Consultant for Building Code Review: Blanchard Letendre Engineering Ltd.
Issued for Tender
Professional Engineer of Ontario Seal:

END OF SECTION

SPECIFICATIONS

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END OF SECTION

Part 1 General

1.1 SUMMARY OF WORK

.1 Work under this contract consist of

- .1 Install roof barriers on building located at 180 Wellington St., Ottawa in accordance with the drawings;
- .2 Install lifting device on building located at 180 Wellington St., Ottawa in accordance with the drawings;
- .3 Install roof barriers on building located at 177-187 Sparks St., Ottawa in accordance with the drawings;
- .4 Install lifting device on building located at 144 Wellington St., Ottawa in accordance with the drawings;

1.2 TAXES

.1 Pay taxes properly levied by law (including federal, provincial and municipal).

1.3 FEE, PERMITS, AND CERTIFICATES

.1 Obtain and pay for building permit, certificates, licenses and other permits as required by municipal, provincial and federal authorities.

.2 Building Permit:

- .1 Constructor shall apply for, obtain and pay for building permit on behalf of Departmental Representative, and other permits required for Work and its various parts.
- .2 Constructor shall display building permit and other permits in a conspicuous location at Place of Work.

.3 Provide authorities with plans and information for acceptance certificates.

.4 Provide inspection certificates as evidence that work conforms to requirements of authority having jurisdiction.

.5 Submit to Departmental Representative, copy of application submission and approval documents received for authority having jurisdiction.

1.4 DOCUMENTATION

.1 Contractor to provide the following prior to contract award:

- .1 Integrity check – Complete form and list of company owners.
- .2 Copy of WSIB
- .3 Copy of Liability insurance

.2 Contractor to provide the following after contract award

- .1 Copy of trade certificate;
- .2 Contractor health and safety procedure;
- .3 Site specific safety plan;

.4 Copy of Ministry of Labour Regulations;

.5 Names and date of birth of each worker coming to site;

.6 Detailed description at each invoice;

.7 Statutory declaration required with each invoice;

.8 Copy of ESA permit number and ESA final inspection;

.9 Lock out and tag out procedure, as required.

1.5 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to building operations and occupants and normal use of premises by government departments. Arrange with Departmental Representative to facilitate execution of work.

1.6 EXISTING SERVICES

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum disturbance to tenant operations.

.2 Establish location and extent of service lines in area of work before starting work and notify Departmental Representative of findings.

.3 Submit Schedule to and obtain approval Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.4 Where unknown services are encountered, immediately advise departmental representative and confirm findings in writing.

.5 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.6 Record locations of maintained, re-routed and abandoned service lines.

1.7 ACCESS AND EGRESS

.1 Design, construct and maintain temporary “access to” and “egress from” work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.8 USE OF SITE AND FACILITIES

.1 Maintain existing services to building and provide for personnel and vehicle access.

.2 Departmental Representative will assign sanitary facilities for use by Contractor’s personnel. Keep facilities clean

.3 Closures: protect work temporarily until permanent enclosures are completed.

1.9 VEHICLE ACCESS ON SPARK STREET

.1 For Vehicular access on sparks street contact Spark Street Business Improvement Area or Sparks Street Mall Authority Mall authority

.1 Address: 100 Sparks Street, suite 300

.2 Telephone: 613-230-0984

.3 Mobile: 613-223-7898

1.10 CONTRACTOR'S USE OF EXISTING ELEVATORS

.1 Departmental Representative shall allow use of one (1) Freight elevator to deliver the material to existing building.

.1 180 Wellington Street, Ottawa, Ontario

.2 144 Wellington Street, Ottawa, Ontario

.2 Delivery hours shall be coordinated and confirmed with Departmental Representative. Advise 5 business days prior to delivery date.

.3 Contractor shall provide and ensure that the elevator cab interior and landing jamb protection are in place and secure all times. All damages to the elevator cab interior, doors, controls and landing jambs caused by Contractor shall be repaired and/or replaced to the satisfaction of the Departmental Representative at no extra costs to the owner.

.4 Elevator may be used for moving workers and material.

1.11 SECURITY SCANNING OF CONSTRUCTION MATERIALS AND EQUIPMENT

.1 All deliveries are required to go to a scanning facility for inspection (location A) prior to being delivered to site (location B). Location B will be final delivery location

A) 2303 Stevenage Drive,
Ottawa, Ontario,
K1G 0Z1
Phone: 613-219-4905 Brian Dodds
Hours: 7:00AM to 3:00PM

B) Parliamentary Hill-Confederation Building, 244 Wellington Street, Ottawa, On K1A 0A6

.2 The Supplier must coordinate all deliveries and installations dates as detailed below with the HoC Project Authority.

.3 The Scanning Facility is open Monday through Friday from 7:00 AM to 3:00 PM

.4 Groups arriving at the facility for processing are serviced on a first come, first served basis

.5 Items to be scanned are to be removed from the transporting vehicle for processing. Items are then placed back into the contractor vehicle for sealing.

.6 Seal number is communicated from SCI staff to receiving staff on site at Confederation building.

.7 No advance notice for small loads received at SCI is necessary, however for larger loads (such as 53 foot trailers) advance notice is required. Details required are as follows:

.1 The Supplier is required to provide the HoC Project Authority with the following information a minimum of five (5) working days prior to on site delivery:

.1 Date and time of delivery;

.2 Vehicle description;

.3 Vehicle licence plate;

.4 Names of employees including the driverK1G 0Z1

1.12 REMOVED MATERIALS

.1 Unless otherwise specified, materials for removal become contractor's property. Remove Materials Promptly.

1.13 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy of each document as follows:

.1 Contract Drawings.

.2 Specifications

.3 Addenda.

.4 Reviewed Shop Drawings.

.5 List of outstanding shop drawings.

.6 Change Orders.

.7 Other Modifications to Contract

.8 Field Test Reports.

.9 Copy of Approved Work Schedule.

.10 Health and Safety Plan and other safety related documents.

.11 Hot work permit.

.12 Communiqué

.13 Other documents as specified

1.14 FAMILIARIZATION WITH SITE

.1 Contractor may visit site prior to submitting tender to examine site conditions and assess risks and requirements for completing work. No allowance is made on account of error or negligence to properly observe and determine existing conditions.

.2 Obtain prior permission from Departmental representative before carrying out site inspection.

1.15 PROJECT MEETINGS

.1 Departmental Representative will arrange project meeting and assume responsibility for setting times and recording minutes.

.2 Assist to project meeting, held bi-weekly, for entire duration of work and as directed by Departmental Representative.

1.16 CONSTRUCTION PROGRESS SCHEDULE

.1 On award of contract submit construction schedule for work, indicating anticipated progress stages within time of completion. Schedule must be "Gantt Type" chart. When schedule has been reviewed by Departmental Representative, take necessary measures to complete work within scheduled time

.2 Allow for all power shutdowns required to suit the scope of work. Provide a minimum of 2 weeks notice to Departmental Representative for any shutdowns.

.3 Schedule and execute work with least possible interference or disturbance to normal use of premises.

.4 Do not change schedule without notifying Departmental representative.

.5 Carry out work during "regular hours":

.1 "Regular hours" from July 2 to October 20

.1 6:00AM to 6:00PM

.2 "Regular hours" after October 21

.1 6:00AM to 9:00PM

.6 Give Departmental Representative a minimum of 4 days notice for work to be carried out during regular hours.

.7 Submit schedule updates when requested, to Departmental Representative, due to changing project condition. Provide a narrative explanation of necessary changes and schedule revisions at each update.

1.17 FIRE SAFTETY REQUIREMENTS

.1 Comply with the National Building Code of Canada 2015 (NBC) for fire safety in construction and the National Fire Code of Canada 2015 (NFC) for fire prevention, fire fighting and life safety in building in use.

.1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.

.2 The National Fire Code (NFC)

.1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.

.2 The conduct of activities that might cause fire hazards in and around buildings.

.3 Limitations on hazardous contents in and around buildings.

.4 The establishment of fire safety plans.

.5 Fire Safety at construction and demolition sites.

.2 Welding and cutting:

.1 At least 4 days prior to commencing cutting, welding or soldering procedure, provide to Departmental Representative.

.1 Notice of Intent, indicating devices affected, time and duration of isolation or bypass.

.2 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.

.2 Before welding, soldering, grinding, core drilling, concrete drilling and/or cutting work, obtain a permit from Fire Prevention Unit as directed by Departmental representative.

.3 Immediately upon completion of work, restore fire protection systems to normal operation and verify that devices are fully operational.

.4 Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation and immediately upon restoration of normal operation.

.5 "Fire Watchers" as described in NFC shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 15m may be ignited.

1.18 SUBMITTALS

.1 Shop Drawings:

.1 Submit for Departmental Representative review, soft copies of each shop drawings.

.2 Review is for sole purpose of ascertaining conformance with general design concept and does not mean approval of design details inherent in shop drawings, responsibility for which remains with contractor.

.3 Departmental Representative's review does not relieve Contractor of responsibility for errors or omissions in shop drawings or Contractor's responsibility for meeting requirements of Contract Documents

.4 Do not commence manufacture or order materials before shop drawings are reviewed

.2 Product Data

.1 Submit soft copies of product data

.2 Delete information not applicable to project.

.3 Cross-Reference product data information by division and section number to applicable portions of Contact Documents.

1.19 SECURITY CLEARANCES

.1 Personnel employed on this project will be subject to security check. Obtain requisite clearance, as instructed, for each individual required to enter premises. All workers must have "Site Access" clearance to enter the building.

.2 Contractor to provide Departmental Representative the names of all worker complete with date of birth a minimum 4 days in advance.

.3 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

1.20 SECURITY ESCORT

.1 Personnel employed on this project must be escorted when executing work on the roof areas during normal working hours. Personnel must be escorted in all areas after normal working hours.

.2 Submit an escort request to Departmental Representative at least 4 buisness days before service is needed. For requests submitted within time mentioned above, costs of security escort will be paid for by Departmental Representative. Cost incurred by late request will be Contractor's responsibility.

1.21 REFERENCES TO REGULATORY REQUIREMENTS

.1 Perform Work in accordance with the Ontario Building Code of Canada OBC, 2012 including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code

.1 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.22 BUIDLING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

1.23 ASBESTOS DISCOVERY

.1 Should material resembling spray or trowel-applied asbestos be encountered in course of work, stop and notify Departmental representative immediately. Do not proceed until written instructions have been received from Departmental Representative.

1.24 FIELD QUALITY CONTROL

.1 Carry out work using qualified licenced workers or apprentices in accordance with provincial act respecting manpower vocational training and qualification.

.2 Permit employees registered in Provincial Apprenticeship program to perform specific task only if under direct supervision of qualified licenced workers.

.3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

1.25 HAZARDOUS MATERIALS

.1 Comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources and Social Development Canada (HRSDC), Labour Program.

.2 Provide MSDS upon request of Departmental Representative.

1.26 SIGNS

.1 Provide common use signs related to traffic control, information, instruction, use of equipment, public safety devices, and other signs as directed by Departmental Representative in both official languages or by use of commonly understood graphic symbols to approval of Departmental Representative.

.2 No advertising is permitted on this project.

.3 Departmental Representative will provide a sign describing project for information of building users. Erect sign as directed by Departmental representative.

1.27 PUBLIC WAY PROTECTION

.1 Design, erect and maintain hoarding and covered pedestrian walkways to support loads including wind loads and proved protection, complete with signs and electrical lighting as required by authority having jurisdiction.

1.28 DUST CONTROL

.1 Provide temporary dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of work and public.

.2 Maintain and relocate protection such work is complete.

.3 Protect furnishing within work area with 0.102mm thick polyethylene film during construction. Remove film during non-construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function.

1.29 WORK CO-ORDINATION

.1 Co-ordinate work of sub-trades.

.1 Designate one person to be responsible for review of contract documents, shop drawings, and planning and managing co-ordination of work.

.2 Convene meeting between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.

.1 Provide each subcontractor with complete plans and specifications for contract, to assist them in planning and carrying out their respective work. Ensure sub contractors receive Division 01.

.2 Develop co-ordination drawings when required, illustrating potential interference between work of various trades and distribute to affected parties.

.1 Pay particularly close attention to overhead work above ceilings and within or near building structural elements.

.2 Identify on co-ordination drawings, building elements, services lines rough-in points and indicate location of services entrance to site.

.3 Facilitate meeting and review coordination drawings. Ensure subcontractors agree and sign-off on drawings.

.4 Publish minutes of each meetings.

.5 Plan and co-ordinate work to minimize number of service line offsets.

.6 Submit copy of coordination drawings and meeting minutes to Departmental Representative for information purposes.

.3 Submit Shop drawings and order prefabricated equipment or prebuilt components only after co-ordination meeting for such items has taken place.

.4 Work co-operation:

.1 Ensure co-operation between trades in order to facilitate general progress of work and avoid situations of spatial interference.

.2 Ensure that each trade provides other trades reasonable opportunity for completion of work to prevent unnecessary delays, cutting, patching and removal or replacement of completed work.

.5 Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to co-ordinate Work.

.1 Resolve disputes between subcontractors.

1.30 BILINGUAL NOTATIONS

.1 Any items supplied and installed under this contract which have operating instructions on them and which can be expected to be used by building tenants, must have operating instructions in English and French.

.2 Factory embossed or recessed symbols illustrating equipment operation is an acceptable alternative to lettering.

.3 Items supplied with factory embossed or recessed lettering in one official language with an applied sticker or decal representing second official language is not acceptable without approval from Departmental Representative before items are ordered.

.4 Internationally recognized colour coding such as red and blue centre pieces for plumbing brass is acceptable

.5 Contractor is responsible for cost incurred for re-stocking or re-ordering as a result of failure to ensure bilingual designation on items.

1.31 SLEEVES, HANGERS AND INSERTS

.1 Co-ordinate setting and packing of sleeves and supply and installation of hangers and inserts. Obtain Departmental Representative's approval before cutting into structure.

1.32 SITE STORAGE

.1 Contractor will equip and maintain storage space assigned by Departmental Representative

.2 Do not unreasonably encumber site with materials or equipment.

.3 Move stored products or equipment which interfere with operations of Departmental Representative or other contractors.

.4 Obtain and pay for use of additional storage or work areas needed for operations.

1.33 PROTECTION

.1 Protect finished work against damage.

.2 Protect adjacent work against spread of dust and dirt beyond work areas.

.3 Protect operatives and other users of site from hazards.

1.34 EXAMINATION

.1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.

.2 Provide photographs of surrounding properties, objects and structures liable to be damaged or subject of subsequent claims.

1.35 SETTING OUT WORK.

.1 Departmental Representative will define location, alignment and elevations of work.

.2 Give Departmental Representative a minimum 5-day notice of requirements for construction layout.

.3 Departmental Representative will provide only those survey control points as necessary to define general location, alignment and elevations of work. Give Departmental Representative a minimum 48-hour notice of requirements for control points.

.4 Lay out work in detail from control points established by Departmental Representative.

.5 Assume full responsibility for, and execute complete layout of work to locations, lines and elevations indicated.

.6 Provide devices, stakes and survey markers required to lay out and construct work.

.7 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.

1.36 CUT, PATCH AND MAKE GOOD

.1 Cut existing surfaces as required to accommodate new work.

.2 Remove items shown or specified.

.3 Do not cut, bore, or sleeve load-bearing members.

.4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

.5 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour finish and texture.

1.37 CLEAN UP

.1 Clean up work area as work progresses. At end of each work period, and more often if required by Departmental Representative, remove debris from site, neatly stack material for use, and clean up generally.

.2 Upon completion remove scaffolding, temporary protection and surplus materials. Make good defects noted at this stage.

.3 Wash and polish glass, mirrors, ceramic tile, aluminum, chrome, stainless steel, baked or porcelain enamel, plastic laminate and other plastic surfaces, floors, hardware and washroom. Clean manufactured articles in accordance with manufacturer's directions.

.4 Clean areas under contract to condition at least equal to that previously existing and to approval of Departmental Representative.

1.38 WASTE MANAGEMENT

.1 Comply with the Environmental Protection Act., Ontario Regulations O. Reg. 102/94 O. reg 103/94 for waste management program on construction and demolition projects.

.2 Conduct "waste audit" to determine waste generated during demolition or construction operations, prepare written "waste reduction work plan" and implement procedures to reduce, reuse and recycle materials to the extent possible.

.3 Provide source separation program to disassemble and collet in an orderly fashion material designated for alternative disposal from general waster stream as follows:

.1 Brick and Portland cement concrete

.2 Cardboard (corrugated)

.3 Gypsum board (unfinished)

.4 Steel.

.5 Wood (not including treated or laminated wood)

.4 Submit Complete Records of removals from site for both materials designated for alternative disposal and general waste including:

.1 Time and date of removal.

.2 Description of material and quantities.

.3 Proof that materials have been received at an approved waster processing site or certified waste disposal site as required.

1.39 RECORDS

.1 As work progresses, maintain accurate records to show deviations from contract drawings. Just prior to Departmental Representative's inspection of issuance of final certificate of completion, supply to Departmental Representative one (1) set of white prints with all deviations neatly linked in. Departmental Representative will provide two sets of clean white prints for this purpose.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Federal Legislation

- .1 Canada Labour Code, Part II. Canada Occupational Health and Safety Regulation.
- .2 Transportation of Dangerous Goods Act, 1992.
- .3 Public Services and Procurement Canada Asbestos Management Standard
- .4 Canada Consumer Product Safety Act
  - .1 Surface Coating Materials Regulations SOR/2016-193
- .5 Canadian Environmental Protection Act., 1999

.2 Provincial Legislation

- .1 Ontario Occupational Health and Safety Act, R.S.O. 1990,
  - .1 Ontario Regulation 490/09, Designated Substances.
  - .2 Reg. 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and repair Operations
- .2 Ontario Environmental Protection Act, R.S.O. 1990,
- .3 Canadian General Standards Board (CGSB)

1.2 DESIGNATED SUBSTANCE – REGULATORY REQUIREMENTS

.1 Departmental Representative shall determine whether any designated substances are present at the project site and shall prepare a list of all designated substance that are present at the site.

.2 Departmental Representative shall inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed through the duration of the project

.3 Confirm with the Departmental Representative that no additional designated substance has been brought to the project area prior to beginning work.

.4 Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.

.5 The designated substances identified in the occupational Health and Safety Act are:

- .1 Acrylonitrile:
- .2 Arsenic:
- .3 Asbestos:
- .4 Benzene:
- .5 Coke Oven Emissions:
- .6 Ethylene Oxide:

.7 Isocyanates:
.8 Lead:
.9 Mercury:
.10 Silica:
.11 Vinyl Chloride Monomer:

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 00 10 – General Instruction

.2 Section 01 35 29.06 – Health and Safety Requirements

.3 Section 01 78 00 – Closeout Submittals

.4 Section 01 79 00 – Demonstration and Training

1.2 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.10 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment,

indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow seven (7) working days review for each submission

.5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 3 years of date of contract award for project.

.13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

.16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.18 Delete information not applicable to project.

.19 Supplement standard information to provide details applicable to project.

.20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.21 The review of shop drawings by Public Services and Procurement Canada (PSPC) is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that PSPC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or

omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.4 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copy of colour digital photography, fine resolution as directed by Departmental Representative.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Frequency of photographic documentation: as directed by Departmental Representative.

1.5 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 00 10- General Instruction

.2 Section 01 33 00 – Submittal Procedures

1.2 REFERENCE STANDARDS

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Province of Ontario

.1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended - Updated march 2018.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit electronic copies of Contractor’s authorized representative’s work site health and safety inspection reports to authority having jurisdiction, and weekly report Departmental Representative

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within (5) business days after receipt of plan.

.7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

.9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.4 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

.2 Work zone locations include:

.1 Wellington Building (180 Wellington St., Ottawa)

.2 Dover-Brouse-Slater Building (177-187 Sparks St., Ottawa)

.3 Sir John A. MacDonald Building (144 Wellington St., Ottawa)

.3 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.5 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project and submit to Departmental Representative

1.6 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.7 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.

.3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.10 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

.2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.11 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have site-related working experience specific to activities associated with roof barrier, davit arms and working at heights

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of Work

1.12 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

1.13 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.14 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.15 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Approved: 2006-03-31

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 00 10 – General Instruction

1.2 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB)

.1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 CAN/CGSB 1.189-00 , Exterior Alkyd Primer for Wood.

.2 CSA Group (CSA)

.1 CSA-O121-08(R2013) , Douglas Fir Plywood.

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.3 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs,

1.5 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings;

.3 Design enclosures to withstand wind pressure.

1.6 DUST TIGHT SCREENS

.1 Provide dust tight screens partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.7 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.8 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.9 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.11 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 00 10 - General Instruction

.3 Section 01 79 00 – Demonstration and Training

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting one week prior to contract completion with Departmental Representative, to:

.1 Verify Project requirements.

.2 Review warranty requirements and manufacturer's installation instructions.

.2 Departmental Representative to establish communication procedures for:

.1 Notifying construction warranty defects.

.2 Determine priorities for type of defects.

.3 Determine reasonable response time.

.3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures .

.2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final hardcopy and (1) electronic copy of operating and maintenance manuals in English and French.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.4 Provide evidence, if requested, for type, source and quality of products supplied.

1.4 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings.

.1 Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in dwg format.

1.5 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data.

.6 Training: refer to Section 01 79 00- Demonstration and Training .

1.6 AS -BUILT DOCUMENTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition.

.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.7 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Field changes of dimension and detail.

.2 Changes made by change orders.

.3 Details not on original Contract Drawings.

.4 Referenced Standards to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain inspection certifications, manufacturer's certifications, field test records, required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

1.8 FINAL SURVEY

.1 Submit final site survey certificate in accordance with Section certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.

.1 Give function, normal operation characteristics and limiting conditions.

.2 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.3 Include manufacturer's printed operation and maintenance instructions.

.4 Additional requirements: as specified in individual specification sections.

1.10 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specifications sections.

1.11 GUARANTEES AND WARRANTIES

.1 Before completion of work collect manufacturer’s, guarantees and warranties and include all documents in O&M manuals. Guarantees and warranties to be one year from date of substantial completion.

.2 Contractor shall provide to the Departmental Representative a letter of guarantee.

1.12 NOT USED

.1 Not Used.

Part 2 Execution

2.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 00 10 – General Instruction

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 78 00 – Closeout Procedure

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Demonstrate scheduled operation and maintenance of equipment and systems to Departmental Representative personnel two weeks prior to date of final inspection.

.2 Departmental Representative: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.

.3 Preparation:

.1 Verify conditions for demonstration and instructions comply with requirements.

.2 Verify designated personnel are present.

.3 Ensure equipment has been inspected and put into operation in accordance with Manufacturer’s shop drawings

.4 Ensure testing, adjusting, and balancing has been performed as per Manufacturer’s shop drawings and equipment and systems are fully operational.

.4 Demonstration and Instructions:

.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, two times, at the agreed upon scheduled location.

.2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.

.3 Review contents of manual in detail to explain aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

.5 Time Allocated for Instructions: ensure amount of time required for instruction of each item of equipment:

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.

.2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.

.3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.4 Give time and date of each demonstration, with list of persons present.

.5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.4 QUALITY ASSURANCE

.1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:

.1 Instruct Departmental Representative's personnel.

.2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 00 10 – General Instruction

.2 Section 01 33 00 – Submittal Procedures

1.2 REFERENCE STANDARDS

.1 ASTM International Inc.

.1 ASTM A36/A36M-14 , Standard Specification for Carbon Structural Steel.

.2 ASTM A193/A193M-17 , Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature or High-Pressure Service and Other Special Purpose Applications.

.3 ASTM A307-14e1, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.4 ASTM F3125/F3125M-18 , Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-85.10-[99] , Protective Coatings for Metals.

.3 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA).

.1 Handbook of the Canadian Institute of Steel Construction.

.2 CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.

.4 CSA Group (CSA)

.1 G40.20-13/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA- G164-18 (R2018) , Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CAN/CSA- S16-14 (R2019), Design of Steel Structures.

.4 CAN/CSA- S136-16, North American Specifications for the Design of Cold Formed Steel Structural Members.

.5 CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel.

.6 CSA W48-18, Filler Metals and Allied Materials for Metal Arc Welding.

.7 CSA W55.3-08 (R2018) , Certification of companies for resistance welding of steel and aluminum.

.8 CSA W59-18, Welded steel construction.

.5 Master Painters Institute

.1 MPI-INT 5.1, Structural Steel and Metal Fabrications.

.2 MPI-EXT 5.1, Structural Steel and Metal Fabrications.

.6 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International

.1 NACE No. 3/SSPC-SP 6-2006, Commercial Blast Cleaning.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with MASTER FORMAT, Section 01 33 00- Submittal Procedures.

.2 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province, Canada.

.3 Erection drawings:

.1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:

.1 Description of methods.

.2 Sequence of erection.

.3 Type of equipment used in erection.

.4 Temporary bracings.

.4 Fabrication drawings:

.1 Submit fabrication drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the Province of Ontario, Canada.

.5 Fabricator Reports:

.1 Provide structural steel fabricator's affidavit stating that materials and products used in fabrication conform to applicable material and products standards specified and indicated.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in manufacturer's original, undamaged containers with identification labels intact.

Part 2 Products

2.1 DESIGN REQUIREMENTS

.1 Design details and connections in accordance with requirements of CAN/CSA-S16 to resist forces, moments, shears and allow for movements indicated.

.2 Shear connections:

.1 Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.

.2 Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.

.3 Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in Province of Ontario, Canada for non standard connections.

2.2 MATERIALS

.1 Structural steel: to CSA-G40.20/G40.21 Grade 300W .

.2 High strength anchor bolts: to ASTM A193/A193M,

.3 Bolts, nuts and washers: to ASTM A325 .

.4 Welding materials: to CSA W48 Series and certified by Canadian Welding Bureau.

.5 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 600 g/m

2.3 FABRICATION

.1 Fabricate structural steel in accordance with CAN/CSA-S16, and in accordance with approved shop drawings .

.2 Continuously seal members by continuous welds. Grind smooth.

2.4 SHOP PAINTING

.1 Clean, prepare surfaces and shop prime structural steel in accordance with CAN/CSA-S16

.2 Clean members, remove loose mill scale, rust, oil, dirt and foreign matter. Prepare surface according to NACE No.3/SSPC-SP-6.

.3 Apply one coat of primer in shop to steel surfaces

.4 Apply paint under cover, on dry surfaces when surface and air temperatures are above 5 degrees C.

.5 Maintain dry condition and 5 degrees C minimum temperature until paint is thoroughly dry.

.6 Strip paint from bolts, nuts, sharp edges and corners before prime coat is dry.

Part 3 Execution

3.1 APPLICATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 GENERAL

.1 Structural steel work: in accordance with CAN/CSA-S16 .

.2 Welding: in accordance with CSA W59.

.3 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

3.3 CONNECTION TO EXISTING WORK

.1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Departmental Representative for direction before commencing fabrication.

3.4 MARKING

.1 Mark materials in accordance with CSA G40.20/G40.21. Do not use die stamping. When steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

3.5 ERECTION

.1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16 and in accordance with reviewed erection drawings .

.2 Field cutting or altering structural members: to approval of Departmental Representative

.3 Clean with mechanical brush and touch up shop primer to bolts, rivets, welds and burned or scratched surfaces at completion of erection.

.4 Continuously seal members by continuous welds where indicated. Grind smooth.

3.6 FIELD QUALITY CONTROL

.1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by Departmental Representative.

.2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Departmental Representative.

.3 Submit test reports to Departmental Representative

3.7 FIELD PAINTING

.1 Touch up damaged surfaces and surfaces without shop coat with primer to NACE No.3/SSPC-SP-6 except as specified otherwise. Apply in accordance: MPI Architectural Painting Specification Manual.

.2 Touch-Up Primer for Galvanized Surfaces: SPCC 20 zinc rich .

3.8 CLEANING

.1 Clean in accordance with Section 01 00 10 – General instruction

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 00 10 – General Instruction

.2 Section 01 33 00 – Submittal Procedures

1.2 REFERENCES

.1 ASTM International Inc.

.1 ASTM A36/A36M-14 , Standard Specification for Carbon Structural Steel.

.2 ASTM A193/A193M-17 , Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature or High-Pressure Service and Other Special Purpose Applications.

.3 ASTM A307-14e1, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.4 ASTM F3125/F3125M-18 , Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-85.10-latest edition, Protective Coatings for Metals.

.3 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA).

.1 Handbook of the Canadian Institute of Steel Construction.

.2 CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.

.4 CSA Group (CSA)

.1 G40.20-13/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA- G164-18 (R2018) , Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CAN/CSA- S16-14 (R2019), Design of Steel Structures.

.4 CAN/CSA- S136-16, North American Specifications for the Design of Cold Formed Steel Structural Members.

.5 CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel.

.6 CSA W48-18, Filler Metals and Allied Materials for Metal Arc Welding.

.7 CSA W55.3-08 (R2018) , Certification of companies for resistance welding of steel and aluminum.

.8 CSA W59-18, Welded steel construction.

.5 Master Painters Institute

.1 MPI-INT 5.1, Structural Steel and Metal Fabrications.

.2 MPI-EXT 5.1, Structural Steel and Metal Fabrications.

.6 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with MASTER FORMAT, Section 01 33 00- Submittal Procedures.

.2 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.3 Erection drawings:

.1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:

.1 Description of methods.

.2 Sequence of erection.

.3 Type of equipment used in erection.

.4 Temporary bracings.

.4 Fabrication drawings:

.1 Submit fabrication drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the Province of Ontario, Canada.

.5 Fabricator Reports:

.1 Provide structural steel fabricator's affidavit stating that materials and products used in fabrication conform to applicable material and products standards specified and indicated.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in manufacturer's original, undamaged containers with identification labels intact.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CSA G40.20/G40.21, Grade 350W.

.2 Steel pipe: to ASTM A53/A53M galvanized finish.

.3 Welding materials: to CSA W59.

.4 Welding electrodes: to CSA W48 Series.

.5 Bolts and anchor bolts: to ASTM A307.

.6 Stainless steel tubing: to ASTM A269,

.7 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

.8 Aluminum bar, rod, wire: to ASTM B211M.

.9 Aluminum and Aluminum-Alloy Extruded Bar, Rods, Wire, Shapes, and Tubes: to ASTM B221M.

.10 Aluminum sheet or plate: to ASTM B209M.

.11 Aluminum drawn tubes: to ASTM B210M.

.12 Aluminum bolts and rivets: to ASTM B316M.

.13 Aluminum welding wire: to AWS - A5.10/A5.10M.

.14 Stainless steel bolts: to ASTM F593.

.15 Steel bolts: to ASTM A325.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Where possible, fit and shop assemble work, ready for erection.

.3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

.4 Fabricate to CAN/CSA-S157 and in accordance with approved and reviewed shop drawings.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2 to CAN/CSA-G164.

.2 Finish exposed surfaces of aluminum components to Aluminum Association (AA), Designation System for Aluminum Finishes.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.

- .1 Visually inspect substrate in presence of Departmental Representative
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative

3.2 ERECTION

.1 Do structural aluminum work: to CAN/CSA-S157.

.2 Companies to be certified under Division 1 or 2.1 of CSA W47.2 for fusion welding of aluminum and CSA W55.3 for resistance welding of structural components.

.3 Do welding work in accordance with CSA W59 unless specified otherwise.

.4 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.5 Exposed fastening devices to match finish and be compatible with material through which they pass.

.6 Supply components for work by other trades in accordance with shop drawings and schedule.

.7 Make field connections with bolts to CSA S16.

.8 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.

.9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

.10 Touch up damaged aluminum surfaces with 1 coat of zinc chromate primer followed by 1 coat of compatible paint.

3.3 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 American National Standard / American Society of Safety Professionals (ANSI/ASSP):

.1 ANSI/ASSP A1264.1-2017 Safety Requirements For Workplace Walking/Working Surfaces And Their Access; Workplace, Floor, Wall And Roof Openings; Stairs And Guardrail/Handrail Systems.

.2 ASTM International

.1 ASTM A27 / A27M - 17 Standard Specification for Steel Castings, Carbon, for General Application

.2 ASTM A47 / A47M - 99(2018)e1, Standard Specification for Ferritic Malleable Iron Castings.

.3 ASTM A53 / A53M - 18, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

.4 ASTM A123 / A123M - 17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

.5 ASTM A500 / A500M – 18, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

.6 ASTM B 221M-13 , Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

.7 ASTM B483 / B483M - 13e1, Standard Specification for Aluminum and Aluminum-Alloy Drawn Tube and Drawn Pipe for General Purpose Applications.

.8 ASTM B241 / B241M -16, Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

.9 ASTM B210 / B210M - 19M, Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes

.10 ASTM E935-13e1 , Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.

.3 Green Seal Environmental Standards (GS)

.1 GS-11-2015 , Paints, Coatings, Stains and Sealers.

.4 National Research Council Canada (NRC)

.1 National Building Code of Canada 2015 (NBC).

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards.

.1 SCAQMD Rule 1113-A2016 , Architectural Coatings.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures .

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for handrails and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit manufacturer’s installation instructions with project specific annotations to suit project conditions.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario , Canada.

.2 Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

.3 Indicate installation of handrails and guardrails including but not limited to plans, elevations, sections, details of components, anchor details, and clearances to adjacent assemblies. Indicate critical field dimensions and cnflicts.

.4 Indicate installation conditions at obstructions or at junction with adjacent construction as necessary to provide continuity of protection.

.4 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Submit 2 samples

.4 Submit 2 complete sets of colour chips showing manufacturer’s complete range of finishes.

.5 Parts List:

.1 Submit parts list indicating manufacturer’s name, part number and name, quantity required for complete installation.

.6 Certifications:

.1 Submit certification that modular guardrail system has been tested in accordance with ASTM E935, that it conforms to requirements of ANSI/ASSE A1264.1 and to workplace safety requirements of authority having jurisdiction.

.7 Sustainable Design Submittals:

.1 Submittals:

.1 Indicate recycled content of products used.

.2 Indicate VOC content of coatings.

1.3 MAINTENANCE MATERIAL

.1 Furnish maintenance material at a rate of 2 % of number of each installed component.

.2 Deliver to site in sealed packaging labeled with manufacturer’s name, component part number corresponding to installed products list. Store where directed.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions .

.2 Delivery and Acceptance Requirements:

.1 Deliver products to site in original factory packaging, labelled with manufacturer's name and address, and list of contents of each package.

.2 Inspect products for any damage or deformation. Remove damaged products from site and replace with matching undamaged products.

.3 Check package contents list against submitted parts list to ensure all components necessary for a complete installation have been delivered.

.3 Storage and Handling Requirements:

.1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect guardrail components from all damage. Protect finish from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Construction and packaging waste management: in accordance with Section 01 00 10 General instruction

Part 2 Products

2.1 DESIGN CRITERIA

.1 Installed guardrail assembly and anchorage shall conform to ANSI/ASSE A1264.1, structural requirements of NBC 2015 and workplace safety requirements of the Ontario Occupational Heal and Safety Act .

.1 In case of conflicting requirements, the more stringent requirement shall apply.

2.2 MODULAR ALUMINUM GUARDRAIL SYSTEM

.1 Rails: 50 mm diameter, tube or pipe to ASTM B429.

.2 Posts: 50 mm diameter, tube or pipe to ASTM B429, vertical profile.

.3 Fittings: elbows, T-shapes, wall brackets, escutcheons; cast aluminum, with locking stainless steel set screws.

.4 Splice Connectors: collar with locking set screws; cast aluminum.

.5 Exposed Fasteners: flush countersunk screws or bolts; consistent with design of railing.

.6 Non-Penetrating Anchorage for Rooftop or Freestanding Installation: weighted base mounting plate with non-abrasive non-slip resilient pad, with integral receivers to secure and fasten posts.

.7 Finish coatings to AAMA 2604.

.1 Colour: Selected by Departmental Representative .

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for handrail installation.

.1 Visually inspect substrate in presence of Departmental Representative;

.2 Visually inspect location of guardrail system to ensure it meets the requirements of manufacturer;

.3 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.4 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Assemble and install modular guardrail system in accordance with manufacturer's instructions, accepted shop drawings and as necessary to provide continuity of protection.

.2 Install components plumb and level, in proper alignment with adjacent assemblies.

.3 At non-penetrating or freestanding guardrail set posts into weighted base plates and secure.

.4 Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings .

.5 Assemble with fittings, spigots, sleeves and set-screws to produce secure, vibration-resistant installation.

3.3 CLEANING

.1 Progress Cleaning:

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment

.3 Waste Management: separate waste materials for disposal

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by hand rail installation.

END OF SECTION