

PART 1 - GENERAL

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| <u>1.1 RELATED SECTIONS</u> | .1 | Section 01 33 00 - Submittal Procedures. |
| | .2 | Section 01 35 29.06 - Health and Safety Requirements. |
| | .3 | Section 01 45 00 - Quality Control. |
| | .4 | Section 01 61 00 - Common Product Requirements. |
| | .5 | Section 01 74 21 - Construction/Demolition Waste Management and Disposal. |
| | .6 | Section 01 78 00 - Closeout Submittals. |
| <u>1.2 REFERENCES</u> | .1 | Department of Justice (Jus)
.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33. |
| | .2 | Environmental Protection Agency (EPA)
.1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings). |
| | .3 | Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS). |
| | .4 | The Master Painters Institute (MPI)
.1 MPI Architectural Painting Specification Manual, 2004. |
| | .5 | National Fire Code of Canada - 2010. |
| | .6 | Society for Protective Coatings (SSPC)
.1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual. |
| | .7 | Transport Canada (TC)
.1 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34. |
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1.3 MEASUREMENT
PROCEDURES

- .1 Cleaning and preparation of structural steel and components, supply of paint, application of paint and incidental work will be measured as a unit price for square unit area.

1.4 QUALITY
ASSURANCE

- .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 trade regulations.
- .2 Conform to latest MPI requirements for exterior painting work including preparation and priming.
- .3 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
- .4 Standard of Acceptance:
 - .1 Surfaces: No defects visible from a distance of 1000 mm at 90 degrees to surface.
 - .2 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
- .5 Manufacturer's Obligations:
 - .1 The manufacturer shall play an active role in the application of their product during the period of this contract.
 - .2 The manufacturer shall be represented at all relevant meetings by a qualified technical representative, trained as a paint inspector.
 - .3 The technical representative shall be approved by the Departmental Representative.
 - .4 The project shall be subdivided into "Sector's of Work".
 - .5 A minimum of three inspections per section from the manufacturer's representative must be made prior to and during application of this work to ensure proper application.

1.4 QUALITY
ASSURANCE
(Cont'd)

- .5 (Cont'd)
- .6 After each visit provide a written report to the Departmental Representative and General Contractor within 5 working days.
- .6 Pre-Installation Meeting: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions, and manufacturer's warranty requirements. Representative from paint manufacturer shall be present at meeting.

1.5 INSPECTION
REQUIREMENTS

- .1 Exterior painting work shall be inspected by the manufacturer's trained technical representative (Inspector) acceptable to the specifying authority and Departmental Representative. Painting contractor shall notify the Inspector a minimum of one week prior to commencement of work and provide a copy of project painting specification (including pertinent details) as well as a Finish Schedule.
- .2 Exterior surfaces requiring painting shall be inspected by the Inspector who shall notify Departmental Representative and General Contractor in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.

1.6 SCHEDULING

- .1 Submit work schedule for various stages of painting to Departmental Representative for approval. Submit schedule minimum of 48 hours in advance of proposed operations.
 - .2 Obtain written authorization from Departmental Representative for changes in work schedule.
 - .3 Schedule painting operations to prevent disruption of other trades.
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1.7 SUBMITTALS

- .1 Submit product data and manufacturer's installation/application instructions for paints and coating products to be used in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit WHMIS MSDS - Material Safety Data Sheets.
- .3 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).
- .4 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .5 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.8 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.
- .3 Submit full range of available colours where colour availability is restricted.

1.9 QUALITY CONTROL

- .1 Provide mock-up in accordance with Section 01 45 00 - Quality Control.

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- 1.9 QUALITY CONTROL (Cont'd)
- .2 When requested by Departmental Representative prepare and paint designated surface, or item (in each colour scheme) to requirements specified herein, with specified paint or coating showing selected colours, gloss/sheen, textures and workmanship to MPI Painting Specification Manual standards for review and approval. When approved, surface, and/or items shall become acceptable standard of finish quality and workmanship for similar on-site work.
- 1.10 EXTRA MATERIALS
- .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Submit two - four litre cans of each type and colour of finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
- 1.11 DELIVERY, STORAGE AND HANDLING
- .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 Provide and maintain dry, temperature controlled, secure storage.
- .6 Observe manufacturer's recommendations for storage and handling.
- .7 Store materials and supplies away from heat generating devices.
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1.11 DELIVERY,
STORAGE AND
HANDLING
(Cont'd)

- .8 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
- .9 Store temperature sensitive products above minimum temperature as recommended by manufacturer.
- .10 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.
- .11 Remove paint materials from storage only in quantities required for same day use.
- .12 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
- .13 Fire Safety Requirements:
 - .1 Provide one 9 kg Type ABC 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.

1.12 SITE
REQUIREMENTS

- .1 Heating, Ventilation and Lighting:
 - .1 Ventilate enclosed spaces.
 - .2 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 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.

1.12 SITE
REQUIREMENTS
(Cont'd)

- .1 (Cont'd)
 - .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.
 - .6 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted.
- .2 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 only 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.

1.12 SITE
REQUIREMENTS
(Cont'd)

- .2 (Cont'd)
 - .8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

1.13 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 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 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.
 - .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.

1.13 WASTE
MANAGEMENT AND
DISPOSAL
(Cont'd)

- .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.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Qualified products: paint materials listed in this specification are acceptable for use on this project.
- .2 Paint materials for paint systems shall be products of single manufacturer.

2.2 COLOURS

- .1 Departmental Representative will provide Colour Schedule after Contract award.
- .2 Selection of colours will be from manufacturers full range of colours.
- .3 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.
- .4 Finished product will be one colour.

2.3 EXTERIOR
PAINTING SYSTEMS
FOR EXPOSED
STRUCTURAL STEEL

- .1 The following exterior paint formula types are based on the following manufacturer's products:
 - .1 Ameron Coatings.
 - .2 Sherwin-Williams.
 - .3 International ICI Devoe.
- .2 Paint: For all existing steel counterweight blocks, new and existing steel beams as specified including bearing plates and stiffeners, and all other new structural steel members and connections.

2.3 EXTERIOR
PAINTING SYSTEMS
FOR EXPOSED
STRUCTURAL STEEL
(Cont'd)

- .2 (Cont'd)
- .1 A three coat zinc, epoxy, urethane ISO 12944 approved system of Category C5M or greater than 15 years is required. Unexposed interfaces between counterweight steel to have zinc rich primer only. This system shall be applied in shop following the necessary level of surface preparation.
- .2 Codes and Standards: All painting of steelwork shall meet the requirements of Steel Structures Painting Manual, Volume 2, "Systems and Specifications" as published by the Steel Structures Painting Council.
- .3 Surface Preparation: Remove all existing delaminated and weathered paint systems. All areas to be coated shall be dry abrasive blasted to a Steel Structures Painting Council Standard SSPC. SP 10 for a Near White Blast.
- .4 Coating System:
- .1 Primer: The primer shall consist of one coat of zinc rich epoxy applied by spray to a dry film thickness of 3 mils. (Note a brush or roller applied stripe coat of the top coat must be done on all edges and welds prior to the application of the topcoat).
- .2 Mid coat: The intermediate coating shall be a self-priming, two-component, high-build epoxy. The coating shall be compatible with zinc primers, catalyzed epoxies, catalyzed phenols or other coatings, as recommended by the coating manufacturer. Apply by spray to a dry film thickness of 4 mils. Colour to be tinted different from primary and top coat.

2.3 EXTERIOR
PAINTING SYSTEMS
FOR EXPOSED
STRUCTURAL STEEL
(Cont'd)

.2 (Cont'd)

.4 (Cont'd)

.3 Top Coat: The top coat shall be a two-component, high solids, high build, spray applied, satin or semi-gloss aliphatic acrylic polyurethane finish that is highly resistant to weather, abrasion, corrosive fumes, splash and spillage of acids, alkalies, solvents, salts and water. It shall provide hiding when applied in a single coat directly over an epoxy film and shall provide longterm colour and gloss retention. The coating shall be co-compatible with zinc primers, catalyzed epoxies, catalyzed phenols or other overcoats, as recommended by the coating manufacturer. Urethane coat applied at 2mils. Colour to match colour standards supplied by Departmental Representative and approved prior to application.

.4 Note: Tolerances, in terms, of thickness, should be in accordance with SSPC Standard P.A. 2. In particular excessive film build shall be avoided.

.5 Touch Up: All damaged areas shall be power tool cleaned in accordance with SSPC. SP 11, primed with 4-5 mils of primer surface tolerant epoxy and top coat in accordance with the original specification.

.6 Inspection: All coated steel shall have the dry film thickness verified by inspection with a Positector or similar dry film thickness testing device.

.7 All of the above products shall be applied in accordance with the product specification and manufacturer's application instructions.

PART 3 - EXECUTION

3.1 GENERAL

.1 Perform preparation and operations for exterior painting in accordance with MPI Painting Specifications Manual except where specified otherwise.

3.1 GENERAL
(Cont'd)

- .2 Apply paint materials in accordance with paint manufacturer's written application instructions, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 EXISTING
CONDITIONS

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative 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 Departmental Representative. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- .3 Precaution should be taken when removing loose and rusted existing paint from metal surfaces.
- .4 Conduct testing to determine existence of lead base paint.
- .5 If lead exists, stop work and report findings to Departmental Representative.

3.3 PROTECTION

- .1 Protect 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 items that are permanently attached such as Fire Labels.

3.3 PROTECTION
(Cont'd)

- .3 Supply, erect and maintain an environmental protection system approved by the Departmental Representative to prevent any paints, paint flakes, primers, blasting abrasives, rust, solvents, degreasers, or other waste material from entering the water course.
- .4 All work shall comply with the guidelines specified within the Department of Fisheries and Oceans Canada Newfoundland and Labrador Operational Statement for Bridge Maintenance.

3.4 CLEANING AND
PREPARATION

- .1 Clean and prepare exterior surfaces in accordance with MPI Painting Specification Manual requirements. Refer to the MPI Manual in regard to specific requirements.
- .2 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 remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .3 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 m.
- .4 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 brushing/vacuum cleaning.
- .5 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.

3.4 CLEANING AND
PREPARATION
(Cont'd)

- .6 Do not apply paint until prepared surfaces have been accepted.
 - .7 New metal surfaces.
 - .1 Clean surfaces of new metal to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and foreign substances in accordance with the following:
 - .1 Near White Blast Cleaning:
SSPC-SP-10 (Steel Structures Painting Council).
 - .8 Existing paint system contains lead. Conduct lead-based paint abatement.
 - .9 Metal surfaces to be repainted:
 - .1 Clean surfaces by removing loose, cracked, brittle or non-adherent paint, rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with following:
 - .1 Near White Blast Cleaning:
SSPC-SP-10.
 - .2 Commercial blast clean rusted and bare metal surfaces where existing paint system has failed.
 - .3 Brush-off blast clean remaining metal surfaces to be painted.
 - .4 Scrape edges of old paint back to sound material where remaining paint is thick and sound, feather exposed edges.
 - .10 Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, by blowing with clean dry compressed air, or by vacuum cleaning.
 - .11 Compressed air to be free of water and oil before reaching nozzle.
 - .12 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.
 - .13 Prior to commencing paint application the degree of cleanliness of surfaces to be in accordance with SSPC-Vis 1.
 - .14 Protection of surfaces.
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3.4 CLEANING AND
PREPARATION
(Cont'd)

- .14 (Cont'd)
- .1 Protect surfaces not to be painted and if damaged, clean and restore such surfaces as directed by Departmental Representative.
 - .2 Apply primer, paint, or pretreatment after surface has been cleaned and before deterioration of surface occurs.
 - .3 Clean surfaces again if rusting occurs after completion of surface preparation.
 - .4 prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats of paint. Remove contaminants from surface and apply paint immediately.
- .15 Mixing paint.
- .1 Do not dilute or thin paint for brush application; use as received from manufacturer.
 - .2 Mix ingredients in container before and during use and ensure breaking up of lumps, complete dispersion of settled pigment, and uniform composition.
 - .3 Do not mix or keep paint in suspension by means of air bubbling through paint.
 - .4 Thin paint for spraying according to manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative.

3.5 APPLICATION

- .1 Method of application to be as approved by Departmental Representative. Apply paint by brush, roller, or sprayer. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Use dipping or roller coating method of application when specifically authorized by Departmental Representative in writing.
- .3 Caulk open seams at contact surfaces of built up members with material approved by Departmental Representative, before second undercoat of primer is applied.
- .4 Where surface to be painted is not under cover, do not apply paint when:

3.5 APPLICATION
(Cont'd)

- .4 (Cont'd)
 - .1 Air temperature is below 5 degrees C or when temperature is expected to drop to 0 degrees C before paint has dried.
 - .2 Temperature of surface is over 50 degrees C unless paint is specifically formulated for application at high temperatures.
 - .3 Fog or mist occur at site; it is raining or snowing; there is danger of rain or snow; relative humidity is above 85%.
 - .4 Surface to be painted is wet, damp or frosted.
 - .5 Previous coat is not dry.
 - .5 Provide cover when paint must be applied in damp or cold weather. protect, shelter, or heat surface and surrounding air to comply with temperature and humidity conditions specified in 3.5.4 above. protect until paint is dry or until weather conditions are suitable.
 - .6 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.
 - .7 Apply each coat of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
 - .8 Brush and Roller Application:
 - .1 Apply paint in a uniform layer using a 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.
 - .9 Spray Application:
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3.5 APPLICATION
(Cont'd)

- .9 (Cont'd)
- .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 that are not adequately painted by spray.
- .10 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Departmental Representative.
- .11 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .12 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .13 Sand and dust between coats to remove visible defects.
- .14 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.

3.6 FIELD QUALITY
CONTROL

- .1 Field inspection of exterior painting operations to be carried out by manufacturer's trained technical 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.

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| 3.6 FIELD QUALITY CONTROL
(Cont'd) | .3 | Upon completion of the painting procedures, test for dry film reading and evaluate the results as per SSPC PA2. |
| | .4 | Co-operate with Inspector and provide access to areas of work. |