

PART 1 - GENERAL

<u>1.1 SECTION INCLUDES</u>	<ul style="list-style-type: none">.1 Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to limits defined under MPI Repainting Maintenance Manual requirements..2 Specific pre-treatments noted herein or specified in the MPI Repainting Maintenance Manual..3 Sealing/touch-up, spot priming, and/or full priming surfaces for repainting in accordance with MPI Repainting Maintenance Manual requirements.
<u>1.2 RELATED SECTIONS</u>	<ul style="list-style-type: none">.1 Section 01 33 00 - Submittal Procedures..2 Section 01 45 00 - Quality Control..3 Section 01 61 00 - Common Product Requirements..4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal..5 Section 01 78 00 - Closeout Submittals.
<u>1.3 REFERENCES</u>	<ul style="list-style-type: none">.1 Maintenance Repainting Manual by the Master Painters Institute (MPI), including Identifiers, Evaluation, Systems, Preparation and Approved Product List..2 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA)..3 National Fire Code of Canada.
<u>1.4 QUALITY ASSURANCE</u>	<ul style="list-style-type: none">.1 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 applicable trade regulations..2 Conform to latest MPI requirements for exterior repainting work including cleaning, preparation and priming..3 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with the latest edition of the MPI Approved Product List and shall be from a single manufacturer for each system used..4 Paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Maintenance Repainting Manual and shall be compatible with other coating materials as required..5 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental representative.

<u>1.4 QUALITY ASSURANCE (Cont'd)</u>	.6	Standard of Acceptance: When viewed using natural prevailing sunlight at peak period of the day (mid-day) on surface viewed, surfaces shall indicate the following: .1 Surfaces: No defects visible from a distance of 1000 mm at 90° to surface. .2 Final coat to exhibit uniformity of colour and sheen across full surface area.
<u>1.5 ENVIRONMENTAL PERFORMANCE REQUIREMENTS</u>	.1	Provide paint products meeting MPI "Environmentally Friendly" E1 ratings based on VOC (EPA Method 24) content levels.
<u>1.6 SCHEDULING OF WORK</u>	.1	Paint occupied facilities in accordance with approved schedule.
	.2	Schedule repainting operations to prevent disruption by other trades if applicable and by occupants in and about the building.
<u>1.7 SUBMITTALS</u>	.1	Submittals shall be in accordance with the requirements of Section 01 33 00 - Submittal Procedures.
	.2	Submit colour matching existing paint sample chips for review and confirmation.
	.3	Submit product data and manufacturer's installation/application instructions for paints and coating products to be used.
	.4	Submit WHMIS Material Safety Data Sheets (MSDS) for paints and coating materials to be used.
	.5	Upon completion, submit records of products used. List products in relation to finish system and include the following: .1 Product name, type and use (i.e. materials and location). .2 Manufacturer's product number. .3 Colour code numbers. .4 MPI Environmentally Friendly classification system rating. .5 Manufacturer's Material Safety Data Sheets.
<u>1.8 DELIVERY, HANDLING AND STORAGE</u>	.1	Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
	.2	Deliver and store materials in original containers, sealed, with labels intact.
	.3	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.
	.4	Remove damaged, opened and rejected materials from site.
	.5	Observe manufacturer's recommendations for storage and handling.
	.6	Store materials and equipment in a secure, dry, well-ventilated area with temperature range between 7°C to 30°C. Store materials and supplies away from heat generating

**1.8 DELIVERY,
HANDLING AND
STORAGE
(Cont'd)**

- .6 (Cont'd)
devices and sensitive products above minimum temperature as recommended by manufacturer.
- .7 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental representative. Upon completion of operations, return areas to clean condition to approval of Departmental representative.
- .8 Remove paint materials from storage in quantities required for same day use.
- .9 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
- .10 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.

**1.9 SITE
REQUIREMENTS**

- .1 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer.
 - .2 Do not perform repainting work when:
 - .1 Ambient air and substrate temperatures are below 10°C.
 - .2 Substrate temperature is over 32°C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are expected to fall outside paint manufacturer's prescribed limits.
 - .4 Relative humidity is above 85% or when dew point is less than 3°C variance between air/surface temperature.
 - .5 Rain or snow is forecast to occur before paint has thoroughly cured.
 - .6 It is foggy, misty, raining or snowing at site.
 - .3 Conduct moisture tests using a properly calibrated electronic Moisture Meter, except test existing painted concrete floors for moisture using a simple "cover patch test".
- .2 Application Requirements:
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind conditions are such that airborne particles will 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, unless otherwise pre-approved by specific coating manufacturer.
 - .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°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

**1.9 SITE
REQUIREMENTS
(Cont'd)**

- .2 Application Requirements:(Cont'd)
 - .6 (Cont'd)
conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
 - .7 Schedule repainting 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.

**1.10 WASTE
MANAGEMENT AND
DISPOSAL**

- .1 Separate and recycle waste materials 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 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 Materials that 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. In no case shall equipment be cleaned using free draining water.
 - .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 Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
- .6 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Paint materials listed in the latest edition of the MPI Approved Product List (APL) are acceptable for use on this project.
- .2 Where required by authorities having jurisdiction, paints and coatings shall provide a fire resistant rating.
- .3 Paint materials for repaint systems shall be products of a single manufacturer.
- .4 Only qualified products with E1 MPI "Environmentally Friendly" rating are acceptable for use on this project.
- .5 Paints and coatings must be manufactured and transported in a manner that steps of processes, including disposal of waste products arising therefrom, will meet requirements of applicable governmental acts, by-laws and regulations including, for facilities located in Canada, Fisheries Act and Canadian Environmental Protection Act (CEPA).
- .6 Paints and coatings must not be formulated or manufactured with formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.
- 2.2 COLOURS .1 All colours are to match existing pipe colour. Provide shop drawings indicating paint selection to suit existing for Departmental representative approval.
- 2.3 EXTERIOR PAINTING SYSTEMS .1 Paint exterior surfaces in accordance with the following MPI Painting Specification Manual Requirements:
- .1 Steel heat exchangers and pipes with temperature range as noted:
- .1 EXT 5.2A - Heat resistant enamel finish, maximum 205°C.

PART 3 - EXECUTION

- 3.1 GENERAL .1 Perform preparation and operations for exterior painting in accordance with MPI Maintenance Repainting requirements except where specified otherwise.
- .2 Apply paint materials in accordance with paint manufacturer's written application instructions.
- 3.2 EXISTING CONDITIONS .1 Prior to commencing work, thoroughly examine site conditions and existing exterior substrates to be repainted and report in writing to Departmental representative damages, defects, unsatisfactory or unfavourable conditions of surfaces that will adversely affect this work.
- .2 No repainting work shall commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to the Painting Subcontractor and Inspection Agency. Commencement of work shall not be held to imply acceptance of surfaces except as qualified herein.

**3.2 EXISTING
CONDITIONS**
(Cont'd)

- .3 Degree of surface deterioration (DSD) shall be assessed using MPI Identifiers and Assessment criteria indicated in the MPI Maintenance Repainting Manual.

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 Departmental Representative.

**3.4 CLEANING AND
PREPARATION**

- .1 Clean and prepare exterior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
- .1 Remove dust, dirt, and surface debris by brushing, 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 surface contaminants.
 - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Use trigger operated spray nozzles for water hoses.
 - .5 Allow surfaces to drain completely and to dry thoroughly.
 - .6 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.
 - .7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or such organic solvents to clean up water-based paints.
- .2 Where required, pressure wash exterior surfaces prior to repainting in accordance with MPI standards for type of surfaces and recommended pressures to ensure complete removal of loose paint, stains, dirt, and foreign matter. This work to be carried out by qualified tradesman experienced in pressure water cleaning. Use of spray equipment such as water hose cleaning will not be considered satisfactory unless specified herein. Allow sufficient drying time and test surfaces using an electronic moisture meter before commencing work.
- .3 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminants from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.
- .4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
- .5 Do not apply paint until prepared surfaces have been accepted by Departmental representative.
- .6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects from previously painting (e.g. runs, sags, etc.) that are visible from a distance up to 1000 mm.

3.5 APPLICATION

- .1 Apply paint by method that is best suited for substrate being repainted using brush. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush Application:
 - .1 Apply paint in a uniform layer using brush of types suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Brush out runs and sags, and over-lap marks.
 - .4 Remove runs, sags and brush marks from finished work and repaint.
- .3 Apply paint coats in a continuous manner and allow surfaces to dry and properly cure between coats for minimum time period as recommended by manufacturer. Minimum dry film thickness of coats shall not be less than that recommended by the manufacturer. Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Sand and dust between coats to remove visible defects.
- .5 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.

3.6 CLEAN-UP

- .1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.
- .2 Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.
- .3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.
- .4 Clean equipment and dispose of wash water used for water borne materials, solvents used for oil based materials as well as cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers / strippers in accordance with the safety requirements of authorities having jurisdiction and as noted herein.
- .5 Painting equipment shall be cleaned in leak-proof containers that will permit particulate matter to settle out and be collected. Sediment remaining from cleaning operations shall be disposed of in a manner acceptable to authorities having jurisdiction.
- .6 Paint and coatings in excess of repainting requirements shall be recycled as noted herein.

3.7 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 affected exposed surfaces. 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.