- .4 Conform to the most recent requirements of the MPI relative to exterior painting work, including requirements regarding preparation of surfaces and the application of primer or sealer.
- .5 Conserve the purchases records, bills and documents that can be used to establish, to the Ministry representative, the conformity of work to the requirements of the MPI as specified.

1.04 DOCUMENTS/SAMPLES TO SUBMIT

- .1 Submit the required documents in compliance with the section 01 33 00 – Documents and samples to submit.
- .2 Technical data sheets
 - .1 Submit the technical data sheets required as well as the specifications and the documents of the manufacturer. The technical data sheets must indicate the characteristics of the products, the performance criterion, the dimensions, the constraints and the finishing.

1.05 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store and handle the painting products in compliance with the section 01 61 00 - Common product requirements.
 - .1 Transport and store painting products in their original containers, sealed and marked with a clear label.
 - .2 The labels must indicate:
 - .1 Name and address of manufacturer;
 - .2 Type of paint or primer;
 - .3 Conformity to relevant standards or requirements;
 - .4 Number of the color, according to the specified color list.
 - .3 Remove from the work site any damaged opened or refused products.
 - .4 Plan a storage area that is secure, dry and maintained at a controlled temperature and maintain it correctly.
 - .5 Handle and store the products according to manufacturer's recommendations.
 - .6 Store products and materials away from heat sources.
 - .7 Store products and materials in a well aired area, where the temperature is between 7°C and 30°C.

- .8 The storage temperature must never be inferior to the minimal temperature recommended by the manufacturer.
- .9 Remove from the storage area only the quantity of products that will be used that day.
- .2 Waste management and disposal
 - .1 Sort water in order to recycle in compliance with section 01 74 21 - Construction/demolition waste management and disposal.
 - .2 Paints, dyes, wood preservation products and other related products (diluent, solvents, etc.) must be treated as hazardous materials; therefore their disposal is subject to various regulations. The information regarding pertinent legislative measures can be obtained from the provincial ministries responsible for the environment and government organisations in the region.
 - .3 Products that cannot be reused must be treated as hazardous waste and be disposed of as such.
 - .4 Place products and materials deemed hazardous, including used adhesive tubes and containers and sealant products, in zones or containers designated for hazardous waste.
 - .5 In order to reduce ground or water and sanitary and rainwater sewer network contamination, rigorously follow the following directives:
 - .1 Conserve used washing water used in the case of painting and other water based products so as to allow for the collection of deposited material by filtration.
 - .2 Conserve cleaning products, diluents, solvents and paint surpluses in designated containers and dispose of them appropriately.
 - .3 Conserve rags that have absorbed oil and solvent over the course of painting work in order to recuperate contaminants and see that they are disposed of appropriately.
 - .4 Take the necessary dispositions to dispose of contaminants in compliance with the rules of hazardous waste disposal.
 - .5 Let empty paint containers dry before proceeding to their disposal or their recycling (in regions equipped with the appropriate installations)
 - .6 Where there exists a paint recycling service, gather all surpluses of paint, classify them by type and plan for their delivery to a collection or recycling facility.
 - .7 Put aside and protect surplus non-contaminated finishing products: Entrust the collection of these products to a responsible organisation that will reuse or transform the products and keep track of recycled quantities.
 - .8 Properly close and seal adhesive containers and sealer products that are partially used, store them at a moderate temperature in a well-ventilated area away from fire.

1.06 IMPLEMENTATION CONDITIONS

- .1 Ventilate closed areas.
 - .2 Before beginning painting work, verify that an adequate and continuous ventilation can be assured, and that the appropriate heating allows the temperature of the ambient air and of subject to be at 10°C 24 hours before the start of the work and to be maintained during the entire day of work and until the end of work when the paint is sufficiently hardened.
 - .3 As needed, assure continuous ventilation during seven (7) days following the end of work.
 - .4 Coordinate the usage of the existing ventilation system with the Ministry representative and, as needed, take the required measures in order to assure its functioning during and after the execution of work.
 - .5 Provide and temporarily install heating and ventilation devices necessary if the permanent systems cannot be used; if the permanent systems of the building do not satisfy minimal requirements, supply and install supplemental devices as required to respect these requirements.
- .2 Ambient temperature, relative humidity and moisture content of subject
- .1 Unless given a precise authorization by the contractual authority responsible for the technical specification, by the organisation of work inspection or by the manufacturer of the applied product, prior to commencement of work, do not proceed to begin painting work in presence of the following conditions:
 - .1 The temperature of the ambient air and that of the subject is less than 10 degrees Celsius.
 - .2 The temperature of the subject is more than 32 degrees Celsius, unless the paint to be applied is specifically formulated to be apply at such temperatures.
 - .3 A decrease in ambient air temperature and the subject temperature is predicted to go below the minimum stated by the MPI or by the pain manufacturer.
 - .4 Relative humidity is more than 85%.
 - .5 Snow or rain is forecasted before the paint has had the time to harden completely or if there is fog, mist, rain or snow on the site.
- .3 State of surfaces and implementation conditions
- .1 Proceed with the painting work in areas where the ambient air is exempt from suspended dust generated by construction work or particles blown by the wind or ventilation systems and susceptible to alter finished surfaces.
 - .2 Apply paint ti surfaces correctly prepared and in which the moisture content is located within the range specified in this section.

- .3 Apply paint when the previous layer is dry or sufficiently hardened.
- .4 Apply painting products when meteorological conditions for the entire day of work are in compliance with the manufacturer's recommendations.
- .5 Do not apply paint in presence of the following conditions:
 - .1 A decrease in ambient air temperature under 10 degrees Celsius is forecasted before the complete hardening of the paint.
 - .2 A decrease in ambient air temperature is forecasted under the limits set by the MPI or the pain manufacturer.
 - .3 Surfaces to be painted are humid, wet or frosted.
- .6 Provide shelter when paint is applied in cold or humid weather and maintain it properly. Heat the subjects and ambient air in order to respect temperature and humidity conditions recommended by the manufacturer. Protect the surfaces until the paint is dry or until the meteorological conditions are adequate.
- .7 Organise painting work so that surfaces exposed to direct sunlight are entirely painted early in the morning.
- .8 Remove paint from surfaces that have been exposed to frost, excessive humidity, rain, snow or condensation. Prepare these surfaces again and continue paint work.

2 PRODUCTS

2.01 MATERIALS

- .1 All products included in the painting system to be implemented must be supplied by the same manufacturer.

2.02 SPECIAL COATING PRODUCTS

- .1 System #2: Existing concrete floors: Water based epoxy covering, in compliance with these standards: Permeability ASTM E96, abrasion resistant ASTM D4060.
- .2 Finishing coat (non diluted) 5-7.4 m²/L per coat. For a maximum efficiency, the manufacturer recommends two coats.
- .3 Color RAL 7012 basalt grey

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Conformity: must conform to the requirements, recommendations and written specifications of the manufacturer, including technical bulletins, handling instructions, storage and the installation of products and to the indications of technical data sheets.

3.02 PROTECTION

- .1 Protection exterior building surfaces et neighboring structures that do not have to be painted against splatter, marks and other damage with non-dirty coverings or covering elements. If the surfaces in question are damaged, clean them and return them to their initial state according to the instructions from the Ministry representative.
- .2 Protect material and finished components in factory.
- .3 Before the start of paint work, remove visible hardware elements from door and all other accessories, fixings and materials installed on walls. Store these elements and reinstall them once painting work is complete.

3.03 APPLICATION

- .1 The method of application used must be approved by the Ministry representative. Apply the paint with a paint brush, a roller or an air pistol. Unless otherwise indicated, apply the product as directed by the manufacturer.
- .2 Application by paintbrush, brush and roller
 - .1 Apply a uniform coat of paint with a paintbrush and/or roller of the appropriate type.
 - .2 Make the paint penetrate the cracks, slits and corners of the elements.
 - .3 Apply paint with an air pistol, stamp or sheep skin on surfaces and on corners unreachable by brush or roller. Use a paint brush or brush, a stamp or sheep skin when it is impossible to paint certain surfaces or certain corners with a roller.
 - .4 Remove all runs and drips with a paintbrush, a brush or a roller and repass over the left marks. The surfaces painted by roller must be exempt of roller marks and paint surpluses unless approved by the Ministry representative.
 - .5 Remove all runs, drips and paint brush marks on finished surfaces and begin these surfaces again.
- .3 Application by air pistol
 - .1 Supply equipment designed for the results sought, that can correctly pulverize the product to be applied and mounted with appropriate pressure regulators and manometers. Maintain the equipment is good condition.
 - .2 During paint application, ensure an adequate mix of the ingredients in the container with a continuous mechanical agitation or by intermittent repeated agitation as required.
 - .3 Apply a uniform coat of paint, overlapping the previously painted coat.
 - .4 Immediately remove drips and runs with a paint brush.

- .5 Use paint brushes or brushes that allow paint to penetrate crack, slits and other difficult to reach places with an air pistol.
- .4 Use a stamp or sheep skin, or proceed by dipping if there are no other methods to paint difficult to reach places and this, only under explicit authorisation by the Ministry representative.
- .5 Apply each coat of paint so as to obtain a continuous film, of a uniform thickness. Repaint the stripped surfaces or surface covered with a thin film before applying the next coat.
- .6 Let the surfaces dry and harden after cleaning and between each successive coat, waiting the minimum amount of time as recommended by the manufacturer.
- .7 Buff and dust the surfaces between each layer in order to eliminate defects.
- .8 Finish surfaces that are under and over vision lines in compliance with application prescription for neighboring surfaces, including protruding elements.
- .9 Finish the top, the bottom, the edges and the doorway openings according to the application prescriptions for doorway facings after they have been adjusted.

