

PROJECT

STAIR REHABILITATION
Regina, Saskatchewan

PROJECT No.
20/2015

SET No.

DATE
2016-04-20

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Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises of the demolition and reconstruction of the entrance stairs, ramps and landings and supporting structure, located at the main entrance on the north side of the building and the entrance on the west side of the building. The project is located in Regina, Saskatchewan and further identified as “Stair Rehabilitation.”
- .2 During demolition and reconstruction the Contractor will be responsible for protection of all existing items and building components that remain in the work area during demolition and construction.

1.2 WORK SEQUENCE

- .1 The General Contractor will be responsible for the coordination of all work.
- .2 Work on the entrance stairs will require careful planning to maintain egress. Egress from the North entrance will need to be maintained at all times during construction. The North Entrance will require phasing of the work in order to maintain exiting and may require temporary structures or surfacing.
- .3 Ramps: A ramp must remain in service at all times to serve the North Entrance of the building. This will require a temporary ramp structure during phasing of the project.

1.3 CONTRACTOR USE OF PREMISES

- .1 Coordinate use of premises under direction of Departmental Representative.
- .2 The building will be occupied throughout construction. Coordinate use of premises under direction of Departmental Representative.
- .3 Use of site is restricted and under escort for execution of work. Coordinate use of premises under the direction of the Owner site authority. Contractor shall assume responsibility for premises assigned to him for performance of the work. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 Cooperate with other contractors employed by the Departmental Representative for other work within the building.
- .5 Work shall be scheduled during normal business hours unless prior approval is obtained from the Owner site authority. Owner site authority may approve work beyond normal working hours subject to condition which may include supervision of off-hours work by security personnel, commissionaires or security officers, approved by the Owner site authority.
- .6 Do not unreasonably encumber site with material or equipment. Material lay-down area will be designated. Move stored products or equipment, which interfere with operation of Owner or other contractors.
- .7 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

- .8 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .9 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by departmental representative.
- .10 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.4 EXISTING SERVICES

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and tenant operations.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .4 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.
- .6 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .7 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .9 Record locations of maintained, re-routed, and abandoned service lines.
- .10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 PERMITS AND FEES

- .1 The Contractor shall obtain and pay for all required building permits. Obtain and pay for all other permits, licenses, certificates, fees and governmental inspections or notices required for the performance of the work. Note: Permit drawings are the property of the owner. Contractor to forward "approved" permit drawings and a copy of the building permit to the Departmental Representative prior to the submission of the first request for progress payment.

END OF SECTION

Part 1 General

1.1 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Normal hours of operation are between 08:00 – 16:30, Monday to Friday.
- .3 Noise generating activities (Jackhammering, etc.) and access to the occupied spaces are to be conducted outside of normal hours of operation.

1.2 EXISTING SERVICES AND BUILDING SYSTEMS

- .1 Notify, Departmental Representative of intended interruption of services or building mechanical or electrical systems, and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services or disruption to electrical or mechanical systems, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimal.
- .3 Carry out interruptions after normal working hours of occupants, preferably on weekends.

1.3 SPECIAL REQUIREMENTS

- .1 Submit schedule in accordance with Section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart.
- .2 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.

1.4 SECURITY CLEARANCES

- .1 Contractor personnel must submit to local law enforcement verification by RCMP, prior to admittance to the facility site. The Client reserves the right to deny access to any facility / site or part thereof to any Contractor personnel, at any time.
- .2 All access to the building is to be through a designated entrance. Personnel will be signed in daily at start of work shift and provided with pass, which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.
- .3 Security documents are attached at the end of the Section.

1.5 SECURITY ESCORT

- .1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours.

1.6 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. No smoking will be allowed in or around the building. Smoking is allowed only in areas indicated by Departmental Representative.
- .2 Turn off vehicles when they are parked next to building.

1.7 OCCUPIED BUILDING – MAINTAIN EXITING AND ACCESS TO MAIN LOBBY

- .1 Develop a strategy to maintain access to the main entrance lobby on the North side of the building. Phase work to allow access into the building at the North main entrance at all times. Ensure no tripping or safety hazards are present in the temporary access.
- .2 Develop a strategy to provide an accessible route (ramp) to the main entrance lobby on the North side of the building. Provide a temporary 1200mm wide ramp with temporary guardrail when work is being completed on the existing ramp.
- .3 Sequence demolition, removals and new work so that access to the main entrance lobby on the North side of the building can be achieved throughout construction.

END OF SECTION



RCMP F Division Office, Regina Contractor/Consultant Information Sheet



Page 1 of 2

PLEASE PRINT LEGIBLY / ALL INFORMATION MUST BE PROVIDED
General Contractor only: Upon completion of forms, please contact the RCMP – Cherylyn Shewchuk to make arrangements for submission of documents.

NOTE: SUB-CONTRACTORS ARE TO CONTACT THE GENERAL CONTRACTOR FOR INSTRUCTIONS AND/OR QUESTIONS REGARDING COMPLETION OF FORMS – NOT THE RCMP

CONTRACTORS/CONSULTANTS MUST PROVIDE THE FOLLOWING INFORMATION:	
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1. Your Complete Legal Name: <i>(First/Middle or "no Middle Name"/ Last Name)</i>	
2. Name of Company That You Work For:	
3. Company Telephone Number:	
4. Project That You Are Working On: <i>(Name of Project/Building/City/Province)</i>	SRCL No.:
5. Access Period (Start & End Dates): <i>(If exact dates unknown, estimate start & end dates)</i>	

CONTRACTORS / CONSULTANTS - PLEASE NOTE THE FOLLOWING:

Should an RCMP Access tag/card be issued to you, please note the following;

- 1) You are the sole user of the access tag and it must be visibly worn while working on the site.
- 2) The access tag is non-transferrable / can not be used while working on projects other than the RCMP projects it was issued for.
- 3) The access tag **must be returned** to the RCMP issuing office or site foreman (if approved) at the end of each day.
- 4) No access to areas that you have not been cleared will be allowed and if found in these areas your clearance will be revoked and you will be removed from the site.

Employee Signature:	Signed on Date:
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EMPLOYER TO REVIEW (not employee applicant of this form), COMPLETE AND SIGN:

In order to comply with Federal Government and RCMP policies and guidelines, in relation to the collection of personal information, the employer requesting the security checks must be satisfied that he/she can confirm the identity of the applicant.

The employer MUST ("employer" is your supervisor or a colleague of the company that you are employed by):

- 1) Request that their employees attend in person and provided two pieces of Identification.
- 2) Gov't issued ID MUST include full date of birth and name of the individual ie, Driver's Licence - Birth Certificate, Passport, Firearms Licence. (One piece of Gov't issued ID must include the photograph and if using the Drivers Licence copy both the photo portion as well as the signature portion.)
- 3) If the employee has changed his/her name, ID MUST be provided with both the current as well as past names.

Type of ID: 1) _____ Number _____

 2) _____ Number _____

Employers Name: _____
(First Name and Last Name)

Employers Signature: _____

Date of signature: _____

Facilities Access Level 2 (FA2) clearance Applicants:

Documents noted in the box below must be provided with your FA2 clearance application (Facilities Access Level 2 Clearance Forms to be completed for FA2 clearances: 1. Contractor/ Consultant Information Sheet & 2. Form TBS 330-23E):

<i>CONTRACTORS/CONSULTANTS MUST PROVIDE PHOTOCOPIES OF:</i>	
I HAVE ATTACHED THE FOLLOWING DOCUMENTS TO THE ABOVE NOTED FORMS:	YES / NO
<p>1. Driver's License (a clear copy of both the front and back of the document on the same page, certified to be a true copy by their supervisor or colleague). <i>Note:</i> If you do not have a Driver's License, please provide other government issued photo identification (passport, treaty card). Note: the photo must be clear.</p>	
<p>2. Birth Certificate (a clear copy of both the front and back of the document on one page, certified to be a true copy by their supervisor or colleague). <i>Note:</i> If you do not have a Birth Certificate, please provide other government issued identification (ie. Health Card Card, passport, treaty card).</p>	

RCMP Reliability Status (RRS) clearance Applicants:

Documents noted in the box below must be provided with your RRS clearance application (RRS Clearance Forms to be completed for RRS clearances: 1. Contractor/ Consultant Information Sheet, 2. Form TBS 330-23E, 3. Form TBS 330-60E & 4. Security/Reliability Pre-Interview Questionnaire):

<i>CONTRACTORS/CONSULTANTS MUST PROVIDE PHOTOCOPIES OF:</i>	
I HAVE ATTACHED THE FOLLOWING DOCUMENTS TO THE ABOVE NOTED FORMS:	YES / NO
<p>1. Driver's License (a clear copy of both the front and back of the document on the same page, certified to be a true copy by their supervisor or colleague). <i>Note:</i> If you do not have a Driver's License, please provide other government issued photo identification (passport, treaty card). Note: the photo must be clear.</p>	
<p>2. Birth Certificate (a clear copy of both the front and back of the document on one page, certified to be a true copy by their supervisor or colleague). DOCUMENT MUST BE PROVIDED FOR RRS CLEARANCES – NO ALTERNATE DOCUMENTS.</p>	
<p>3. Two sets of Fingerprints (“Roll and Ink” style) – must be obtained from a Corp of Commissionaires office.</p>	

PLEASE CHECK WITH THE GENERAL CONTRACTOR IF YOU ARE UNSURE WHAT LEVEL OF SECURITY CLEARANCE YOU SHOULD BE APPLYING FOR.



PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM

OFFICE USE ONLY		
Reference number	Department/Organization number	File number

NOTE: For Privacy Act Statement refer to Section C of this form and for completion instructions refer to attached instructions. Please typewrite or print in block letters.

A ADMINISTRATIVE INFORMATION (To be completed by the Authorized Departmental/Agency/Organizational Official)

New
 Update
 Upgrade
 Transfer
 Supplemental
 Re-activation

The requested level of reliability/security check(s)

Reliability Status
 Level I (CONFIDENTIAL)
 Level II (SECRET)
 Level III (TOP SECRET)

Other _____

PARTICULARS OF APPOINTMENT/ASSIGNMENT/CONTRACT

Indeterminate
 Term
 Contract
 Industry
 Other (specify secondment, assignment, etc.) _____

Justification for security screening requirement

Position/Competition/Contract number	Title	Group/Level (Rank if applicable)	
Employee ID number/PRI/Rank and Service number (if applicable)	If term or contract, indicate duration period	From	To
Name and address of department / organization / agency	Name of official	Telephone number ()	Facsimile number ()

B BIOGRAPHICAL INFORMATION (To be completed by the applicant)

Surname (Last name)	Full given names (no initials) underline or circle usual name used	Family name at birth
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All other names used (i.e. Nickname)	Sex	Date of birth	Country of birth	Date of entry into Canada if born outside Canada
	<input type="checkbox"/> Male <input type="checkbox"/> Female	Y M D		Y M D

RESIDENCE (provide addresses for the last five years, starting with the most current)	Daytime telephone number ()	E-mail address
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1	Apartment number	Street number	Street name	Civic number (if applicable)	From Y M	To present
	City	Province or state	Postal code	Country	Telephone number ()	

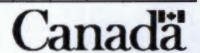
2	Apartment number	Street number	Street name	Civic number (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number ()	

Have you previously completed a Government of Canada security screening form?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, give name of employer, level and year of screening.	Y
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CRIMINAL CONVICTIONS IN AND OUTSIDE OF CANADA (see instructions)

Have you ever been convicted of a criminal offence for which you have not been granted a pardon?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, give details. (charge(s), name of police force, city, province/state, country and date of conviction)
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Charge(s)	Name of police force	City
Province/State	Country	Date of conviction Y M D



Part 1 General

1.1 ADMINISTRATIVE

- .1 Project meetings will be scheduled throughout the progress of the work and at the call of Departmental Representative.
- .2 Provide physical space and make arrangements for meetings.
- .3 The Consultant shall chair meetings.
- .4 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within 10 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Delivery schedule of specified equipment.
 - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .8 Owner provided products and work.
 - .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
 - .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .12 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .13 Appointment of inspection and testing agencies or firms.
 - .14 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

- .1 During course of Work, progress meetings will be held on a regular basis. Schedule to be determined.

- .2 Contractor, major Subcontractors involved in Work, Departmental Representative, Consultant and Owner's representatives are to be in attendance.
- .3 Minutes of meetings will be recorded by the Consultant. Minutes will be distributed within 3 working days.
- .4 Agenda for project meetings to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes to determine how these will affect the construction schedule and on completion date.
 - .12 Other business.

END OF SECTION

Part 1 General

1.1 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. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Project Schedule and Detail Schedules are practical and remain within specified Contract duration.
- .2 Include scheduled activities for Commissioning (if required in project scope) into the project schedule.
- .3 Plan to complete Work in accordance with prescribed milestones and time frame.
- .4 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

- .5 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.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 7 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Provide schedule in PDF format in sized so that description of work can be clearly read when printed out.

1.4 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
 - .1 Project milestone will be identified through discussion with the Contractor and Departmental Representative at the outset of the project.

1.5 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on a monthly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.6 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

END OF SECTION

1.1 ADMINISTRATIVE

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

1.2 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 where required in the specifications, shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Saskatchewan, 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 7 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, 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 6 copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit 6 copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

- .12 Submit 6 copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit 6 copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit 6 copies 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 6 copies of manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit 6 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 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.
- .20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that Departmental Representative 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.

- .21 Electronic submission of Shop Drawings
 - .1 Electronic Shop Drawings (PDF format) shall not exceed 11x17 actual size. Electronic transfer of shop drawings relies on Architect and Engineering Consultants to print a record copy for their files - this can be done providing shop drawings do not exceed 11x17. Larger shop drawings would require hard copies for review.
 - .2 General Contractor to review shop drawing and place their electronic stamp signifying review.
 - .3 General Contractor to email all shop drawings to Architect with copy to Engineering Consultant as applicable.
 - .4 Engineering Consultant to review and place their electronic stamp / marks up, then email to Architect only (Engineering Consultant will not copy anyone else).
 - .5 Architect to check for coordination and transmit reviewed shop drawings by email to General Contractor.

1.3 SAMPLES

- .1 Submit for review samples in duplicate 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.

1.4 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control and as specified in each applicable Section.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Saskatchewan
 - .1 Occupational Health and Safety Act, 1993, S.S. 2005.

1.2 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit 1 copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, weekly.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Requirements and Section 02 81 01 - Hazardous Materials.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .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.

1.3 FILING OF NOTICE

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

1.4 SAFETY ASSESSMENT

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

1.5 MEETINGS

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

1.6 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.7 GENERAL REQUIREMENTS

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

1.8 RESPONSIBILITY

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

1.9 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Regulations, 1996.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.10 HAZARDOUS MATERIALS

- .1 Where the contractor is in doubt or suspicious material is encountered, stop work and advise the Departmental Representative immediately.

1.11 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.

1.12 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 overhead work.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work.

1.13 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.

1.14 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.

1.15 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.16 POWDER ACTUATED DEVICES

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

1.17 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.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.

1.3 BUILDING SMOKING ENVIRONMENT

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

- .2 Smoking on site is restricted to within personal vehicles or designated smoking locations.

END OF SECTION

Part 1 General

1.1 INSPECTION

- .1 Allow Departmental Representative and Consultant 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 or Consultant, 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.

1.2 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.

1.3 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.

1.4 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.

1.5 REPORTS

- .1 Submit two (2) copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.6 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested in Specifications.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.7 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 and as specified in specific Section.
- .3 Prepare mock-ups for Departmental Representative and Consultant'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 Mock-ups may remain as part of Work.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

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

1.2 INSTALLATION AND REMOVAL

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

1.3 WATER SUPPLY

- .1 Departmental Representative will make available a continuous supply of potable water for construction use.

1.4 TEMPORARY HEATING AND VENTILATION (INTERIOR SPACES)

- .1 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .2 Ventilating:
 - .1 Disable air return ventilation from renovation areas or provide MERV 11 filtration at ducted returns.
 - .2 Provide dust screens at all air pathways above ceilings around renovated areas to prevent spread of dust through building.
 - .3 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .4 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .5 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .6 Ventilate storage spaces containing hazardous or volatile materials.
 - .7 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .3 Permanent heating system of building, to be used when available. Be responsible for damage to heating system if use is permitted.
- .4 On completion of Work for which permanent heating system is used, provide service maintenance to system at discretion of the Departmental Representative.
- .5 Pay costs for maintaining temporary heat, when not using permanent heating system. Owner will pay utility charges when temporary heat source is existing building equipment.
- .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.

1.5 TEMPORARY POWER AND LIGHT

- .1 Provide and maintain temporary lighting throughout project. Existing lighting and power systems may be utilized.

1.6 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary telephone, fax, data hook up, lines and equipment necessary for own use and use of Departmental Representative.

1.7 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by Authorities Having Jurisdiction and governing codes, regulations and bylaws.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, 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.

1.4 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs.

1.5 HOISTING

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

1.6 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 CONSTRUCTION PARKING

- .1 Parking will be permitted on site but may be limited. Parking arrangements will be provided by the Departmental Representative at project start up.
- .2 Provide and maintain adequate access to project site.

1.8 OFFICES

- .1 Provide and maintain, during the entire progress of the Work, a suitable office on the site, for own use, with suitable tables or benches for the examination of drawings, specifications, etc., and where all notices and instructions from the Consultant may be received and acknowledged. Provide suitable meeting space for site meetings. Provide adequate heating, ventilating and lighting.
- .2 Location of these offices to be coordinated with the Departmental Representative.
- .3 Provide marked and fully stocked first-aid case in a readily available location.

1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.10 SANITARY FACILITIES

- .1 Provide portable sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Location of portable sanitary facility to be designated by the Departmental Representative.

1.11 CONSTRUCTION SIGNAGE

- .1 No signs or advertisements, other than warning signs, are permitted on site.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC AND PEDESTRIANS

- .1 Maintain and protect traffic on affected driveways and access to parking during construction period except as otherwise specifically directed by Departmental Representative.
- .2 Provide measures for protection and diversion of traffic when required by the Work, 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 Do not block roads without obtaining approval to do so from the Departmental Representative.
- .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 and pedestrians.
- .7 Provide dust control at removals. Prevent the spread of dust through the site outside of construction limit.

1.13 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Ensure that all pedestrian access routes through the construction area are cleaned regularly to prevent tracking of construction dust and debris into the building.
- .3 Clean dirt or mud tracked onto paved or surfaced roadways on an on-going basis.
- .4 Store materials resulting from demolition activities that are salvageable.
- .5 Stack stored new or salvaged material not in construction facilities.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

1.2 GUARD RAILS, BARRICADES, AND SIGNAGE

- .1 Provide secure, rigid guard rails and barricades around excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide Construction Zone warning and access control signage.

1.3 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.4 DUST TIGHT SCREENS (INTERIOR)

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public. Dust tight screens must continue from floor slab to underside of structure and be installed tight to substrates and around interferences in order to block transmission of dust.
- .2 Maintain and relocate protection until such work is complete.
- .3 Maintain negative pressure in area of dust generating work. Exhaust directly to the exterior.

1.5 HARD WALL SCREENS (INTERIOR)

- .1 Provide floor to underside of structure partitions between renovated areas and occupied spaces in the building to prevent noise transmission.
- .2 Partitions shall be minimum 12.7 gypsum board both sides metal studs with batt insulation in all stud cavities.
- .3 Maintain in place until noise generating activities are complete in renovated area.
- .4 Existing partitions may be left in place to provide hard wall screens.

1.6 ACCESS TO SITE

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

1.7 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.

1.8 FIRE ROUTES

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

1.9 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.

1.10 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.11 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 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 Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 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.

1.3 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 cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber, steel members, doors and frames on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.5 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.

1.6 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.

1.7 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.

1.8 CONCEALMENT

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

1.9 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.

1.10 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

1.11 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.
- .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.

1.12 FASTENINGS - EQUIPMENT

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

1.13 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.

1.14 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 FORMS

- .1 Special forms required during the course of this Work may include the following. Forms will be supplied by the Departmental Representative.
 - .1 Hot work.
 - .2 Confined space entry.
 - .3 Site steam protocol.
 - .4 Ground disturbance.

1.3 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.4 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.

- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.5 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping or firestopping sealant material using UL or ULC rated assembly in accordance with manufacturer's instructions.
- .12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

1.1 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 Provide “walk-off” mats where required to control dust from tracking out of areas being renovated to public areas or other areas of the building.
- .3 Vacuum mats and surrounding area daily and as needed where dust has been tracked from renovated areas.
- .4 Remove waste materials from site at daily regularly scheduled times. Do not burn waste materials on site.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Provide on-site containers for collection of waste materials and debris.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy. Remove debris and surplus materials from accessible concealed spaces.
- .3 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .4 Vacuum carpet in renovated areas and where construction traffic occurs. If heavily soiled carpeting shall be commercially steam cleaned. This will be at the discretion of the Departmental Representative.
- .5 Dust all horizontal surfaces, clean all exterior glass in area of Work.

- .6 Wash down exterior walls where dust has accumulated in area of Work.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .2 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .3 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .4 Recycling: process of sorting, cleansing, treating, and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .5 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .6 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .7 Separate Condition: refers to waste sorted into individual types.
- .8 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .9 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .10 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .11 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.2 SUBMITTALS

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

1.3 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare WRW prior to project start-up.
- .2 WRW should include but not limited to:
 - .1 Destination of materials listed.
 - .2 Deconstruction/disassembly techniques and sequencing.
 - .3 Schedule for deconstruction/disassembly.
 - .4 Location.
 - .5 Security.
 - .6 Protection.
 - .7 Clear labelling of storage areas.
 - .8 Details on materials handling and removal procedures.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.
- .5 Identify opportunities for reduction, reuse, and recycling of materials.
- .6 Post WRW or summary where workers at site are able to review content.
- .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
- .8 Monitor and report on waste reduction.

1.4 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to users of material for recycling.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

- .1 Ship materials to site operating under Certificate of Approval.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Protect surface drainage, mechanical and electrical from damage and blockage.
- .3 Separate and store materials produced during dismantling of structures in designated areas.
- .4 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.6 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, and paint thinner into waterways, storm, or sanitary sewers.

1.7 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established by existing facility and where required provide temporary security measures approved by Departmental Representative.

1.8 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Execution

2.1 APPLICATION

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

2.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

END OF SECTION

Part 1 General

1.1 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Departmental Representative Inspection.
- .2 Departmental Representative Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - .4 Certificates required by Fire Commissioner and Utility companies have been submitted.
 - .5 Operation of systems have been demonstrated to Owner's personnel.
 - .6 Work is complete and ready for final inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative, Consultants and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.
- .5 Where re-inspection is required due to uncompleted deficiencies, the time required by the Departmental Representative and Consultants will be recorded and reimbursement of this time may be charges back to the Contractor by deducting from amounts retained.

1.2 CLEANING

- .1 In accordance with Section 01 74 11 - Cleaning.
- .2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at Contractor's own expense.
- .9 Pay costs of transportation.

1.2 FORMAT

- .1 Organize data as instructional manual.
- .2 Provide three (3) bound copies and two (2) PDF copies on DVD or CD.
- .3 Binders: cloth, hard covered, expandable, loose leaf paper size 219 x 279 mm. Colour "black." Provide three (3) copies.
- .4 Provide draft manual for Consultant Review. This is an addition to the required copies. Consultant may choose to keep the draft manual for their use and reference.
- .5 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .6 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents. Lettering to be "gold" colour.
- .7 Provide printed title on DVD/CD version to coincide with title on bound version.
- .8 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .9 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

- .10 Text: manufacturer's printed data, or typewritten data.
- .11 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.3 CONTENTS - EACH VOLUME

- .1 Table of Contents: 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 Shop Drawings: illustrating details of a portion of work.
- .4 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .5 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .6 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.4 AS-BUILTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of opaque drawings, provided by Departmental Representative.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 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, and field test records, required by individual specifications sections.

1.6 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.

- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

1.7 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.8 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.9 MAINTENANCE MATERIALS

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.10 SPECIAL TOOLS

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

1.11 STORAGE, HANDLING AND PROTECTION

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.12 WARRANTIES AND BONDS

.1 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.2 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten 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.
- .3 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
 - .4 Respond in a timely manner to oral or written notification of required construction warranty repair work.
 - .5 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.13 PRE-WARRANTY CONFERENCE

- .1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.
- .2 Departmental Representative will establish communication procedures for:
 - .1 Notification of construction warranty defects.
 - .2 Determine priorities for type of defect.
 - .3 Determine reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue 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.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Construction Waste Management:
 - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 50% of construction wastes were recycled or salvaged.

1.2 SITE CONDITIONS

- .1 Notify Departmental Representative before disrupting building access or services.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 EXAMINATION

- .1 Inspect building and site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
 - .1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
 - .2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: requirements of authorities having jurisdiction.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.
- .2 Protection of In-Place Conditions:
- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, landscaping features, and parts of building to remain in place. Provide bracing and shoring required.
 - .2 Keep noise, dust, and inconvenience to occupants to minimum.
 - .3 Protect building systems, services and equipment.
 - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
 - .5 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Demolition/Removal:
- .1 Remove items as indicated.
 - .2 Removal of Pavements, Curbs and Gutters:
 - .1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Departmental Representative.
 - .2 Protect adjacent joints and load transfer devices.
 - .3 Protect underlying and adjacent granular materials.
 - .3 Remove parts of existing building to permit new construction.
 - .4 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at an appropriate facility.

END OF SECTION

2.2 FINISHES

- .1 Form materials for concrete surfaces which will be exposed to view, or which require smooth and uniform surfaces for applied finishes or other purposes, shall consist of square edges, smooth panels of plywood, metal or plastic to approval of the Consultant. The panels shall be square and made in a true plane, clean, free of holes, surface markings and defects.
- .2 Square edged, tongue and groove or shiplap lumber may be used to form concrete which will not be exposed to view or which does not require smooth uniform surface for other purposes.

2.3 MATERIALS

- .1 Form plywood: exterior grade, Douglas Fir conforming to CSA Standard O121-08. Plywood shall be resin coated one side (in contact with concrete). Use sound undamaged plywood with clean true edges. Make up or patching strips between panels shall be kept to a minimum.
- .2 Lumber for forms, falsework, shoring and bracing: conform to CAN/CSA O141-05 (R2009) for Softwood Lumber, and the applicable authorized grading authority. All lumber shall be a grade to which allowable unit stresses may be assigned in accordance with the National Building Code. All lumber shall be grade marked by the authorized grading authority.
- .3 Form Ties: Fabricated units having a minimum working strength when assembled of 21 MPa and shall be adjustable in lengths to permit tightening and alignment of forms. Ties shall be made with breakback ends or other means of removing the tie end to a depth of at least 25 mm from the concrete surface, after the forms are removed. Flat tie for Architectural exposed concrete to include plastic cones leaving no metal within 20 mm of surface.
- .4 Form release agent: Proprietary material which will not stain the concrete or impair the natural bonding or colour characteristics of coating intended for use on the concrete.

Part 3 Execution

3.1 CONDITION OF SURFACES

- .1 Examine the excavations and foundations for adequate working room and support for the work of this section.
- .2 Verify lines, levels and centre lines before proceeding with the work and ensure that dimensions agree with drawings.
- .3 Report to the Consultant discrepancies in other work which affect the work of this section.

3.2 PREPARATION

- .1 Coat the inside surfaces of forms with a form release agent, used in accordance with the manufacturer's instructions.
- .2 Apply the agent prior to placing reinforcing steel, anchoring devices and embedded parts.

3.3 ASSEMBLY AND ERECTION

- .1 Construct the formwork and shoring and bracing to meet the design and code requirements, accurately so that the resultant finished concrete shall conform to the shapes, lines and dimensions shown on the drawings, within the specified tolerances.
- .2 Formwork shall be so arranged and assembled as to permit easy dismantling and stripping so that the concrete will not be damaged during its removal.
- .3 Review locations of ties and form panels for exposed concrete work with the Consultant.
- .4 Check and correct formwork as required, both horizontally and vertically, during the placing of the concrete.
- .5 Construct formwork to maintain the following maximum tolerances:
 - .1 Deviation from horizontal and vertical lines:
6 mm in 3000 mm
20 mm in 12000 mm.
 - .2 Deviation of building dimensions indicated on Drawings and position of columns, walls and partitions:
6 mm.
 - .3 Deviation in cross sectional dimensions of columns or beams or in thickness of slabs and walls:
 ± 6 mm.
 - .4 Camber slabs and beams:
10 mm per 3000 mm of span unless indicated on drawings.

3.4 JOINTS IN FORMS

- .1 Make form joints tight in order to prevent leakage of mortar.
- .2 Clean all edges and contact surfaces before erection.
- .3 Where required, install pvc waterstop to manufacturer's instructions and without displacing reinforcement. Do not distort or pierce waterstop.

3.5 SHORING AND BRACING

- .1 Provide bracing to ensure the stability of the formwork as a whole.

.2 Prop or strengthen all previously constructed parts liable to be overstressed by construction loads.

.3 Arrange forms to allow stripping without removal of the principal shores, where these are required to remain in place.

3.6 FIELD QUALITY CONTROL

.1 Inspect and check the completed formwork, shoring and bracing to ensure that the work is in accordance with the formwork design, and that the supports, fastenings, wedges, ties and parts are secure. The Engineer responsible for the design of the formwork shall assist in this inspection.

3.7 CLEANING

.1 Clean the forms as erection proceeds to remove foreign matter.

.2 Remove cuttings, shavings and debris from within the forms.

.3 Flush the completed forms with water or air jet to remove remaining foreign matter. Ensure that water and debris drain to the exterior through the clean-out ports.

3.8 WINTER CONSTRUCTION

.1 Remove ice and snow from within the forms.

.2 The use of de-icing salts will not be permitted.

.3 Unless formwork and concrete construction proceed within a heated enclosure, do not use water to clean out completed forms. Use compressed air or other means to remove foreign matter.

3.9 REMOVAL OF FORMWORK

.1 Notify the Consultant before removing formwork.

.2 Remove formwork progressively and in accordance with the reference code requirements, and so that no shock loads or imbalanced loads are imposed on the structure.

.3 Do not remove forms and shoring before concrete has attained sufficient strength to ensure safety of structure. If evidence to verify concrete strength is not available, the forms and shores shall not be removed before the following minimum intervals after concrete is placed.

.1 Footings, walls and grade beams - 4 days.

.2 Columns - 7 days.

.3 Beams, soffits and slabs - 21 days.

.4 Loosen forms carefully. Do not wedge pry bars, hammers or tools against concrete surfaces.

- .5 Leave forms loosely in place, against vertical surfaces, for protection until complete removal is approved by Consultant.
- .6 Store removed forms, for exposed architectural concrete, in a manner that surfaces to be in contact with fresh concrete will not be damaged. Marked or scored forms will be rejected.
- .7 Re-shore structural members where required due to design requirements or construction conditions and as required to permit progressive construction.
- .8 Remove forms not directly supporting weight of concrete as soon as stripping operations will not damage concrete.
- .9 Re-use of formwork and falsework is subject to the requirements of CAN/CSA A23.1-14.

END OF SECTION

1.7 SUBSTITUTES

- .1 Substitution of different size bars permitted only upon written approval of the Consultant.

1.8 DELIVERY AND STORAGE

- .1 Reinforcing steel, welded wire fabric and accessories shall be delivered, handled and stored in a manner which prevents contamination from bond reducing or foreign matter and damage to its fabricated form.

Part 2 Products

2.1 MATERIALS

- .1 *All reinforcing steel:* unless noted otherwise on the drawings or herein shall be deformed bars of new billet steel conforming to the current CAN/CSA G.30.18-09 Grade 400, plain finish for all bars. Minimum splice for 10 M bars to be 450 mm. Minimum lap splice for all other bars to be 36 bar diameters or 675 mm, whichever is greater.
- .2 *Tie wires:* shall be 1.29 mm or heavier annealed wire or a patented system approved by the Consultant.

2.2 FABRICATION

- .1 Fabricate bends, splices and ties and supply bar supports and accessories in accordance with the requirements of CAN-A23.3-04. Spacing and arrangements of supports in accordance with ACI 315.
- .2 All intermediate grade reinforcing bars shall be bent cold without hickeying. All high strength steel shall be preheated.
- .3 Reinforcing bars shall not be straightened or rebent.
- .4 Location of reinforcement splices not shown on the drawings subject to approval by the Consultant and shall, for beams and slabs be away from points of maximum stress in the steel.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine the work upon which this section depends and report any discrepancies to the Consultant.
- .2 Commencement of the work shall imply acceptance of conditions.

3.2 PLACING

- .1 Reinforcement of the size and shapes shown on the drawings shall be accurately placed in accordance with the approved shop drawings, the structural drawings and the requirements of the current National Building Code.
- .2 Clear distances between parallel bars, except for columns, shall be not less than 1.4 times the diameter of the bar, or 30 mm or 1.4 times the maximum size of the coarse aggregate. Bars placed in two or more layers shall be placed directly above and below each other.
- .3 Clear distance between bars in columns shall be not less than 1½ the nominal diameter of the bar or 40 mm or 1½ times the maximum size of the coarse aggregate.
- .4 Reinforcing steel shall, where not otherwise shown on the structural drawings, be protected by the clear cover of concrete over the reinforcement as follows:
 - .1 Where concrete is formed against earth, not less than 75 mm.
 - .2 Where concrete placed against forms is to be exposed to the weather or be in contact with the ground, not less than 50 mm for bars larger than 15 M, and not less than 40 mm for bars 15 M and smaller.
 - .3 In slabs and walls not exposed to the ground or weather, not less than 20 mm.
 - .4 In beams, girders and columns not exposed to the ground or weather, not less than 40 mm to principal reinforcement, ties and stirrups.

The foregoing clear covers shall be maintained within 5 mm.
- .5 Reinforcement shall be adequately supported by metal chairs, spacers or hangers and secured against displacement within the tolerance permitted and in accordance with the latest ACI Standard 315.
- .6 For slabs on grade, footings or similar construction, concrete blocks may be used in place of metal chairs.
- .7 Unless specifically detailed otherwise, supply and install additional 10 M bars by 2400 long at 300 mm centres above all steel floor beams supporting open web steel floor joists. Bars to be centred above beam and placed with 25 mm cover to top of slab. Provide 1 - 15 M carrier bar below for chairing.
- .8 Unless detailed otherwise, all exterior slabs, walks and pads abutting building foundations to be dowelled with 15 M at 400 on centre, extending minimum 750 into slab.
- .9 Review with the Consultant, placement of reinforcement prior to concreting.
- .10 Notify the Consultant twenty-four (24) hours prior to placing concrete.

3.3 CLEANING

- .1 All materials shall be clean and free of all form oil or deleterious materials.
- .2 All deleterious material shall be removed from the surface of the reinforcing steel in a manner acceptable to the Consultant.

END OF SECTION

- .4 Tests of cement and aggregates may be performed to ensure conformance with requirements stated herein.
- .5 One concrete test, consisting of three test cylinders, will be taken for every 50 cubic meters or less of each class of concrete placed. One cylinder to be tested at seven (7) days, the remaining two cylinders to be tested at twenty-eight (28) days.
- .6 One (1) additional test cylinder will be taken during cold weather concreting, and be cured on job site under same conditions of concrete it represents.
- .7 One (1) slump test and one (1) air content test will be taken for each set of test cylinders taken.
- .8 Testing of concrete will be performed in accordance with CAN/CSA-A23.2-14 "Method of Test for Concrete".
- .9 Test results will be issued to the Contractor, Consultant and Owner. Test reports are to be numbered consecutively beginning with number one.
- .10 Required retesting will be paid for by the Contractor.
- .11 The Consultant may order additional testing any time even though the required tests indicate the strength requirements have been met. In this instance, the Owner will pay for those tests that meet the specified requirements and the Contractor will pay for those that do not.
- .12 Non-destructive methods for testing concrete shall be according to CAN/CSA A23.2-14.

1.7 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with General Conditions.
- .2 Prepare and submit to the Consultant for review, shop drawings showing detailed layout of form dimensions, form joint fitting, form sealing and placement, location of openings and placement of form ties. Submit a detailed description of the exact construction method to be used, for all area designated as sand blasted finish, exposed aggregate finish and architectural exposed concrete.

Part 2 Products

2.1 CONCRETE MATERIALS

- .1 *Cement:* Normal - N and Sulphate Resistant - HS Portland Type, to CSA A3000-08 - "Portland Cements".
- .2 *Fine and Coarse Aggregates:* conforming to CAN/CSA-A23.1-14 - "Concrete Material and Methods of Concrete Construction".

.3 *Fine and Coarse Aggregates:* conforming to CAN/CSA-A23.1-14 - "Concrete Materials and Methods of Concrete Construction". The fine and coarse aggregate for concrete floor slabs and finish toppings shall contain a maximum of 0.4% low density particles as determined by CSA Test A23.2-14 "Low Density Material in Aggregate". Test results shall be submitted to Consultant for review.

.4 *Water:* clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious material.

2.2 ADMIXTURES

.1 *Air Entrainment:* to ASTM C260-06 - "Air-Entraining Admixtures for Concrete".

.2 *Chemical:* to ASTM C494-08a - "Chemical Admixtures for Concrete"; water reducing, strength increasing type WN - normal setting.

.3 *Pozzolanic Mineral:* to CSA A3000-08 "Supplementary Cementing Materials and Their Use in Concrete Construction", fly ash permitted only as approved by Consultant.

2.3 ACCESSORIES

.1 *Vapour Barrier:* 6 mil polyethylene film, to CGSB 70-GP-1a, Type 1 - low permeance heavy duty.

.2 *Curing Compounds:* shall conform to the requirements of the latest issue of ASTM Standard C309.

.3 *Non-shrink Grout:* premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 20 MPa at 3 days and 50 MPa at 28 days. CPD Non Shrink Grout by CPD Construction Products or approved equivalents.

.4 *Void Form:* **to comply with either of the following:**

.1 Biodegradable Void Form: biodegradable, 150 mm deep, structurally sufficient to support weight of wet concrete and other superimposed loads without collapsing until concrete has gained sufficient strength to support these loads after which time the form must promptly degrade. Do not wrap void form. Do not place void form on poly ground sheet. The onus is entirely on the Contractor and Supplier to ensure that the void form is installed to perform as intended.

.2 Compressible Void Form: GeoVoid (below slabs) or Geospan (below grade beams) compressible void form by Plasti-Fab designed for 150 mm soil heave, installed to supplier's specifications.

.5 *Joint Filler:* pre moulded bituminous impregnated cane fibre board Flexcell as manufactured by Sternson or approved equal.

.6 *Vertical Joint Sealant:* non-sag polyurethane sealant designed for use on vertical surfaces. Vulkem 116 as manufactured by Mameco Ltd. or approved equal. Install strictly in accordance with manufacturer's recommendations.

- .7 *Horizontal Joint Sealant:* three component chemically curing, self-levelling, polyurethane joint sealant, THC-900 as manufactured by Tremco. Colour selection by Consultant. Install strictly in accordance with manufacturer's recommendations.
- .8 *Concrete Expansion Anchors:* to be Hilti Kwik-Bolt or approved equivalent. Sized as per drawings. Minimum embedment length of all Hilti Kwik-Bolt to be 150 mm unless noted otherwise.
- .9 *Concrete Inserts with Bolt Extension:* Concrete inserts to be Hilti HKD Anchors or approved equivalent, sized as detailed on drawings. Bolt extensions to be mild steel threaded extensions sized as detailed on drawings.
- .10 *Concrete Patching Material:* pre-packaged, polymer modified, cementitious product containing graded natural aggregate, Planitop X - Rapid Setting Mortar as manufactured by MAPEI Inc.

2.4 CONCRETE MIXES

- .1 Mechanical mix concrete in accordance with the requirements of CAN/CSA A23.1-14.
- .2 All concrete shall have the following minimum properties.

Based on 2010 National Building Code

Location	Exposure Class	Comp. Strength (MPa) and Age	Aggregate	Air Entrainment	Slump
1. Exterior Grade Supported Sidewalks/Landing Pads, Slabs	C-2	32 @ 28 d	20	5 – 8	80 ± 30

- .3 Submit proposed mix design to Inspection and Testing Firm and to Consultant two (2) weeks prior to commencement of work. Provide certification that mix proportions selected will produce concrete of specified quality and that strength will comply with CAN/CSA A23.1-14.
- .4 Each load of ready-mixed or transit-mixed concrete delivered to the project site shall be accompanied by duplicate delivery slips providing the following information:
 - .1 Name of ready-mix batch plant
 - .2 Serial number of ticket
 - .3 Date and truck number
 - .4 Name of contractor
 - .5 Specific designation of project
 - .6 Specific class of concrete
 - .7 Amount of concrete in cubic metres
 - .8 Time of loading or first mixing of aggregate, cement and water.
- .5 Use accelerating admixtures in cold weather only when approved by Consultant. If approved, the use of admixture will not relax cold weather placement requirements. Use calcium chloride only as approved by the Consultant.

- .6 Use set-retarding admixtures during hot weather only when approved by the Consultant.
- .7 Use of plasticizers only when approved by Consultant.
- .8 Concrete mix for exposed aggregate finish and sandblasted finish shall be designed as a low slump, gap-graded mix with a maximum amount of screened and washed crushed coarse aggregate.

Part 3 Execution

3.1 INSPECTION

- .1 Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- .2 Verify that all items to be embedded in concrete are in place.
- .3 Verify that concrete may be placed to the lines and elevations indicated on the Drawings, with all required clearance from reinforcement.

3.2 DISCREPANCIES

- .1 In the event of discrepancy, immediately notify the Consultant.
- .2 Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.3 PREPARATION

- .1 Remove all wood scraps and debris from the formed areas in which concrete will be placed.
- .2 Thoroughly clean the forms to ensure proper placement and bonding of concrete.
- .3 Thoroughly wet the forms, except in freezing weather, or oil them; remove all standing water.
- .4 Thoroughly clean all transporting and handling equipment.

3.4 PLACING CONCRETE

- .1 Place concrete in accordance with requirements of CAN/CSA A23.1-14 and as indicated on Drawings.
- .2 Notify Consultant and Inspection and Testing Firm a minimum of twenty-four (24) hours prior to commencement of concreting operations.
- .3 Ensure all anchors, seats, plates and other items to be cast into concrete are placed, held securely and will not cause undue hardship in placing concrete.

- .4 Maintain accurate records of poured concrete items. Record date, location of pour, quantity, air temperature and test samples taken.
- .5 Ensure reinforcement, inserts, embedded parts, formed joints and fitments are not disturbed during concrete placement.
- .6 Prepare previously placed concrete by cleaning with steel brush.
- .7 Pour concrete continuously between predetermined construction and control joints. All construction joints subject to approval of the Consultant.
- .8 Approval to place concrete shall be contingent on the formwork and reinforcing steel placement and evidence that the Contractor can place the planned casting without stopping.
- .9 Pour slabs on grade in checkerboard pattern or saw cut, as indicated on Drawings. Saw cut control joints within twenty-four (24) hours after finishing. Use 6 mm thick blades, cutting 20 mm into depth of slab thickness. Vacuum clean saw cut prior to installation of sealant.
- .10 Excessive honeycomb or embedded debris in concrete is not acceptable. Remove and replace defective concrete. Excessive honeycomb is when eraser end of a pencil fits into cavity.

3.5 COLD WEATHER REQUIREMENTS

- .1 When the air temperature is at or below 5° C. or when there is a probability of it falling to this limit during the placing or curing period, cold weather requirements shall be applicable.
- .2 Provide heating equipment or heating plant on the job ready for use when concrete is being placed during cold weather. Such equipment shall be adequate for the purpose of maintaining the required temperature during the placing and curing of the concrete. The methods used for heating shall be approved by the Consultant. Equipment inducing carbon monoxide gas in the building shall not be accepted.
- .3 Concrete shall not be placed on or against reinforcement, formwork, ground or any surface that is at a temperature less than 5° C.
- .4 The temperature of the concrete at all surfaces shall be maintained at not less than 15° C for three (3) days, or at not less than 10° C for five days after placing. Means shall be provided to humidify the air within enclosures and to keep the concrete and formwork continuously moist if dry heat is used. The concrete shall be kept above freezing temperature for a period of seven (7) days, and shall be kept from alternate freezing and thawing for at least fourteen (14) days after placement.
- .5 At the end of the specified protection period the temperature of the concrete shall be reduced gradually at a rate not exceeding that shown in CAN/CSA A23.1-14.
- .6 Accelerator or so-called anti-freeze compounds shall *not* be permitted unless otherwise approved in writing by the Consultant.

- .7 All protective coverings shall be kept clear of the concrete and form surfaces to permit free circulation of air and shall be maintained intact for at least twenty-four (24) hours after artificial heat is discontinued.

3.6 HOT WEATHER REQUIREMENTS

- .1 When the air temperature exceeds 27°, hot weather requirements shall be applicable.
- .2 Time of initial mixing to complete discharge shall not exceed 1 hour and 15 minutes and concrete placed shall not exceed 27°.
- .3 Concrete forming surfaces and reinforcing steel shall be sprinkled with cool water just prior to placing concrete. Standing water or puddles shall be removed prior to concrete placement.
- .4 Special wind protection will be required as directed by the Consultant.
- .5 Columns, walls, beams and slabs shall be kept continuously damp for twenty-four (24) hours by normal curing procedures as outlined by this Specification. Slabs cured by the applications of sealing, shall have curing compound applied immediately after finishing of the slab but before evaporation of surface moisture.
- .6 The use of water reducing agents shall be subject to the approval of the Consultant when hot weather conditions prevail.

3.7 CONSTRUCTION JOINTS AND WATERSTOPS

- .1 The location and detail of all construction joints not detailed on the structural drawings shall be approved by the Consultant.
- .2 Where fresh concrete is to be placed against concrete which has set or has partially set, the surface of the set or partially set concrete shall be roughened, cleaned of all laitance, and thoroughly soaked with water prior to the placement of fresh concrete.
- .3 In general the construction joints in floor and roof systems shall be located in the middle of the spans of slabs, beams and girders. Proper key and dowels or extensions of reinforcing shall be provided at all construction joints.
- .4 Concrete placed in wall and column forms shall be struck off flush with the underside of the floor and roof systems.
- .5 Vertical construction joints in foundation walls shall be properly keyed and dowelled and constructed with an approved water stop, properly anchored against displacement during the placement of the concrete and properly sealed at all of the intersections. Splices and intersections of water stop shall be jointed by heat fusion in accordance with approved manufacturer's instructions.

3.8 DEFECTIVE CONCRETE

- .1 Concrete not meeting the requirements of the Specifications and drawings shall be considered defective concrete.

- .2 Concrete not conforming to the lines, details and grade specified herein or as shown on the drawings shall be modified or replaced at the Contractor's expense and to the satisfaction of the Consultant. Finished lines, dimensions and surfaces shall be correct and true within tolerances specified in the Formwork Section of these Specifications.
- .3 Concrete not properly placed resulting in excessive honeycombing and all honeycombing and other defects in critical areas of stress, shall be repaired or replaced at the Contractor's expense and to the satisfaction of the Consultant.
- .4 Concrete of insufficient strength or improper consistency shall be, as required by the Consultant, subject to one or more of the following:
 - .1 Changes in mix proportions for the remainder of the work.
 - .2 Cores drilled and tested from the areas in question as directed by the Consultant and in accordance with CAN/CSA A23.2-14. The test results shall be indicative of the in-place concrete.
 - .3 Load testing of the structural elements in accordance with CAN3 A23.3-04.
 - .4 The changes in the mix proportions and the testing shall be at the Contractor's expense.
 - .5 Concrete failing to meet the strength requirements of this Specification shall be strengthened or replaced at the Contractor's expense and to the satisfaction of the Consultant.

3.9 PATCHING CONCRETE

- .1 After the removal of the forms concrete surfaces may be subject to inspection by the Consultant.
- .2 All exposed metal form ties, nails, wires, shall be removed, fins broken off and all loose concrete removed.
- .3 Form tie pockets shall be thoroughly wetted and patched with patching concrete followed by proper curing.
- .4 Honeycombed and other defective surfaces shall be chipped away to a depth of not less than 25 mm with the edges perpendicular to the surface, thoroughly wetted and patched with patching concrete followed by proper curing.
- .5 Patching concrete shall be thoroughly compacted into place and finished in such a manner as to match the adjoining concrete. The design mix of the patching concrete shall be approved by the Consultant.

3.10 SIDEWALKS

- .1 Unless specifically detailed otherwise on drawings or in specifications, sidewalks shall be constructed to the following details.

- .2 Use forms for edges of concrete walls to provide straight lines and smooth curves.
- .3 Locate asphalt impregnated fibreboard joint filler at 4.5 metre centres and where walks abut walls and other vertical surfaces. Joint filler to be full area of concrete section.
- .4 Slabs to be 125 thick cast over 6 mil poly and 200 compacted granular fill. Reinforce with 10 M at 300 mm on centre each way at mid-depth of slab.
- .5 Install tooled joints at 1.5 metres on centre.
- .6 Round all edges, including edges of control joints and tooled joints, with 12 mm radius edging tool.
- .7 Provide exposed surfaces of all sidewalks with medium broomed finish.
- .8 Slope walks and slabs as detailed on drawings.

END OF SECTION

Part 1 General

1.1 RELATED WORK

- .1 Cast-in-Place Concrete Section 03 30 00

Part 2 Products

2.1 COMPOUNDS/SEALERS

- .1 *Curing Compound:* chlorinated liquid rubber to CGSB 90-GP-1a, Type 1.
- .2 *Non-metallic Surface Sealer:* premixed natural mineral type; "Eurocure 700, by Elsro Ltd., "Flor Seal" by Sternson Ltd., "Master Seal" by Master Builders, "Sealtight CS-309" by W. R. Meadows or approved equal.
- .3 *Penetrating Epoxy Sealer:* Acceptable products "905 Penetrating Epoxy" by Cementation Company (Canada) Ltd., or Cappar's Niklepoxy Penetrant Sealer".
- .4 *Horizontal Joint Sealer:* three component, chemically curing, self-levelling polyurethane joint sealant. THC-900 as manufactured by Tremco. Color selection by Consultant. Install strictly in accordance with manufacturer's recommendations.

Part 3 Execution

3.1 FLOOR FINISHING

- .1 Finish concrete floor surfaces in accordance with CSA A23.1-14.
- .2 Uniformly spread, screed and float concrete. Do not use grate tampers or mesh rollers. Do not spread concrete by vibration. Bring surfaces to levels indicated on Drawings.
- .3 All concrete slabs noted on drawings as receiving thin-set quarry tile finish are to be final finished with a swirl trowel finish plus fine hair brooming to give a surface finish to achieve a "flat" floor in accordance with CSA A23.1-14, Clause 7.6 maintaining surface flatness with maximum variation of 5 mm in 3 M and absolute maximum of ± 6 mm.

3.2 EXPOSED AGGREGATE FINISHES

- .1 All walks and slabs noted on drawings or in specifications as receiving exposed aggregate finish shall be constructed using approved concrete mix appropriate for this type of finish.
- .2 Exposed aggregate finish may be achieved by applying set-retarder to surface of slab and cleaning away cement paste by wire brushing and/or water jets. Finishing is to be carried out in time such that cement paste can be effectively removed to the desired depth without damaging or loosening coarse aggregate. Set-retarder shall be applied in accordance with manufacturer's recommendations for achieving a medium depth exposed aggregate finish.

.3 Contractor shall finish one test section for Architect's review and approval prior to commencing this work.

.4 Work shall be done by concrete finishers experienced in this type of work.

3.3 CURING AND PROTECTION

.1 All equipment needed for the curing and protection of the concrete shall be on hand and ready for use before actual placing is started.

.2 All exposed non-formed surfaces shall be kept continuously moist for a minimum of seven consecutive days after placement of the concrete. The water for curing shall be clean and free from any materials that will cause staining or discolouration of the concrete. A liquid, membrane forming, curing compound shall be used under circumstances where the application of moisture is impracticable and where such compounds will not jeopardize the appearance of the concrete nor the bonding of future floor finishes.

.3 Special curing techniques shall be employed when the concrete is subject to drying conditions such as high temperatures, low relative humidity and high winds. Concrete wall and column forms shall be kept continuously moist.

.4 Freshly placed concrete shall be protected from the effects of direct sunshine, drying winds, cold, excessive heat and running water by the use of adequate tarpaulins or other suitable material to cover completely or enclose all freshly finished surfaces until the end of the curing period specified.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A269 Tubing, seamless and welded, austenitic
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA-S16.1-01, Limit States Design of Steel Structures.
 - .4 CSA W48-06(R2011), Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .5 CSA W59-13, Welded Steel Construction (Metal Arc Welding).

1.2 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.3 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
 - .2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

Part 2 Products

2.1 MATERIALS

- .1 Welding materials: to CSA W59.
- .2 Welding electrodes: to CSA W48 Series.
- .3 Bolts and anchor bolts: to ASTM A307.
- .4 Stainless steel tubing: to ASTM A269, Type 304 Commercial grade Seamless welded with AISI No. 4 finish .
- .5 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 ISOLATION COATING

- .1 Isolate aluminum from following components, by means of bituminous paint:
 - .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
 - .2 Concrete, mortar and masonry.
 - .3 Wood.

2.4 HANDRAILS

- .1 Fabricate stainless steel handrails as indicated on the drawings.

Part 3 Execution

3.1 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Provide components for building by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CAN/CSA-S16.1, or weld.
- .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .9 Touch-up galvanized surfaces with zinc rich primer and zinc finish coating where burned by field welding.

3.2 HANDRAILS

- .1 Modify stainless steel handrails as indicated in drawings

3.3 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Materials and installation for membrane for use as waterproofing.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-37.56-M97, Modified Bitumen glass-reinforced mat.
- .2 Health Canada
 - .1 Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.3 PRODUCT DATA

- .1 Submit product data in accordance with Section 01 00 05 – General Requirements .
- .2 Submit WHMIS MSDS - Material Safety Data Sheets.
- .3 Submit product data sheets for modified bitumen waterproofing products. Including:
 - .1 Product characteristics.
 - .2 Performance criteria.
 - .3 Application methods.
 - .4 Limitations.
- .4 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures and protection requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 00 05 General Requirements.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store materials on supports to prevent deformation.
- .4 Remove only in quantities required for same day use.
- .5 Store materials in accordance with manufacturer's written instructions.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Fold up metal banding, flatten and dispose of at appropriate recycling facilities.

1.6 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

- .1 Temperature, relative humidity, moisture content.
 - .1 Apply waterproofing materials only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
 - .2 Do not apply waterproofing in wet weather.
- .2 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.

Part 2 Products

2.1 MATERIALS

- .1 Membrane:
 - .1 For torch applied application: to CAN/CGSB-37.56
 - .1 Glass reinforcing mat impregnated and coated with SBS modified Bitumen.
 - .2 Width of roll 1 metre.
 - .3 Thickness of material: 2.5mm
 - .4 Acceptable materials: Iko Aquabarrier TG.
 - .5 Acceptable manufacturers: Equivalent product by Soprema, Henry Company.
 - .2 Sealing compound: plastic cutback asphalt cement to CAN/CGSB-37.5.
 - .1 Sealing compound and mastics acceptable to manufacturer.
- .3 Primer:
 - .1 Use primer on all exposed surfaces to be coated.
 - .2 Primer shall be compatible with membrane material and manufactured by same manufacturer as membrane.
- .4 Drainage Composite:
 - .1 High-strength, polystyrene core with non-woven filter fabric.
 - .2 Acceptable materials: Carlisle, CCW MiraDrain 6000.
 - .3 Install using Carlisle, CAV-Grip low VOC Contact adhesive.
 - .4 Acceptable manufacturers: Equivalent product by Soprema, Henry Company.

Part 3 Execution

3.1 PREPARATION (INSIDE PLANTERS ONLY)

- .1 Before applying waterproofing:

- .1 Remove all remaining soil from foundation wall using a stiff brush and other method that will leave surface suitable for the installation of primer and proper adhesion of the waterproofing membrane.
- .2 Seal at all other locations noted on drawings, including horizontal cracks and cold joints.

3.2 APPLICATION – WATERPROOFING

- .1 Apply to inside of planters and as noted on the drawings under rigid insulation.
- .2 Do waterproofing in accordance with manufacturer's printed instructions. Installation shall be by qualified installers approved by the manufacturer.
- .3 Lap all joints in accordance with manufacturer's printed instructions and seal exposed edges at laps with mastic sealant.
- .4 Do sealing work in accordance with CGSB 37-GP-11M.
- .5 Do priming of surface in accordance with CGSB 37-GP-15M .
- .6 Apply primer to all exposed surfaces prior to installing membrane.
- .7 DO NOT Apply primer, waterproofing to the brick. Remove clean any materials on brick.

3.3 APPLICATION – DRAINAGE COMPOSITE (INSIDE PLANTERS ONLY)

- .1 Install drainage composite with flat side against wall. Install from 25mm below top of flashing.
- .2 Apply spray contact adhesive to wall in circular spray pattern in accordance with manufacturer's recommended coverage. Do not install directly onto drainage composite.
- .3 Install drainage composite when adhesive is tacky but does not transfer to finger when touched.
- .4 Install in vertical pattern on wall. At exposed end condition wrap excess fabric behind core to prevent soil from infiltrating behind panels.
- .5 Provide prefinished metal flashing at top of drainage composite/membrane to secure top in place and prevent soil from entering between the drainage composite and the retaining wall. Secure with corrosion resistant fasteners into concrete.
- .6 Limit ultraviolet exposure by backfilling within 7 days after initial installation.
- .7 Dispose of empty canisters of adhesive in accordance with local and provincial regulations.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American National Standards Institute (ANSI)/Ceramic Tile Institute (CTI)
 - .1 ANSI/CTI A108.1-A108.17, Specification for the Installation of Ceramic Tile.
 - .2 ANSI/CTI A118.1-A108.15, Specification for the Installation of Ceramic Tile.
 - .3 ANSI A137.1 - American National Standard Specifications for Ceramic Tile.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .2 ASTM C207-06, Standard Specification for Hydrated Lime for Masonry Purposes.
 - .3 ASTM C902-15, Standard Specification for Pedestrian and Light traffic Paving brick.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-M88, Sieves, Testing, Woven Wire, Metric.
 - .2 CAN/CGSB-25.20-95, Surface Sealer for Floors.
 - .3 CGSB 71-GP-29M-79, Adhesive, Elastomeric, for Installation of Quarry Tiles.
 - .4 CGSB 71-GP-30M-79, Adhesive, Epoxy and Modified Mortar Systems, for Installation of Quarry Tiles.
- .4 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A3000-03(R2006), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .5 Terrazzo, Tile and Marble Association of Canada (TTMAC)
 - .1 Tile Installation Manual 2016/2017.
- .6 International Organization for Standards (ISO)
 - .1 ISO 13007 - International Standards Organization; classification for Grout and Adhesives.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide Manufacturer's printed product literature, specifications and data sheets for each product specified.
- .3 Installation Instructions: Manufacturer's printed instructions for each product.
- .4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit duplicate 600 x 600 mm sample panels of each colour, texture, size and pattern of pavers.

- .2 Adhere pavers samples to 11 mm thick plywood and grout joints to represent project installation.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements].
 - .2 Deliver, store and handle products in manner to avoid damage.
 - .3 Have materials delivered to job site just prior to installation.
 - .4 Deliver products to job site in manufacturer's unopened cartons with labels intact and legible.
 - .5 Keep cartons dry and protected from vandalism and away from heavy traffic areas.
 - .6 Store cartons in upright position.
 - .7 Handle furan resin mortar and grout with care and abide by safety labels found on each unit and product MSDS's.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal].
- .3 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of materials.

1.4 ENVIROMENTAL REQUIREMENTS

- .1 Exterior Applications:
 - .1 Follow manufacturer recommendations for exterior installations for procedures and environmental requirements.
 - .2 Build a temporary shelter and as necessary provide temporary heating to meet the temperature requirements noted below as a minimum.
- .2 Temperature:
 - .1 Maintain air temperature and structural base temperature at ceramic tile installation area above 12 degrees C for 48 hours before, during, and 7 days after, installation.
 - .2 Do not install tiles at temperatures less than 12 degrees C or above 38 degrees C.
 - .3 Do not apply epoxy mortar and grouts at temperatures below 15 degrees C or above 25 degrees C.
- .3 Hot weather requirements.
 - .1 Protect freshly laid pavers from drying too rapidly, by means of waterproof, non-staining coverings.
 - .2 Keep pavers dry using waterproof, non-staining coverings that extend over and down sides sufficient to protect from wind driven rain.

1.5 SYSTEM DESCRIPTION

- .1 Scope of work - Provide clay pavers, installation materials and accessories as indicated on drawings, as specified herein, and as needed for complete and proper exterior installation.

1.6 MAINTENANCE

- .1 Extra Materials:
 - .1 Provide minimum 2 % of each type and colour of paver tiling required for project maintenance use. Store where directed.
 - .2 Maintenance material same production run as installed material.

1.7 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Installer: company or person specializing in paver installations with 3 documented years' experience.
- .2 Quality Assurance:
 - .1 Products: Pavers Manufacturer (single source responsibility): Company specializing in Clay brick pavers with five (5) years minimum experience. Obtain pavers from a single source with resources to provide products of consistent quality in appearance and physical properties.
 - .2 Products: Grout/Setting materials/mortars/additives/accessories from the same Manufacturer (single source responsibility): Company specializing in Mortars/Grouts/thinsets with five (5) years minimum experience. Obtain from a single source with resources to provide for an exterior installation.

Part 2

2.1 PAVERS

- .1 Pavers: to ASTM C902, Type 1, Class SX, Application PS, 38mm x 100 x 200 mm size, straight edges.
- .2 Total installation thickness 50mm with mortar.
- .3 Colours:
 - .1 Colour 1: (field colour) Match Whitacre Greer: 33 Dark Antique
 - .2 Colour 2: (nosing colour) Whitacre Greer: Contrasting colour to chosen from standard colours.

2.2 WATERPROOFING/CRACK SUPPRESSION/MEMBRANE

- .1 Waterproofing / Crack Suppression / Membrane to be thin, cold applied, single component liquid and load bearing. Reinforcing fabric to be non-woven rot-proof specifically intended for waterproofing membrane. Waterproofing Membrane to be non-toxic, non-flammable, and non-hazardous during storage, mixing, application and when cured. It shall be certified by IAPMO and ICC approved as a shower pan liner and shall also meet the following physical requirements:
 - .1 Hydrostatic Test (ASTM D4068): Pass
 - .2 Elongation @ break (ASTM D751): 20-30%
 - .3 System Crack Resistance (ANSI A118.12): Pass (High)
 - .4 7 day Tensile Strength (ANSI A118.10): >265 psi (1.8 MPa)
 - .5 7 day Shear Bond Strength (ANSI A118.10) >200 psi (1.4 MPa)
 - .6 28 Day Shear Bond Strength (ANSI A118.4): >214 psi (1.48 – 2.4 MPa)
 - .7 Service Rating (TCA/ASTM C627): Extra Heavy
 - .8 Total VOC Content: < 0.05 mg/m³
 - .9 Based on: LATICRETE® HYDRO BAN)

2.3 MORTAR

- .1 Improved Modified Dry-Set Cement Thin Bed Mortar for thin set and slurry bond coats to be weather, frost, shock resistant, non-flammable, GREENGUARD Gold compliant, conforms to ISO C2TES2, and meets the following physical requirements:
 - .1 28 Day Porcelain Tile Shear Strength (ANSI A118.15): >450 psi (3.1 MPa)
 - .2 28 Day Dry Cure / 20 Cycle Freeze-Thaw Porcelain Tile
 - .3 Shear Strength (ANSI A118.15): e 250 psi (1.7 MPa)
 - .4 7 Day Cure / 7 Day Water Immersion (ANSI A118.15): >280 psi (1.9 MPa)
 - .5 Extended Open Time (ANSI A118.15): > 100 psi (0.7 MPa)
 - .6 Smoke & Flame Contribution (ASTM E84 Modified): 0
 - .7 Total VOC Content: d0.22 mg/m³
 - .8 Based on: LATICRETE® 254 Platinum

2.4 GROUT

- .1 Epoxy Grout shall be non-toxic, non-flammable, non-hazardous during storage, mixing, application and when cured, UL GREENGUARD Gold compliant, conform to ISO 13007 requirements for CG2WAF and shall meet the following physical requirements:
 - .1 Compressive Strength (ANSI A118.3): 3,800 psi (26.2 MPa)
 - .2 Shear Bond Strength (ANSI A118.3): 1,100 psi (7.6 MPa)
 - .3 Tensile Strength (ANSI A118.3): 1,100 psi (7.6 MPa)
 - .4 Thermal Shock (ANSI A118.3): >800 psi (5.5 MPa)
 - .5 Water Absorption (ANSI A118.3): <0.05%
 - .6 Vertical Joint Sag (ANSI A118.3): Pass
 - .7 Total VOC Content: d0.22 mg/m³

- .8 Based on: SPECTRALOCK® PRO Premium Grout

2.5 ACCESSORIES

- .1 Expansion and Control Joint Sealant to be a one component, neutral cure, exterior grade silicone sealant and meet the following requirements:
 - .1 Tensile Strength (ASTM C794): 280 psi (1.9 MPa)
 - .2 Hardness (ASTM D751; Shore A): 25 (colored sealant)
 - .3 Weather Resistance (QUV Weather-ometer): 10,000 hours (no change)
 - .4 Based on: LATICRETE LATASIL™ and LATASIL 9118 Primer
- .2 Sealer (Exterior Masonry Veneers and cement grouts): water-based formula specifically designed for topical application on porous stones & epoxy grout in exterior applications.
 - .1 Based on: LATICRETE STONETECH® Heavy Duty Exterior Sealer
- .3 Tactile Attention Indicators: Provide stainless tactile stud systems as shown on the drawings. Tactile stud systems to be similar to MRC Tactile stud systems:
 - .1 Single Billet Marine grade 316 stainless steel
 - .2 Black non-slip grit insert
 - .3 Stem system epoxy anchored into finish
 - .4 Manufacturers' installation template.
 - .5 Meet the CSA B651-12 standard.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 WORKMANSHIP

- .1 Do tile work in accordance with TTMAC Tile Installation Manual.
- .2 Apply mortar bed to clean and sound surfaces.
- .3 Fit paver units around corners, fitments, fixtures, and other built-in objects. Maintain uniform joint appearance. Make cut edges smooth and even.
- .4 Maximum surface tolerance: 1:800.
- .5 Make joints between pavers' uniform and approximately 6 mm wide, plumb, straight, true, even and with adjacent units flush. Align patterns.
- .6 Lay out units so perimeter pavers are minimum 1/2 size.
- .7 Sound pavers after setting and replace hollow sounding units to obtain full bond.
- .8 Clean installed paver surfaces after installation cured.
- .9 Keep building expansion joints free of mortar or grout.

- .10 Use slip resistant pavers.

3.3 SETTING SYSTEM

- .1 Install pavers on substrate in accordance with TTMAC detail 325ED-A with an installation thickness of 50mm.

3.4 CONTROL JOINTS

- .1 Provide control joints around perimeter of large areas, around columns, in locations where area changes direction, where pavers meet vertical surfaces and where pavers abuts other hard material. Place control joints directly over subfloor expansion/control joints.
- .2 Provide control joints for exterior areas where indicated and at a maximum 3600 mm intervals each way. Minimum width of control joints 10 mm.
- .3 Fill joints with sealant.

3.5 SEALER AND PROTECTIVE COATING

- .1 Apply 2 coats in accordance with manufacturer's printed instructions.

3.6 TACTILE ATTENTION INDICATORS

- .1 Install 600mm wide strip of tactile attention indicators as per manufacturer's instructions. Install with manufacturers provided installation template.

3.7 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
.1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.8 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.

3.9 PROTECTION

- .1 Protect new installation from time of final set of adhesive until application of final sealer and protective coating.
- .2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Topsoil and fertilizer.

PART 2 PRODUCTS

2.1 Materials

- .1 Topsoil: stockpiled and imported material shall be free from subsoil, roots, grass, weeds, toxic materials, stones and foreign objects, and shall be subject to analysis by a testing laboratory before use. Topsoil shall consist of black topsoil, a fertile, friable natural loam, neither heavy clay nor very light sand, consisting of not less than 4% organic matter for clay loams and not less than 2% for sandy loams, with an acidity value ranging from pH 6.0 to 8.0. Topsoil to be screened and in a moist, not wet, condition when incorporated into the work. Submit a one (1) litre sample to Consultant for approval prior to incorporation into the work.
- .2 Peatmoss: derived from partially decomposed fibrous or cellular stems and leaves of species of Sphagnum Mosses; elastic and homogeneous, brown in colour; free of wood and deleterious material which could prohibit growth; maximum shredded particle size: 5 mm; to approved sample.
- .3 Sand: homogeneous, sharp-grained, 0.5 – 1.5 mm; to approved sample
- .4 Planting mix: 60% topsoil, 20% peatmoss or well-rotted manure, 20% sand; to approved sample.
- .5 Fertilizer: Complete commercial synthetic slow release fertilizer with maximum 35% water soluble nitrogen; uniform in composition and free flowing. Formulation ratio: as recommended for small planting beds and topsoil used.

PART 3 EXECUTION

3.1 COORDINATION

- .1 Ensure proper scheduling of work to avoid conflicts with completed and intended work.

3.2 PREPARATION

- .1 Eliminate uneven areas and low spots from areas that have been rough graded. Ensure positive drainage in accordance with grading plans. Notify Consultant of grading problems before proceeding. Remove debris, roots, tree shoots, branches, stones in excess of 50 mm diameter and other extraneous materials. Remove subsoil that has been contaminated with oil, gasoline, calcium chloride or other undesirable chemicals. Dispose of removed materials off site on a daily basis and at a location approved by local officials.
- .2 Do not damage structures, trees, or other materials adjacent to landscaped areas.

3.3 PLANTING MIX

- .1 Do not spread planting mix or topsoil until Consultant has inspected subgrade.
- .2 Spread planting mix with adequate moisture in uniform layers during dry weather over approved, dry, unfrozen subgrade, where in raised planters as indicated.
- .3 Bring planting mix to finish grade
- .4 Uniformly place planting mix as indicated in maximum 150 mm loose lifts to the following minimum compacted depths:
 - .1 1200 mm topsoil for planting beds.
 - .2 Compact each lift to minimum 90% Standard Proctor Density.

3.4 FERTILIZER

- .1 Apply fertilizer at least 6 days before seeding or planting.
- .2 Spread fertilizer uniformly with mechanical spreaders at rate determined on basis of soil tests.
- .3 Incorporate fertilizer thoroughly into upper 50 mm of growing media.

3.5 FINISH GRADING

- .1 Remove stones, roots, grass, debris and foreign non organic objects from growing media.
- .2 Manually spread material in planting beds areas.
- .3 Leave surface smooth and uniform, with a fine loose texture.

END OF SECTION