



THE CITY OF WINNIPEG
MILLENNIUM LIBRARY
GUARDRAIL UPGRADE
251 Donald Street

RFP NO. 1092 - 2025

SPECIFICATIONS

JANUARY 12, 2026

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Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 78 00 – Closeout Submittals.

1.2 REFERENCES

- .1 National Building Code of Canada, 2020 (NBCC), complete with current Manitoba Building Code amendments (MBC).
- .2 National Fire Protection Association (NFPA).

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 The Millennium Library Guardrail Upgrade project will see the removal and replacement of the existing glass guard and handrail in the following locations:
 - .1 Second, Third and Fourth Floors, overlooking the Reading Terrace
 - .2 Reading Terrace stairs between floors M & 2, and floors 2 & 3.
- .2 This will be a multi-phased project within a fully occupied building during construction. The Library will remain open to the public during this upgrade, although select areas may be able to be closed during certain phases of the work.
 - .1 Phasing of the work is to be coordinated by the contractor. Prior to the start of Work, Contractor's proposed phasing plan is to be reviewed by the city and contract administrator for the purpose of coordinating Library operations. The work is to have minimal impact on the Library's operations.
 - .2 Noisy or disruptive work is to be performed after Library public service hours. Library hours are:
 - .1 Monday, Friday, Saturday: 10am – 5pm
 - .2 Tuesday, Wednesday, Thursday: 10am – 8pm
 - .3 Sunday: Closed
 - .4 From May 23 – Sept. 5, Saturday hours are 1pm – 5 pm
 - .5 The Library is closed all statutory holidays.
 - .3 Where major work is required in an area and the area is required to be closed to the public for the successful completion of the work, the area shall be closed to the public for one period of time and the entire work in this area completed, rather than closing the same area several times over the period of work.
 - .4 It is understood that portions of the Reading Terrace may require closure to facilitate scaffolding erection. The Contractor will coordinate scaffolding placement and duration with the Library before proceeding with erection.
 - .5 The Contractor will be responsible for erecting and maintaining all protective barriers and enclosures, as specified in 01 50 00.

- .3 Construct project in accordance with contract documents including project manual and project drawings for Architectural and Structural disciplines. Contractor and Subcontractors are responsible for co-ordination between trades. Distribution of documents by Contractor to their Subcontractors does not absolve Contractor or their Subcontractors from provisions stated in Division 01 – General Requirements of contract or co-ordination between parties.
- .4 *Part D: Supplemental Conditions, Part C: General Conditions for Construction*, and Division 01 – General Requirements sections apply to technical specification sections found in Project Manual.

1.4 CODES AND STANDARDS

- .1 Definition: Basis of Design Product: Specifically named manufacturer product, including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating other acceptable products.
- .2 Work to meet or exceed requirements of applicable standards, building code, fire code and other codes and referenced documents. In event of conflict between any provisions of authorities, most stringent provision applies.
- .3 Safety of Work: perform work in accordance with the National Building Code of Canada including 2011 Manitoba Amendments, and other applicable regulations and requirements of other authorities having jurisdiction.
- .4 Fire Safety: comply with National Fire Protection Association (NFPA) codes and standards for fire safety.
- .5 Construction Safety:
 - .1 Observe and enforce construction safety measures required by Canadian Construction Safety Code, Provincial Government Worker's Compensation Board, Workplace Safety and Health Act, Municipal Statutes and Authorities having jurisdiction.

1.5 SETTING OUT OF WORK

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
 - .1 Provide devices needed to lay out and construct work.
 - .2 Supply stakes and other survey markers required for laying out work.

1.6 PLANNING OF WORK

- .1 Upon award of contract, immediately commence off-site work (preparation of shop drawings, ordering of materials, preparation of requested documents, etc.). On-site work is expected to commence as soon as possible upon award of contract. Co-operate with the City in scheduling work.
- .2 Plan work to ensure that emergency access and egress required by the City and by the authorities having jurisdiction are maintained, and all life safety and building occupancy requirements of all applicable codes and regulations are in force for construction areas and adjacent floor areas.

1.7 EXISTING ELEVATORS NOT TO BE USED

- .1 All existing elevators within the Library are not to be used by the Contractor for conveying construction materials or equipment.
- .2 The Contractor shall provide their own means for hoisting materials within the work area.

1.8 ACCESS TO WORK

- .1 Allow the City, Contract Administrator or both access to work, or other places where work is being fabricated in connection with contract for purposes of inspection and examination of workmanship and materials.
- .2 Maintain safety helmets on job site, ready for use, to be used in compliance with Workplace Safety and Health regulations.

1.9 BUILDING PERMIT

- .1 The cost of the building permit is to be carried by the Contractor. The Contract Administrator shall apply for the building permit on behalf of the City prior to bid closing, and the City shall initially pay the building permit cost. Upon award of Contract, the building permit shall be transferred to and become the responsibility of the Contractor. The Contractor will reimburse the City for the value of the building permit through a credit change order that will be issued for the cost of the building permit.

1.10 NO SMOKING POLICY

- .1 Fully co-operate, respect and comply with Smoke-Free Workplace policy requirements established by the City throughout its facilities. Smoking is not permitted anywhere within the City's facilities or on the City's property.
- .2 Smoke-free workplace policy applies to everyone who works in workplace and to visitors.
- .3 During full term of contract, ensure that Contractors' employees, Subcontractors and Suppliers, performing work on site on Contractors' behalf, are instructed to comply with Smoke-Free Workplace policy requirements.

1.11 NO ENTERTAINMENT DEVICES

- .1 Fully co-operate, respect, and comply with the City's request that no entertainment devices (e.g. portable radios, stereos, MP3 players, etc.) will be played on site during public service hours by Contractor's work force or sub-contractors.

1.12 OCCUPANCY BY THE CITY

- .1 The City has right to enter and occupy building in whole or in part before substantial performance of work provided that, in opinion of Contract Administrator, such entry and occupancy does not prevent or interfere with Contractor in completion of contract.
- .2 Such occupancy by the City is not considered as acceptance of work and will not relieve Contractor from responsibility to complete contract or as acknowledgement of fulfillment of terms of contract.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 78 00 – Closeout Submittals.

1.2 CONSTRUCTION SCHEDULE

- .1 Refer to *D24: Job Meetings, in Supplemental Conditions*.
- .2 Affix copy of construction schedule to wall of construction office during construction period and keep up to date and reviewed at each progress meeting.

1.3 START-UP MEETING

- .1 After award of Contract, but before start of Work, the Contract Administrator will convene a start-up meeting to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of the Contract Administrator, the City, Contractor, major Subcontractors are to attend.
 - .1 Agenda:
 - .1 Confirmation of award of Contract and Commencement Date
 - .2 Confidentiality
 - .3 Status of required submissions
 - .4 Status of security clearances
 - .5 Substantial and Total Performance Dates / Liquidated Damages
 - .6 Status of Building Permit
 - .7 Appointment of official representatives of participants in the work.
 - .8 Schedules of work, progress scheduling.
 - .9 Schedule of submission of shop drawings, product data, samples, test reports,
 - .10 Schedule for provision of mock-ups and field samples.
 - .11 Requirements for temporary utilities, temporary barriers and controls, construction facilities, site sign and other temporary construction.
 - .12 Record drawings.
 - .13 Maintenance Manuals.
 - .14 Take-over procedures, acceptance, warranties.
 - .15 Monthly progress claims, administrative procedures, holdbacks.
 - .16 Sustainable requirements.
 - .17 Commissioning.
 - .3 Establish time and location of meeting and notify all concerned parties within five (5) Working Days of meeting.
 - .4 Chair meeting, record minutes, and distribute minutes to all attending parties within four (4) Working Days after meeting.

1.4 CONSTRUCTION PROGRESS MEETINGS

- .1 Schedule and administer project meetings bi-weekly throughout progress of work. Provide physical space for meetings.

- .2 Contractor, Subcontractors involved in work, Contract Administrator and the City are to be in attendance.
- .3 Person attending meetings to be empowered to act on behalf of organizations they represent.
- .4 Prepare agenda and record minutes of meetings and circulate to attending parties and affected parties not in attendance within four (4) days after meeting.
- .5 Meeting agenda to include following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Significant proceedings and decisions. Identify action by parties.
 - .5 Problems which impede construction schedule.
 - .6 Review of off-site fabrication delivery schedules.
 - .7 Corrective measures and procedures to regain projected schedule.
 - .8 Revision to construction schedule.
 - .9 Progress schedule, during succeeding work period.
 - .10 Review submittal schedules: expedite as required.
 - .11 Maintenance of quality standards.
 - .12 Review proposed changes for effect on construction schedule and on completion date.
 - .13 Construction Safety.
 - .14 New business.

1.5 ON-SITE DOCUMENTS

- .1 Maintain at job site, one copy of each of following:
 - .1 Contract Drawings.
 - .2 Project Manual
 - .3 Addenda
 - .4 Reviewed shop drawings
 - .5 Proposed change notices
 - .6 Change orders
 - .7 Other modifications to contract
 - .8 Field test reports
 - .9 Copy of approved work schedule
 - .10 Manufacturers' installation and application instructions

1.6 JOB LOG

- .1 Keep permanent, written record on site of progress of work. Make record available for inspection by Contract Administrator and the City. Show dates of commencement and completion of all trades and parts of work, particulars regarding daily weather conditions, changes in work, field instructions, major deliveries, as well as number of employees of various trades involved.

1.7 REQUEST FOR INTERPRETATION PROCESS

- .1 General:
 - .1 Immediately on discovery of the need for interpretation of the Contract Documents, Contractor shall prepare and submit an RFI to the Contract Administrator in the form specified.

- .2 Contract Administrator will return RFIs submitted to Contract Administrator by other entities controlled by Contractor with no response. The RFI will then be considered closed.
 - .3 Co-ordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
 - .4 For RFIs submitted electronically, include project name and RFI number in subject line of email.
- .2 Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
- .1 Project name (including building number).
 - .2 Project number.
 - .3 Date.
 - .4 Name of Contractor.
 - .5 Name of Contract Administrator.
 - .6 RFI number, numbered sequentially. (eg: RFI-001)
 - .7 RFI subject.
 - .8 Specification Section number, title and related paragraphs, as appropriate.
 - .9 Drawing number and detail references, as appropriate.
 - .10 Field dimensions and conditions, as appropriate.
 - .11 Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Price, Contractor shall state impact in the RFI.
 - .12 Contractor's signature.
 - .13 Attachments: Include sketches, descriptions, measurements, photos, product data, shop drawings, co-ordination drawings, and other information necessary to fully describe items needing interpretation.
 - .1 Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- .3 RFI Forms: Contractor generated form including all content indicated in this Section.
- .1 Form and attachments shall be electronic files in PDF format.
- .4 Contract Administrator's Action: Contract Administrator will review each RFI, determine action required, and respond. Allow ten (10) Working Days for Contract Administrator's response for each RFI. RFIs received by Contract Administrator after 1:00 p.m. will be considered as received the following working day.
- .1 The following Contractor-generated RFIs will be returned without action:
 - .1 Requests for approval of submittals.
 - .2 Requests for approval of substitutions.
 - .3 Requests for approval of Contractor's means and methods.
 - .4 Requests for approval of corrective actions for deficient work.
 - .5 Requests for co-ordination information already indicated in the Contract Documents.
 - .6 Requests for adjustments in the Contract Time or the Contract Sum.
 - .7 Requests for interpretation of Contract Administrator's actions on submittals.
 - .8 Incomplete RFIs or inaccurately prepared RFIs.

- .2 Contract Administrator's action may include a request for additional information, in which case Contract Administrator's time for response will date from time of receipt of additional information.
- .3 If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Contract Administrator in writing within 10 days of receipt of the RFI response. Failure to notify will result in the work being included as part of the contract.
- .5 RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log with progress meeting minutes. Include the following:
 - .1 Project name.
 - .2 Name and address of Contractor.
 - .3 Name and address of Contract Administrator.
 - .4 RFI number including RFIs that were returned without action or withdrawn.
 - .5 RFI description.
 - .6 Date the RFI was submitted.
 - .7 Date Contract Administrator's response was received.
- .6 On receipt of Contract Administrator action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Contract Administrator within ten (10) Working Days if Contractor disagrees with response.

1.8 CONSTRUCTION PHOTOGRAPHS

- .1 Maintain and submit to Contract Administrator visual record of construction progress in following formats:
- .2 Use digital camera with capability of producing digital images at minimum 5.0 megapixels, uncompressed, saved in jpeg format.
- .3 Copy each set of images onto a USB drive.
- .4 Identify each USB with name and number of project, date of exposure, set number.
- .5 Pre-Construction Photographs
 - .1 Provide photographs of existing site and general photos prior to start of construction work.
 - .2 Provide photos of all mechanical and electrical panels, devices, prior to demolition. Photos to provide general context of location and a close up for model/brand and condition.
 - .3 Allow for minimum 30 interior and 15 exterior images.
 - .4 Viewpoints:
 - .1 Panoramic view of site from each compass point.
 - .2 Close ups of specific site details and surface features in locations as determined by Contract Administrator.
- .6 Construction Progress Photographs
 - .1 Provide photographs of construction during progress of the work, including site features.
 - .2 Allow for approximately 50 images for each set.
 - .3 Number of sets required (frequency): provide one set monthly with progress statement, plus one set of additional photograph as specified below.
 - .4 In addition to monthly progress images provide additional sets of photographs for:

- .1 Completion of major elements of the Work such as:
 - .1 Main floor construction.
 - .2 Structural framing.
 - .3 Mechanical and electrical services before concealment.
- .2 During installation of specific elements of the Work, as determined by Contract Administrator, including but not necessarily limited to:
 - .1 City Furnished Products (CFP).
 - .2 Major elements of interior work.
- .5 Number of viewpoints: interior and exterior viewpoints including close ups of specific details, in locations as determined by Contract Administrator.
- .7 Photographs of Mock Ups.
 - .1 Number of sets required: one for each mock-up.
 - .2 Allow for approximately 25 images of each set.
 - .3 Number of viewpoints:
 - .1 Each interior elevation, including finishes on walls, floors and ceilings.
 - .2 Mechanical and electrical service outlets (gas, vacuum, switches, etc.)
 - .3 Equipment.
 - .4 Close ups of specific details and features, in locations as determined by Contract Administrator.
- .8 Final Photographs
 - .1 Number of sets required: one.
 - .2 Allow for approximately 100 images for each set.
 - .3 Number of viewpoints:
 - .1 Exterior elevations of each affected side of building.
 - .2 Interior of rooms and finishes as determined by Contract Administrator. Allow for approximately ten (10) photographs of each room.
 - .3 Close ups of specific details as determined by Contract Administrator.
 - .4 Locations of viewpoints as determined by Contract Administrator.

Part 2 Products

Part 3 Execution

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 31 00 – Project Management and Co-ordination.
- .3 Section 01 78 00 – Closeout Submittals.

1.2 ADMINISTRATIVE

- .1 Submit to Contract Administrator submittals listed for review. Submit with reasonable promptness and in orderly sequence so as not to cause delay in work. Failure to submit in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed. Work affected by submittals to proceed only after review is complete.
- .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 Contract Administrator. Stamp and sign submittals certifying review of submission. This review represents that necessary requirements have 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 Contract Administrator, 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 is co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator review of submittals.
- .9 Contractor's responsibility for deviation in submission from requirements of Contract Documents is not relieved by Contract Administrator review.
- .10 Keep one reviewed copy of each submission on site.

1.3 REQUEST FOR INTERPRETATION PROCESS

- .1 Contractor shall prepare and submit an RFI in accordance with Section 01 31 00.

1.4 SHOP DRAWINGS AND PRODUCT DATA

- .1 Term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data provided by Contractor to illustrate details of portion of work.
- .2 Shop drawings that do not include the stamp, date, and signature of the person responsible for reviewing the shop drawings before submittal to the Contract Administrator, will be rejected and returned without being examined.

- .3 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Manitoba, Canada where specifically requested in the specifications. Shop drawings not bearing the required Engineer's stamp will be rejected and returned without being examined.
- .4 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.
- .5 Submit one (1) electronic copy (e.g. Adobe PDF format) of shop drawings for each requirement requested in specification sections and as the Contract Administrator may reasonably request. A hardcopy and electronic copy of shop drawings are to be included in Operation and Maintenance Manual as specified in Section 01 78 00.
- .6 Submit one (1) electronic copy (e.g. Adobe PDF format) of product data sheets or brochures for requirements requested in specification Sections and as requested by Contract Administrator where shop drawings will not be prepared due to standardized manufacture of product.
- .7 Submit one (1) electronic copy (e.g. Adobe PDF) of test reports for requirements requested in specification Sections and as requested by Contract Administrator.
 - .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 three (3) years of date of contract award for project.
- .8 Submit one (1) electronic copy (e.g. Adobe PDF format) of certificates for requirements requested in specification Sections and as requested by Contract Administrator.
 - .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.
- .9 Submit one (1) electronic copy (e.g. Adobe PDF format) of manufacturers' instructions for requirements requested in specification Sections and as requested by Contract Administrator.
 - .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.
- .10 Submit one (1) electronic copy (e.g. Adobe PDF format) of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Contract Administrator.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .11 Allow minimum of ten (10) Working Days for Contract Administrator's review of each submission or a reasonable longer period of time for large or complex submissions.
- .12 For Contractors' use in preparation of drawings required under contract, Contractors may obtain from Contract Administrator, electronic AutoCAD drawing files subject to following:
 - .1 Removal by Contract Administrator of Contract Administrators' professional seals from electronic drawing file; and
 - .2 Receipt of Licence Agreement prepared by Contract Administrator and signed by Contractor(s) or user(s) of electronic files; and

- .3 Receipt of payment to Contract Administrator from each separate Contractor requesting an electronic drawing file, an amount of \$250.00 for first electronic file or drawing sheet requested plus an additional \$200.00 for each subsequent electronic file or drawing sheet requested at same time.
- .13 Adjustments made on shop drawings by Contract Administrator are not intended to change contract price. If adjustments affect value of work, state such in writing to Contract Administrator prior to proceeding with work.
- .14 Make changes in shop drawings as Contract Administrator may require, consistent with contract documents. When resubmitting, notify Contract Administrator in writing of any revisions other than those requested.
- .15 Submissions to include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of Subcontractor, Supplier, 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, relation to adjacent structure or materials.
 - .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 Relation to adjacent structure or materials.
- .16 After Contract Administrator's review, distribute copies to subtrades as required.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Contract Administrator, no errors or omissions are discovered or if only minor corrections are made, copy will be returned and 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.
- .20 No extension of Contract Time will be allowed for delays in the Work which may be caused for Contract Administrator's rejection of shop drawings.
- .21 Shop drawings which contain deviations from the Contract Documents which are not presented to the Contract Administrator in writing, will be rejected and returned without being examined.

1.5 SAMPLES

- .1 Submit samples for review as requested in respective specification sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Contract Administrator's business address.
- .3 Notify Contract Administrator in writing, at time of submission of deviations in samples from requirements of contract documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Contract Administrator are not intended to change contract price. If adjustments affect value of work, state such in writing to Contract Administrator prior to proceeding with work.
- .6 Make changes in samples which Contract Administrator may require, consistent with contract documents.
- .7 Reviewed and accepted samples will become standard of workmanship and materials against which installed work will be verified.

1.6 MOCK-UPS

- .1 Erect mock-ups in accordance with Section 01 45 00.

1.7 CONSTRUCTION PHOTOGRAPHS

- .1 Submit construction photographs in accordance with Section 01 31 00.

Part 2 Products

Part 3 Execution

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 31 00 – Project Management and Co-ordination.
- .3 Section 01 33 00 – Submittal Procedures.

1.2 REVIEW AND INSPECTION OF THE WORK

- .1 *Part C: General Conditions.*

1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Contract Administrator for purpose of inspecting and/or testing portions of work as identified in specification sections and be paid for by cash allowance.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relieve Contractors of their responsibility to perform work in accordance with contract documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Contractor to correct defect and irregularities as advised by Contract Administrator, at no cost to the City, and pay costs for retesting and re-inspection.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to the Work, offsite manufacturing, and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

- .1 Notify appropriate agency in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REPORTS

- .1 Submit four (4) copies of inspection and test reports promptly to the Contract Administrator.
- .2 Provide copies to Subcontractor of work being inspected/tested and manufacturer/fabricator of material being inspected/tested.

1.7 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as may be requested.

- .2 The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by the Law of the Place of Work shall be appraised by the Contract Administrator and may be authorized as recoverable.

1.8 MOCK-UPS AND SAMPLE WORK

- .1 A mock-up of a typical tempered glass panel with handrail attachment (nominally 5ft. wide) is to be provided within the first area of work.
- .2 Construct mock-ups and sample work at locations acceptable to Contract Administrator.
- .3 Prepare mock-ups and sample work for Contract Administrator's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in work.
- .4 Failure to prepare mock-ups and sample work in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.
- .5 Unless noted, approved mock-ups and sample work may remain as part of work.
- .6 When reviewed and approved, mock-ups and sample work become standard of workmanship, appearance, and materials approved for similar areas throughout project.

1.9 MILL TESTS

- .1 Submit mill test certificates as required of the specification Sections and as may be requested.

Part 2 Products

Part 3 Execution

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 31 00 – Project Management and Co-ordination.
- .3 Section 01 61 00 – Common Product Requirements.
- .4 Section 01 74 00 – Cleaning.
- .5 Section 01 74 19 – Construction and Demolition Waste Management.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA).
 - .1 CSA O121-08 (R2013), Douglas Fir Plywood.
 - .2 CAN/CSA S269.2-M87 (R2003), Access Scaffolding for Construction Purposes.
 - .3 CAN/CSA Z321-96 (R2006), Signs and Symbols for the Workplace.

1.3 TEMPORARY WORK

- .1 Temporary Electricity and Lighting.
 - .1 Contractor may connect to existing power supply for temporary power during construction for temporary lighting and the operating of power tools, except for purpose of power welding and electric heating. Cost of power reasonably so used will be provided without charge.
 - .2 Electrical power is available from existing feeders to existing panels as approved by the City. Power taken from these panels is not unlimited and must not exceed the capacity of the panels, nor interrupt any existing electrical services in the building.
 - .3 If available existing power is insufficient, provide additional temporary power as construction requirements demand. Contractor shall arrange for connection with appropriate utility company and pay for all costs of installation, maintenance and removal.
 - .4 Do not use existing electrical receptacles without permission from the City. Once permission is granted, use only designated receptacle. Do not exceed 90% of rated circuit capacity.
- .2 Temporary Fire Protection.
 - .1 Provide and maintain temporary fire protection equipment during performance of work required by insurance companies having jurisdiction, and governing codes, regulations and bylaws.
 - .2 Protect existing devices that are remaining for reuse. Damage occurred during construction to existing devices intended for reuse shall be repaired or replaced by the Contractor.
- .3 Temporary Heating and Ventilation.
 - .1 Contractor may make use of existing HVAC system. Cost of HVAC reasonably used will be provided without charge
 - .1 Ventilating.
 - .1 Prevent hazardous accumulations of dust, fumes, mists, vapours or gasses in areas occupied during construction.

- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after completion of work to assure removal of harmful contaminants.
- .2 On work for which permanent heating and ventilation system is used, replace filters and comply with requirements of Mechanical General Provisions as applicable during Work and at time of final acceptance of Work.
- .3 Contractor's temporary use of HVAC equipment shall not contaminate equipment or ducting.
- .4 Temporary Telephone Service.
 - .1 Arrange, pay for and maintain temporary telephone service (landline or cellular) used during construction in accordance with authorities having jurisdiction. Provide at least one telephone in Contractor's field office available for use by the City, Contractor, Subcontractors and Contract Administrator.
- .5 Temporary Digital Co-ordination.
 - .1 Provide on-site lap top computer with internet access and digital camera to permit emailing of correspondence and photos of construction issues to Contract Administrator for prompt co-ordination and response.
- .6 Temporary Water Supply.
 - .1 Contractor may connect to existing potable water supply for construction use within construction area. Cost of water reasonably so used will be provided without charge.

1.4 CONSTRUCTION FACILITIES

- .1 Contractor Site Offices
 - .1 The City will permit the Contractor to occupy a designated portion of the Library for their construction office.
 - .1 Such areas may be used contingent upon there being no delay in completion of the work and there being no damages to material or finishes.
 - .2 Personal Protective Equipment:
 - .1 Provide and store within site office personal protective equipment for use of the City's personnel visiting the site.
 - .2 Provide six (6) each of the following:
 - .1 Hard hats.
 - .2 Protective eyewear (eyeglass type – not goggles for sanitary reasons).
 - .3 Hi-Visibility Safety vests.
 - .4 Safety shoes – either rubber boots with steel toes or strap-on type steel toe guards. Provide in several adult shoe sizes.
- .2 Construction Equipment, Tool, and Material Storage.
 - .1 Refer to Section 01 61 00.
 - .2 Provide and maintain, in clean orderly condition, adequate lockable, weather tight trailers for storage of materials, tools, and equipment which are subject to damage by weather. Co-ordinate location(s) with The City.

- .3 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .4 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.
- .3 First Aid.
 - .1 Provide and maintain clearly marked and fully stocked first-aid case in readily available location.
- .4 Sanitary Facilities.
 - .1 The Library will assign an existing washroom for Contractor use.
 - .2 The Contractor will provide all supplies for this washroom and ensure that it is kept clean and sanitary.
 - .3 Any damage caused by its use during construction will be repaired or replaced at no cost to The City.
 - .4 Post notices and take such precautions as required by local health authorities.

1.5 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide and maintain adequate access to project site.
- .2 Build and maintain temporary roads, sidewalk crossings, ramps, and construction runways to maintain access, and snow removal during period of Work.
- .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.
- .4 Conform to requirements of governing authorities when required and, when necessary, make arrangements with adjacent property owners.
- .5 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.
- .6 Maintain access to property including overhead clearances for use by emergency response vehicles.
- .7 parking permitted on site, limited to the existing parking lot.
- .8 Provide snow removal during period of Work, including to complete parking lot. Snow piling is permitted in the rear (west) parking lot along the western fence. Removal of snow pile is required; pile shall not exceed 10 feet in height and Contractor shall maintain access to existing Sea Cans and storage sheds.

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect adjacent private and public property from damage during the performance of work.
- .2 Be responsible for all damage incurred.

1.7 PROTECTION OF EXISTING READING TERRACE SCULPTURE

- .1 On the main level of the Reading Terrace stands an existing painted steel sculpture that cannot be moved and will remain in place for the duration of the guardrail upgrade. The Contractor is to ensure that this sculpture is protected from ALL damage which may be caused by workers, scaffolding, falling debris, etc.

1.8 CONSTRUCTION AIDS

- .1 Construction Hoists and Cranes.
 - .1 Provide, operate and maintain hoists and cranes required for moving of works, materials and equipment. Make financial arrangements with Subcontractors for use thereof.
 - .2 Operate hoists and cranes using qualified personnel.
- .2 Scaffolding and Platforms.
 - .1 Construct and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs in rigid, secure and safe manner in accordance with CAN/CSA S269.2.
 - .2 Erect scaffolding and platforms independent of walls. Remove promptly when no longer required.

1.9 TEMPORARY BARRIERS AND ENCLOSURES

- .1 Work Area Enclosure.
 - .1 Erect temporary enclosures to separate construction area from the adjacent Library areas on each floor.
 - .2 The existing metal fence panels that currently surround the floor edges on Levels 3 and 4 are available to be used by the Contractor. These are to be supplemented as required by the Contractor in order to properly enclose the work area.
 - .3 Provide lockable gates as required for access into the work area by workers and to prevent entry by others.
- .2 Protection of Building Finishes and Equipment.
 - .1 Provide protection for existing finishes and equipment during the performance of work.
 - .2 Provide necessary screens, covers and hoardings.
 - .3 Confirm locations and installation with Contract Administrator at least three (3) days prior to installation.
 - .4 Be responsible for damage incurred due to lack of or improper protection.
- .3 Site Storage and Over Loading.
 - .1 Refer to Section 01 61 00.
 - .2 Confine Work and operations of workforce to limits indicated by Contract Documents. If Work must be performed in another area, notify and obtain permission from the City.
 - .3 Do not unreasonably encumber site with material or equipment.
 - .4 Move stored products or equipment interfering with operations of the City.
 - .5 Do not load or permit to be loaded any part of Work with weight or force that will endanger Work.
 - .6 Obtain and pay for use of additional storage or work areas needed for operations or for delivered equipment or materials not required immediately on site.
 - .7 Repair all existing site conditions damaged by use of site to match pre-construction conditions.

- .4 Security Measures.
 - .1 In addition to requirement herein, provide hoarding and enclosures of sufficient strength and dimension to prevent unauthorized entry of all persons.
 - .2 Maintain at site, at all times, names and telephone numbers of all Contractor's and Subcontractor's representatives, available to hand for use in event of need for immediate response in emergency situations.

1.10 SITE SIGNS AND NOTICES

- .1 Site Signs and Notices: signs and notices for safety or instruction to be in both official languages, or commonly understood graphic symbols to CAN/CSA Z321.
- .2 Maintain approved signs and notices in good condition for duration of project and dispose of off-site on completion of project or earlier if directed by Contract Administrator.
- .3 No other signs or advertisements, other than warning signs, are permitted on site, except by specific written permission by the City.

Part 2 Products

Part 3 Execution

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 31 00 – Project Management and Co-ordination.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 50 00 – Temporary Facilities and Controls.
- .4 Section 01 74 00 – Cleaning and Waste Management

1.2 SECTION INCLUDES

- .1 Product quality, availability, storage, handling, protection, and transportation.
- .2 Procedures for product substitution.
- .3 Manufacturer's instructions.
- .4 Quality of Work, co-ordination and fastenings.
- .5 Co-ordination:
 - .1 Contractor shall co-ordinate the exact location of mechanical and electrical fixtures, outlets, switches, panels, etc. which are located in architectural wall and ceiling finishes with Contract Administrator prior to rough-in and cutting of openings and recesses.
 - .2 Contractor shall be responsible for all costs associated with relocation of mechanical and electrical devices (including replacement of damaged wood veneer paneling, linear wood ceilings and other architectural finishes) resulting from failure to co-ordinate with Contract Administrator prior to rough-in.

1.3 LABOUR AND PRODUCTS

- .1 Products, material and equipment used to contain no asbestos fibre.

1.4 REFERENCE STANDARDS

- .1 *B7: Substitutes, of the Bidding Procedures.*
- .2 Within text of each specifications section, reference may be made to reference standards.
- .3 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .4 If there is question as to whether any product or system is in conformance with applicable standards, Contract Administrator reserves right to have such products or systems tested to prove or disprove conformance.
- .5 Cost for such testing will be born by the City in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .6 Conform to latest date of issue of referenced standards in effect on date of submission of Bids, except where specific date or issue is specifically noted.

1.5 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays in any items. If delays in supply of products are foreseeable, notify Contract Administrator of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of work.
- .2 In event of failure to notify Contract Administrator at commencement of work and should it subsequently appear that work may be delayed for such reason, Contract Administrator reserves right to substitute more readily available products of similar character, at no increase in contract price or contract time.

1.6 QUALITY AND CONFORMANCE

- .1 When material or equipment is specified by standard or performance specifications, upon request of Contract Administrator, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.
- .2 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should any dispute arise as to quality or fitness of products, decision rests strictly with Contract Administrator based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.7 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, contamination, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in work.
- .3 Store products subject to damage from weather in weatherproof enclosures as specified in Section 01 50 00.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

- .6 Store construction materials on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Contract Administrator.
- .9 Touch-up damaged factory finished surfaces to Contract Administrator's satisfaction. Use touch-up materials to match original. Do not paint over name plates.
- .10 Cleaning in accordance with Section 01 74 00.
- .11 Waste Management and Disposal in accordance with Section 01 74 19.

1.8 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of work.
- .2 Transportation costs of products supplied by the City will be paid for by the City, unless specified otherwise. Unload, handle and store such products, unless otherwise specified.

1.9 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specification, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Contract Administrator in writing, of conflicts between specifications and manufacturer's instructions, so that Contract Administrator may establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements authorizes Contract Administrator to require removal and re-installation at no increase in Contract Price or Contract Time.

1.10 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Contract Administrator if required work is such as to make it impractical to produce required results.
- .2 Enforce discipline and good order among workers.
- .3 Do not employ anyone unskilled in their required duties. Contract Administrator reserves right to require dismissal from site, workers deemed incompetent or careless.
- .4 Decisions as to standard or fitness quality of work in cases of dispute rest solely with Contract Administrator, whose decision is final.

1.11 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Ensure Work of various Subcontractors does not conflict or create interference.

- .3 Be responsible for the proper co-ordination and placement of openings, sleeves, and accessories.
- .4 Supply all items required to be built in as and when required, together with templates, measurements and shop drawings.
- .5 Ensure all workers examine the drawings and specifications covering the Work of others that may affect the performance of their own Work. Examine the Work of others and report to the Contract Administrator, in writing, any defects, or deficiencies that may affect the Work. In the absence of any report, the Contractor shall be held to have waived all claims for damage to or defects in such Work.
- .6 Ensure that components requiring foundations or openings that are required for the installation of Work is co-ordinated. Furnish the necessary information to the Sections concerned in ample time to permit allowance for such items. Failure to comply with this requirement does not relieve the party at fault of the cost of cutting or drilling at a later date and subsequent patching.
- .7 Extras to the Contract where architectural, structural, or mechanical work requires relocation or modifications due to the failure of the Electrical Subcontractor to co-ordination the work and provide interference co-ordination drawings will not be accepted.

1.12 CONCEALMENT

- .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation, inform Contract Administrator if there is interference. Install as directed by Contract Administrator.

1.13 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.14 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate. Contract Administrator may move these up to 3m from position indicated, at no cost to the City, provided notice is given before related work has commenced.
- .2 Inform Contract Administrator of conflicting installation. Submit field drawings to indicated relative position of various services and equipment when required by Contract Administrator. Install as directed.
- .3 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .4 Contractor shall be responsible for all costs associated with relocation of mechanical and electrical devices (including replacement of damaged stone veneer cladding and wood paneling) resulting from failure to co-ordinate with Contract Administrator prior to rough-in.

1.15 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically request in affected specification section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.16 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.17 PROTECTION OF WORK IN PROGRESS

- .1 Protect Work completed or in progress.
- .2 Prevent overloading of any part of the building. Do not cut, drill, or otherwise sleeve any load bearing structural member unless specifically indicated on drawings or in Specifications without written approval of the Contract Administrator.

Part 2 Products

2.1 PRODUCT OPTIONS

- .1 Products specified by reference standards or by description only: any product meeting those standards or description is acceptable for use.
- .2 Products specified by naming one or more manufacturers: submit request for substitution for any manufacturer not named.

2.2 SUBSTITUTIONS

- .1 Refer to Section 01 33 00 and *B8: Substitutes, of Bidding Procedures*.
- .2 The Work is based on the Materials and methods specified in the specifications.

- .3 Should substitutions be required because of unavailability the Contract Administrator will consider proposals to substitute specified products/materials with alternate products/materials.
- .4 Substitutions are not allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- .5 Each proposal must:
 - .1 Include sufficient information in the form of product data, specifications, drawings, and other manufacturer's data to enable the Contract Administrator to properly evaluate the proposal.
 - .2 Identify changes required in the applicable Work which would become necessary to accommodate the substitute.
- .6 The Contract Administrator reserves the right to accept or reject any proposal without prejudice for any reason whatsoever and reserves the right to disclose or not to disclose their reasons for such rejection.
- .7 In submittal of a request for substitution it is hereby understood that the person or entity submitting the request is certifying that the proposed substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule.

Part 3 Execution

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM).
 - .1 ASTM E1971-05(2011), Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings.
- .2 Canadian Federal Legislation.
 - .1 Canadian Environmental Protection Act (CEPA).
 - .2 Canadian Environmental Assessment Act (CEAA).
 - .3 Transportation of Dangerous Goods Act (TDGA).
 - .4 Motor Vehicle Safety Act (MVSA).
- .3 Refer to C6 – Responsibilities of Contractor, in General Conditions for Construction.

1.2 QUALITY ASSURANCE

- .1 Ensure all work is performed in compliance with CEPA, CEAA, TDGA, MVSA, and all applicable federal and provincial regulations.
- .2 Except for items specifically noted, waste or abandoned materials and equipment are Contractor's property and must be promptly removed from site.
- .3 Equipment and re-useable items remain property of the City and must be stored as directed.

1.3 POLLUTION CONTROL

- .1 Maintain pollution control features installed under this contract.
- .2 Ensure proper disposal procedures as indicated herein are maintained throughout project.
- .3 Control emissions from equipment and plant to local authorities emission requirements.
- .4 Prevent sanding dust and other extraneous materials from contaminating air beyond application area by providing temporary enclosures.

1.4 FIRES

- .1 Fires and burning of rubbish on site not permitted

1.5 WASTE MANAGEMENT

- .1 Provide on-site covered commercial waste containers for collection of non-hazardous waste materials and debris. Keep containers covered to minimize spread of dust or other contaminants. Deposit waste in containers as work progresses and at end of each working day.
- .2 Place materials defined as hazardous, volatile, or toxic waste in special metal containers designated for hazardous waste and dispose of at end of each working day.
- .3 Waste Management and Disposal.
 - .1 Separate and recycle packaging and waste materials to maximum extent economically possible.
 - .2 Collect and separate glass, plastic, paper packaging, and corrugated cardboard in designated areas for recycling as work proceeds and at completion of the work.

- .3 Separate wood waste and place in designated areas in following categories for disposal or recycling: glass/solid wood/softwood/hardwood, and treated, painted, or contaminated wood.
- .4 Set aside damaged wood and dimensional lumber off-cuts for approved alternative uses (e.g. blocking).
- .5 Collect, package and store partially used or unused containers of asphalt, sealing compound, primer and roofing felts for recycling.
- .6 Place materials defined as hazardous or toxic waste in designated containers.
- .7 Use least toxic sealants, adhesives, sealers, and finishes necessary to comply with requirements of this Section.
- .8 Close and seal tightly, all partly used sealant containers and store protected in well ventilated fire-safe area at moderate temperature.
- .9 Place used sealant tubes and other containers in areas designated for hazardous materials.
- .10 Unused paint, caulking, and sealing compound materials must be disposed of at an official hazardous material collections site in accordance with legislation and authorities having jurisdiction. Do not dispose into sewer system, onto ground or in other location where it will pose health or environmental hazard.
- .11 Ensure all emptied containers are sealed and stored safely for disposal.
- .12 Fold up metal banding, flatten, and place in designated area for recycling.
- .13 Plan and co-ordinate insulation work to minimize generation of waste.
- .14 Designate on-site location for containers which facilitate recyclable materials without hindering daily operations.

1.6 DISPOSAL OF NON-HAZARDOUS WASTE

- .1 Do not sell or bury rubbish on site.
- .2 Obtain approval and pay for use of off-site municipal collection or local dump or sanitary landfill sites, depending upon materials involved in accordance with authorities having jurisdiction.
- .3 Where recycling is available, collect waste by type and co-ordinate pickup or delivery to recycling or collection facility.

1.7 DISPOSAL OF HAZARDOUS WASTE

- .1 Obtain legislation governing disposal of hazardous and toxic materials, and pay for disposal of these materials in accordance with this legislation and authorities having jurisdiction and requirements of contract documents.
- .2 Do not dispose of water or volatile materials such as: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.

Part 2 Products

Part 3 Execution

2.1 PROGRESSIVE CLEANING

- .1 Maintain cleanliness of work and surrounding site to comply with federal, provincial, and local fire and safety laws, ordinances, codes, and regulations.

- .2 Co-ordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials that will create hazardous conditions.
- .3 Vacuum clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations. Continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy.
- .4 Schedule cleaning operations so that resulting dust and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.
- .5 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .6 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning manufacturer.

2.2 FINAL CLEANING

- .1 When work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining work. Conduct inspection of sight exposed interior and exterior surfaces.
- .2 Leave the work 'broom clean' before the inspection process commences.
- .3 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel or baked enamel. Replace broken, scratched or disfigured glass.
- .4 Clean lighting reflectors, lenses, and other lighting surfaces.
- .5 Remove stains, spots, marks, and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls and floors.
- .6 Vacuum clean and dust building interiors, behind grilles, louvers and screens.
- .7 Wax, seal, shampoo, or prepare floor finishes as recommended by the manufacturer.
- .8 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .9 Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment.
- .10 Inspect finishes, fitments and equipment and ensure proper workmanship and operation.
- .11 Broom clean and wash exterior walks, steps and platforms.
- .12 Broom clean parking lots, pads and paving accessible to vehicle traffic.
- .13 Remove dirt and other disfigurations from exterior surfaces.
- .14 Clean and sweep roofs, gutters, areaways, sunken wells.
- .15 Sweep and wash clean paved areas. Rake clean other surfaces of grounds.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 31 00 – Project Management and Co-ordination.
- .2 Section 01 33 00 – Submittals Procedures.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Refer to *D30: Warranty, of Supplemental Conditions and General Conditions*.
- .2 Pre-warranty Meeting:
 - .1 Convene meeting one (1) week prior to contract completion with Contractor's representative, the City and Contract Administrator:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 Contract Administrator 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 INFORMATION SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Submit one (1) electronic copy in Adobe PDF format, plus one (1) hard copy to Contract Administrator for their review prior to submitting final copies. One (1) copy will be returned after final review, with Contract Administrator's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Submit to Contract Administrator, two (2) weeks prior to Substantial Performance of the Work, final revised copies of Operating and Maintenance manuals, in English, consisting of one (1) electronic copy in PDF format, plus one (1) hard copy.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 If requested, furnish evidence as to type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

1.4 AS-BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at the site for Contract Administrator one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the 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. 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. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for review by Contract Administrator.

1.5 PROJECT RECORD DOCUMENTS

- .1 Maintain at construction site, three (3) sets of white prints for record drawing purposes. Mark one (1) set "FIELD DRAWINGS" and use to record initial data when field measurements are made. Mark other two sets "RECORD DRAWINGS".
- .2 Store record drawings in field office apart from other documents used for construction. Maintain record drawings in clean, dry and legible condition. Do not use record drawings for construction purposes.
- .3 Record "as-built" information in red ink, accurately and concurrently with construction progress. Do not conceal work until required information is recorded.
- .4 Legibly mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by Addenda, Change Order and Field Instruction.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: legibly 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 manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.
- .8 At completion of project and prior to final review, neatly transfer "as-built" notations to second and third set of white prints and submit to Contract Administrator along with field drawings. In addition, submit on USB, AutoCAD files of project with all changes included to reflect "as-built" conditions. Drawings must be generated in most current AutoCAD version, and consistent with Bid Documents prepared in AutoCAD 2021.
 - .1 For Contractors' use in preparation of "as-built" drawings required under this contract, Contractors may purchase from Contract Administrator, electronic AutoCAD drawing files in accordance with Section 01 33 00.

1.6 MAINTENANCE MATERIALS

- .1 Spare Parts:
 - .1 Provide spare parts, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to site; place and store.
 - .4 Receive and catalogue all items.
 - .1 Submit inventory listing to Contract Administrator.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.
- .2 Extra Stock Materials:
 - .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to site; place and store.
 - .4 Receive and catalogue all items.
 - .1 Submit inventory listing to Contract Administrator.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.
- .3 Special Tools:
 - .1 Provide special tools, in quantities specified in individual specification section.
 - .2 Provide items with tags identifying their associated function and equipment.
 - .3 Deliver to site; place and store.
 - .4 Receive and catalogue all items.
 - .1 Submit inventory listing to Contract Administrator.
 - .2 Include approved listings in Maintenance Manual.
- .4 Delivery, Storage, And Handling:
 - .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
 - .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
 - .3 Store components subject to damage from weather in weatherproof enclosures.
 - .4 Store paints and freezable materials in a heated and ventilated room.

- .5 Remove and replace damaged products at own expense and to satisfaction of Contract Administrator.

1.7 OPERATION AND MAINTENANCE MANUALS

- .1 Prepare one (1) hardcopy and one (1) electronic copy (PDF) of Operation and Maintenance Manual for the project as indicated above. Electronic (PDF) file to be tabbed and OCR'd.
- .2 Prepare Operation and Maintenance Manuals for each Architectural, Mechanical and Electrical component of project.
- .3 Format.
 - .1 Organize data in form of an instructional manual.
 - .2 Binders for hardcopy: vinyl, hard covered, 3 "D" ring, loose leaf spine and fact pockets.
 - .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
 - .4 Cover: Identify each binder with printed title "Operation and Maintenance Manual"; list title of project and identify subject matter of contents.
 - .5 Arrange content 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 Hardcopy drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .4 Contents (each volume).
 - .1 Table of Contents: provide title of project; date of submission; names, addresses, and telephone numbers of Contract Administrator and Contractor with name of responsible parties; schedule of products and systems, indexed to content of volume.
 - .2 For each product or system; 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 clearly 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. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.
 - .6 A hardcopy and electronic copy of shop drawings as specified in Section 01 33 00.
- .5 Equipment and Systems.
 - .1 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
 - .2 Include installed colour coded wiring diagrams.
 - .3 Operating Procedures: Include complete list of equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number. Provide written explanation of operation of each system with instructions for trouble shooting of operational failures. Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

- .4 Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .5 Provide servicing and lubrication schedule, and list of lubricants required.
 - .6 Include manufacturer's printed operation and maintenance instructions.
 - .7 Include sequence of operation by controls manufacturer.
 - .8 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .9 Provide installed control diagrams by controls manufacturer.
 - .10 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
 - .11 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .12 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .13 Include test and balancing reports as specified.
 - .14 Additional requirements: including one complete set of final reviewed and stamped shop drawings; cop of hardware and paint schedules; requirements specified in individual specification sections.
- .6 Materials and Finishes.
- .1 Building Products, Applied Materials and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products as applicable.
 - .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.

1.8 EQUIPMENT AND SYSTEMS

- .1 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 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.

- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified.
- .15 Additional requirements: As specified in individual specification sections.

1.9 CONSTRUCTION PHOTOGRAPHS

- .1 Submit construction photographs as specified in Section 01 31 00.

1.10 WARRANTIES AND BONDS

- .1 Refer to *D30: Warranty, of Supplemental Conditions and General Conditions*.
- .2 Develop warranty management plan to contain information relevant to Warranties.
- .3 Submit warranty management plan, 30 days before planned pre-warranty conference, to Contract Administrator approval.
- .4 Warranty management plan to include required actions and documents to assure that Contract Administrator receives warranties to which it is entitled.
- .5 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .6 Submit, warranty information made available during construction phase, to Contract Administrator for approval prior to each monthly pay estimate.
- .7 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) Working Days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .8 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems such as fire protection, alarm systems, sprinkler systems, lightning protection systems.
 - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .4 Contractor's plans for attendance at four (4) and nine (9) month post-construction warranty inspections.
 - .5 Procedure and status of tagging of equipment covered by extended warranties.
 - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification to follow oral instructions:
 - .1 Failure to respond will be cause for the Contract Administrator to proceed with action against Contractor.
- .11 Warranty Tags
 - .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Contract Administrator.
 - .2 Attach tags with copper wire and spray with waterproof silicone coating.

- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

Part 2 Products

Part 3 Execution

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 05 12 00 – Structural Steel Framing.
- .2 Section 08 80 00 – Glazing.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM).
 - .1 ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A480/A480M-12, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
 - .3 ASTM A793-96(2009), Standard Specification for Rolled Floor Plate, Stainless Steel.
 - .4 ASTM B221M-12, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric].
 - .5 ASTM B429/B429M-10e1, Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
- .2 Aluminum Association (AA).
 - .1 Aluminum Standards and Data, 2009.
 - .2 Aluminum Alloy Castings - Properties, Processes, and Applications, 2004.
 - .3 Designation System for Aluminum Finishes, 2003.
 - .4 Introduction to Aluminum Alloys and Tempers, 2000.
- .3 American Architectural Manufacturers Association (AAMA).
 - .1 AAMA 611-12, Voluntary Specification for Anodized Architectural Aluminum.
 - .2 AAMA CW-10-04, Care and Handling of Architectural Aluminum from Shop to Site.
- .4 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
- .5 Manitoba Building Code, current edition (MBC).

1.3 SUBMITTALS

- .1 Shop Drawings.
 - .1 Submit shop drawings in accordance with Section 01 33 00.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
 - .3 Design and size components to meet or exceed the requirements for loads on walls acting as guards in accordance with MBC but not less than specified thickness and dimension.
 - .4 All fabricator designed assemblies, components and connections, and drawings to be stamped and signed by qualified Professional Engineer licensed in jurisdiction at Place of Work.
- .2 Closeout Submittals.
 - .1 Provide maintenance data including cleaning instructions for incorporation into Operation and Maintenance Manual specified in Section 01 78 00.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver all material to site in manufacturer's original unopened packaging with labels clearly identifying product name and manufacturer.
- .2 Store materials in a dry, enclosed area protected from exposure to moisture, construction activity, and direct sunlight in strict accordance with manufacturer's recommendations.
- .3 Handle all products with appropriate precautions and care as stated manufacturer's instructions.
- .4 Cleaning and Waste Management in accordance with Section 01 74 00.

Part 2 Products

2.1 MANUFACTURERS

- .1 Acceptable Products.
 - .1 C.R. Laurence Co. Ltd. (CRL) Glass Rail System.
 - .1 Square Base Shoe: L21S
 - .2 U-Channel Cap: GRLC107BS

2.2 MATERIALS

- .1 Railing Hardware:
 - .1 Base Shoe: 81 mm wide x 120.7 mm high rectangular cross-section, mill-finish aluminum. Designed to work with manufacturers' dry-glazed system with 21.52 mm laminated tempered glass.
 - .2 U-Channel Cap: 31.75mm wide x 33.3mm high x 11 gauge, brushed stainless steel cap for 21.52mm glass, square corners.
 - .3 Handrail bracket: custom fabricated stainless steel bent rod bracket with back-to back stainless steel mounting discs and through-glass threaded rod fastener. Refer to structural drawings for details.
- .2 Railing:
 - .1 Handrail: custom 51 mm (2") diameter oak handrail with steel bar internal support and plate connectors to bracket. Refer to structural drawings for details.
- .3 Laminated Safety Glass (LSG): to CAN/CGSB-12.1, Type 1 (laminated), Type 2 (tempered), Class B (float glass), Category II, clear, 2 layers of 10mm glass with 1.52 mm thick polyvinyl butyral (PVB) interlayer clean-cut, 21.52 mm total thickness, with minimum serration, hackle, etc., ground and polished edges where exposed.

2.3 ACCESSORIES

- .1 Fasteners: stainless steel of size and type to meet load requirement of guardrail in accordance with building code and all applicable local regulations, and as recommended by guardrail component manufacturer.

2.4 FABRICATION

- .1 Fabricate glass railing panels to required size and finish as specified. Provide cutouts for hardware and other attachments prior to tempering.

Part 3 Execution

3.1 INSTALLATION

- .1 Install glazing panels and railings in accordance with manufacturer's instructions and the structural drawings. Adjust operable parts for correct function.

3.2 CLEANING

- .1 Clean glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.
- .2 Remove protective films from metal surfaces.
- .3 Clean metal trims and profiles with clean water and mild detergent. Do not use abrasive chemicals, detergents, or other implements that may mar or gouge the material.

3.3 PROTECTION

- .1 Protect completed work from construction activity until project completion.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 05 73 00 – Tempered Glass Railing System.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM).
 - .1 ASTM A666-15, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - .2 ASTM A1011/A1011M-18a, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
 - .3 ASTM D1037-12(2020), Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
 - .4 ASTM D5456-19, Standard Specification for Evaluation of Structural Composite Lumber Products.
 - .5 ASTM E84-20, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .6 ASTM E1333-14, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC) / Woodwork Institute (WI).
 - .1 North American Architectural Woodwork Standards (NAAWS)- 4.0, 2021.
- .3 Canadian Standards Association (CSA).
 - .1 CSA O121-17, Douglas Fir Plywood.
 - .2 CSA O141-05 (R2019), Softwood Lumber.
 - .3 CSA O151-17, Canadian Softwood Plywood.
 - .4 CSA O153-19, Poplar Plywood.
- .4 National Hardwood Lumber Association (NHLA).
 - .1 Rules for Measurement and Inspection of Hardwood and Cypress, 2019.
- .5 National Lumber Grades Authority (NLGA).
 - .1 NLGA Standard Grading Rules for Canadian Lumber, 2017.
- .6 Underwriters Laboratories of Canada (ULC).
 - .1 CAN/ULC S102-18, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.3 SUBMITTALS

- .1 Shop Drawings.
 - .1 Submit shop drawings in accordance with Section 01 33 00.
 - .2 Indicate construction details including typical and special installation conditions, materials being supplied and all connections, attachments, anchorage and location of exposed fastenings, as applicable.
 - .3 Indicate dimensions, description of materials and finishes, material thicknesses, general construction, specific modifications, component connections, anchorage methods, hardware, and installation procedures, plus the following specific requirements:

- .1 Include section drawings of typical and special millwork, work surfaces and accessories.
- .2 Indicate locations of plumbing and electrical service field connection by others.
- .4 Submit manufacturer's descriptive literature of specialty items not manufactured by this Section.
- .2 Samples.
 - .1 Submit samples in accordance with Section 01 33 00.
- .3 Closeout Submittals.
 - .1 Submit operation and maintenance data for incorporation into Operations and Maintenance Manual specified in Section 01 78 00.

1.4 QUALITY ASSURANCE

- .1 Qualifications.
 - .1 Manufacturer: minimum five (5) years of experience in manufacturing architectural woodwork for similar types of projects, and adequate facilities and personnel required to perform on this project.
 - .2 Installer: manufacturer to perform installation. Any installer other than manufacturer is prohibited.
- .2 Regulatory Requirements.
 - .1 Comply with NAAWS for grades of raw materials as specified.
 - .2 Perform work of this Section to specified standards for quality of workmanship, materials, installation and execution of the design intent in accordance with NAAWS.
 - .3 Notify Contract Administrator of conflicts between NAAWS.
- .3 Mock-Ups.
 - .1 Construct mock-up of typical oak handrail section on one tempered glass panel, nominally 5'-0" wide, for on-site review in accordance with Section 01 45 00 by the Contract Administrator.
 - .2 Mock-up will be reviewed for consistency with shop drawings, quality of workmanship, and overall appearance.
 - .3 Once approved, mock-ups will set standard of acceptance for remaining fabrications.
 - .4 Do not proceed with architectural woodwork fabrications until mock-up is complete and approved by the Contract Administrator.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Maintain relative humidity during fabrication, storage and installation of architectural woodwork between 25% and 55% at 21°C in order to keep unfinished interior wood at satisfactory moisture level.
- .2 Transport, handle or store assembled architectural woodwork and/or their component parts in manner to preclude damage of any kind as follows:
 - .1 Do not subject items to abnormal heat, extreme dryness, humid conditions, sudden changes in temperature, or direct sunlight.
 - .2 Store items on level surface in area with proper humidity control and ventilation to prevent wetting and/or other damage.
- .3 Woodwork which is damaged in any way or does not comply with these specifications will be rejected by the Contract Administrator and must be removed from the job site and replaced with acceptable materials.

- .4 Cleaning and Waste Management in accordance with Section 01 74 00.
- .5 Waste Management and Disposal in accordance with Section 01 74 19.

1.6 SITE CONDITIONS

- .1 Environmental Requirements.
 - .1 Do not deliver or install architectural woodwork until permanent HVAC systems are operating and temperature and humidity have been stabilized for at least seven (7) calendar days. Manufacturer to advise Contractor of temperature and humidity requirements for architectural woodwork delivery and installation. After installation, control temperature and humidity to maintain same temperature and humidity levels.

1.7 WARRANTY

- .1 Fabrication Contractor's Warranty: provide an extended warranty for Work of this Section for a period of three (3) years from date of Total Performance of the Work. Contractor hereby warrants that architectural woodwork will not warp, twist, show core lines, split, delaminate, sag, and these or other observed defects and deficiencies will be repaired or replaced to the satisfaction of the City and Contract Administrator, and at no expense to the City.

Part 2 Products

2.1 WOOD MATERIALS

- .1 Solid Hardwood.
 - .1 "Premium Grade" White Oak, to match existing Library handrails, no mineral streaks or black flecks accepted, make careful consideration for colour and grain consistency, moisture content 4-9% or less in accordance with following standards:
 - .1 AWMAC/WI North American Architectural Woodwork Standards.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .3 NHLA Rules for Measurement and Inspection of Hardwood and Cypress.

2.2 ACCESSORIES

- .1 Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior work, interior humid areas and for treated lumber; stainless steel finish elsewhere.
- .2 Wood screws: to CSA B35.4 stainless steel, type and size to suit application.
- .3 Splines: wood, plastic, or metal.
- .4 Adhesive: recommended by manufacturer; use least toxic sealants, adhesives, sealers, and finishes necessary to comply with requirements of this section.
- .5 Joint sealants and caulking, as required.

2.3 FABRICATION - GENERAL

- .1 Fabricate architectural woodwork in accordance with reviewed shop drawings and to standards specified for materials and workmanship in accordance with NAAWS unless otherwise noted.
- .2 Obtain site dimensions before fabricating items.
- .3 Set and secure all materials and components in place, rigid plumb and square.

2.4 HANDRAILS

- .1 Fabricate from hardwood lumber to AWMAC premium grade to profiles indicated and to fit applicable supports as specified in Section 05 73 00 and indicated on drawings.
- .2 Make joints hair line, dowelled and glued.
- .3 Install onto brackets as indicated with self-tapping screws, counter-sunk
- .4 Wood plugs, if required, are to match the handrail.

Part 3 Execution

3.1 PREPARATION

- .1 Co-ordinate and verify, by measurement at job site, all dimensions affecting work.
- .2 Report, in writing, any defects in work of other Sections and any other unsatisfactory site conditions. Starting work in particular area of building implies acceptance of conditions and surfaces in that area only.
- .3 Where units or members are required to be fitted neatly into finished walls or openings, fabrication from drawing information are supplemented with actual job site dimensions.
- .4 Where dimensions are not available before fabrication is commenced, coordinate agreement between various Sections.
- .5 Examine drawings, specifications, and site to ascertain fabrication and installation procedures so that work may be completed with minimum of job site cutting and fitting.
- .6 Ensure that all components are manufactured in size such that they can be transported to proper job site location.

3.2 INSTALLATION

- .1 Install architectural woodwork in accordance with reviewed shop drawings and to "Premium Grade" standards for quality of workmanship, materials, installation and execution of the design intent in accordance with NAAWS.
- .2 Install architectural woodwork, plumb, level, true and straight with no distortions.
- .3 Fit stainless steel hardware and support brackets accurately and securely. All joinery is to be tight and of the highest quality.

3.3 CLEANING

- .1 Clean all wood surfaces. Wipe off fingerprints, pencil marks, and surface soil etc.
- .2 Remove and dispose of all packing materials and related construction debris.

3.4 PROTECTION

- .1 Protect installed architectural woodwork from damage until project completion.

END OF SECTION