3.04 ON-SITE QUALITY CONTROL

- .1 On-site inspections for exterior painting work will be carried out by the Ministry representative.
- .2 Inform the Ministry representative when a surface and its surfaces are ready to be inspected. Do not apply the next coat before the previous coat has been inspected.

3.05 CLEANING

- .1 Carry out cleaning work in compliance with section 01 74 11 - Cleaning
 - .1 Remove drips, runs, splatter as well as surpluses of pulverized paint as work advances using material and methods that will not damage the finish of surfaces.

3.06 RESTORATION OF SITE

- .1 Clean and put back into place all hardware that was removed in order to facilitate painting.
- .2 Remove protections and warning signs as soon as possible after the completion of work.
- .3 Remove splatter on all apparent surfaces that have not been painted. Remove drips and spills as they happen with a compatible solvent.
- .4 Protect freshly painted surfaces against drips and dust, to the satisfaction of the Ministry representative in order to avoid scraping newly finished surfaces.
- .5 Restore rooms used as storage, mixing and handling of paints as well as cleaning tools and equipment used to their original state to the satisfaction of Ministry representative.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 08 11 00 Metal doors and frames.

1.02 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - [February 2004].
 - .2 Standard GPS-1-[05], MPI Green Performance Standard for Painting and Coatings.
- .3 National Fire Code of Canada.
- .4 Society for Protective Coatings (SSPC)
 - .1 Systems and Specifications, SSPC Painting Manual [2005].

1.03 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Contractor: to have a minimum of five years proven satisfactory experience.
 - .2 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work
 - .3 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.
 - .4 Conform to latest MPI requirements for exterior painting work including preparation and priming.
 - .5 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:
 - .1 Deliver and store materials in original containers, sealed, with labels intact.
 - .2 Labels: to 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.
 - .5 Observe manufacturer's recommendations for storage and handling.
 - .6 Store materials and supplies away from heat generating devices.
 - .7 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
 - .8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
 - .9 Remove paint materials from storage only in quantities required for same day use.
- .2 Waste Management and Disposal:
- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .2 Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.
 - .3 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
 - .4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
 - .5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
 - .1 Retain cleaning water for water-based materials to allow sediments to be filtered out.
 - .2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - .3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - .4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
 - .5 Empty paint cans are to be dry prior to disposal or recycling (where available).
 - .6 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.
 - .7 Set aside and protect surplus and uncontaminated finish materials. Deliver to or arrange collection by organizations for verifiable re-use or re-manufacturing.
 - .8 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

1.06 AMBIENT CONDITIONS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces.
 - .2 Do not perform painting work unless adequate and continuous ventilation and sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .3 Where required, provide continuous ventilation for seven days after completion of application of paint.
 - .4 Co-ordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.

- .5 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.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .2 Substrate temperature is over 32 degrees C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
 - .4 Relative humidity is above 85 %.
 - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
- .3 Surface and Environmental Conditions:
 - .1 Apply paint finish 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 to adequately prepared surfaces and to surfaces within moisture limits noted herein.
 - .3 Apply paint when previous coat of paint is dry or adequately cured.
 - .4 Apply paint finishes 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 degrees 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.

2 PRODUCTS

2.01 MATERIALS

- .1 Paint materials for paint systems: to be products of single manufacturer.
- .2 Used paints in compliance with ONGC for finishing products.

2.02 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 Selection of colours will be from manufacturers full range of colours.
- .3 Perform colour tinting operations prior to delivery of paint to site.
- .4 Door's frame shall be the same color as doors.

2.03 EXTERIOR PAINTING

- .1 System 1: Steel works, steel exterior doors and frames to be painted.
 - .1 Sealing primer coat in compliance with CAN/CGSB-1.119.
 - .2 2 coats of paint in compliance with CAN/CGSB-1.209.Flat finish. Color to be chose by Departmental representative.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 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 Departmental Representative.
- .2 Protect factory finished products and equipment.
- .3 Remove light fixtures, surface hardware on doors, and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations.Store items and re-install after painting is completed.

3.03 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, air sprayer. 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 Departmental Representative.
 - .5 Remove runs, sags and brush marks from finished work and repaint.

- .3 Spray Application:
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
 - .4 Brush out immediately runs and sags.
 - .5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.
- .4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Departmental Representative.
- .5 Apply coats of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.
- .9 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.
- .5 Paint steel electrical light standards. Do not paint outdoor transformers and substation equipment.

3.04 FIELD QUALITY CONTROL

- .1 Inspection:
 - .1 Field inspection of exterior painting operations to be carried out by independent inspection firm as designated by Departmental Representative.
 - .2 Advise Departmental Representative when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

3.09 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

3.10 RESTORATION

- .1 Clean and re-install hardware items removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION