

PART 1 GENERAL

1.01 MINIMUM STANDARDS

- .1 Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the most recent edition of the National Building Code of Canada (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.

1.02 TAXES

- .1 Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

1.03 FEES, PERMITS, AND CERTIFICATES

- .1 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.

1.04 FIRE SAFETY REQUIREMENTS

- .1 Comply with the most recent editions of National Building Code of Canada (NBC) for fire safety in construction and the National Fire Code of Canada (NFC) for fire prevention, firefighting and life safety in building in use.
- .2 Welding and cutting:
 - .1 Before welding, soldering, grinding and/or cutting work, obtain a permit from the Fire Prevention Unit as directed by the Departmental Representative. Store flammable liquids in approved CSA containers inspected by the Fire Prevention Unit. No open flame shall be used unless authorized by the Fire Prevention Unit.
 - .2 At least 48 hours prior to commencing cutting, welding or soldering procedure, provide to Departmental Representative:
 - .1 Notice of intent, indicating devices affected, time and duration of isolation or bypass.
 - .2 Completed Hot Work Permit
 - .3 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.
 - .4 A fire watcher as described in FC 302 shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 10m may be ignited by conduction or radiation.
 - .3 Store flammable liquids in approved in CSA containers inspected by the Fire Prevention Unit. No open flame is to be used unless authorized by the Fire Prevention Unit.
 - .4 Burning rubbish or any construction product or waste material is not permitted.

1.05 FIELD QUALITY CONTROL

- .1 Carry out Work using qualified licenced workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
- .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licenced workers.
- .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.
- .4 Qualifications
 - .1 **Prequalification:** Bidders when specifically requested, must complete and submit prequalification form provided with Bid Form to Departmental Representative.
 - .2 **Subcontractors:** Owner reserves right to reject proposed subcontractor for reasonable cause.

1.06 TEMPORARY UTILITIES

- .1 Existing services required for the work may be used by the Contractor without charge. Ensure capacity is adequate prior to imposing additional loads. Connect and disconnect at own expense and responsibility.
- .2 Notify Departmental Representative and utility companies of intended interruption of services; obtain requisite permission.
- .3 Give Departmental Representative 10 working days notice for each interruption of mechanical or electrical service throughout the course of the work. Keep duration of interruption to a minimum. Carry out interruptions during off hours.

1.07 REMOVED MATERIALS

- .1 Unless otherwise specified or directed by Departmental Representative, materials for removal become the Contractor's property and shall be taken from site.
- .2 Immediately take removed materials from site. Leave no build-up of removed materials on site.
- .3 Prepare salvaged and removed materials by loading onto pallets and securely strapping. . Cover and prevent damage and deterioration during storage on site and transport.
- .4 Store salvaged material on site where directed by Departmental Representative and/or provide transport to location on the Central Experimental Farm as directed by Departmental Representative.
- .5 Provide transport for items removed from site to be restored or worked on in shop.

1.08 PROTECTION

- .1 Protect finished work against damage until take-over.
- .2 Protect adjacent work against the spread of dust and dirt beyond the work areas.
- .3 Protect operatives and other users of site from all hazards.

1.09 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to the normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building.
- .3 Where security is reduced by work provide temporary means to maintain security. Provide security services contact information to Departmental Representative.
- .4 Protect from damage, safety hazards and overloading of existing equipment.

1.10 CUT, PATCH AND MAKE GOOD

- .1 Cut existing surfaces as required to accommodate new work.
- .2 Remove all items so shown or specified.
- .3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.

1.11 EXAMINATION

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.
- .2 Prior to undertaking any on-site work, provide high resolution digital photographs of surrounding properties, objects and structures liable to be damaged by the work of the Contract, or be the subject of subsequent claims. Carry out a joint inspection with the Departmental Representative.
- .3 All documentation will serve as a benchmark on existing conditions. Provide a written report together with progress photographs every two months on existing conditions for the Departmental Representative's review and comment.

1.12 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Keep within limits of work access and egress routes. Review proposed routes with Departmental Representative.

1.13 WASTE MANAGEMENT

- .1 Comply with the Environmental Protection Act, Ontario Regulations O.Reg. 102/94 and O. Reg. 103/94 for waste management program on construction and demolition projects.
- .2 Conduct "waste audit" to determine waste generated during demolition or construction operations, prepare written "waste reduction work plan" and implement procedures to reduce, reuse and recycle materials to the extent possible.
- .3 Provide a "source separation program" to disassemble and collect in an orderly fashion the following "materials designated for alternative disposal" from the "general waste" stream.
 - .1 cardboard (corrugated).

- .2 steel.
 - .3 wood (not including treated or laminated wood).
- .4 Submit complete records of all removals from site for both "materials designated for alternative disposal" and "general waste" including:
 - .1 Time and date of removal
 - .2 Description of material and quantities.
 - .3 Proof that materials have been received at an Approved Waste Processing Site or certified Waste Disposal Site as required.

1.14 GUARANTEES AND WARRANTIES

- .1 Before completion of work collect all manufacturer's guarantees and warranties and deposit with Departmental Representative.

1.15 BUILDING SMOKING ENVIRONMENT

- .1 Smoking is not permitted in the Building. Obey smoking restrictions on building property.

1.16 TESTING LABORATORY SERVICES

- .1 Departmental Representative will appoint and pay for costs of inspection and testing services, unless indicated otherwise.
- .2 Provide safe working areas and assist with testing procedures, including provisions for materials or services and co-ordination, as required by testing agency and as authorized by Departmental Representative.
- .3 Where tests indicate non-compliance with specifications, contractor to pay for initial test and all subsequent testing of work to verify acceptability of corrected work.

1.17 SCHEDULING

- .1 Completion of the work shall not extend 34 weeks after contract award. Plan and make provision for winter conditions, weekend and night work as necessary to meet the stipulated deadline for completion of the work.
- .2 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion in accordance with Section 01 32 16.06 – Construction Progress Schedule Critical Path Method (CPM). When schedule has been reviewed by the Departmental Representative, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.
- .3 Provide a separate two-week look-ahead schedule, based on the detailed project schedule, to show the advancement of work. Submit an updated two-week look-ahead schedule, every other week, 48 hours prior to the project progress meeting.
- .4 Carry out work during "regular hours" Monday to Friday from 06:00 to 18:00 hours. Notify Departmental Representative prior to carrying out work beyond these hours.
- .5 Pre-Construction Conference
 - .1 One week prior to scheduled start of work of this Section the following parties will attend a site meeting: Project Construction Manager, Departmental

- Representative, prequalified trades, materials manufacturer / supplier and representatives of other entities directly concerned with Work of this Section.
- .2 The purpose of the meeting will be to review all pertinent details and specifications, noting any potential problems and making any changes, deletions or additions as deemed necessary. The meeting will address the following:
 - .1 Verify Project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Coordination with other trades.
 - .4 Availability of materials.
 - .5 Submittal requirements.
 - .6 Scheduling.
 - .7 Additional items relating to the Work.
 - .3 Attendees will also inspect the worksite and review condition of site and substrates, protection requirements, determine where mock-ups will be prepared and where or how other requirements such as lighting, heating and ventilation will be implemented.

1.18 COST BREAKDOWN

- .1 Before submitting first progress claim submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

1.19 PRECEDENCE

- .1 For Federal Government projects, Division 01 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

1. Federal Legal Requirements
 1. Canada Labour Code, Part II, section 124 and 125. Canada Occupational Health and Safety Regulations
 2. Transportation of Dangerous Goods Act, 1992 (TDGA)
 3. Canada Consumer Product Safety Act
 1. Surface Coating Materials Regulations SOR/2005-109.
 4. Canadian Environmental Protection Act, 1999 (CEPA)
 1. PCB Regulations (SOR/2008-273)
 2. Federal Halocarbon Regulations, 2003 (SOR/2003-289)
2. Provincial Legal Requirements
 1. Ontario Occupational Health and Safety Act, R.S.O. 1990, 2010 edition.
 1. Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).
 2. Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, (O.Reg. 278/05).
 3. Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91)
 2. Ontario Environmental Protection Act, R.R.O. 1990,
 1. Ontario Regulation 347/09, General – Waste Management (O.Reg. 347/09).
 2. Ontario Regulations 362/90 – Waste Management, PCBs (O.Reg. 362/90)
 3. Ontario Regulation 463/10, Ozone Depleting Substances and Other Halocarbons (O.Reg. 463/10).
3. Canadian General Standards Board (CGSB).
4. Canadian Standards Association (CSA International). CAN/CSA-Z94.4-11 - Respiratory Protection
5. Underwriters' Laboratories of Canada (ULC).

1.2 DEFINITIONS

Asbestos-Containing Materials (ACMs): means material that contains 0.5 per cent or more asbestos by dry weight as per Ontario Regulation 278/05.

Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

Time-weighted average exposure limit (TWAEEL): the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by Ontario Regulation 490/09 Designated Substances, as amended.

Lead Leachate Hazardous: Material considered hazardous for disposal determined by Toxicity Characteristic Leaching Procedure (TCLP) to contain a concentration of lead greater than 5 mg/L, as per Ontario Regulation 347/90, as amended.

1.3 RELATED SECTIONS

1. Section 02 83 20 – Lead Abatement
2. Section 02 82 00.01 – Asbestos Abatement Minimum Precautions

1.4 DESIGNATED SUBSTANCES

A Designated Substances Survey was completed in support of the Building Envelope Restoration Project, scheduled to be completed at Building 54, located at the Central Experimental Farm, Ottawa, Ontario.

Refer to Designated Substances Summary Report "Project-Specific Designated Substances Survey – Revision C, Building Envelope Restoration Project, Building 54, Central Experimental Farm, Ottawa, Ontario, dated March 16, 2016 (DST File No. BE-OT-021253) for the description of the methodology used to assess the designated substances within the project areas.

Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.

Additional designated substances and hazardous materials may exist outside the accessible survey area but are beyond the scope of this project.

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

1. ACRYLONITRILE: Not Identified
2. ARSENIC: Not Identified
3. ASBESTOS: **Identified**

Bulk sampling and subsequent laboratory analysis has determined that the following materials contain regulated concentrations of asbestos:

- Window putty associated with building windows (around each pane) was confirmed to contain 0.88% Chrysotile. Based on the confirmed presence of asbestos in window putty materials, all building window putty and/or window caulking materials should be assumed to contain asbestos.

Bulk sampling and subsequent laboratory analysis has determined that the following materials do not contain regulated concentrations of asbestos:

- Exterior tar paper and membrane;
- Exterior black shingle and membrane of Porch/Veranda roof;
- Exterior white caulking;
- Exterior roof single, tar paper, and membrane layer;
- Exterior wall tar paper;
- Exterior flat roofing;
- Interior plaster (main building, addition, and attic);
- Paper from interior wall cavities and attic;
- Black window putty; and
- Tar paper flooring layer.

The plaster/cementitious material beneath the ground level floor boards (visible at ceiling level from the basement) has been confirmed to be non-asbestos through a separate sampling program.

4. BENZENE: Not Identified
5. COKE OVEN EMISSIONS: Not identified
6. ETHYLENE OXIDE: Not Identified
7. Halocarbons: Not Identified
8. ISOCYANATES: Not Identified
9. LEAD: **Identified**

Twelve (12) different interior and exterior paints were collected and analyzed within the project area. All paints were confirmed to be lead-containing (119 to 285,000 parts per million).

The following lead-containing materials have been confirmed to be lead leachate hazardous with respect to disposal:

- Loose and delaminating paints (paints only, excluding substrate) have been determined to contain concentrations of lead above the 5 mg/L limit, as per O.Reg 347/90, as amended.

Lead is assumed to also be present in the following:

- Lead sheeting/flashing materials

10. MERCURY: Not Identified

11. POLYCHLORINATED BIPHENYLS (PCBs): Not Identified

12. SILICA: **Identified**

Free crystalline silica is expected to be present in concrete and cement materials, roof materials and associated layers, stone and mortar, brick and mortar, plaster, brick and mortar.

13. VINYL CHLORIDE MONOMER: Not Identified

14. OTHER HAZARDOUS SUBSTANCES: **Identified**

- Areas of water damage and/or mould are assumed present behind exterior wood building materials.
- Avian/bird nesting materials were noted in an exposed area of the roofline on the north side of the building. Evidence of animals and birds was noted within attic spaces of the buildings. These areas contain avian/animal fecal matter that may be a source of bacteriological contamination due to the health concern of mycotic organisms inhabiting avian fecal matter. Avian wildlife may also be present including bees and wasps.

1.5 RECOMMENDATIONS

1. ASBESTOS

1. All work must be done in accordance with O.Reg 278/05 (as amended).
2. The disturbance of ACMs on construction and demolition projects in the province of Ontario is governed by O.Reg. 278/05, as amended. This regulation classifies all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition. The Ontario Ministry of Labour (MoL) must be notified of any project involving removal of more than a minor amount (e.g. typically 1 square metre) of friable asbestos material.
3. Type 1 work procedures can be used for the removal of assumed non-friable ACMs (e.g. window putty and/or caulking), provided that the material can be wetted and removed using only non-powered hand tools. If these conditions cannot be met, then more stringent (e.g., Type 2 or Type 3) procedures are necessary.
4. Disposal of asbestos waste must be done in accordance with "General – Waste Management" O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The waste must be disposed at a licensed waste disposal site. Proper notification must be issued to the Departmental Representative prior to transportation of waste.

2. LEAD

1. Follow recommendations provided in the Ontario Ministry of Labour (MoL) Guideline entitled "Guideline: Lead on Construction Projects". This guideline classifies all lead disturbances as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, and assigns different levels of respiratory protection and work procedures for each classification.
2. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed the TWAEL of 0.05 milligram per cubic metre (mg/m³) prescribed by O.Reg 490/09.
3. Even at low concentrations, there may be a potential for exposure to high concentrations of lead depending on the activities performed that disturb the lead-containing materials. At low lead concentrations, conducting a risk assessment to assess the potential for exposure is required to determine the need to follow precautionary measures.
4. Disposal of construction waste containing lead must be done in accordance with O.Reg 347/90 – General Waste Management, as amended, under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The classification of the waste is dependent upon the result(s) of leachate test(s). The waste can be classified as "hazardous," "non-hazardous" or "registerable solid waste" depending on the results of the leachate test. Based upon analytical results, the following waste materials are considered to be lead hazardous with respect to disposal:
 - Loose and delaminating paints shall be disposed of as hazardous lead waste, in accordance with O.Reg 347/90, as amended, unless proven otherwise by additional leachate sampling and laboratory analysis.

3. SILICA

1. Comply with Ontario Regulations O.Reg 490/09 when performing works that may disturb silica-containing materials. The regulation provides requirements for allowable exposure levels.
2. Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in select materials within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.
3. Follow recommendations provided in the MoL Guideline entitled "Guideline: Silica on Construction Projects". This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

4. OTHER HAZARDOUS SUBSTANCES

1. Due to the health concern associated with bird/animal fecal matter, it is recommended that disturbance of this matter be performed following the appropriate work procedures given in the document Mould Guidelines for the Canadian Construction Industry CCA 82-2004 published by the Canadian Construction Association (CCA 82-2004). Disturbance of this matter shall avoid cross-contamination of unaffected areas. Disposal of waste should be performed in accordance with local, municipal, provincial, and/or federal jurisdictions having authority.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

.1 Definitions:

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.
- .3 Baseline: original approved plan (for Project, work package, or activity), plus or minus approved scope changes.
- .4 Cash Flow: projection of progress payment requests based on cash loaded construction schedule.
- .5 Completion Milestones: they are firstly Interim Certificate and secondly Final Certificate.
- .6 Constraint: applicable restriction or limitation, either internal or external to project, that will affect performance of Project. Factors that affect activities can be scheduled.
- .7 Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.
- .8 Critical Activity: any activity on a critical path.
 - .1 Most commonly determined by using critical path method.
- .9 Critical Path: sequence of activities that determines duration of Project. Generally, it is the longest path through Project.
 - .1 Usually defined as those activities with float less than or equal to specified value, often zero.
- .10 Critical Path Method (CPM): network analysis technique used to determine the amount of scheduling flexibility (amount of float) on various logical network paths in Project schedule network, and to determine the minimum total Project duration.
- .11 Data Date: date through which project status and progress were last determined and reported for analyses, such as scheduling and performance measurements.
- .12 Duration: total number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element.
 - .1 Usually expressed as workdays or work weeks.
- .13 Early Finish Date: in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule constraints.
 - .1 Early finish dates can change as Project progresses and changes are made to Project plan.

- .14 Early Start Date: in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network logic and schedule constraints.
 - .1 Early start dates can change as Project progresses and changes are made to Project Plan.
- .15 Finish Date: point in time associated with activity's completion.
 - .1 Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.
- .16 Float: amount of time that activity may be delayed from its early start without delaying Project finish date.
 - .1 This resource is available to both PWGSC and Contractor.
- .17 Impact Analysis: schedule analysis technique that adds a modeled delay to an accepted construction schedule to determined possible outcome of that delay on project completion.
- .18 Lag: modification of logical relationship that directs delay in successor activity.
- .19 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).
- .20 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).
- .21 Lead: modification of logical relationship that allows acceleration of successor task.
- .22 Logic Diagram: see Project network diagram.
- .23 Master Schedule: summary-level schedule that identifies major deliverable; work breakdowns structure and key milestones.
- .24 Milestone: significant point or event in Project, usually completion of major deliverable.
- .25 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.
- .26 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.
- .27 Project Control System: fully computerized system utilizing commercially available software packages.
- .28 Project Network Diagram: schematic display of logical relationships of Project activities.
 - .1 Always drawn from left to right to reflect Project chronology.
- .29 Project Plan: formal, approved document used to guide both Project execution and Project control.
 - .1 Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines.
 - .2 Project plan may be summary or detailed.

- .30 Project Planning: development and maintenance of Project Plan.
- .31 Project Planning, Monitoring and Control System: overall system operated to enable monitoring of Project Work in relation to established milestones.
- .32 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
- .33 Quantified days duration: working days based on 5 day work week, discounting statutory holidays.
- .34 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
- .35 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.
- .36 Work Breakdown Structure (WBS): deliverable-oriented hierarchical decomposition of Work to be executed by contractor to accomplish project objectives and create required deliverables. It organizes and defines total scope of Project. Each descending level represents an increasingly detailed definition of Project Work. WBS is decomposed into Work packages.
- .2 Reference Standards:
 - .1 Project Management Institute (PMI Standards)
 - .1 A Guide to the Project Management Body of Knowledge (PMBOK Guide) - Fourth Edition.
 - .2 Practice Standard for Scheduling - 2011.

1.02 ADMINISTRATIVE REQUIREMENTS

- .1 Project Meeting:
 - .1 Meet with Departmental Representative within 5 working days of Award of Contract date, to establish Work requirements and approach to project construction operations.
 - .2 Participate in project progress meetings, every other week, with Departmental Representative specifically intended to discuss update of detailed schedule and contract changes.
- .2 Scheduling:
 - .1 Planning: ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made.
 - .2 Ensure project schedule efficiencies through monitoring of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.
 - .3 Monitor sufficiently often so that causes of delays can immediately be identified and removed.
- .3 Project monitoring and reporting:

- .1 Keep team aware of changes to schedule, and possible consequences as project progresses.
- .2 Use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.
- .3 Begin narrative reporting with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.
- .4 Critical Path Method (CPM) Requirements:
 - .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
 - .2 Revise Master Schedule and Detail Schedule deemed impractical by Departmental Representative and resubmit for approval.
 - .3 Change to Contract Duration:
 - .1 Acceptance of Master Schedule and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract.
 - .2 Duration of Contract may only be changed through bilateral Agreement.
 - .4 Consider Master Schedule and Detail Schedule deemed practical by Departmental Representative, showing Work completed in less than specified Contract duration, to have float.
 - .5 First Milestone on Master Schedule and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.
 - .6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.
 - .7 Interim Certificate with "LF" constraint equal to calculated date.
 - .8 Calculations on updates to be such that if early finish of Interim Certificate falls later than specified Contract duration then float calculation to reflect negative float.
 - .9 Delays to non-critical activities, those with float may not be basis for time extension.
 - .10 Do not use float suppression techniques such as software constraints, preferential sequencing, special lead/lag logic restraints, extended activity times or imposed dates other than required by Contract.
 - .11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated.
 - .1 Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.
 - .12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration.
 - .1 Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
 - .13 Arrange participation on and off site of subcontractors and suppliers, as required by Departmental Representative, for purpose of network planning, scheduling, updating and progress monitoring.

- .1 Approvals by Departmental Representative of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.
- .14 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.
- .3 Submit Project Control System to Departmental Representative for approval.
 - .1 Failure to comply with each required submission may result in progress payment being withheld in accordance with Federal Government's GC 5 Terms of Payment.
- .4 Include costs for execution, preparation and reproduction of schedule submittals in bid documents.
- .5 Submit letter ensuring that schedule has been prepared in co-ordination with major sub-contractors.
- .6 Refer to article "PROGRESS MONITORING AND REPORTING" of this specification Section for frequency of Project control system submittals.
- .7 Submit impact analysis of schedule for changes that result in extension of contract duration.
 - .1 Include draft schedule update and report as outlined in article "PROGRESS MONITORING AND REPORTING".
- .8 Submit Project planning, monitoring and control system data as part of initial schedule submission and monthly status reporting as required by Departmental Representative in following form.
 - .1 CD files in original scheduling software and in PDF containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.
 - .2 Master Schedule Bar Chart.
 - .3 Construction Detail schedule Bar Chart.
 - .4 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
 - .5 Criticality report listing activities and milestones with zero total float used as first sort for ready identification of critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.
 - .6 Progress report in early start sequence, listing for each trade, activities due to start, underway, or finished within 2 months from monthly update date. List activity

identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.

1.04 QUALITY ASSURANCE

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

1.05 WORK BREAKDOWN STRUCTURE (WBS)

- .1 Prepare construction Work Breakdown Structure (WBS) within 5 working days of Award of Contract date.
 - .1 Develop WBS through at least five levels: project, stage, element, sub-element and work package.

1.06 PROJECT MILESTONES

- .1 Completion of the work shall not extend the number of weeks identified in Section 01 00 10 General Instructions, Scheduling.
- .2 Mandatory and recommended project milestones form targets for both Master Schedule and Detail Schedule of CPM construction network system.
 - .1 Mandatory: Mobilization.
 - .2 Mandatory: Roofing removed.
 - .3 Mandatory: Roofing installed.
 - .4 Mandatory; Windows Removed.
 - .5 Mandatory; Windows Installed.
 - .6 Mandatory; Cladding removed.
 - .7 Mandatory; Cladding Installed
 - .8 Mandatory: openings weatherproofed.
 - .9 Mandatory: in-situ work completed.
 - .10 Mandatory: shop work completed.
 - .11 Mandatory: work completed.
 - .12 Mandatory: De-mobilization.
 - .13 Mandatory: interim Certificate (substantial completion).
 - .14 Mandatory: final Certificate completion.

1.07 MASTER SCHEDULE

- .1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.
- .2 Prepare comprehensive construction Master Schedule (CPM logic diagram) and dependent Cash Flow Projection within 5 working days of finalizing Agreement to confirm validity or alternates of identified milestones.
 - .1 Master Schedule will be used as baseline.
 - .1 Revise baseline as conditions dictate and as required by Departmental Representative.

- .2 Departmental Representative as Project progresses will review and return revised baseline within 5 working days.
- .3 Reconcile revisions to Master Schedule and Cash Flow Projections with previous baseline to provide continuous audit trail.
- .4 Initial and subsequent Master Schedule will include:
 - .1 CD containing schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.
 - .2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
 - .3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.
 - .4 Actual/projected monthly cash flow: expressed monthly and shown in both graphical and numerical form.

1.08 DETAIL SCHEDULE

- .1 Provide detailed project schedule (CPM logic diagram) within 5 working days of Award of Contract date showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:
 - .1 Submittals.
 - .2 Samples.
 - .3 Mockups.
 - .4 Approvals.
 - .5 Removals.
 - .6 Protection.
 - .7 Testing.
 - .8 In-situ work.
 - .9 Shop work.
 - .10 Acceptance.
- .2 Detail CPM schedule to cover in detail minimum period of 6 months beginning from Award of Contract date.
 - .1 Show remaining activities for CPM construction network system up to Final Certificate and develop complete detail as project progresses.
 - .2 Detail activities completely and comprehensively throughout duration of project.
- .3 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Schedule.
- .4 Clearly show sequence and interdependence of construction activities and indicate:
 - .1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
 - .2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
 - .1 Time for submittals, resubmittals and review.

- .2 Time for fabrication and delivery of manufactured products for Work.
 - .3 Interdependence of procurement and construction activities.
- .3 Include sufficient detail to assure adequate planning and execution of Work.
- .5 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.
- .6 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.
- .7 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

1.09 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

- .1 Allow 5 working days for review by Departmental Representative of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to Departmental Representative for review within 3 working days.
- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.
- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.10 COMPLIANCE WITH DETAIL SCHEDULE

- .1 Comply with reviewed Detail Schedule.
- .2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after written receipt of approval by Departmental Representative.
- .3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
 - .1 Corrective measures may include:
 - .1 Increase of personnel on site for effected activities or work package.
 - .2 Increase in equipment.
 - .3 Overtime work Additional work shifts.
- .4 Submit to Departmental Representative, justification, project schedule data and supporting evidence for approval of extension to Contract completion date or interim milestone date when required. Include as part of supporting evidence:
 - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.

- .2 Prepared schedule indicating how change will be incorporated into the overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
- .3 Other supporting evidence requested by Departmental Representative.
- .4 Do not assume approval of Contract extension prior to receipt of written approval from Departmental Representative.
- .5 In event of Contract extension, display in Detail Schedule that scheduled float time available for work involved has been used in full without jeopardizing earned float.
 - .1 Departmental Representative will determine and advise Contractor number of allowable days for extension of Contract based on project schedule updates for period in question, and other factual information.
 - .2 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.

1.11 PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.
- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.
- .3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Submit to Departmental Representative copies of updated Detail Schedule.
- .6 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .7 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
 - .1 Description of progress made.
 - .2 Pending items and status of: permits, shop drawings, change orders, and possible time extensions.
 - .3 Status of Contract completion date and milestones.
 - .4 Current and anticipated problem areas, potential delays and corrective measures.
 - .5 Review of progress and status of Critical Path activities.

PART 2 PRODUCTS

2.01 NOT USED

.1 Not used.

PART 3 EXECUTION

3.01 NOT USED

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.01 ADMINISTRATIVE

- .1 Submit to Departmental Representative a log of submittals for review prior to the start of work. Update submittal log and submit to Departmental Representative 24 hours before each bi-weekly Project Meeting.
- .2 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with Work affected by submittal until review is complete.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units converted values are acceptable.
- .6 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Verify field measurements and affected adjacent Work are co-ordinated.
- .9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .11 Keep one reviewed copy of each submission on site.

1.02 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 10 working days for Departmental Representative's review of each submission.

- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit 4 prints and one electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit 4 prints and one electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental

- Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit 4 prints and one electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
 - .13 Submit 4 prints and one electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
 - .14 Submit 4 prints and one electronic copy of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
 - .15 Submit 4 prints and one electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
 - .17 Submit 4 prints and one electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
 - .18 Delete information not applicable to project.
 - .19 Supplement standard information to provide details applicable to project.
 - .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies 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.
 - .21 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains

solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.03 SAMPLES

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative 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 Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.04 MOCK-UPS

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

1.05 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in jpg format, fine resolution, organized by date and window unit number, monthly with progress statement and as directed by Departmental Representative.
 - .1 Photograph quality: well-illuminated, proper exposure, sharply focused, free of glare and motion blur.
 - .2 Window identification: unit number, frame/sash number and date of exposure indicated.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 2 locations.
 - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: weekly as directed by Departmental Representative.
 - .1 Provide a minimum twenty (20) photographs daily of the progress of work.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 Province of Ontario
 - .1 Occupational Health and Safety Act for Construction Projects, R.S.O. 1990, c. 0.1, as amended and O. Reg. 213/91, as amended.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan in an indexed three ring binder: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit 4 prints and one electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and or authority having jurisdiction, weekly.
- .4 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 working days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 3 days after receipt of comments from Departmental Representative. Once revisions complete the Health and Safety Plan binder will be returned to the Contractor for site use.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
- .11 Submit proof of training and qualifications of personnel, and alternates, responsible for site health and safety including, but not limited to, the following:
 - .1 Requirements for hazards present on site.

- .2 Training for use of personal protective equipment.

1.03 FILING OF NOTICE

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

1.04 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.05 MEETINGS

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

1.06 PROJECT/SITE CONDITIONS

- .1 Work at site, in accordance with Section 01 14 25 Designated Substances Report, will involve contact with:
 - .1 Asbestos..
 - .2 Lead.
 - .3 Silica.
 - .4 Microbiological.

1.07 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.08 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.09 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Health and Safety Act, R.S.O.

1.10 UNFORSEEN HAZARDS

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

1.11 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related working experience specific to activities associated with hazardous materials.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.12 POSTING OF DOCUMENTS

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

1.13 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.14 WORK STOPPAGE

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

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.01 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.02 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax 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. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

1.03 ACCESS TO WORK

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

1.04 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative 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 orderly sequence to not cause delays 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.

1.05 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.06 REPORTS

- .1 Submit 4 prints and one electronic copy of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.07 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Departmental Representative as specified in specific Section.
- .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.01 ACTION AND INFORMATIONAL SUBMITTALS

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

1.02 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove all temporary installations at the end of the work and return the conditions to those that existed prior to undertaking this work of this Contract to the approval of the Departmental Representative.

1.03 WATER SUPPLY

- .1 Departmental Representative will designate the access point and provide continuous supply of potable water for construction use.
- .2 Provide temporary lines and related infrastructure as required to bring water from the designated supply point to the Construction site as required for specific construction activities. Pay all associated costs.
- .3 Departmental Representative will pay for utility charges at prevailing rates.

1.04 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance and maintenance.
- .2 Construction heaters used inside building must be non-flameless type.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Maintain temperatures in areas where construction is in progress.
- .5 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases 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 cessation of work process to assure removal of harmful contaminants.
- .6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.
- .7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.05 TEMPORARY POWER AND LIGHT

- .1 Departmental Representative to provide and pay for temporary power during construction for temporary lighting and operating of power tools, to a maximum supply of 120 volts 15 amps. Power is not to be used for heavy load items such as temporary heating or cooling.
- .2 Provide and maintain temporary lighting throughout project. Pay all associated costs.
- .3 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.06 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted on site.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-M1978(R2003), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2, Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.
- .4 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

1.03 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.04 SCAFFOLDING

- .1 Scaffolding in accordance to CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, temporary stairs, cranes, aerial man-lifts and ladders.
- .3 Lifting devices to be operated by qualified operator.

1.05 HOISTING

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

1.06 SITE STORAGE/LOADING

- .1 Maintain, in clean and orderly condition, exterior storage space assigned by the Departmental Representative.
 - .1 Laydown area as identified to be used for equipment, tool and material storage, including overnight man-lift storage.
- .2 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .3 Move stored products or equipment which interfere with operations or other contractors.
- .4 Do not load or permit to load any part of Work with weight or force that will endanger Work.
- .5 Provide and pay for use and transport of materials to additional storage, or workspace, needed for work.
- .6 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.07 CONSTRUCTION PARKING

- .1 Parking will be permitted on site. Submit proposed parking locations to Departmental Representative for approval.
- .2 Provide and maintain adequate access to project site.

1.08 OFFICES

- .1 Field office: Departmental Representative to assign, interior space in the building, heated, lighted and ventilated.
- .2 Provide furnishings as required with drawing laydown table; maintain in clean and orderly condition.
- .3 Provide protective hoarding to prevent damage to all heritage materials and existing finishes including but not limited to door openings, flooring, walls, ceilings and heritage stair handrail and guardrail. Repair all damaged finishes. Reinstall and clean the interior spaces to original condition.
- .4 Provide marked and fully stocked first-aid case in a readily available location.
- .5 Make own arrangements for wireless voice and data communications services.

1.09 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof chests for storage of tools, equipment and materials.
- .2 Maintain, in clean and orderly condition, interior storage space in the building, on service floors, assigned by Departmental Representative. Provide acceptable storage containers for flammable and/or hazardous materials. Submit list of stored equipment, tools and materials.

- .3 Locate materials not required to be stored in weatherproof chests on site in designated laydown area in manner to cause least interference with work activities.
- .4 Keep facilities clean. Repair damage after use.

1.10 SANITARY FACILITIES

- .1 Designated permanent facilities may be used on approval of Departmental Representative.
- .2 Keep facilities clean. Repair damage after use.

1.11 CONSTRUCTION SIGNAGE

- .1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etc.
- .2 Provide all signs and notices for safety and instruction in both official languages or by the use of commonly understood Internationally accepted graphic symbols to the Departmental Representative's approval.
- .3 No signs or advertisements, other than warning signs, are permitted on site.
- .4 Maintain approved signs and notices in good condition for duration of project, and dispose off site on completion of project or earlier if directed by Departmental Representative.
- .5 Provide a construction safety board immediately adjacent to each construction access/egress point.
- .6 Provide signage to manage occupants inside buildings, pedestrians on sidewalks, and vehicular traffic.
- .7 Submit proposed changes to approved locations of signage and contents to Departmental Representative for approval.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .3 Protect travelling public from damage to person and property.
- .4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .6 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .7 Dust control: adequate to ensure safe operation at all times.
- .8 Lighting: to assure full and clear visibility for work areas during night work operations.

1.13 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-O121-M1978(R2003), Douglas Fir Plywood.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.02 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.03 HOARDING

- .1 Erect temporary site enclosure around the construction site and laydown area using new 2.2 m high portable modular galvanized steel fence, welded 16 gauge tubing and welded 6 gauge mesh, with fence posts generally spaced at 2.4 m on centre. Maintain fence in good repair. Provide one double lockable vehicle access gate as directed and conforming to applicable traffic restrictions on adjacent streets; select gate size to suit use. Equip gate with lock and keys and accessories as required clamps, brackets, weighted blocks, and base plates.
 - .1 Provide drawing details and procedures for site enclosures, directly adjacent to the building and other barriers, in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.04 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.05 WEATHER CLOSURES

- .1 Provide weather tight closures to exterior door and window openings.
- .2 Design enclosures to withstand wind pressure and snow loading.

1.06 DUST TIGHT SCREENS

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

- .1 Protect existing finishes and fixtures within the workspace, during construction, with 0.102 mm thick polyethylene film; support as required.

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

1.07 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.
- .2 Maintain pedestrian walkways, complete with signs.

1.08 PUBLIC TRAFFIC FLOW

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

1.09 FIRE ROUTES

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

1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.11 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes during performance of Work.
- .2 Provide necessary temporary screens and covers to protect interventions during the progress of work. Install to allow easy access to perform work.
- .3 Select appropriate material, and leave in place no longer than required.
- .4 Secure protections such that fasteners do not damage the historic fabric. Anchor into existing joints at discretion of the Departmental Representative.
- .5 Cover the verandah deck in heavy kraft paper, prior to protecting it with plywood with taped joints. Do not fasten temporary protection to deck.
- .6 Confirm with Departmental Representative locations and installation schedule 3 working days prior to installation.
- .7 Be responsible for damage incurred due to lack of or improper protection.

1.12 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions, Waste Management.

PART 2 PRODUCTS

2.01 NOT USED

.1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.02 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .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 disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative 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.

1.03 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, 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 seal 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.
- .4 Store sheet materials, lumber and finished parts on flat, solid supports and keep clear of ground. Slope to shed moisture.

- .5 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.
- .6 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .7 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.04 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.05 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, 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 Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.06 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 Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.07 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.08 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.

1.09 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 requested 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 unless otherwise noted.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.10 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

PART 1 GENERAL

1.01 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.
- .2 Conduct regular cleaning of the entire Construction site inside the security fence on a weekly basis and more frequently as directed by Departmental Representative.
- .3 Conduct regular cleaning of the spaces within the construction scaffolding daily. Maintain spaces inside the scaffolding clear of dust and debris to approval of Departmental Representative.
- .4 Remove waste materials and debris from site daily at regularly scheduled times and deposit in waste containers at end of each working day. Remove waste materials more frequently as directed by Departmental Representative to ensure a clean and orderly work site.
- .5 Do not burn rubbish or waste materials on site.
- .6 Clear snow and ice from access to building. Bank or pile snow in designated areas only. Remove snow from site as directed by Departmental Representative.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Dispose of waste materials and debris at designated dumping areas off site.
- .8 Provide on-site containers for collection of waste materials and debris. Provide appropriate sized disposal bins and locate bins on site where directed by Departmental Representative. Empty waste disposal bins daily or more frequently at times as directed by Departmental Representative.
- .9 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .10 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .11 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.02 FINAL CLEANING

- .1 When Work is Substantially Performed and prior to final review, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work. Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .2 Clean and polish all exterior surfaces. Replace broken, scratched or disfigured glass.
- .3 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, fittings and walls.

- .4 Clean lighting reflectors, lenses, and other lighting surfaces.
- .5 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .6 Broom clean and power wash exterior walks, steps and surfaces. Rake clean other surfaces of grounds. Sweep and wash clean paved areas. Remove dirt and other disfiguration from exterior surfaces. Remove snow and ice from access to building.
- .7 Clean and sweep roofs, gutters, areaways, and sunken wells. Clean roofs, downspouts, and drainage systems.
- .8 Remove debris and surplus materials from other accessible concealed spaces.
- .9 Clean equipment and fixtures to a sanitary condition. Clean or replace filters of mechanical equipment.

1.03 INTERIOR CLEANING

- .1 When directed by Departmental Representative, arrange for cleaning of Interior Spaces that have been affected by the work of this contract. Cleaning to be carried out at times as directed by Departmental Representative and is only to address cleaning that is a direct result of exterior and interior work that has resulted in interior dirt and dust migrating to the interior.

1.04 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 00 10 - General Instructions, Waste Management.
- .2 Provide and use clearly marked separate bins for recycling.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative, in accordance with Section 01 32 16.06 – Construction Progress Schedule Critical Path Method (CPM) to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, 4 final printed copies of operating and maintenance manuals in contract language.
- .3 Provide evidence, if requested, for type, source and quality of products supplied.

1.03 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.

- .9 Provide 1:1 scaled CAD files in DWG format on CD or USB key with other documentation described herein.

1.04 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
- .6 Conservation Report: structure as a separate report, prepared by the Heritage Wood Window Contractor and the Heritage Wood Siding Contractor, presented and bound as described herein.
 - .1 Supplement with text in narrative form, and photographic documentation, as required to describe the procedures for each step of the process, and identify associated products used for each intervention described.
 - .2 Organize in sequence to document every step of the restoration process:
 - .1 Examination of existing conditions.
 - .2 Removal of components restored in shop such as sashes and related wood components.
 - .3 Paint removal.
 - .4 Glazing removal.
 - .5 Hardware removal, cleaning and adjustment.
 - .6 Repairs, each type.
 - .7 Replacement component fabrication, with particular attention to joinery.
 - .8 Glazing installation.
 - .9 Finishing.
 - .10 Reinstallation.
 - .3 Incorporate maintenance information for renewing finishes including products, methods, and frequency of application.
- .7 Database: to locate interventions by type for each restored window or woodwork unit.

- .1 Provide database file in PDF and XLS format on CD, or USB key with other documentation described herein.
- .2 Supplement with drawings to serve as a legend; drawing files as described above.

1.05 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
 - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.06 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by change orders.
 - .3 Details not on original Contract Drawings.
 - .4 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 Provide digital photos, requested as part of Photographic Documentation, for site records on a USB key.

1.07 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Additional requirements: as specified in individual specifications sections.

1.08 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 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 10 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.
- .7 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .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 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.
- .3 Procedure and status of tagging of equipment covered by extended warranties.
- .4 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 Departmental Representative to proceed with action against Contractor.

PART 2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

PART 3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION