

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies requirements for shop application of protective coatings to galvanized light towers. This section also includes requirements for touch-up on site to light tower coated surfaces damaged during transit or construction.
- 1.2 RELATED REQUIREMENTS .1 High Mast Lighting: Section 26 56 19
- 1.3 REFERENCES .1 ASTM B117-11, Standard Practice for Operating Salt Spray (Fog) Apparatus.
- .2 ASTM A153/A153M-09, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .3 ASTM D523-08, Standard Test Method for Specular Gloss.
- .4 ASTM D3359-09e2, Standard Test Methods for Measuring Adhesion by Tape Test.
- .5 ASTM D4585-07, Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation
- .6 National Fire Code of Canada, 2010.
- .7 Society for Protective Coatings (SSPC)  
.1 Systems and Specifications, SSPC Painting Manual 2005.
- 1.4 QUALITY ASSURANCE .1 Retain protective coating specialist to perform independent inspection and certification of Work. Refer to Part 3 of this section.
- .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 Retain purchase orders, invoices and documents to prove conformance with noted requirements when requested by Departmental Representative.
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| <u>1.4 QUALITY ASSURANCE (Cont'd)</u>          | .5 | Standard of Acceptance: <ul style="list-style-type: none"><li>.1 No defects visible from a distance of 500 mm at 90 degrees to surface.</li><li>.2 Final coat and band coat to exhibit uniformity of colour and uniformity of sheen across full surface area.</li><li>.3 Approved certificate of Work.</li></ul>  |
| <u>1.5 SCHEDULING</u>                          | .1 | Submit Work schedule for various stages of painting to Departmental Representative for approval. Submit schedule minimum of 72 hours in advance of proposed operations.   |
|  | .2 | Obtain written authorization from Departmental Representative for changes in work schedule.   |
|  | .3 | Schedule site painting operations to prevent disruption to operations.  |
| <u>1.6 ACTION AND INFORMATIONAL SUBMITTALS</u> | .1 | Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.  |
|  | .2 | Product Data: <ul style="list-style-type: none"><li>.1 Submit manufacturer's printed product literature, specifications and datasheets and include product characteristics, performance criteria, physical size, finish and limitations.</li><li>.2 Submit WHMIS MSDS - Material Safety Data Sheets for all coating products.</li></ul>   |
|  | .3 | Upon completion, submit records of products used. List products in relation to finish system and include the following: <ul style="list-style-type: none"><li>.1 Product name, type and use.</li><li>.2 Manufacturer's product number.</li><li>.3 Colour numbers.</li><li>.4 Manufacturer's Material Safety Data Sheets (MSDS).</li></ul>   |
|  | .4 | Provide samples in accordance with Section 01 33 00 - Submittal Procedures. <ul style="list-style-type: none"><li>.1 Submit duplicate 400 x 300 mm sample panel with specified coating system in colours, gloss/sheen and textures required. On a 3 mm galvanized plate steel panel. Paint band coat on one-half of panel's surface area.</li><li>.2 When approved, samples become acceptable standard of quality for appropriate on-site surface with one sample retained on-site.</li></ul> |
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1.7 DELIVERY,  
STORAGE AND  
HANDLING

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- .1 Deliver, store and handle site-applied touch up materials 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 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.
    - .10 Remove materials from storage only in quantities required for same day use.
    - .11 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
    - .12 Fire Safety Requirements:
      - .1 Provide one (1) 9 kg dry chemical 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.
  - .2 Waste Management and Disposal:
    - .1 Coating system 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.
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1.7 DELIVERY,  
STORAGE AND  
HANDLING  
(Cont'd)

- .2 Waste Management and Disposal:(Cont'd)
  - .2 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
  - .3 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
  - .4 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures must 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 containers are to be dry prior to disposal or recycling (where available).
  - .5 Close and seal tightly partly used containers and store protected in well ventilated fire-safe area at moderate temperature.

1.8 AMBIENT  
CONDITIONS  
                    

- .1 Work within ambient conditions as recommended by coating manufacturer and as specified further below.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
  - .1 Unless specifically approved by Departmental Representative, perform no site 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 manufacturer's prescribed limits.
    - .4 Relative humidity is above 85 % or when dew point is less than 3 degrees C variance between air/surface temperature.
    - .5 Rain or snow are forecast to occur before coating has thoroughly cured or when it is foggy, misty, raining or snowing at site.

1.8 AMBIENT  
CONDITIONS  
(Cont'd)

- .3 Surface and Environmental Conditions:
- .1 Apply coatings 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 coatings to adequately prepared surfaces and to surfaces within moisture limits noted herein.
  - .3 Apply coating when previous coating is dry or adequately cured.
  - .4 Apply finishes when conditions forecast for entire period of application fall within manufacturer's recommendations.
  - .5 Do not apply 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 manufacturer's limits.
    - .3 Surface to be painted is wet, damp or frosted.
  - .6 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 coating from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and recoat.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 High durability coating system to be suitable for application to galvanized steel light tower assemblies consisting of parts classified under ASTM A153 B1 through B3, formulated of the following components:
- .1 Primer: vinyl wash primer suitable for use as primer to epoxy sealer.
  - .2 Sealer: two-component polyamide adduct-cured high-solids epoxy intended for application to vinyl wash primer, suitable for use as undercoat for fluorourethane finishes, DFT 50 microns +/- 10 microns.
  - .3 First coat: two-component fluorourethane, DFT 60 microns +/- 10 microns.
  - .4 Second coat: two-component fluorourethane, DFT 60 microns +/- 10 microns.
  - .5 Pigmented band coat: two-component fluorourethane, DFT 60 microns +/- 10 microns.

2.1 MATERIALS  
(Cont'd)

- .2 Coating durability:
  - .1 ASTM B117 Salt fog: no visible effect after 2,000 hours.
  - .2 ASTM D3359 resistance to peeling: class 5B.
  - .3 ASTM D4585 humidity resistance: no visible effect after 3,000 hours.
- .3 Colours to Departmental Representative's satisfaction and as follows:
  - .1 Primer: to contrast to sealer.
  - .2 Sealer: light shade as available from manufacturer.
  - .3 First coat: CAR 2011-2 FED-STD-595B white, number 17875.
  - .4 Second coat: CAR 2011-2 FED-STD-595B white, number 17875
  - .5 Pigmented band coat: CAR 2011-2 FED-STD-595B orange, number 12197, allow for further colour matching to satisfaction of Departmental Representative.
  - .6 Gloss: ASTM D523 high Gloss Value 80 plus.
  - .7 Alternate pigmented bond coat to Transport Canada Standard 619.
- .4 All components to be products of one (1) manufacturer. Provide certificate of coating system application suitability and compatibility from manufacturer to satisfaction of Departmental Representative.
- .5 Standard of acceptance:
  - .1 Carboline:
    - .1 Primer: As recommended by manufacturer.
    - .2 Sealer: Carboguard 888.
    - .3 Coats: Carboxane 950.
  - .2 Induron:
    - .1 Primer: Induron Vinyl Wash Primer.
    - .2 Sealer: Permaclean High Gloss Epoxy.
    - .3 Coats: Permagloss Fluorourethane.
- .6 Coating material systems: must be products of single manufacturer.

PART 3 - EXECUTION

- 3.1 MANUFACTURER'S INSTRUCTIONS .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.
- 3.2 EXAMINATION .1 Paint or coating manufacturer to provide as part of work, certification of surfaces and shop conditions for specific paint or coating system application at no additional cost to Departmental Representative.
- 3.3 PREPARATION .1 Perform shop preparation and operations for painting in accordance with coating system manufacturer's directions.
- .2 Apply paint in controlled shop environment specifically configured to suit coating manufacturer's application instructions.
- .3 Clean galvanized metal surfaces to be painted by removing imperfections, dirt, oil, grease and foreign substances in accordance with paint manufacturer's directions.
- .4 Shop prepare galvanized surfaces using approved vinyl wash primer.
- .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .6 Apply paint materials in accordance with paint manufacturer's written application instructions.
- 3.4 PROTECTION .1 Protect shop finished coatings and equipment from damage in transit to site.
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- 3.5 SHOP APPLICATION
- .1 Apply coatings in controlled shop conditions in accordance with manufacturer's directions.
  - .2 Provide certification from approved independent Protective Coatings specialist accredited by the National Association of Corrosion Engineers (NACE). The independent inspection firm shall perform coatings inspection and forward a copy of the inspection report to the Departmental Representative at no extra cost.
- 3.6 FIELD QUALITY CONTROL
- .1 Touch up damage to coating system incurred during transit or construction in accordance with coating manufacturer's directions and to satisfaction of Departmental Representative.
- 3.7 CLEANING
- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
    - .1 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.