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Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises of the general construction of a maintenance access stair to access the upper mechanical roof on the Bow Unit at the Regional Psychiatric Centre located in Saskatoon, SK and is identified as Project No. R. 100537.001.

1.2 CONTRACT METHOD

- .1 Construct Work under stipulated price contract.

1.3 CONTRACTOR USE OF PREMISES

- .1 Limit use of premises for access, for Work and for storage to allow:
 - .1 Departmental Representative's occupancy.
 - .2 Co-ordinate use of premises under direction of Departmental Representative.
 - .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
 - .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
 - .5 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.
 - .6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.1 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit Project construction progress schedule in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart.
- .3 Sustainable Design Submittals:
 - .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 50% of construction wastes recycled or salvaged
- .4 Submit site-specific and Work Plan Health and Safety Planning accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 DEPARTMENTAL REPRESENTATIVE'S OCCUPANCY

- .1 The Departmental Representative will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with the Departmental Representative in scheduling operations to minimize conflict and to facilitate the Departmental Representative's usage.

1.2 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.5 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Commissioning Verification Forms and Check Sheets.
 - .12 Commissioning Issues/Resolution Log
 - .13 Other documents as specified.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

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

1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Closures: protect work temporarily until permanent enclosures are completed.

1.3 SECURITY REQUIREMENTS

- .1 Refer to Appendix 1 entitled ‘Regional Psychiatric Centre (Prairies) - Contractors Security Briefing Form’ for security requirements on this project.

1.4 INFORMATION GUIDE FOR CONTRACTORS WORKING IN AN INSTITUTIONAL ENVIRONMENT

- .1 Refer to Appendix 2 entitled ‘For All Contractors Who Perform Work in an Institutional Environment’ for additional information relating to this project.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by the Contractor are specified under sections as follows:
 - .1 Section 03 30 00 - Cast-in-Place Concrete.
 - .2 Section 05 12 23 - Structural Steel.
 - .3 Section 07 52 00 - Modified Bituminous Membrane Roofing.
 - .4 Section 07 72 41 – Horizontal Lifeline Fall Protection System.

1.1 APPOINTMENT AND PAYMENT

- .1 The Contractor will appoint and pay for services of testing laboratory for all specified testing and inspections including the following:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Mill tests and certificates of compliance.
 - .4 Tests specified to be carried out by Contractor under supervision of Departmental Representative.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.2 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify Departmental Representative hours sufficiently in advance of operations to allow for witnessing of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting seven days in advance of meeting date to Departmental Representative.
- .4 Departmental Representative will provide physical space for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and affected parties not in attendance.
- .8 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 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 7 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16.07 - 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 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
- .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .11 Monthly progress claims, administrative procedures, photographs, hold backs.
- .12 Appointment of inspection and testing agencies or firms.

1.3 PROGRESS MEETINGS

- .1 During course of Work, schedule progress meetings every two weeks.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Notify parties minimum 7 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Agenda 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 for effect on construction schedule and on completion date.
 - .12 Other business.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 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 work weeks.
- .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 Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 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 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

- .1 Project milestones to form interim targets for Project Schedule.

1.5 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Shop Drawing and sample approvals.
 - .3 Fabrication
 - .4 Mobilization.
 - .5 Concrete Work.
 - .6 Stair Installation.
 - .7 Building envelope demolition work.
 - .8 Building envelope repair work.
 - .9 Final Inspection.

1.7 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on weekly 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.

1.8 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.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 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 and samples 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 drawings stamped and signed by professional engineer registered or licensed in Province of Saskatchewan.
- .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 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

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

1.3 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in jpg format, fine resolution monthly with progress statement.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints: 2 locations.
 - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: weekly and as directed by Departmental Representative

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Province of Saskatchewan
 - .1 Occupational Health and Safety Regulations, 1996. Updated 2016.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit copies of Contractor's authorized representative's work site health and safety inspection reports weekly to authority having jurisdiction and Departmental Representative.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with 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 7 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.
- .2 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.4 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. Updated 2016.

1.10 UNFORSEEN HAZARDS

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

1.11 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.

1.12 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.

1.13 POWDER ACTUATED DEVICES

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

1.14 WORK STOPPAGE

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

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES TO REGULATORY REQUIREMENTS

- .1 Department of Justice Canada (Jus)
 - .1 SOR/2018-196 Prohibition of Asbestos and Products Containing Asbestos Regulations.
 - .2 Perform Work in accordance with 2015 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.
 - .3 Specific design and performance requirements listed in specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code
 - .1 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.2 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.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.1 BUILDING SMOKING ENVIRONMENT

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

1.3 QUALITY ASSURANCE

- .1 Regulatory Requirements: Except as otherwise specified, the Contractor shall apply for, obtain, and pay fees associated with, permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on the following:
 - .1 Regulatory requirements and fees in force on date of Bid submission, and
 - .2 A change in regulatory requirements or fees scheduled to become effective after date of tender submission and of which public notice has been given before date of tender submission

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative may order any 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 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by the Contractor for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the Contractor.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to the Departmental Representative. Pay costs for re-testing and re-inspection.

1.3 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.

1.4 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.

1.5 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, Departmental Representative may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Departmental Representative.

1.6 REPORTS

- .1 Submit copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.7 TESTS AND MIX DESIGNS

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

1.8 MILL TESTS

- .1 Submit mill test certificates as required of specification Sections.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

1.2 TEMPORARY POWER AND LIGHT

- .1 Departmental Representative will provide access to 120 V power.
- .2 Contractor to arrange for any temporary connections to 120 V power provided by Departmental Representative.
- .3 Temporary power for any other equipment requiring services in excess of the above is the responsibility of the Contractor.

1.3 FIRE PROTECTION

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 CSA Group (CSA)
 - .1 CAN/CSA-S269.2-[M1987(R2003)], Access Scaffolding for Construction Purposes.

1.1 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.

1.2 SCAFFOLDING

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

1.3 HOISTING

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

1.4 ELEVATORS

- .1 Existing elevators are not to be used by construction personnel and for transporting of materials.

1.5 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.

1.6 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

1.7 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.

1.8 SANITARY FACILITIES

- .1 Provide 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.

1.9 CONSTRUCTION SIGNAGE

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

1.10 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.11 CLEAN-UP

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

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 CONSTRUCTION FENCING

- .1 Provide as required by governing authorities and to Departmental Representative's approval.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide as required by governing authorities.

1.1 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished exterior walls and roofs.
- .2 Design enclosures to withstand wind pressure and snow loading.

1.4 ACCESS TO SITE

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

1.5 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 Institution's occupants.

1.6 FIRE ROUTES

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

1.7 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.

1.8 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.

1.9 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .2 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.
- .3 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 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 AVAILABILITY

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

1.4 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 and lumber 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.

1.5 TRANSPORTATION

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

1.6 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.

1.7 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.

1.12 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.

1.13 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.

1.14 PROTECTION OF WORK IN PROGRESS

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL 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 Departmental Representative 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 Departmental Representative or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 MATERIALS

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

1.3 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.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching 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 penetrations through surfaces.
- .11 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Departmental Representative or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 19 - Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 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.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris other than that caused by the Departmental Representative or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

- .7 Inspect finishes and fitments. Ensure specified workmanship and operation.
- .8 Broom clean and wash exterior steps and surfaces.
- .9 Remove dirt and other disfiguration from exterior surfaces.
- .10 Clean roofs.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 This Section includes requirements for management of construction waste and disposal, which forms the Contractor's commitment to reduce and divert waste materials from landfill and includes the following:
 - .1 Preparation of a Draft Construction Waste Management Plan that will be used to track the success of the Construction Waste Management Plan against actual waste diversion from landfill.
 - .2 Preparation of a Construction Waste Management Plan that provides guidance on a logical progression of tasks and procedures to be followed in a pollution prevention program to reduce or eliminate the generation of waste, the loss of natural resources, and process emissions through source reduction, reuse, recycling, and reclamation.
 - .3 Preparation of monthly progress reports indicating cumulative totals representing progress towards achieving diversion and reduction goals of waste materials away from landfill and identifying any special programs, landfill options or alternatives to landfill used during construction.
 - .4 Preparation of a Construction Waste Management Report containing detailed information indicating total waste produced by the project, types of waste material and quantity of each material, and total waste diverted and diversion rates indicated as a percentage of the total waste produced.
- .2 Departmental Representative has established that this project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors be employed by the Contractor.

1.2 DEFINITIONS

- .1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.
- .2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, re modeling operations, repair and demolition.
- .3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.
- .4 Non hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.
- .5 Non toxic: Not poisonous to humans either immediately or after a long period of exposure.
- .6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

- .7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- .8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Return: To give back reusable items or unused products to vendors for credit.
- .10 Reuse: To reuse a construction waste material in some manner on the project site.
- .11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- .12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.
- .13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- .14 Toxic: Poisonous to humans either immediately or after a long period of exposure.
- .15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- .16 Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:
 - .1 Solvents in paints and other coatings;
 - .2 Wood preservatives; strippers and household cleaners;
 - .3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.
 - .4 When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.
- .17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.
- .18 Construction Waste Management Plan: A project related plan for the collection, transportation, and disposal of the waste generated at the construction site; the purpose of the plan is to ultimately reduce the amount of material being landfilled.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate waste management requirements with all Divisions of the Work for the project, and ensure that requirements of the Construction Waste Management Plan are followed.
- .2 Preconstruction Meeting: Arrange a pre-construction meeting in accordance with Section 01 31 19– Project Meetings before starting any Work of the Contract attended by the Departmental Representative to discuss the 's Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide required information in accordance with Section 01 33 00– Submittal Procedures.

- .2 Action Submittals: Provide the following submittals before starting any work of this Section:
 - .1 Draft Construction Waste Management Plan (Draft CWM Plan): Submit to Departmental Representative a preliminary analysis of anticipated site generated waste by listing a minimum of five (5) construction or demolition waste streams that have potential to generate the most volume of material indicating methods that will be used to divert construction waste from landfill and source reduction strategies; Departmental Representative will provide commentary before development of Contractor 's Construction Waste Management Plan.
 - .2 Construction Waste Management Plan (CWM Plan)]: Submit a CWM Plan for this project prior to any waste removal from site.:

1.5 PROJECT CLOSEOUT SUBMISSIONS

- .1 Diversion Documentation: Submit as constructed information in accordance with Section 01 78 00– Closeout Submittals as follows:
 - .1 Construction Waste Management Report (CWM Report)]: Submit a CWM Report for this project in a format acceptable to submittal requirements and that includes the following information:
 - .1 Accounting: Submit information indicating total waste produced by the project.
 - .2 Composition: Submit information indicating types of waste material and quantity of each material.
 - .3 Diversion Rate: Submit information indicating total waste diverted from landfill as a percentage of the total waste produced by the project.
 - .4 Diversion Documentation: Submit copies of transportation documents or shipping manifests indicating weights of materials, and other evidence of disposal indicating final location of waste diverted from landfill and waste sent to landfill.
 - .5 Alternative Daily Cover (ADC): Submit quantities of material that were used as ADC at landfill sites, and that form a part of the total waste generated by the project.
 - .6 Multiple Waste Hauling: Compile all information into a single CWM Report where multiple waste hauling and diversion strategies were used for the project.
 - .7 Photographs: Submit photographs of waste diversion facilities documenting location and signage describing usage of waste separation containers.

1.6 QUALITY ASSURANCE

- .1 Resources for Development of Construction Waste Management Report (CWM Report): The following sources may be useful in developing the Draft Construction Waste Management Plan:
 - .1 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials, and incorporate into CWM Plan.

- .2 Waste-to-Energy Systems: Investigate local waste-to-energy incentives where systems for diverting materials from landfill for reuse or recycling are not available.
- .2 Certifications: Provide proof of the following during the course of the Work:
 - .1 Compliance Certification: Provide proof that recycling center is third party verified and is listed as a Certified Facility through the registration and certification requirements of the Recycling Certification Institute.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.
- .2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:
 - .1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
 - .2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.
- .3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 (CWM PLAN) IMPLEMENTATION

- .1 Manager: Contractor is responsible for designating an on-site party or parties responsible for instructing workers and overseeing and documenting results of the CWM Plan for the project.
- .2 Distribution: Distribute copies of the CWM Plan to the job site foreman, each Subcontractor, the Departmental Representative and other site personnel as required to maintain CWM Plan.
- .3 Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, composting and return methods being used for the project to Subcontractor's at appropriate stages of the project.
- .4 Separation Facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, composting and return:

- .1 Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
- .2 Hazardous wastes shall be separated, stored, and disposed of in accordance with local regulations.
- .5 Progressive Documentation: Submit a monthly summary of waste generated by the project to ensure that waste diversion goals are on track with project requirements:
 - .1 Submission of waste summary can coincide with application for progress payment, or similar milestone event as agreed upon between the Contractor and the Departmental Representative.
 - .2 Monthly waste summary shall contain the following information:
 - .1 The amount in tonnes or m³ and location of material landfilled,
 - .2 The amount in tonnes or m³ and location of materials diverted from landfill, and
 - .3 Indication of progress based on total waste generated by the project with materials diverted from landfill as a percentage.

3.2 SUBCONTRACTOR'S RESPONSIBILITY

- .1 Subcontractors shall cooperate fully with the Contractor to implement the CWM Plan.
- .2 Failure to cooperate may result in the Departmental Representative not achieving their environmental goals, and may result in penalties being assessed by the Contractor to the responsible Subcontractors.

1.1 SAMPLE CONSTRUCTION WASTE MANAGEMENT FORMS

- .1 Sample waste tracking form below can be used by the Contractor to establish their own forms for recording management of construction waste:

SAMPLE WASTE MANAGEMENT FORM

Material Stream		Diverted Waste by Report Date				Total	Units
		Sept	Oct	Nov	Dec		
Material Streams Contributing to Diverted Waste	Plastic	1.25	2.5	10	5	18.75	m ³
	Carpet	2.5	2.5	2.5	0	7.5	m ³
	Paper/Cardboard	5	2.5	2.5	5	15	m ³
	Clean Wood	0	25	0	1.25	26.25	m ³
	Metal	1.25	2.5	5.5	7	16.25	m ³
	Gypsum Board	2.5	2.5	4	5	14	m ³
	Brick/Concrete	10.5	2.5	5.5	8.75	27.25	m ³
	Asphalt Shingles	10	0	0	0	10	m ³
Total Diverted Waste						135	m ³
Material Streams not Contributing to Diverted Waste	Landfill	10.75	7.5	15	10	43.25	m ³
	Screen Fines (ADC)	5	1.25	0	2.5	8.75	m ³
	150 mm Minus ADC	1.25	1.25	5	5.5	13	m ³
Total Landfill/ADC Waste						65	m ³
Total Waste						200	m ³
Percent Diverted						67.5	%

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: 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 submit verification that corrections have been made.
 - .2 Request Departmental Representative inspection.
 - .2 Departmental Representative's Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates indicating that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Commissioning: completed in accordance with 01 91 13 - GENERAL COMMISSIONING REQUIREMENTS and electronic copies of final Commissioning Report submitted to Departmental Representative.
 - .4 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
 - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.

1.2 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with Departmental Representative in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify Project requirements.
 - .2 Review warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, two final copies of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 FORMAT

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

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

1.4 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.5 AS -BUILT DOCUMENTS AND SAMPLES

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

1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 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 Referenced Standards to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain inspection certifications, manufacturer's certifications, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

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.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.

- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by Departmental Representative.

1.9 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within 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.
- .7 Except for items put into use with Departmental Representative 's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 10 month warranty inspection, measured from time of acceptance, by Departmental Representative.
- .9 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Location where installed.
 - .3 Name and phone numbers of manufacturers or suppliers.

- .4 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
- .5 Starting point and duration of warranty period.
- .6 Summary of maintenance procedures required to continue warranty in force.
- .7 Organization, names and phone numbers of persons to call for warranty service.
- .8 Typical response time and repair time expected for various warranted equipment.
- .3 Contractor's plans for attendance at 10 month post-construction warranty inspections.
- .4 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate operation and maintenance of equipment and systems to Departmental Representative's personnel two weeks prior to date of final inspection.
- .2 Owner: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure equipment has been inspected and put into operation in accordance with Section 07 72 41 – Horizontal Lifeline Fall Protection System.
 - .4 Ensure testing and adjusting has been performed in accordance with Section 01 91 13 - GENERAL COMMISSIONING REQUIREMENTS and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate use, and maintenance of each item of equipment at agreed upon times, at the designated location.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.
- .5 Time Allocated for Instructions: ensure amount of time required for instruction of each item of equipment or system as follows:
 - .1 Section 07 72 41 – Horizontal Lifeline Fall Protection System: minimum 2 hours of instruction.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.
- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.3 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct Departmental Representative's personnel.
 - .2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 General requirements relating to commissioning of project's equipment.
 - .2 Acronyms:
 - .1 Cx - Commissioning.

1.2 GENERAL

- .1 Cx is a planned program of procedures and checks carried out systematically on equipment of the finished Project. Cx is performed after equipment has been completely installed, is functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:
 - .1 Verify installed equipment can be used in accordance with Contract Documents and design criteria and intent.
 - .2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.
 - .1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively with each other as intended in accordance with Contract Documents and design criteria.
 - .2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.
- .3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

1.3 COMMISSIONING OVERVIEW

- .1 For Cx responsibilities refer to Section 01 91 13.13 - Commissioning Plan.
- .2 Cx to be a line item of Contractor's cost breakdown.
- .3 Cx activities to supplement field quality and testing procedures described in relevant technical sections.
- .4 Installed equipment has been commissioned and functional as per design intent.
- .5 Departmental Representative will issue Interim Acceptance Certificate when:
 - .1 Installed equipment has been commissioned and is functional as per design intent.

1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

- .1 Should equipment be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the unfunctional system, including related

systems as deemed required by Departmental Representative, to ensure effective performance.

- .2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

1.5 PRE-CX REVIEW

- .1 Before Construction:
 - .1 Review Contract Documents, confirm by writing to Departmental Representative.
 - .1 Adequacy of provisions for Cx.
 - .2 Aspects of design and installation pertinent to success of Cx.
- .2 During Construction:
 - .1 Co-ordinate provision, location and installation of provisions for Cx.
- .3 Before start of Cx:
 - .1 Ensure installation of related equipment is complete.
 - .2 Fully understand Cx requirements and procedures.
 - .3 Have Cx documentation shelf-ready.
 - .4 Understand completely design criteria and intent and special features.
- .4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

1.6 CONFLICTS

- .1 Report conflicts between requirements of this section and other sections to Departmental Representative before Cx and obtain clarification.
- .2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 COMMISSIONING DOCUMENTATION

- .1 Refer to Section 01 91 13.16 - Commissioning Forms: Installation Check Lists and Product Information (PI)/Performance Verification (PV) Forms for requirements.

1.8 COMMISSIONING SCHEDULE

- .1 Provide detailed Cx schedule as part of construction schedule in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANNT) Chart.
- .2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:

1.9 PROCEDURES

- .1 Verify that equipment is complete, clean, and can be used in normal and safe manner prior to conducting Cx.
- .2 Correct deficiencies and obtain approval from Departmental Representative after distinct phases have been completed and before commencing next phase.

- .3 Document require tests on approved PV forms.

1.10 MAINTENANCE OF EQUIPMENT

- .1 Maintain equipment as directed by equipment/system manufacturer.
- .2 Maintain equipment for length of time required for commissioning to be completed.
- .3 After completion of commissioning, maintain equipment until issuance of certificate of interim acceptance.

1.11 TEST RESULTS

- .1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.
- .2 Provide manpower and materials, assume costs for re-commissioning.

1.12 START OF COMMISSIONING

- .1 Notify Departmental Representative at least 21 days prior to start of Cx.
- .2 Start Cx after elements of building affecting verification of equipment have been completed.

1.13 WITNESSING COMMISSIONING

- .1 Departmental Representative to witness activities and verify results.

1.14 AUTHORITIES HAVING JURISDICTION

- .1 Where specified commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of procedures and to facilitate expedient acceptance of facility.
- .2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.
- .3 Provide copies to Departmental Representative within 5 days of procedures and with Cx report.

1.15 EXTENT OF VERIFICATION

- .1 To be at discretion of Departmental Representative.

1.16 REPEAT VERIFICATIONS

- .1 Assume costs incurred by Departmental Representative for third and subsequent verifications where:
 - .1 Verification of reported results fail to receive Departmental Representative's approval.
 - .2 Repetition of second verification again fails to receive approval.
 - .3 Departmental Representative deems Contractor's request for second verification was premature.

1.17 DEFICIENCIES, FAULTS, DEFECTS

- .1 Correct deficiencies found during Cx to satisfaction of Departmental Representative.
- .2 Report problems, faults or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

1.18 COMPLETION OF COMMISSIONING

- .1 Except for warranty specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.
- .2 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Departmental Representative.

1.19 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

- .1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

1.20 OCCUPANCY

- .1 Cooperate fully with Departmental Representative during stages of acceptance and occupancy of facility.

1.21 DEPARTMENT REPRESENTATIVE'S PERFORMANCE TESTING

- .1 Performance testing of equipment by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Description of overall structure of Plan and roles and responsibilities of commissioning team.

1.2 GENERAL

- .1 Provide fully functional equipment:
 - .1 Equipment to meet Departmental Representative's functional requirements before date of acceptance.
 - .2 Departmental Representative and O&M personnel have been fully trained in aspects of installed equipment.
 - .3 Complete documentation relating to installed equipment.
- .2 Term "Cx" in this section means "Commissioning".
- .3 Use this Cx Plan as master planning document for Cx:
 - .1 Outlines organization, scheduling, allocation of resources, documentation, pertaining to implementation of Cx.
 - .2 Communicates responsibilities of team members involved in Cx scheduling, documentation requirements, and verification procedures.
 - .3 Sets out deliverables relating to O&M, process and administration of Cx.
 - .4 Describes process of verification of how built works meet Departmental Representative's design requirements.
- .4 Acronyms:
 - .1 Cx - Commissioning.
 - .2 WHMIS Safety Data Sheets (SDS).
 - .3 PI - Product Information.
 - .4 PV - Performance Verification.
 - .5 WHMIS - Workplace Hazardous Materials Information System.

1.3 DEVELOPMENT OF 100% CX PLAN

- .1 Cx Plan to be 100% completed within 6 weeks of award of contract to take into account:
 - .1 Approved shop drawings and product data.
 - .2 Approved changes to contract.
 - .3 Contractor's project schedule.
 - .4 Cx schedule.
 - .5 Contractor, sub-contractor and supplier requirements.
 - .6 Project construction team's and Cx team's requirements.
- .2 Submit completed Cx Plan to Departmental Representative and obtain written approval.

1.4 REFINEMENT OF CX PLAN

- .1 During construction phase, revise, refine and update Cx Plan to include:
 - .1 Changes resulting from Client program modifications.
 - .2 Approved design and construction changes.
- .2 Revise, refine and update every 2 weeks during construction phase. At each revision, indicate revision number and date.
- .3 Submit each revised Cx Plan to Departmental Representative for review and obtain written approval.

1.5 COMPOSITION, ROLES AND RESPONSIBILITIES OF CX TEAM

- .1 Departmental Representative to maintain overall responsibility for project and is sole point of contact between members of commissioning team.
- .2 Project Manager will select Cx Team consisting of following members:
 - .1 Departmental Representative is responsible for:
 - .1 Organizing Cx.
 - .2 Monitoring operations Cx activities.
 - .3 Witnessing, certifying accuracy of reported results.
 - .4 Ensuring implementation of final Cx Plan.
 - .5 Performing verification of performance of installed equipment.
 - .2 Construction Team: contractor, subcontractors, suppliers and support disciplines, is responsible for construction/installation in accordance with Contract Documents, including:
 - .1 Performance of Cx activities.
 - .2 Delivery of Cx documentation.
 - .3 Assigning one person as point of contact with Consultant and PWGSC Cx Manager for administrative and coordination purposes.

1.6 CX PARTICIPANTS

- .1 Employ the following Cx participants to verify performance of equipment:
 - .1 Installation contractor(s)/subcontractor(s):
- .2 Ensure that Cx participants:
 - .1 Can complete Cx work within scheduled time frame.

1.7 EXTENT OF CX

- .1 Cx Structural and Architectural Systems:
 - .1 Architectural and structural:
 - .1 Concrete:
 - .1 Maintenance stair concrete bases.
 - .2 Metals:
 - .1 Maintenance stair HSS connection to existing building structure.

- .3 Thermal and Moisture Protection:
 - .1 Proper installation of drainage mat roof protection under concrete bases.
 - .2 Repairs to existing building envelope at maintenance stair HSS connection points.
- .4 Equipment:
 - .1 Bow Unit Maintenance Access Stair.

1.8 DELIVERABLES RELATING TO O&M PERSPECTIVES

- .1 General requirements:
 - .1 Compile English documentation.
 - .2 Documentation to be computer-compatible format ready for inputting for data management.
- .2 Provide deliverables:
 - .1 Warranties.
 - .2 Project record documentation.
 - .3 Inventory of spare parts, special tools and maintenance materials.
 - .4 WHMIS information.

1.9 DELIVERABLES RELATING TO THE CX PROCESS

- .1 Deliverables:
 - .1 Provide:
 - .1 Contract documents.
 - .2 Completed installation checklists (ICL).
 - .3 Completed product information (PI) report forms.
 - .4 Completed performance verification (PV) report forms.
 - .5 Factory inspection reports.
 - .6 Description of Cx activities and documentation.
 - .7 Tests performed by Departmental Representative.
 - .8 Cx Reports.
 - .9 Prescribed activities during warranty period.
- .2 Departmental Representative to witness and certify reports of results provided to Departmental Representative.

1.10 CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Perform Cx using procedures developed by Departmental Representative and approved by Departmental Representative.
- .2 Departmental Representative to monitor Cx activities.
- .3 Upon satisfactory completion, prepare Cx Report using approved PV forms.
- .4 Departmental Representative to witness and certify reported results of, Cx activities.

- .5 Departmental Representative reserves right to verify a percentage of reported results at no cost to contract.

1.11 INSTALLATION CHECK LISTS (ICL)

- .1 Refer to Section 01 91 13.16 - Commissioning Forms: Installation Check Lists and Product Information (PI)/Performance Verification (PV) Forms.

1.12 PRODUCT INFORMATION (PI) REPORT FORMS

- .1 Refer to Section 01 91 13.16 - Commissioning Forms: Installation Check Lists and Product Information (PI)/Performance Verification (PV) Forms.

1.13 PERFORMANCE VERIFICATION (PV) REPORT

- .1 Refer to Section 01 91 13.16 - Commissioning Forms: Installation Check Lists and Product Information (PI)/Performance Verification (PV) Forms.

1.14 CX SCHEDULES

- .1 Prepare detailed Cx Schedule and submit to Departmental Representative for review and approval same time as project Construction Schedule. Include:
 - .1 Milestones, testing, documentation, training and Cx activities of components, equipment, subsystems, systems and integrated systems, including:
 - .1 Design criteria, design intents.
 - .2 Cx procedures: 2 months after award of contract.
 - .3 Cx Report format: 2 months after contract award.
 - .4 Notification of intention to start Cx: 7 days before start of Cx.
 - .5 Cx reports: immediately upon successful completion of Cx.
 - .2 After approval, incorporate Cx Schedule into Construction Schedule.
 - .3 Consultant, Contractor, and Departmental Representative will monitor progress of Cx against this schedule.

1.15 CX REPORTS

- .1 Submit reports of tests to Departmental Representative who will verify reported results.
- .2 Include completed and certified PV reports in properly formatted Cx Reports.
- .3 Before reports are accepted, reported results to be subject to verification by Departmental Representative.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Commissioning forms to be completed for equipment and installation.

1.2 INSTALLATION CHECK LISTS

- .1 Include the following data:
 - .1 Product manufacturer's installation instructions and recommended checks.
 - .2 Items considered good installation and engineering industry practices deemed appropriate for proper and efficient operation.
- .2 Equipment manufacturer's installation check lists are acceptable for use.
- .3 Use check lists for equipment installation. Document check list verifying checks have been made. Indicate deficiencies and corrective action taken.
- .4 Installer to sign check lists upon completion, certifying stated checks and inspections have been performed. Return completed check lists to Departmental Representative. Check lists will be required during Commissioning and will be included in operation and maintenance manual at completion of project.
- .5 Use of check lists will not be considered part of commissioning process but will be stringently used for equipment start-up procedures.

1.3 PRODUCT INFORMATION (PI) REPORT FORMS

- .1 Product Information (PI) forms compiles gathered data on items of equipment produced by equipment manufacturer, includes maintenance guidelines, pertinent technical data and recommended checks that are necessary to prepare for start-up and functional testing and used during operation and maintenance of equipment. This documentation is included in the O&M manual at completion of work.
- .2 Prior to Performance Verification (PV) of systems, complete items on PI forms related to equipment and obtain Departmental Representative's approval.

1.4 PERFORMANCE VERIFICATION (PV) FORMS

- .1 PV forms to be used for checks and adjustments carried out on equipment and systems to ensure correct operation as intended with project requirements.

1.5 SAMPLES OF COMMISSIONING FORMS

- .1 Departmental Representative will develop and provide to Contractor required project-specific Commissioning forms in electronic format complete with specification data.
- .2 Revise items on Commissioning forms to suit project requirements.
- .3 Samples of Commissioning Forms are included in Part 3 of this section.

1.6 CHANGES AND DEVELOPMENT OF NEW REPORT FORMS

- .1 When additional forms are required, but are not available from Departmental Representative develop appropriate verification forms and submit to Departmental Representative for approval prior to use.
 - .1 Additional commissioning forms to be in same format as provided by Departmental Representative.

1.7 COMMISSIONING FORMS

- .1 Use Commissioning forms to verify installation of equipment.
- .2 Strategy for Use:
 - .1 Departmental Representative provides Contractor project-specific Commissioning forms with Specification data included.
 - .2 Contractor will provide required shop drawings information and verify correct installation and operation of items indicated on these forms.
 - .3 Confirm operation as per design criteria and intent.
 - .4 Identify variances between design and operation and reasons for variances.
 - .5 Provide Departmental Representative with originals of completed forms.
 - .6 Maintain copy on site during commissioning period.
 - .7 Forms to be both hard copy and electronic format with typed written results in operation and maintenance manual.

1.8 LANGUAGE

- .1 To suit the language profile of the awarded contract.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 SAMPLE FORMS

- .1 As follow:

Bow Unit Maintenance Access Stair/Ships Ladder/Architectural and Structural Commissioning Checklist

Date: _____

Commissioning Agent's Printed Name: _____

Commissioning Agent Signature: _____

Questions /Architectural Items	Answer
1) Is the concrete pad at the bottom of the ladder located 900 mm from CU #1?	
2) Does the ladder measure 997 wide from outside of stringer to outside of stringer?	
3) Are the ladder's galvanized steel treads 865 mm wide?	
4) Are the ladder's galvanized steel treads 200 mm deep?	
5) Are there twenty-one (21) treads from the bottom of the ladder to the intermediate galvanized steel landing?	
6) Is the intermediate landing 965 mm deep?	
7) Is there one (1) tread located between the intermediate landing and the upper concrete pad?	
8) Is the concrete pad at the bottom of the ladder sitting on top of a piece of drainage mat (Sopradrain 18-G)?	
9) Is the drainage mat glued to the existing lower roof SBS roof cap sheet?	
10) Is the concrete pad at the bottom of the ladder glued to the drainage mat?	
11) Is the concrete pad at the top of the ladder sitting on top of a piece of drainage mat (Sopradrain 18-G)?	
12) Is the drainage mat glued to the existing upper roof SBS roof cap sheet?	
13) Is the concrete pad at the top of the ladder glued to the drainage mat?	
14) Is there a galvanized steel pipe handrail on both sides of the ladder?	
15) Are both steel pipe handrails welded to the steel stringer below them?	
16) Are both top rails located at 900 mm measured from top of ladder tread nosing?	
17) Are both intermediate rails located halfway between top of stringer and top of handrail?	
18) Are all handrails fabricated with 40 mm diameter steel pipe?	
19) Is the top rail of guardrail located at 1070 mm	

above the intermediate landing?	
20) Are the ladder treads fully welded and fabricated with 25.4 mm x 4.8 mm galvanized steel serrated bearing bars at 25 mm on center? Do the treads have two L-shaped end plates which are welded to the underside of the serrated bar treads as well as to the ladder's stringers?	
21) Do all ladder treads have an abrasive nosing?	
22) Do all open risers on this ladder measure 257 mm except the last one above the upper roof level which should measure +/- 99 mm?	
23) Is the ladder's intermediate landing fabricated with 25.4 mm x 4.8 mm galvanized steel serrated bearing bars at 25 mm on center?	
24) Is the ladder fabricated and installed at a 55% angle from horizontal?	
25) Are there any defective steps, landings or handrails?	
26) Are there any exposed sharp edges?	
27) Is there any oil, grease or dirt build-up on the ladder?	
28) Has self-adhering transition air/vapour membrane material (peel & stick) been used to flash between the existing building air-vapour membrane and the two new HSS galvanized steel ladder support members connected to the existing roof beam?	
29) Has the displaced or removed wall insulation been replaced where the two new HSS galvanized steel ladder support members are connected to the existing roof beam?	
30) Has the existing standing seam metal panel been re-installed and patched where the two new HSS galvanized steel ladder support members are connected to the existing roof beam?	

Questions/Structural Items	Answers
1) Are both stringers connected to the lower roof concrete pad with L76 x 12.7 LLV x 150mm long clip angles c/w 2-9.5 mm dia. Hilti Kwik Bolt T2 embedded 50mm into concrete?	
2) Are both stringers connected to the upper roof concrete pad with L76 x 12.7 LLV (long leg vertical) x 150mm long clip angles c/w 2-9.5 mm dia. Hilti Kwik Bolt T2 embedded 50mm into concrete?	
3) Is the ships ladder fabricated using two C310 x	

23 galvanized steel stringers?	
4) Are there two galvanized 89 x 89 x 4.8 HSS LLV each welded at one end to one of the ladder's stringers and bolted at the other end to an existing W410 x 39 steel roof beam located inside the building near the top of the nearest mechanical penthouse exterior wall.	
5) Does the bottom concrete pad measure 1200 mm x 2400 mm x 100 mm and is it reinforced with 10M bars at 200 o.c. each way at bottom?	
6) Is the bottom concrete pad located at +/- 440 mm from the nearest wall to the north?	
7) Does the bottom concrete pad measure 1200 mm x 1200 mm x 100 mm and is it reinforced with 10M bars at 200 o.c. each way at bottom?	
8) Is the upper concrete pad located at +/- 90 mm from the nearest parapet wall?	

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 This Section includes the following:
 - .1 Demolition and removal of selected portions of exterior building components or structural elements.
 - .2 Repair procedures for selective demolition operations.
- .2 This section does not include the following:
 - .1 Removal of hazardous materials or asbestos abatement.
 - .2 Demolition of interior building components and finishes.

1.2 DEFINITIONS

- .1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and reinstalled.
- .1 Remove and Salvage: Detach items from existing construction and deliver them to Departmental Representative ready for reuse.
- .2 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- .3 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed or removed and reinstalled.
- .4 Hazardous Substances: Dangerous substances, dangerous goods, hazardous commodities and hazardous products may include asbestos, mercury and lead, PCB's, poisons, corrosive agents, flammable substances, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly as defined by the Federal Hazardous Products Act (RSC 1985) including latest amendments.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate selective demolition work so that work of this Section adheres to aesthetic criteria established by the Drawings and specified dimensions with all elements in planes as drawn, maintaining their relationships with all other building elements.
- .2 Coordination: Coordinate with Departmental Representative for the material ownership as follows:
 - .1 Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Departmental Representative's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- .3 Pre Demolition Meeting: Conduct a pre demolition meeting at Project site in accordance with requirements listed in Section 01 31 19– Project Meetings to confirm extent of demolished and reused or reinstalled materials.

1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements: Comply with governing environmental notification requirements and regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction and in accordance with the following:
 - .1 Provincial/Territorial Workers' Compensation Boards/Commissions.
 - .2 Provincial/Territorial Occupational Health and Safety Standards and Programs.

1.5 SITE CONDITIONS

- .1 Departmental Representative will occupy portions of building immediately adjacent to selective demolition area:
 - .1 Conduct selective demolition so that Departmental Representative's operations will not be disrupted.
 - .2 Provide not less than 72 hours' notice to Departmental Representative of activities that will affect Departmental Representative's operations.
- .2 Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities and as follows:
 - .1 Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- .3 Departmental Representative assumes no responsibility for condition of areas to be selectively demolished:
- .4 Discovery of Hazardous Substances: It is not expected that Hazardous Substances will be encountered in the Work; immediately notify Departmental Representative if materials suspected of containing hazardous substances are encountered and perform the following activities:
 - .1 Refer to Section 01 41 00– Regulatory Requirements for directives associated with specific material types.
 - .2 Hazardous materials will be as defined in the Hazardous Materials Act.
 - .3 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Departmental Representative. Hazardous materials will be removed by Departmental Representative under a separate contract or as a change to the Work.
- .5 Storage or sale of removed items or materials on site will not be permitted.
- .6 Maintain fire protection facilities in service during selective demolition operations.

Part 2 Products

2.1 MATERIALS

- .1 Repair Materials: Use repair materials identical to existing materials:
 - .1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

- .2 Use materials whose installed performance equal or surpasses that of existing materials.
- .3 Comply with material and installation requirements specified in individual technical specification Sections.
- .4 Retain original installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition, if possible. Engage another recognized experienced and specialized firm where it is not possible to retain original installer:
 - .1 Preformed metal panels.
- .2 Retained Materials: Retain items identified for re use in new construction.

Part 3 Execution

3.1 EXAMINATION

- .1 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- .2 Inventory and record the condition of items to be removed and reinstalled.
- .3 Notify the Departmental Representative where existing mechanical, electrical, or structural elements conflict with intended function or design:
 - .1 Investigate and measure the nature and extent of conflict and submit a written report to Departmental Representative.
 - .2 Departmental Representative will issue additional instructions or revise drawings as required to correct conflict.

3.2 PREPARATION

- .1 Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities:
 - .1 Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Departmental Representative and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - .2 Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - .3 Protect existing site improvements, appurtenances, and landscaping to remain.
- .2 Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain in accordance with Section 01 51 00- Temporary Utilities, and as follows:
 - .1 Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - .2 Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

- .3 Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- .3 Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities in accordance with Section 01 52 00- Construction Facilities.
 - .1 Provide temporary weather tight enclosure for building exterior.
 - .2 Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures.
 - .3 Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- .4 Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise in accordance with Section 01 51 00- Temporary Utilities.
- .5 Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished:
 - .1 Strengthen or add new supports when required during progress of selective demolition.

3.3 POLLUTION CONTROLS

- .1 Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- .2 Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.4 SELECTIVE DEMOLITION

- .1 Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - .1 Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - .2 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - .3 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - .4 Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame cutting operations. Maintain fire watch and portable fire suppression devices during flame cutting operations.

- .5 Maintain adequate ventilation when using cutting torches.
 - .6 Remove decayed, vermin infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - .7 Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 - .8 Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - .9 Dispose of demolished items and materials promptly.
 - .10 Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- .2 Comply with Departmental Representative's requirements for using and protecting stairs, walkways, loading docks, building entrances, and other building facilities during selective demolition operations.
 - .3 Removed and Reinstalled Items:
 - .1 Clean and repair items to functional condition adequate for intended re use. Paint equipment to match new equipment
 - .2 Pack or crate items after cleaning and repairing
 - .3 Identify contents of containers
 - .4 Protect items from damage during transport and storage
 - .5 Reinstall items in locations indicated
 - .6 Comply with installation requirements for new materials and equipment
 - .7 Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated
 - .4 Existing Items to Remain:
 - .1 Protect construction indicated to remain against damage and soiling during selective demolition
 - .2 Items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete

3.5 CLOSEOUT ACTIVITIES

- .1 Patching and Repairs: Promptly repair damage to adjacent construction caused by selective demolition operations and as follows:
 - .1 Patch to produce surfaces suitable for new materials where repairs to existing surfaces are required,
 - .2 Completely fill holes and depressions in remaining existing masonry walls remain with an approved masonry patching material applied according to manufacturer's written recommendations.
 - .3 Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- .2 Demolition Waste Disposal: Arrange for legal disposal and remove demolished materials to accredited provincial landfill site or alternative disposal site (recycle centre) and as follows:

- .1 Promptly dispose of demolished materials.
- .2 Do not allow demolished materials to accumulate onsite.
- .3 Do not burn demolished materials.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
 - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
- .2 Department of Justice Canada (Jus)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) 1992, (c. 34).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 National Research Council Canada Institute for Research in Construction (NRC-IRC)
 - .1 National Fire Code of Canada-2015.

1.2 DEFINITIONS

- .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
 - .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:
 - .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
 - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
 - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
 - .4 Transfer of flammable and combustible liquids is prohibited within buildings.
 - .5 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
 - .6 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
 - .7 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
 - .8 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
 - .9 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
 - .6 Store hazardous materials and wastes in secure storage area with controlled access.
 - .7 Maintain clear egress from storage area.
 - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
 - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
 - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
 - .11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .12 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

Part 2 Products

2.1 MATERIALS

- .1 Description:
 - .1 Bring on site only quantities hazardous material required to perform Work.
 - .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - 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 00 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
 - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
 - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
 - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
 - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
 - .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
 - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
 - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Hazardous waste burned for energy recovery.
 - .3 Lead-acid battery recycling.
 - .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

PART 1 - GENERAL

1.1 Related Requirements

- .1 Section 03 20 00: Concrete Reinforcing.
- .2 Section 03 30 00: Cast-in-Place Concrete.

1.2 References

- .1 All referenced standards to be the current edition or the edition referenced by the applicable Building Code in force at the time of building permit application, as noted on Structural Drawings.
- .2 Canadian Standards Association (CSA International):
 - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA O86, Engineering Design in Wood.
 - .3 CSA O121, Douglas Fir Plywood.
 - .4 CSA 0141, Softwood Lumber.
 - .5 CSA O151, Canadian Softwood Plywood.
 - .6 CSA O153, Poplar Plywood.
 - .7 CSA O325.0, Construction Sheathing.
 - .8 CSA O437 Series, Standards for OSB and Waferboard.
 - .9 CSA S269.1, Falsework and Formwork
- .3 American Concrete Institute (ACI):
 - .1 ACI 117, Specification for Tolerances for Concrete Construction and Materials.
 - .2 ACI 347, Guide to Formwork for Concrete.

PART 2 - PRODUCTS

2.1 Design Requirements

- .1 Design in accordance with CSA S269.1.
- .2 Departmental Representative accepts no responsibility for structural adequacy of formwork, falsework and re-shoring and will not review its design.

2.2 Materials

- .1 Formwork materials: to CSA S269.1.
 - .1 For concrete without special architectural features, use wood and wood product formwork materials to CSA O121, CSA 0141, CSA O437 or CSA-O153.
 - .2 Form stripping agent: colourless mineral oil, non-toxic, low VOC, free of kerosene, with viscosity between 15 to 24 mm²/s (70 and 110s Saybolt Universal) at 40°C, flashpoint minimum 150°C, open cup.
 - .3 Grooves, reglets and chamfers: White pine selected for straightness and accurately dressed to size.

PART 3 - EXECUTION

3.1 Fabrication and Erection

- .1 Confirm to CSA A23.1.
- .2 Fabricate and erect formwork in accordance with CSA S269.1 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA A23.1/A23.2.
- .3 Make formwork tight and flush faced to prevent the leakage of mortar and the creation of unspecified fins or panel outlines.
- .4 Obtain Departmental Representative approval for formed openings, slots and chases not indicated on Structural Drawings.
- .5 Use 25 mm (1") chamfer strips on external corners and 25 mm (1") fillets at interior corners, unless specified otherwise.
- .6 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated on Architectural and Structural drawings.
- .7 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections.
- .8 Anchors and inserts not to protrude beyond surfaces designated to receive applied finishes, including painting.
- .9 Clean formwork in accordance with CSA A23.1/A23.2, before placing concrete.

3.2 Joints

- .1 Refer to Typical Details and Drawings Notes for locations, detailing and maximum spacing requirements of all concrete joints.
- .2 Provide construction joints in formed slab and slab on deck.
- .3 Provide expansion joints where shown on Structural Drawings. Remove all forming and filler material used during construction and provide clear space between structural elements equal to width specified.
- .4 Provide construction gaps (closure strips) where shown on Structural Drawings.
- .5 Refer to Section 03 30 00 for construction joints, sawcut joints and isolation joints in slab on grade and concrete toppings.

3.3 Removal

- .1 Conform to CSA A23.1 and to ACI 347.
- .2 Re-use formwork and falsework subject to requirements of CSA A23.1/A23.2.

END OF SECTION 03 10 00

PART 1 - GENERAL

1.1 Related Requirements

- .1 Section 03 10 00: Concrete Forming and Accessories.
- .2 Section 03 30 00: Cast-in-Place Concrete.

1.2 References

- .1 All referenced standards shall be the current edition, or the edition referenced by the applicable Building Code in force at the time of building permit application, as noted on Structural Drawings.
- .2 Canadian Standards Association (CSA International):
 - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CSA A23.3, Design of Concrete Structures.
 - .3 CSA G30.18, Carbon Steel Bars for Concrete Reinforcement.
 - .4 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .5 CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .3 Reinforcing Steel Institute of Canada (RSIC):
 - .1 Reinforcing Steel Manual of Standard Practice.
- .4 American Concrete Institute (ACI):
 - .1 SP-66, ACI Detailing Manual.
- .5 ASTM International Inc.:
 - .1 ASTM A1064/A1064M, Standard Specification for Carbon Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - .2 ASTM A775/A775M, Standard Specification for Epoxy-Coated Reinforcing Steel.
 - .3 ASTM D3963 / D3963M, Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars.
 - .4 ASTM A1044 / A1044M, Standard Specification for Steel Stud Assemblies for Shear Reinforcement of Concrete.

1.3 Quality Assurance

- .1 Qualifications
 - .1 Welding of reinforcing steel to be performed by welders certified under CSA W186.

1.4 Quality Control

- .1 Source Quality Control Submittals:
 - .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis.
 - .2 Upon request, inform Departmental Representative of proposed source of reinforcement material to be supplied.

- .3 Upon request, provide Departmental Representative with a copy of plant certificate by the Concrete Reinforcing Steel Institute for epoxy coating of reinforcement.
- .4 Upon request, provide Departmental Representative with a copy of manufacturer's instructions for patching factory applied epoxy coating.

1.5 Action and Informational Submittals

- .1 Product Data:
 - .1 Submit manufacturer's data sheets for mechanical rebar splices.
- .2 Shop Drawings:
 - .1 Prepare shop drawings in accordance with RSIC Manual of Standard Practice unless the Contract Documents contain a more stringent requirement. Conform to ACI SP-66 Detailing Manual whenever a detail condition is not covered by any of the above.
 - .2 Submit plans, elevations, sections and details necessary to fabricate, place and review reinforcement without reference to structural drawings, including masonry wall reinforcement. Draw to scale not smaller than 1:50 ($\frac{1}{4}'' = 1'-0''$).
 - .3 Show on drawings:
 - .1 Sizes, spacings and locations of reinforcement, with identifying labels.
 - .2 Bar bending details.
 - .3 Lengths and locations of all lap splices.
 - .4 Types and locations of mechanical splices.
 - .5 Placing sequence.
 - .6 Large scale details at areas of steel concentration (such as column / beam / wall intersections), and around cast-ins.
 - .7 Bar lists.
 - .8 Quantities of reinforcement (including all rebar added to accommodate installation).
 - .9 Construction joint, control joint and pour gap locations.
 - .10 Strip dimensions for flat slab and flat plate.
 - .11 Concrete cover.
 - .4 Do not release for fabrication reinforcing bars whose length may be affected by field conditions, such as the final elevation of footings, until obtaining the required field measurements.

PART 2 - PRODUCTS

2.1 Materials

- .1 Reinforcing steel: carbon steel, deformed bars to CSA G30.18., unless indicated otherwise.
- .2 Weldable Reinforcing steel: weldable low alloy steel deformed bars to CSA G30.18.

PART 3 - EXECUTION

3.1 Fabrication

- .1 Fabricate reinforcing steel in accordance with CSA A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice.

- .2 Stagger mechanical splices 750 mm (2'-6") unless otherwise noted on drawings.
- .3 Weld reinforcement in accordance with CSA W186 where indicated.
- .4 Ship bundles of bar reinforcement, clearly identified in accordance with bar lists.
- .5 Provide standard hooks at ends of all hooked bars.
- .6 Substitute different size bars only if permitted in writing by Departmental Representative.

3.2 Field Bending

- .1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying slow and steady pressure. Use tools which will limit bend radii to the values given in CSA A23.1.
- .3 Where key-creating stay form with pre-installed blind dowels is used, bend the dowels out using special tools approved by the stay form manufacturer.
- .4 Replace bars which develop cracks or splits.

3.3 Placing Reinforcement

- .1 Place reinforcing steel and in accordance with CSA A23.1/A23.2.
- .2 Remove all loose scale, dirt, oil or other coatings which would reduce bond.
- .3 Ensure cover to reinforcement is maintained during concrete pour.
- .4 Turn ends of tie wire towards the interior of concrete.
- .5 Support bars, chairs and spacers:
 - .1 Provide sufficient support bars, chairs, carriers and side form spacers as necessary to secure against displacement of reinforcement and maintain concrete cover before and during concrete placement. Support devices contacting surfaces exposed to the exterior to be non-corroding. Bars which are not shown on Structural Drawings and whose only function is supporting other reinforcing in lieu of other supporting devices to be considered accessories.
 - .2 Use bar supports for beams and slabs.
 - .3 Use plastic or plastic tipped bar supports and spacer with colour to match concrete for exposed concrete surfaces.
 - .4 Use plastic bar supports, epoxy coated support bars and plastic-coated tie wire for epoxy
- .6 Do not splice reinforcing at locations other than shown on placing or structural drawings without Departmental Representative written approval.
- .7 Do not cut reinforcement without Departmental Representative written approval.
- .8 Unless otherwise noted on drawings, stagger alternate mechanical couplers 750 mm (2'-6") apart.
- .9 Install end bearing compression splices so that bearing ends are fitted to within 3 degrees of full bearing after splice installed.
- .10 Do not field weld reinforcement except where indicated or authorized by Departmental Representative.
- .11 Do not weld epoxy coated reinforcement.

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Section 03 20 00
CONCRETE REINFORCING
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END OF SECTION 03 20 00

PART 1 - GENERAL

1.1 Related Requirements

- .1 Section 03 10 00: Concrete Forming and Accessories.
- .2 Section 03 20 00: Concrete Reinforcing.

1.2 References

- .1 All referenced standards to be the current edition or the edition referenced by the applicable Building Code in force at the time of building permit application, as noted on Structural Drawings.
- .2 Canadian Standards Association (CSA International):
 - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA A283, Qualification Code for Concrete Testing Laboratories.
 - .3 CSA A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .4 CSA S413, Parking Structures.
- .3 ASTM International Inc.:
 - .1 ASTM C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - .2 ASTM C920 – Standard Specification for Elastomeric Joint Sealants
 - .3 ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
 - .4 ASTM E1155M Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Number (Metric)
- .4 Canadian General Standards Board (CGSB):
 - .1 CGSB-51.34, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

1.3 Quality Assurance

- .1 Qualifications
 - .1 Concrete supplier to have a valid "Certificate of Ready Mixed Concrete Production Facilities" issued by the relevant Ready Mixed Concrete Association.

1.4 Quality Control

- .1 Minimum two weeks prior to starting concrete work, provide valid certificate from plant delivering concrete.
 - .1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.
- .2 For concrete with high volume of supplementary cementing materials (HVSCM concrete, as defined in CSA A23.1), perform trial mixes to ensure that the required properties are achieved.

- .3 Minimum four weeks prior to starting concrete work, provide proposed quality control procedures on following items:
 - .1 Hot weather concrete.
 - .2 Cold weather concrete.
 - .3 Finishing.
 - .4 Protection.

1.5 Action and Informational Submittals

- .1 Minimum 2 weeks prior to starting concrete work, submit all concrete mix designs, and indicate where each concrete mix is to be used.
- .2 Minimum 2 weeks prior to placing concrete, submit drawings showing proposed locations of all construction and control joints (including wall and slab on grade control joints) for Departmental Representative review and approval.
- .3 Provide composite sleeving drawings showing sleeves required by all trades.
- .4 Provide composite layout drawings showing all cast in place pipes and conduits.
- .5 Minimum submission requirements for each concrete mix design shall include the following:
 - .1 Minimum specified compressive strength at 28 days (or at the time specified on drawings).
 - .2 Maximum aggregate size.
 - .3 Aggregate type (if not normal density).
 - .4 Concrete density range, wet and dry (if not normal density).
 - .5 CSA exposure class.
 - .6 Cement type (if not type GU).
 - .7 Percentage and type of supplemental cementing materials.
 - .8 Maximum water/cementitious materials ratio.
 - .9 Assumed method of placement of concrete.
 - .10 Corrosion inhibitor (name and quantity, if applicable).
 - .11 Plastic or steel fibres (type, name and quantity, if applicable).
 - .12 Alkali-aggregate resistance.
- .6 Concrete pours: provide accurate records of all concrete pours marked on a set of Structural Drawings.
- .7 Flatness and levelness: when requested, submit measurements of slab tolerances for each concrete pour.
- .8 On completion of the works, provide written report to Departmental Representative certifying that the concrete in place meets performance requirements established in.

PART 2 - PRODUCTS

2.1 Design Criteria

- .1 To CSA A23.1/A23.2, Alternative 1 – Performance, and as described under Mixes and on Structural Drawings.

2.2 Performance Criteria

- .1 Concrete supplier to meet the concrete performance criteria established by Departmental Representative and to provide verification of compliance.

2.3 Materials

- .1 Portland cement: to CSA A3001.
- .2 Cementitious hydraulic slag: to CSA A3000.
- .3 Fly ash: to CSA A3001, Type CI.
- .4 Water: to CSA A23.1.
- .5 Aggregates: to CSA A23.1/A23.2. Do not use recycled concrete as aggregate.
- .6 Admixtures: not to contain chlorides.
- .7 Corrosion-inhibiting admixture: calcium nitrite solution.
- .8 Shrinkage compensating grout: premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA A23.1/A23.2. Minimum compressive strength: 40 MPa at 28 days.
- .9 Non-premixed dry pack grout: composition of non-metallic aggregate and Portland cement with sufficient water for mixture to retain its shape when made into ball by hand and capable of developing compressive strength of 40 MPa at 28 days.
- .10 Curing/sealing compound: to CSA A23.1/A23.2 and ASTM C309, Type 1, Class B, water based acrylic, compatible with surface hardener where hardener is used.
- .11 Pre-moulded joint fillers: min.12 (1/2") bituminous impregnated fiber board to ASTM D1751.
- .12 Joint Sealants: to AST C920, class 100/50.
- .13 Evaporation reducer: water based polymer liquid forming continuous monomolecular temporary film on fresh concrete surface.
- .14 Penetrating sealer: water based, clear water repellent, at least equivalent to AT&U Type 1b as specified in Alberta Infrastructure and Transportation Publication B388.
- .15 Bonding adhesive: synthetic latex.
- .16 Control joint filler: semi-rigid two component epoxy or polyurea with 100% solids, Shore A hardness (per ASTM D2240) min. 85, tensile strength at 7 days (per ASTM D638) min 5.0 MPa.
 - .1 For sawcuts in exterior slabs and in slabs in vehicle accessible areas use only polyurea fillers.
- .17 Pre-formed control joint: two piece pre-assembled "T" shaped plastic; detachable top segment, minimum depth of horizontal segment equal to ¼ of slab thickness.
- .18 Crack Filler: low viscosity epoxy resin

- .19 Bond Breaker: 0.25 mm (10 mil) polyethylene or grade D, 30 minute building paper perforated with 8 mm (5/16") holes at 150 mm (6") centres, each way.

2.4 Concrete Mixes

- .1 Use ready-mix concrete. Proportion concrete in accordance with CSA A23.1, Alternative 1 - Performance Method for Specifying Concrete.
- .2 Set performance characteristics of concrete in plastic state in coordination with all trades involved.
- .3 Meet performance criteria of concrete in hardened state as shown on Structural Drawings and provide verification of compliance.
- .4 Do not use admixtures containing chlorides.
- .5 Supplementary cementing materials (SCM):
 - .1 Conform to CSA A23.1.
 - .2 Follow slag and fly ash manufacturers' directions for proportioning and mixing of concrete.
 - .3 Fly ash not to exceed 15% of total cementitious material.
 - .4 Limit SCM content for floors with special finishes (such as Retroplate), to be compatible with the finish.
 - .5 Do not use concrete with more than 40% of SCM when ambient temperature is forecast to be below +10°C at the time of concrete pour and during the seven days after the pour, except for footings, walls and columns.
 - .6 Reduce W/C ratio to 0.45 where using more than 40% of SCM in concrete for slabs and other horizontal finished surfaces, in order to reduce bleed water and to increase rate or strength gain.

PART 3 - EXECUTION

3.1 Preparation

- .1 Provide advanced notice as indicated on drawings to allow Departmental Representative field review of reinforcing prior to placing of concrete/closing of wall forms.
- .2 Remove water and disturbed soil from excavations before placing concrete.
- .3 Before placing slab-on-grade, confirm that subgrade and backfill meet specifications and are free of frost and surface water.
- .4 Provide bondbreaker under unbonded concrete topping. Attach to base slab, lap min. 150 mm (6") and seal.
- .5 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.

3.2 Installation/Application

- .1 Set sleeves, conduits, pipe hangers, weep hole tubes, drains and other inserts and openings as indicated or specified elsewhere.
- .2 Refer to Typical Details and Drawing Notes for placing guidelines, maximum size and minimum spacing of sleeves, embedded pipes and conduits.
- .3 Check locations and sizes of sleeves and openings shown on Structural Drawings with Architectural, Mechanical and Electrical Drawings. Notify Departmental Representative of any discrepancies.

- .4 Obtain Departmental Representative approval for any required sleeves and openings which are not shown on Structural Drawings or reviewed sleeving drawings.
- .5 Set special inserts for strength testing as required for non-destructive method of testing concrete.

3.3 Placing Concrete

- .1 Place concrete in accordance with CSA A23.1.
- .2 Delivery and place concrete with minimum re-handling.
- .3 If concrete is pumped or placed pneumatically, control discharge velocity to prevent separation or scattering of concrete mix ingredients.
- .4 Place concrete in a continuous operation without cold joints. If cold joints develop inadvertently, notify Departmental Representative to obtain instructions for required remedial work.
- .5 Do not overload forms.
- .6 Use rubber tipped vibrators for concrete containing epoxy coated reinforcement.
- .7 Cast slabs and beams at least two hours after casting the supporting columns and walls.
- .8 Cast slabs with a top surface that is level or sloping as required by the Drawings. Allow for cambering where required.
- .9 Where steel beams are used, ensure that slab thickness is as specified. Measure from top of steel to control thickness.
- .10 Concrete exposed to view:
 - .1 Exposed surfaces to be dense, even, uniform in colour, texture and distribution of exposed aggregate.
 - .2 Defects such as honeycombing, voids, loss of fines, visible flow lines, cold joints or excessive bug holes may be cause for rejection at the discretion of the Departmental Representative.
- .11 Maintain accurate records of all poured concrete including extent, date and location of each pour, concrete mix used, ambient air temperature, test samples taken and falsework removal date and mark on a set of Structural Drawings.

3.4 Finishing Concrete

- .1 Finish concrete to CSA A23.1/A23.2.
- .2 Cooperate with any trade applying finishes to concrete surfaces and provide surfaces which will ensure adequate bond. Provide chases and reglets where required.
- .3 Finishing Flatwork:
 - .1 Protect concrete during finishing process. Use evaporation reducer during severe drying conditions.
 - .2 Provide final finish in accordance with proposed use and as follows:
 - .1 Wood float finish with brooming for: exterior exposed slabs.

3.5 Concrete Curing and Protection

- .1 At a minimum cure and protect concrete in accordance with CSA A23.1

- .2 For concrete containing supplementary cementing materials, curing and protection times may need to be extended beyond those outlined by CSA A23.1 to achieve the required structural properties.
- .3 Cure slab surfaces immediately after finishing is completed. Unless otherwise noted or required, use a curing compound compatible with applied finishes.
- .4 Do not use curing compound on parking garage slabs and where bonded topping is to be applied. Cover slab surfaces with absorptive mat or fabric and keep continuously wet.
- .5 Concrete exposed to view:
 - .1 Protect during construction period from wear, damage, marking, discoloration, staining and becoming coated with concrete leakage.
 - .2 Unless rejected, repair damage and remove marks and stains to the approval of the Architect.
- .6 Do not load concrete until sufficient strength is developed.

3.6 Existing Structure

- .1 Take precautions to protect the existing structure from damage.
- .2 Provide temporary shoring and bracing as required.

3.7 Inspection and Testing:

- .1 An independent Inspection and Testing Agency (certified under CSA A283 with category to suit testing provided) will be appointed to carry out inspection and testing of concrete and concrete materials and check conformance with applicable Standards and Contract documents.
- .2 Assist the Inspection and Testing Agency in its work. Notify as to the Work Schedule and provide safe access to the work area as required. Provide concrete samples.
- .3 The Agency will submit reports covering the work inspected and the testing performed. The reports will include the Supplier's mix design numbers, locations in structure to which the tests relate and comments on abnormal results and conditions. The reports will be provided not later than five working days after the testing is completed.
- .4 Sampling, storing, curing and testing of concrete will be in accordance with CSA A23.1/A23.2.
- .5 The Agency will review all submittals pertaining to concrete mix designs and certification of plant, equipment and materials.
- .6 Compressive Strength Testing:
 - .1 One test is required for each 100 cubic meters of placed concrete, but not less than one test for each concrete mix placed each day. At least 3 tests are required for each class of concrete used.
 - .2 A group of three cylinders for each test will be provided, Location of concrete placement will be recorded for each cylinder set. One specimens will be tested at 7 and one at 28 days. The third specimen will be tested at 56 days if the required strength at 28 days is not achieved.
 - .3 If the final concrete strength is specified at 56, 90 or 120 days, a group of four cylinders will be provided. One specimen will be tested at 7 and one at 28 days, with the third specimen tested at the time the final concrete strength is specified. If the required strength is not achieved at the time specified, the fourth specimen will be tested 28 days later.

- .4 One additional cylinder will be provided for each concrete mix during cold weather concreting. The specimens will be cured on site adjacent to and under the same conditions as the work they represent, and will be tested prior to form removal.
 - .5 If standard on site cured cylinders are used to determine concrete strength prior to removal of formwork, they will be kept adjacent to and under the same conditions as the work they represent.
 - .6 If pull out tests are used to determine concrete strength prior to removal of formwork, the Inspection and Testing Agency will supply, locate and test pull out inserts. The inserts not to be located on surfaces exposed to view.
 - .7 If maturity tests are used to determine concrete strength prior to removal of formwork, the Inspection and Testing Agency will develop strength-maturity relationship curves, provide and install temperature sensors into fresh concrete and interpret readings in accordance with ASTM 1074,
- .7 Fresh Density Testing:
- .1 One standard fresh density test will be performed on site for each 50 cubic meters of semi-low density, low density and high density concrete. Assist the Agency to correlate fresh density with air-dry density prior to the work beginning on site. Reports will include both fresh density and air-dry density.
- .8 Inspection and testing by the Agency will not augment or replace the Contractor's quality control nor relieve him of his contractual responsibility.

END OF SECTION 03 30 00

PART 1 - GENERAL

1.1 Related Requirements

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

1.2 References

- .1 All referenced standards to be the current edition or the edition referenced by the applicable Building Code in force at the time of building permit application, as noted on Structural Drawings.
- .2 Canadian Standards Association (CSA International):
 - .1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA S16, Limit States Design of Steel Structures.
 - .3 CSA S136, North American Specifications for the Design of Cold Formed Steel Structural Members.
 - .4 CSA W47.1, Certification of Companies for Fusion Welding of Steel.
 - .5 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.
 - .6 CSA W55, Certification of Companies for Resistance Welding of Steel and Aluminum.
 - .7 CSA W59, Welded Steel Construction (Metal Arc Welding).
 - .8 CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .3 ASTM International Inc.:
 - .1 ASTM A123/A123M, Standard Specification for Zinc (Hot Dip Galvanized) coating on Iron and Steel Products.
 - .2 ASTM A36/A36M, Standard Specification for Carbon Structural Steel.
 - .3 ASTM F3125/F3125M, Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPA) Minimum Tensile Strength, Inch and Metric dimensions
 - .4 ASTM A500, Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - .5 ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc-Coated, Welded and Seamless
 - .6 ASTM A1011/A1011M, Standard Specifications for Steel, Sheet and Strip, Hot Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability and Ultra High Strength.
 - .7 ASTM A1085/A1085M, Standard Specification for Cold Formed Welded Carbon Steel Hollow Structural Sections (HSS)
 - .8 ASTM A992, Standard Specifications for Structural Steel Shapes.
 - .9 ASTM F1554, Standard Specification for Anchor Bolts, Steel 36, 55 and 105 ksi Yield Strength.

- .4 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA):
 - .1 CISC Handbook of Steel Construction.
 - .2 CISC/CPMA Standard 1-73a, A Quick-drying One-coat Paint for Use on Structural Steel.
 - .3 CISC/CPMA Standard 2-75, Quick-drying Primer for Use on Structural Steel.
 - .4 CISC Code of Standard Practice, Appendix I, Architecturally Exposed Structural Steel (AESS).
- .5 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International:
 - .1 SSPC-SP 1, Solvent Cleaning.
 - .2 NACE No. 3 / SSPC-SP 6, Commercial Blast Cleaning.
 - .3 NACE No.4 / SSPC-SP 7, Brush Off Blast Cleaning.
 - .4 NACE No.2 / SSPC-SP 10, Near White Blast Cleaning.
 - .5 SSPC Technology Guide No.14 – Guide for the Repair of Imperfections in Galvanized, Organic or Inorganic Zinc-Coated Steel Using Organic Zinc Rich Coating.
 - .6 SSPC Paint Specification No. 20 – Zinc Rich Coating, Type I – Inorganic and Type II - Organic.

1.3 Quality Assurance

- .1 Qualifications
 - .1 Structural steel fabricator to have at least five years experience with structural steel for buildings.
 - .2 Structural steel fabricator and erector to be certified by the Canadian Welding Bureau under the requirements of CSA W47.1, Division 1 or 2 for fusion welding and/or CSA W55.3 for resistance welding of structural steel components, and to have CWB approved procedure for welding rebar (Grade 400W) to structural steel.
 - .3 Welders to be CWB approved, working under supervision of a CWB approved firm.
 - .4 Engage a Professional Engineer licensed in the place where the project is located to be responsible for design, detailing and installation of all connections related to structural steel work.
 - .5 The Professional Engineer designing connections to hold a Certificate of Authorization, and to carry min. \$1,000,000.00 in liability insurance (per occurrence).

1.4 Quality Control

- .1 Source Quality Control Submittals:
 - .1 Provide all submittals 4 weeks prior to starting fabrication of structural steel.
 - .2 Mill test reports:
 - .1 Mill test reports to include ladle analysis and physical test results, and to show chemical and physical properties and other details of steel to be incorporated in project.

- .2 The reports to be correlated to the materials or products to which they pertain
 - .3 In addition to mill testing, each batch of structural steel (including bolts) manufactured outside United States, Canada, Great Britain and EU countries must also be tested in Canada by an ISO 17025 certified testing laboratory. In addition to compliance with all the relevant CSA and ASTM requirements.
- .2 Tolerances
 - .1 Conform to the fabrication and erection tolerances of CAN/CSA S16.

1.5 Action and Informational Submittals

- .1 Shop Drawings:
 - .1 Provide drawings stamped and signed by the Professional Engineer responsible for steel connections.
 - .2 Before submitting shop drawings, provide a letter signed and sealed by that Engineer stating that he has been engaged to undertake the responsibility for the above. Also submit a copy of that Engineer's Certificate of Authorization, and proof of his liability insurance.
 - .3 If additional information is required from Departmental Representative, allow a minimum of five working days for Departmental Representative to review and respond to the request for information.
 - .4 It is advisable to submit erection diagrams for review before preparing shop details. Copies of plans and section details developed by Departmental Representative will not be accepted as erection diagrams.
- .2 Erection drawings:
 - .1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:
 - .1 Description of erection methods.
 - .2 Sequence of erection.
 - .3 Temporary bracings.
 - .4 Beam sizes (in addition to beam marks).
 - .5 Connections where threads must be excluded from shear plane.
 - .6 Details of all field welded connections
 - .7 Sliding bearing assemblies.
 - .8 Members which are considered AESS and their category.
 - .9 Type and finish of bolts in AESS connections.
 - .10 Side where bolt heads should be placed in AESS connections.
 - .11 Weld grinding, finish and profile in AESS field connections.
 - .2 Provide setting drawings showing dimensions and details for placing steel assemblies which are set in concrete,
- .3 Fabrication drawings:

- .1 Submit fabrication drawings showing designed assemblies, member sizes, components and connections. Show on drawings:
 - .1 Material specifications.
 - .2 Surface preparation.
 - .3 Shop painting / galvanizing.
 - .4 Section splices.
 - .5 Types of shop and field connections.
 - .6 Net weld lengths.
 - .7 Precautions which will be taken to exclude threads from shear planes of bearing type bolted connections (where applicable).
 - .8 Vent holes required for galvanizing process.
 - .9 Architectural clearance lines and finishes where connections could encroach other works.
 - .10 Beam and column web holes required for services and reinforcing around them.
- .2 Show details by which steel assemblies, which are set in concrete, are to be connected to the formwork.
- .3 Substitution of alternative sections will only be allowed provided the new members have equal or greater capacity and stiffness and their dimensions are approved by Departmental Representative.
- .4 When requested, submit sketches and design calculations stamped and signed by the Professional Engineer responsible for connection design.
- .5 On completion of erection, submit a letter signed and sealed by the Professional Engineer responsible for structural steel connections certifying that the work has been completed in accordance with all contract documents.

PART 2 - PRODUCTS

2.1 Design and Detailing Requirements

- .1 Design details and connections in accordance with requirements of CSA S16 and CSA S136 to resist forces and to allow for movements indicated. Consider load effects due to fabrication, erection and handling.
- .2 Connection design to include consideration of all pass-through forces, including tension, compression, moment and shear. Provide local reinforcement at connection or joint as required.
- .3 Follow conceptual connection details if shown on structural drawings. Do not change without Departmental Representative written approval. If welds are defined on drawings, the sizes shown are minimum requirements which might need to be increased to suit connection design.
- .4 Increase specified section thickness at no extra cost if required for fabrication (bending) or galvanizing. Alternatively, build up curved sections from plates.
- .5 Assume that bolt threads are intercepted by shear plane, unless special measures are indicated on shop drawings to exclude threads from shear plane.
- .6 Beams:

- .1 Select beam end connections from CISC "Handbook of Steel Construction" when connection for shear only (standard connection) is required.
 - .2 Typical beam to spandrel beam and beam to column connections to be two sided or end plate connections.
 - .3 Select or design beam end connections for factored shear indicated on plans.
 - .4 When shears are not indicated, select or design non composite beam end connections to resist reaction due to maximum uniformly distributed load capacity of the beam in bending.
 - .5 Where no axial force is shown for beam to column connection, design to resist horizontal tension / compression equivalent to 2% of the factored axial force in column, in addition to all other loads.
 - .6 Seated beam connections to have top clip angles.
 - .7 End bearing connections of inclined members to have horizontal bearing plane at supported member.
 - .8 For beams continuous over supports and for beams supporting columns, provide min. 6 mm (1/4") stiffener plates at each side of web at point of concentrated load, unless thicker stiffeners are required by connection design or different details are shown on drawings.
 - .9 Provide all spandrel beams and all floor beams not fully braced by floor construction with top and bottom flange connections for torsional restraint.
- .7 Columns:
- .1 In addition to all other loads, connect columns to base plates to transfer horizontal load equal to 2% of the column vertical load.
 - .2 In addition to all other loads, connect columns to base plates to transfer tensile load equal to the capacity of all anchor bolts,
 - .3 Provide seat angles for joist support at sides of columns continuous through floor.
 - .4 Provide connection for tie joist bottom chord at all columns supporting joists; coordinate with joist supplier.
- .8 Holes:
- .1 Where holes for services are required through webs of beams or columns, coordinate size and location with Architectural drawings, and show on fabrication drawings. Reinforce in accordance with Typical Detail. Alternatively, design reinforcing in accordance with the procedure set forth in the CISC Handbook of Steel Construction, and provide calculations for Departmental Representative review.
 - .2 Provide holes in beam flanges or weld threaded studs as required for attachment of wood nailers.
 - .3 Provide 16 mm (5/8") diameter weep holes in base plates of HSS columns which are not made watertight.
 - .4 Provide vent holes in HSS sections where required for galvanizing process. Locate so that any water inside HSS will drain away when HSS is in its final position. Maximum size – 16 mm (5/8") diameter. Fill holes with vent hole plugs after galvanizing.
 - .5 Provide 12 mm (1/2") dia. holes in HSS columns to be filled with concrete. Locate at opposing column faces 150 mm (6") from each end.

- .6 Provide 19 mm (3/4") dia. vent holes at centerline of all cast in plates supporting columns.
- .7 Provide 50 mm (2") dia, grouting holes in column bearing plates larger than 600 mm x 600 mm (24"x24")
- .9 Provide slotted holes long enough to allow for deflection indicated on drawings plus construction tolerance, assuming bolts are centred in slots. Bolts are to be finger-tight with burred threads to allow for movement during the life of structure without bolts loosening.
- .10 Do not oversize anchor rod holes for site tolerances. Use hole sizes suggested in the CISC Handbook of Steel Construction.
- .11 Connect new steel members to existing concrete using drilled concrete anchors, refer to Post Installed Anchors and Dowels notes on drawings. Do not field weld at connections with adhesive anchors.
- .12 Provide closure plates for all exposed and for all exterior tubular members.

2.2 Materials

- .1 Structural steel:
 - .1 Rolled shapes: to CSA G40.21 or ASTM A992, refer to drawings.
 - .2 Hollow structural sections: to ASTM A1085 or CSA G40.21, refer to drawings.
- .2 Anchor rods: CSA G40.21, or ASTM 1554, refer to drawings.
- .3 Bolts, nuts and washers: to ASTM F3125, grade A325.
- .4 Load indicating washers: to ASTM F959.
- .5 Weldable reinforcing steel: to CSA G30.18, deformed bars.
- .6 Grating: Refer to architectural for galvanized grating specifications
- .7 Welding materials: to CSA W48 and CSA W59, certified by Canadian Welding Bureau. For members in seismic force resisting system, refer to additional brittleness requirements in CSA S16.
- .8 Zinc-rich coating: to SSPC Paint Specification No.20, compatible with top coat (where specified).
- .9 Hot dip galvanizing: to ASTM A123/A123M, minimum zinc coating of 600 g/m².
- .10 Headed studs: to CSA W59, Type B, min. F_y=350 MPa
- .11 Joint filler for exposed steelwork: Epoxy resin.
- .12 Galvanizing vent hole plug: Grade 6061 Aluminum circular plug.

2.3 Fabrication

- .1 Fabricate structural steel in accordance with CSA S16 and with reviewed shop drawings.
- .2 Continuously seal hollow members exposed to weather by intermittent welds and plastic filler unless continuous welds are indicated on drawings.
- .3 Position beams having permissible mill camber so that the camber is up.
- .4 Install stud anchors for cast in plates and similar elements in shop with end welds in accordance with the recommendations of the stud manufacturer. Lengths of studs given on drawings are the lengths after welding. Replace studs that crack in the weld or shank.

- .5 Do not shop weld shear studs to composite beams supporting slab on deck which do not run in the direction of deck span.
- .6 HSS members which require galvanizing to either be per CSA G40.21, grade 350W, Class H, or to be stress relieved prior to galvanizing.
- .7 Mill column bearing plates as required to provide full contact bearing and develop column bearing strength.
- .8 Prepare contact surfaces of slip critical connections as required by CSA S16.
- .9 Complete welded shop connections prior to galvanizing.
- .10 Mark materials in accordance with CSA G40.20/G40.21. Do not use die stamping. When steel is to be left unpainted, place marking at locations not visible from exterior.
- .11 Match marking: shop mark bearing assemblies and splices for fit and match.
- .12 Where shop inspection is required, do not ship material to the site before it has been inspected.
- .13 Fabricate in stages complex members for which steel inspection is impossible or difficult once completed, and arrange for the Inspection and Testing Agency to do intermediate shop inspections.
- .14 Fabricate AESS with tolerances and surface quality consistent with AESS category.

2.4 Shop Painting and Galvanizing

- .1 Clean all members to SSPC-SP 1 – Solvent Cleaning, Remove loose mill scale, rust, oil, dirt and foreign matter using any suitable method.
- .2 In addition for members receiving zinc-rich coating: Clean steel to SSPC-SP 10 Near White Blast Cleaning.
- .3 Apply galvanizing in the shop to all structural steel located beyond the vapor barrier, including:
 - .1 All exposed exterior steel members.
 - .2 Exposed anchor rods.
 - .3 Other steel noted on drawings.

PART 3 - EXECUTION

3.1 General

- .1 Structural steel work: in accordance with CSA S16.
- .2 Welding: in accordance with CSA W59.

3.2 Connection to Existing Work

- .1 Verify dimensions and condition of existing works prior to start of fabrication. Report discrepancies, modify connection details if required and submit to Departmental Representative for review. Determine any potential interference with existing services and report problem areas to Departmental Representative for direction before commencing work.
- .2 Take precautions to protect existing works from damage. Provide temporary shoring as required. Repair damage to adjacent materials caused by structural steel installation.

3.3 Modification / Removal of Existing Steel Work

- .1 Clean existing structural steel, which is affected by the work and is to remain in place, down to bare metal, prior to its inspection so that its condition may be ascertained. Notify Departmental Representative when members are ready for inspection.

3.4 Erection

- .1 Erect structural steel in accordance with CSA S16 and reviewed erection drawings.
- .2 Do not field cut or alter any members without Departmental Representative approval.
- .3 Make adequate provision for all loads acting on the structure during erection. Provide erection bracing to keep the structure stable, plumb and in true alignment during construction. Bracing members or connections shown on Structural Drawings are those required for the completed structure, and may not be sufficient for erection purposes. For load bearing masonry construction, maintain bracing until completion of masonry work and floor / roof decks which together provide permanent bracing. Do not remove erection bracings without written approval from the Engineer who designed it.
- .4 Steel framing to be plumb at temperature of 20°C. If erection is carried out at temperatures greatly differing from 20°C, make adequate provisions; some members may need to be +erected out of plumb in order to become plumb when the temperature stabilizes at 20°C.
- .5 Set column base plates to the elevation required for grouting using steel shims or leveling screws attached to sides of base plates. Do not fasten leveling nuts to anchor rods. Alternatively, for base plates equal or smaller than 350 mm x 350 mm (14" x 14"), leveling plates set with grout and level to within 1.5 mm (1/16") across the plate can be used. Do not erect columns upon plates exceeding this tolerance. Lift base plates for inspection when directed.
- .6 Grout under column base plates and beam bearing plates as soon as steelwork is completed. Do not add load on steelwork until grouting is completed and grout strength has reached at least 20 MPa.
- .7 Do not make permanent connections until structure has been properly aligned.
- .8 Install bolts which are not pre-tensioned to be snug tight.
- .9 Where slotted connections are shown on structural drawings, finger tighten bolts to a snug fit and burr threads to prevent nuts from working loose.
- .10 Apply dry lubricant to threads of all galvanized bolts prior to installation.
- .11 Weld beams to bearing plates unless otherwise noted on drawings.
- .12 Adjust and finalize connections at wall supporting elements affected by floor beam deflections after concrete is poured.
- .13 Provide dissimilar metal separators at connections between aluminum members and structural steel.
- .14 Report ill-fitting connections to Departmental Representative before taking corrective measures.
- .15 When welding after galvanizing is in place, grind away galvanizing at areas to be welded.
- .16 Do not weld in an ambient temperature below -17°C. Preheat material adjacent to welding areas when ambient temperature is between -17°C and +4°C.
- .17 Do not weld or otherwise attach any structural or non structural elements to protected zones unless noted specifically on structural drawings. Failure to comply will result in full replacement of the affected members.

- .18 Remove slag from all completed welds so that they may be visually inspected.
- .19 Seal members by continuous welds where indicated.
- .20 Remove field connection aids from all surfaces which will be exposed to view and where interfering with clearances required by other trades.

3.5 Field Painting

- .1 Repair any galvanized or zinc rich painted surfaces which have been damaged or field welded in accordance with SSPC Technology Guide No.14.
- .2 Clean and prepare surfaces of bolts, which will receive a finished coat of paint in the same manner as the connected steelwork.

3.6 Inspection and testing:

- .1 An Inspection and Testing Agency (certified to CSA W178.1 & 2) will be appointed to carry inspection and testing of all structural steel.
- .2 Do not commence fabrication until details of inspection have been worked out with the Agency.
- .3 Assist the Inspection and Testing Agency in its work. Notify as to the Work Schedule and provide safe access to the work area as required.
- .4 The Inspection Agency will submit reports to Departmental Representative, Contractor and Municipal Authorities covering the Work inspected and provide details of errors or deficiencies observed.
- .5 Work will be inspected in shop and when erected. Store fabricated members in shop so that they are accessible for inspection.
- .6 Provide Inspection and Testing Agency with a copy of reviewed shop drawings.
- .7 Welding inspection:
 - .1 Welding inspection will be conducted in shop and in field.
 - .2 The Inspector will check welders' CWB certification.
 - .3 The Inspector will review welding procedures for conformance with CWB requirements, manufacturers' requirements and standard practice.
 - .4 The inspector will visually check all welds for:
 - .1 Size, length and profile
 - .2 Joint preparation, including cleaning and removal of any paint.
 - .3 Fit up and alignment.
 - .4 Penetration and fusion.
 - .5 Slag removal.
 - .6 Distortion.
 - .7 Porosity.
 - .8 Cracks.
 - .5 Non destructive testing will be conducted on the following connections:

- .1 All shop and field welded splices and connections.
- .6 Test results will be evaluated in accordance with CSA W59.
- .8 Shop inspection will include:
 - .1 Confirming that all materials meet specifications.
 - .2 Reviewing mill test reports for conformance with specified material grades.
 - .3 Checking that mill test reports and producer's certificates are properly correlated to materials and products supplied for the project and that legible markings were made on the material and products by the producers in accordance with the applicable standards. Where this is not possible, Departmental Representative may request sample testing to be carried out as described below.
 - .4 Checking fabricator's qualification under the requirement of CSA W47
 - .5 Sampling fabrication procedures for general conformity with Contract requirements.
 - .6 Reviewing cambering procedure for effect on member capacity.
 - .7 Checking surface preparation for members to be painted.
 - .8 Checking shop painting and galvanizing.
 - .9 General checking:
 - .1 Dimensions and cross sections in relation to specified member sizes.
 - .2 Allowable mill sweep and camber.
 - .3 Locations of all holes, cuts and fittings.
 - .4 Reinforcement of openings.
 - .5 Milling of ends for bearing.
 - .6 Base plate orientation.
 - .7 Items to be cast in concrete.
 - .8 Fabrication tolerances.
 - .9 Splicing (where indicated on drawings).
 - .10 Cambering.
 - .11 Surface preparation prior to shop painting.
 - .10 Sample testing: When requested, test coupons will be taken and tested in accordance with CSA G40.20 to establish identification. Cut samples from member locations selected by Departmental Representative and provide to the Inspection and Testing Agency. Make good the locations if requested, at no extra cost, by adding new plates and welds acceptable to Departmental Representative. The Agency will have the samples tested for mechanical properties and for chemical composition and will classify the steel as to specification.
- .9 Field inspection:
 - .1 Arrange for the Inspector to start field inspection as soon as each section of the Work is completed, plumbed, bolts tightened and field welding finished.

- .2 The Inspector will sample erection procedures for general conformity with Contract requirements.
- .3 The Inspector will check general fit-up and tolerances and report any apparent distortions and misalignments.
- .4 Field inspection will include:
 - .1 Checking individual frame members for twisting, sweep and local damage.
 - .2 Checking levelness of leveling plates.
 - .3 Inspection of grouting under base plates and bearing plates.
 - .4 Checking column bearings on cast in plates.
 - .5 Checking bearings on steel and masonry.
 - .6 Inspection of bolting, shear studs and post installed anchors as described below.
 - .7 Checking installation of permanent bracings and nominal tension in finished building (where specified).
 - .8 Checking that column connections are adjusted to keep the columns plumb after supported structure has deflected due to dead loads applied to floor and roof deck.
 - .9 Checking that all adjustable connections at wall supporting members have been finalized after concrete is poured.
 - .10 Inspection of approved field cutting and reinforcing around openings.
 - .11 Inspection of field painting.
 - .12 Inspection of field touch-up.
- .5 Bolting inspection:
 - .1 The Inspector will visually check all bolts in bearing connections. Where erection drawings indicate bolts with threads excluded from the shear plane, he will remove nuts from 1% of all bearing bolts and check that thread is excluded from the shear planes.
 - .2 The Inspector will check that surfaces in slip- critical connections are free from paint and other deleterious substances
- .6 Post installed anchor inspection:
 - .1 The Inspector will sample check drilled concrete and masonry anchors.
 - .2 The Inspector will randomly select and pull test 5% of all types and sizes of post installed anchors installed on a weekly basis, but not less than one anchor of each type, size and orientation. Pull test to twice the allowable tensile load, or 1.5 times the factored resistance of the anchor given by the manufacturer. Chose anchor locations where proximity to concrete edge does not affect anchor capacity, or use reduced anchor loads per manufacturer's recommendation. Submit reports to Departmental Representative within one week of testing. Reports to indicate each anchor location, test load and mode of failure, if applicable. Notify Departmental Representative immediately if any anchor fails the pull test.

END OF SECTION 05 12 23

Part 1 General

1.1 REFERENCE STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 CSA Group (CSA)
 - .1 CSA G40.20-13 /G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .4 CSA W59-13, Welded Steel Construction (Metal Arc Welding) Metric.
- .3 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sections and fasteners. Include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
- .3 Shop Drawings:
 - .1 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: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, packaging materials, padding and crates as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 350W.
- .2 Welding materials: to CSA W59.
- .3 Welding electrodes: to CSA W48 Series.
- .4 Bolts and anchor bolts: to ASTM A307 unless noted otherwise.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Where possible, fit and shop assemble work, ready for erection.
- .3 Exposed welds continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .2 Zinc primer: zinc rich, ready mix to MPI-EXT 5.2C.

2.4 ROOF GUARDRAILS (NOT CONNECTED TO STAIRS)

- .1 Steel angles: galvanized, formed to shapes and sizes as indicated.
- .2 Galvanize after fabrication.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.

- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 ERECTION - GENERAL

- .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 Supply components for work by other trades in accordance with shop drawings and schedule.
- .6 Weld field connections.
- .7 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

3.3 ERECTION OF ROOF GUARDRAILS (NOT CONNECTED TO STAIRS)

- .1 Erect roof guardrails as indicated

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - 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 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 American National Standards Institute/National Association of Architectural Metal Manufacturers (ANSI/NAAMM)
 - .1 ANSI/NAAMM MBG 531-15, Metal Bar Grating Manual.
- .2 ASTM International (ASTM)
 - .1 ASTM A 53/A5 3M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .1 ASTM F3125/F3125M-15A, Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.
- .3 CSA Group (CSA)
 - .1 CSA G40.20-13 /G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
- .1 National Association of Architectural Metal Manufactures (NAAMM)
 - .1 AMP 510-92, Metal Stair Manual.
- .4 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for ship stair and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
 - .1 Indicate construction details, sizes of steel sections and thickness of steel sheet.

1.3 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect ship stair from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, padding, crates and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 SYSTEM DESCRIPTION

- .1 Fabricate ship stair as indicated and as specified herein.
- .2 Fabricate roof top door steps as indicated and as specified herein.

2.2 MATERIALS

- .2 Steel sections: to CSA G40.20/G40.21 Grade 350 W.
 - .1 Steel plate: to CSA G40.20/G40.21, Grade 260 W, checkered pattern.
 - .2 Steel pipe: to ASTM A53/A53M, standard weight, schedule 40 seamless.
 - .3 Metal bar grating: to ANSI/NAAMM MBG 531, galvanized steel, Type W-30-102.
 - .4 Welding materials: to CSA W59.
 - .5 High strength bolts: to ASTM A F3125/F3125M.

2.3 FABRICATION/GENERAL

- .1 Fabricate in accordance with NAAMM, Metal Stair Manual unless indicated otherwise.
- .2 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, colour and finish as base material on which they occur.
- .3 Accurately form connections with exposed faces flush:
 - .1 Make mitres and joints tight.
 - .2 Make risers of equal height.
- .4 Grind or file exposed welds and steel sections smooth.
- .5 Shop fabricate stairs in sections as large and complete as practicable.

2.4 FABRICATION OF SHIP STAIR STRINGERS AND RELATED STRUCTURAL COMPONENTS

- .1 Refer to structural drawings and Section 05 12 23 – Structural Steel for fabrication of the ship stair stringers and related structural components.

2.5 FABRICATION OF TREADS AND LANDINGS

- .1 Form treads and landings from metal bar grating and secure to stringers with clip angles as indicated.
- .2 Provide checkered steel plate nosings for all treads and landings.

2.6 FABRICATION OF GUARDRAILS

- .1 Construct guardrails from steel pipe.
- .2 Fasten to stringers as indicated and as specified.

2.7 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .2 Zinc primer: zinc rich, ready mix to MPI-EXT 5.2C.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for ship stair installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION/GENERAL

- .1 Install shop-fabricated stairs as per drawings and specifications.
- .2 Touch up galvanizing to welds, bolts and burned or scratched surfaces at completion of erection with zinc-rich primer.

3.3 INSTALLATION OF SHIP STAIR STRINGERS AND RELATED STRUCTURAL COMPONENTS

- .1 Refer to structural drawings and Section 05 12 23 – Structural Steel for installation of the ship stair stringers and related structural components.

3.4 PAINTING OF SHIP STAIRS

- .1 Refer to Section 09 91 13 – Exterior Painting for galvanized steel ship stair painting requirements.

3.5 CLEANING

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .4 Waste Management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .5 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal ship stair installation.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 CSA Group (CSA)
 - .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .2 CSA O121-08, Douglas Fir Plywood.
 - .3 CSA O141-05 (R2009), Softwood Lumber.
 - .4 CSA O151-09, Canadian Softwood Plywood.
 - .5 CAN/CSA-O325.0-07, Construction Sheathing.
 - .6 CAN/CSA-Z809-08, Sustainable Forest Management.
- .2 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).
- .3 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .4 Green Seal Environmental Standards (GS)
- .5 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.
- .6 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2010-2014 Standard.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for rough carpentry work and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 QUALITY ASSURANCE

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.
- .3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.
- .4 Sustainable Standards Certification:
 - .1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location, off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect wood from damage.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of padding, packaging materials, banding, pallets and crates as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:
 - .1 CAN/CSA-O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .3 CAN/CSA-Z809 or FSC or SFI certified.
- .2 Blocking:
 - .1 S2S is acceptable for all work.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
 - .4 Post and timbers sizes: "Standard" or better grade.
- .3 Panel Materials Used for Blocking:
 - .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
 - .2 Canadian softwood plywood (CSP): to CSA O151, standard construction.
 - .3 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.
- .4 Wood Preservative:
 - .1 Surface-applied wood preservative: coloured, copper naphthenate water repellent preservative.

2.2 ACCESSORIES

- .1 Fasteners: to CAN/CSA-G164, for exterior work and pressure- preservative treated lumber.
- .2 Nails, spikes and staples: to CSA B111.

- .3 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs or explosive actuated fastening devices as recommended for purpose by manufacturer. Obtain permission of Departmental Representative before using explosive actuated fastening devices.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for rough carpentry installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

- .1 Treat surfaces of material with wood preservative, before installation.
- .2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and 1 minute soak on plywood.
- .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
- .4 Treat material as indicated and as follows:
 - .1 Wood curbs, nailers, sleepers on roof deck.

3.3 INSTALLATION

- .1 Comply with requirements of National Building Code of Canada (NBC), supplemented by the following paragraphs.
- .2 Align and plumb faces of furring and blocking to suit installation of guardrail.
- .3 Install wood nailers, curbs and other wood supports as indicated and secure using galvanized fasteners.
- .4 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .5 Countersink bolts where necessary to provide clearance for other work.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - 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 00 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .2

3.5 SCHEDULE OF PRESERVATIVE TREATED WOOD

- .1 Treat following components with surface applied wood preservative:
 - .1 Blocking.
 - .2 Wood in contact with concrete or masonry.
- .2 Before installation, provide liberal brush application of surface applied wood preservative to surfaces of pressure preservative treated wood exposed by cutting, trimming or boring.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S742-11, Standard for Air Barrier Assemblies.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS SDS - Safety Data Sheets in accordance with Section 02 81 00 - Hazardous Materials.
- .3 Quality Assurance Submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Existing Substrate Condition: report deviations, as described in PART 3 - EXAMINATION in writing to Departmental Representative.
 - .2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

1.3 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Applicator: company specializing in performing work of this section with minimum 3 years documented experience with installation of air/vapour barrier systems.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Avoid spillage: immediately notify Departmental Representative if spillage occurs and start clean up procedures.
- .4 Clean spills and leave area as it was prior to spill.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away from children.

1.6 AMBIENT CONDITIONS

- .1 Install solvent curing sealants and vapour release adhesive materials in open spaces with ventilation.
- .2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
- .3 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.7 SEQUENCING

- .1 Sequence work in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Charts.
- .2 Sequence work to permit installation of materials in conjunction with related materials and seals.

Part 2 Products

2.1 SHEET MATERIALS

- .1 Sheet Seal Type 1: self-adhesive bitumen laminated to thermoplastic film, minimum nominal total thickness of 1 mm.
 - .1 Air Leakage Rate: A1 classification to CAN/ULC S742.
 - .2 Application Temperature: -12 degrees C min.

2.2 SEALANTS

- .1 Sealant: as recommended by sheet seal material manufacturer.
- .2 Primer: recommended by sealant manufacturer.
- .3 Substrate Cleaner: non-corrosive type recommended by sealant manufacturer and compatible with adjacent materials.

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 EXAMINATION

- .1 Verify that surfaces and conditions are ready to accept work of this section.
- .2 Ensure surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.

- .3 Report unsatisfactory conditions to Departmental Representative in writing.
- .4 Do not start work until deficiencies have been corrected.
 - .1 Beginning of Work implies acceptance of conditions.

3.3 PREPARATION

- .1 Remove loose or foreign matter, which might impair adhesion of materials.
- .2 Ensure substrates are clean of oil or excess dust; masonry joints struck flush, and open joints filled; and concrete surfaces free of large voids, spalled areas or sharp protrusions.
- .3 Ensure substrates are free of surface moisture prior to application of self-adhesive membrane and primer.
- .4 Ensure metal closures are free of sharp edges and burrs.
- .5 Prime substrate surfaces to receive sealants in accordance with manufacturer's instructions.

3.4 INSTALLATION

- .1 Install materials in accordance with manufacturer's instructions, as specified herein and as noted on drawings.
- .2 Install sheet seal Type 1 between new galvanized HSS stair support members and adjacent wall seal materials where new galvanized HSS stair support members penetrate existing building air/vapour barrier to maintain continuous building air/vapour seal.
 - .1 Caulk to ensure complete seal.
 - .2 Position lap seal over firm bearing.
- .3 Apply sealant within recommended application temperature ranges.
 - .1 Consult manufacturer when sealant cannot be applied within these temperature ranges.

3.5 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.6 PROTECTION OF WORK

- .1 Protect finished work in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Do not permit adjacent work to damage work of this section.
- .3 Ensure finished work is protected from climatic conditions.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 American Society of Mechanical Engineers (ASME)
 - .1 ASME B18.6.3-2013, Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series).
- .2 ASTM International
 - .1 ASTM A653/A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting 1 week prior to beginning work of this Section, with Departmental Representative in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other construction subtrades.
 - .4 Review manufacturer's written installation instructions and warranty requirements.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for metal siding and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .3 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, furring, and related work.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for installed products for incorporation into manual.
- .3 Warranty Documentation: submit warranty documents specified.

1.5 QUALITY ASSURANCE

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Installer Qualifications: minimum three years documented experience with products specified.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect steel siding from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse by manufacturer and return of packaging materials, padding, crates and pallets as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.7 SITE CONDITIONS

- .1 Execute work of this Section within environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer.

Part 2 Products

2.1 MATERIALS

- .1 Steel siding: Fabricated from commercial grade to ASTM A653M with Z275 zinc coating:
 - .1 Profile: vertical profile and depth to match existing (approximate depth of 50 mm).
 - .2 Pattern: smooth.
 - .3 Finish coating: factory pre-coated with modified silicone paint finish, 2 coat system dry paint film thickness of 0.025 mm.
 - .4 Colour: to match existing and as selected by Departmental Representative from manufacturer's standard range.
 - .5 Back coating: ASTM A653/A653M, grade A, Z275.
 - .6 Gloss: to match existing.
 - .7 Thickness: .7 mm base metal thickness.

- .2 Steel exposed trim: Fabricated from commercial grade to ASTM A653M with Z275 zinc coating:
 - .1 Profile: manufacturer's standard profiles.
 - .2 Finish coating: factory pre-coated with modified silicone paint finish, 2 coat system dry paint film thickness of 0.025 mm.
 - .3 Colour: to match existing and as selected by Departmental Representative from manufacturer's standard range.
 - .4 Gloss: to match existing.
 - .5 Thickness: .7 mm base metal thickness.
- .3 Fasteners: screws to ASME B18.6.3 stainless steel purpose made.
- .4 Sealants: in accordance with Section 07 92 00 - Joint Sealants.

1.1 ACCESSORIES

- .1 Exposed trim: of same material, colour and gloss as cladding.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts acceptable in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions remedied.

3.2 PREPARATION

- .1 Clean surfaces thoroughly prior to installation.
- .2 Repair substrate flaws or defects before applying siding or soffits.
- .3 Fur surfaces to even plane and free from obstructions.
- .4 Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions.

3.3 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.4 INSTALLATION

- .1 Install steel siding in accordance with manufacturer's written instructions and to match existing.
- .2 Install exposed trim as indicated and to match existing.

- .3 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .4 Attach components in manner not restricting thermal movement.
- .5 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - 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 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by preformed metal siding installation.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 ASTM International Inc.
 - .1 ASTM D1621-16, Standard Test Method for Compressive Properties of Rigid Cellular Plastics
 - .2 ASTM D4632/D4632M-15a, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
 - .3 ASTM D4751-16, Standard Test Methods for Determining Apparent Opening Size of a Geotextile
 - .4 ASTM D4833/D4833M-0792013)e1, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
- .2 Canadian General Standards Board (CGSB)
 - .1 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
 - .2 CGSB 37-GP-56M-80b(A1985), Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
- .3 Canadian Roofing Contractors Association (CRCA)
 - .1 CRCA Roofing Specifications Manual-1997.
- .4 CSA Group (CSA)
 - .1 CSA A123.21-14, Standard Test Method for the Dynamic Wind Uplift Resistance of Mechanically Attached Membrane-Roofing Systems
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .6 Saskatchewan Roofing Contractors Association (SRCA)
- .7 Underwriters Laboratories' of Canada (ULC)
 - .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
 - .2 CAN/ULC-S704-03, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
 - .3 CAN/ULC-S706-02, Standard for Wood Fibre Thermal Insulation for Buildings.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Convene pre-installation meeting one week prior to beginning waterproofing Work, with Departmental Representative in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other building sub-trades.

- .4 Review manufacturer's installation instructions and warranty requirements.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide copies of most recent data sheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Provide copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements, and indicate VOC content for:
 - .1 Primers.
 - .2 Sealers.
 - .3 Adhesives.
- .3 Manufacturer's Certificate: certify that products meet or exceed specified requirements.
- .4 Test and Evaluation Reports: submit laboratory test reports certifying compliance of membrane with specification requirements.

1.1 QUALITY ASSURANCE

- .1 Installer to be registered with the Saskatchewan Roofing Contractors Association (SRCA) to complete the installation and commissioning for this project.
- .2 Installer qualifications: company or person specializing in application of modified bituminous roofing systems with 5 years documented experience approved by manufacturer.
- .3 Roofing Inspections:
 - .1 Contractor to hire independent roofing inspector to inspect roofing work.
 - .2 Minimum inspections required:
 - .1 One at the beginning to straighten out all roof installation requirements at the start of the roofing repair and drainage mat installation process.
 - .2 Weekly inspections part way through the roofing repair and drainage mat installation process.
 - .3 A final review at the completion of the roofing repair and drainage mat installation process.
 - .3 Roofing inspection reports to be sent to Departmental Representative, all consultants as well as Contractor.
 - .4 Refer to Sections 01 29 83 - Payment Procedures: Testing Laboratory Services and Section 01 45 00 - Quality Control for further details.

1.4 FIRE PROTECTION

- .1 Fire Extinguishers:
 - .1 Maintain one cartridge operated type or stored pressure rechargeable type with hose and shut-off nozzle,
 - .2 ULC labelled for A, B and C class protection.

- .3 One extinguisher of suitable size for application on roof per torch applicator, within 6 m of torch applicator.
- .2 Maintain fire watch for 1 hour after each day's roofing operations cease.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.
- .2 Storage and Handling Requirements:
 - .1 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.
 - .2 Provide and maintain dry, off-ground weatherproof storage.
 - .3 Store rolls of felt and membrane in upright position. Store membrane rolls with salvage edge up.
 - .4 Remove only in quantities required for same day use.
 - .5 Place plywood runways over completed Work to enable movement of material and other traffic.
 - .6 Store sealants at +5 degrees C minimum.
 - .7 Store insulation protected from daylight and weather and deleterious materials.
- .3 Packaging Waste Management: remove for reuse by manufacturer and return of packaging materials, crates, pallets and padding in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
 - .2 Fold up metal banding, flatten and place in designated area for recycling.

1.6 SITE CONDITIONS

- .1 Ambient Conditions
 - .1 Do not install roofing when temperature remains below -18 degrees C for torch application, or to manufacturers' recommendations for mop application.
 - .2 Minimum temperature for solvent-based adhesive is -5 degrees C.
- .2 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

1.2 WARRANTY

- .1 For Work of this Section 07 52 00 - Modified Bituminous Membrane Roofing, provide Canadian Roofing Contractors Association (CRCA) two-year warranty.

Part 2 Products

2.1 PERFORMANCE CRITERIA

- .1 Compatibility between components of roofing system is essential. Provide written declaration to Departmental Representative stating that materials and components, as assembled in system, meet this requirement.
- .2 Roofing System: to CSA A123.21 for wind uplift resistance.

1.1 DECK COVERING

- .1 Glass Mat, Gypsum Board: to ASTM C1177, 13 mm thick.

2.2 DECK PRIMER

- .1 Asphalt primer: to CGSB 37-GP-9Ma.

2.3 VAPOUR RETARDER

- .1 Self-adhesive air/vapour barrier modified bitumen membrane.

2.4 MEMBRANE

- .1 Base sheet membrane: to CGSB 37-GP-56M.
 - .1 Styrene-Butadiene-Styrene (SBS) elastomeric polymer prefabricated sheet, glass or polyester reinforcement, having nominal weight of 180 g/m².
 - .2 Type 1, fully adhered.
 - .3 Class C - plain surfaced.
 - .4 Grade 1 - standard service.
 - .5 Top and bottom surfaces:
 - .1 Polyethylene/sanded.
 - .6 ULC certification: as required by local authorities.
- .2 Cap sheet membrane: to CGSB 37-GP-56M.
 - .1 Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, glass or polyester reinforcement, having nominal weight of 250 g/m².
 - .2 Type 1, fully adhered.
 - .3 Class A- slate granule surfaced.
 - .1 Colour for granular surface: colour to be as selected by the Construction Manager from the manufacturer's standard range.
 - .4 Grade 2-heavy-duty service.
 - .5 Bottom surface: polyethylene.
 - .6 ULC certification: as required by local authorities.

2.5 ADHESIVE

- .1 Adhesive for securing overlay board and insulation: asphalt extended vulcanized adhesive, two component unit, consisting of two liquids mixed on site to produce pourable adhesive.

2.6 OVERLAY BOARD

- .1 Overlay Board: 12.7 mm asphalt impregnated fiberboard.
 - .1 Install over insulation to provide torch safe surface.

2.7 POLYSTYRENE INSULATION

- .1 Expanded polystyrene (EPS) insulation to CAN/ULC-S701, Type 4, thickness to match existing, square edges.

2.8 POLYISOCYANURATE INSULATION

- .1 To CAN/ULC-S704, Type 2, facing glass fibre and other facings which are compatible to roofing membrane, flame spread classification: less than 500, thickness as indicated.

2.9 SEALER

- .1 Sealing compound: rubber asphalt type.

2.10 CARPENTRY

- .1 Refer to Section 06 08 99 - Rough Carpentry for Minor Works.

2.11 DRAINAGE MAT ADHESIVE

- .1 Adhesive: low-rise, two-component, polyurethane adhesive.
- .2 Specifically designed for SBS roofing applications.
- .3 Compatible with SBS roofing cap sheet and drainage mat specified below.

2.12 DRAINAGE MAT

- .1 High-resistance drainage panels used for building foundations.
- .2 Drainage mat pieces to serve as protective barrier between new concrete pads and existing SBS roofing.
- .3 High-strength drainage panel consisting of a polypropylene core with a woven heavy-duty polypropylene filter fabric.
- .4 Dimensions in plan: as indicated.
- .5 Drainage Core:
 - .1 Thickness: 10 mm.
 - .2 Compressive Strength: to ASTM D1621, 862 kPa.
- .6 Geotextile Properties:
 - .1 Apparent Opening Size: to ASTM D4751, 0.42 mm
 - .2 Grab Tensile: to ASTM D4632, 1620 N.

- .3 Grab Elongation: to ASTM D4632, 24%.
- .4 Puncture Resistance: to ASTM D4833, 440 N.

Part 3 Execution

3.1 QUALITY OF WORK

- .1 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual and CRCA Roofing Specification Manual.
- .2 The interface of the walls and roof assemblies will be fitted with durable rigid material providing connection point for continuity of air barrier.
- .3 Assembly, component and material connections will be made in consideration of appropriate design loads.

3.2 EXAMINATION OF ROOF DECKS

- .1 Verification of Conditions:
 - .1 Inspect with Construction Manager deck conditions including parapets, construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed.
- .2 Evaluation and Assessment:
 - .1 Prior to beginning of work ensure:
 - .1 Existing membrane has been removed.
 - .2 Existing two layers of impregnated fiberboard have been removed.
 - .3 Existing polyisocyanurate insulation has been patched to match existing.
 - .4 Holes in existing roofing have been patched where curbs, screens and other items designated for removal on the drawings were located.
 - .5 Preformed metal cladding roof sections requiring temporary removal have been removed.
 - .6 Metal flashings and scuppers requiring temporary removal have been removed.
 - .7 All other demolition tasks indicated on the drawings have been performed.
- .3 Do not install roofing materials during rain or snowfall.

3.3 PROTECTION OF IN-PLACE CONDITIONS

- .1 Cover walls, walks and adjacent work where materials hoisted or used.
- .2 Use warning signs and barriers. Maintain in good order until completion of Work.
- .3 Clean off drips and smears of bituminous material immediately.
- .4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.
- .5 Protect roof from traffic and damage. Comply with precautions deemed necessary by Construction Manager.

- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.
- .7 Metal connectors and decking will be treated with rust proofing or galvanization.

1.2 DECK SHEATHING

- .1 Mechanically fasten to steel deck Glass Mat Gypsum Board with screws to steel deck's upper rib surfaces, spaced 400 mm on centre each way.
- .2 Place with long axis of each sheet transverse to steel deck ribs, with end joints staggered and fully supported on ribs.

3.4 PRIMING DECK

- .1 Apply deck primer to concrete deck roofing substrate at the rate recommended by manufacturer.

3.5 VAPOUR RETARDER

- .1 Adhere vapour retarder using solvent based adhesive as per manufacturer's instructions.

3.6 (EXPOSED) CONVENTIONAL MEMBRANE ROOFING (CMR) APPLICATION

- .1 Insulation: fully adhered, adhesive application:
 - .1 Adhere insulation to laminated vapour barrier using solvent-based adhesive.
 - .2 Place boards in parallel rows with ends staggered, and in firm contact with one another.
 - .3 Cut end pieces to suit.
 - .4 Apply adhesive in continuous ribbons at 300 mm on centre.
 - .5 Separate the membrane and insulation with a drainage layer or slipsheet.
- .2 Tapered insulation application:
 - .1 Install tapered insulation match existing. Stagger joints between layers 150 mm minimum.
- .3 Overlay Board: adhesive application:
 - .1 Adhere overlay board to insulation with vulcanized adhesive at the rate of one litre per m².
 - .2 Place boards in parallel rows with end joints staggered. Cap joints approximately 25 mm.
 - .3 Cut ends to suit and apply adhesive in continuous ribbons at 300 mm on centre.
- .4 Base sheet application:
 - .1 Starting at low point of roof, perpendicular to slope, unroll base sheet, align and reroll from both ends.
 - .2 Unroll and torch base sheet onto substrate taking care not to burn membrane or its reinforcement or substrate.
 - .3 Lap sheets 75 mm minimum for side and 150 mm minimum for end laps.
 - .4 Application to be free of blisters, wrinkles and fishmouths.

- .5 Cap sheet application:
 - .1 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends.
 - .2 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement.
 - .3 Lap sheets 75 mm minimum for side laps and 150 mm minimum for end laps. Offset joints in cap sheet 300 mm minimum from those in base sheet.
 - .4 Application to be free of blisters, fishmouths and wrinkles.
 - .5 Do membrane application in accordance with manufacturer's recommendations.
- .6 Flashings:
 - .1 Complete installation of flashing base sheet stripping prior to installing membrane cap sheet.
 - .2 Torch base sheet onto substrate in 1 metre wide strips.
 - .3 Lap flashing base sheet to membrane base sheet minimum 150 mm and seal by mopping or torch welding.
 - .4 Lap flashing cap sheet to membrane cap sheet 250 mm minimum and torch weld.
 - .5 Provide 75 mm minimum side lap and seal.
 - .6 Properly secure flashings to their support, without sags, blisters, fishmouths or wrinkles.
 - .7 Do work in accordance with manufacturer's recommendations.
- .7 Roof penetrations:
 - .1 Install gum boxes or pans and other roof penetration flashings and seal to membrane in accordance Section 07 62 00 - Sheet Metal Flashing and Trim and as indicated.

3.7 INSTALLATION OF DRAINAGE MAT

- .1 Cut drainage mat to indicated sizes.
- .2 Clean existing SBS roofing to polyurethane adhesive manufacturer's recommendations where existing roofing is to receive drainage mat. Confirm exact locations with Departmental Representative before fastening mat pieces.
- .3 Use polyurethane adhesive to fasten drainage mat pieces onto existing SBS roofing as indicated and to locations indicated.

3.8 ROOF MEMBRANE FLASHING AT FALL PROTECTION SYSTEM ANCHORS

- .1 Apply roof membrane flashing at fall arrest anchors as indicated and as instructed by fall protection system manufacturer.

1.3 FIELD QUALITY CONTROL

- .1 Perform roofing inspections and submit reports as specified in Part 1 of this section.

3.9 CLEANING

- .1 Remove bituminous markings from finished surfaces.

- .2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.
- .3 Repair or replace defaced or disfigured finishes caused by work of this section.
- .4 Waste Management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Place materials defined as hazardous or toxic in designated containers.
 - .2 Clearly label location of salvaged material's storage areas and provide barriers and security devices.
 - .3 Ensure emptied containers are sealed and stored safely.
 - .4 Unused adhesive, sealant and asphalt materials must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
 - .5 Dispose of unused adhesive material at official hazardous material collections site approved by Departmental Representative.
 - .6 Dispose of unused sealant material at official hazardous material collections site approved by Departmental Representative.
 - .7 Dispose of unused asphalt material at official hazardous material collections site approved by Departmental Representative.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 ASTM International (ASTM)
 - .1 ASTM A 653/A 653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM B32-08 (2014), Standard Specification for Solder Metal.
- .2 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI S8-2008 Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .4 Sheet Metal and Air Conditioning Contractors Association of North America (SMACNA)
 - .1 Architectural Sheet Metal Manual (2012)

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature including product specifications and technical data sheets for sheet metal flashing fasteners and accessory materials. Include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit copies WHMIS SDS - Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
 - .1 Submit shop drawings for all sheet metal fabrications.
 - .2 Indicate sheet thickness, flashing dimensions and fastenings. Include anchorage, expansion joints and other provisions for thermal movement.
 - .3 Submit manufacturer's catalogue cut sheets for manufactured items.
- .4 Samples:
 - .1 Submit 50 x 50 mm samples of each type of sheet metal material, finishes and colour.

1.3 PRE-INSTALLATION MEETING

- .1 Include sheet metal flashing and trim on agenda of pre-installation meetings of affected sections.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Handle and store flashing materials to prevent creasing, buckling, scratching, or other damage.
- .3 Waste Management and Disposal:
 - .1 Separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 BASE SHEET METAL MATERIALS

- .1 Zinc coated steel sheet: .7 mm thickness, commercial quality to ASTM A653/A653M, with Z275 designation zinc coating.

2.2 PREFINISHED STEEL SHEET

- .1 Prefinished steel sheet with coating system consisting of base metal pre-treatment, primer, silicone modified polyester or polyester topcoat meeting requirements of CSSBI S8.
 - .1 Finished colour finished on both sides.
 - .2 Colour and gloss to match adjacent siding.
 - .3 Exposed coating thickness: dry film coating system thickness not less than 22 micrometres.

2.3 ACCESSORIES

- .1 Pourable sealer: proprietary two-part polyurethane pourable sealer designed for sealing penetration pockets.
- .2 Sealants: Type 1 in accordance with Section 07 92 00- Joint Sealants, in colour to match flashing finish colour.
- .3 Screws: of same material as sheet metal, Suitable for substrate and material being fastened, galvanized head, neoprene washer.
- .4 Solder: to ASTM B32.
- .5 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.
- .6 Touch-up paint: as recommended by prefinished material manufacturer.

2.4 FABRICATION

- .1 Fabricate sheet steel flashings and other sheet steel work in accordance with applicable SMACNA architectural details and as indicated.
- .2 Hem exposed edges on underside 12 mm.
 - .1 Mitre and seal corners with sealant.

- .3 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

2.5 METAL FLASHINGS

- .1 Form steel siding flashings to profiles indicated of .7 mm thick prefinished galvanized steel to match adjacent siding colour.

2.6 PANS

- .1 Form pans to receive roofing plastic from galvanized .7 mm thick steel sheet metal with minimum 75 mm upstand above finished roof and 100 mm continuous flanges with no open corners.
 - .1 Solder joints.
 - .2 Make pans minimum 50 mm wider than member passing through roof membrane.

2.7 STEEL SIDING PENETRATIONS

- .1 See Appendix 3 for SMACNA flashing detail to be used where new HSS ship stair support members penetrate existing steel siding as indicated. Provide structural backup members as shown or equal solution. Overlap self-adhered membrane onto top flashing as shown in detail 2/A3.1 to provide positive drainage.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Install sheet metal work as indicated.
- .2 Install pans, where shown around items projecting through roof membrane.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Roof anchors.
- .2 Horizontal lifeline.
- .3 Preformed metal flashing.

1.2 REFERENCES

- .1 ASTM International Inc.
 - .1 ASTM A123, Standard Specification for Zinc Coating - Hot Dip Galvanizing of Iron and Steel Products.
 - .2 ASTM C1029-15, Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.
- .2 CSA Group (CSA)
 - .1 CSA B272-93 (R2000), Prefabricated Self-Sealing Roof Vent Flashings.
 - .2 CAN/CSA-Z91-M02, Safety Code for Window Cleaning Operations.
- .3 Province of Saskatchewan
 - .1 The Occupational Health and Safety Act and the Occupational Health and Safety Regulations, Saskatchewan Human Resources, Labour and Employment.

1.3 SYSTEM DESCRIPTION

- .1 Design horizontal lifeline fall protection system to provide for safe execution of window washing or other suspended maintenance operations including travel restraint.
- .2 Co-ordinate work of this Section with Section 07 52 00.
- .3 Design anchors to resist without fracture a pull-out force of 24.03 kN applied in the most adverse direction.

1.4 SUBMITTALS

- .1 Provide following submittals in accordance with Section 01 33 00 - Submittal Procedures:
 - .1 Manufacturer's descriptive literature for each product, including section or other type details.
 - .2 Manufacturer's written installation instructions.
 - .3 Shop drawings to show roof layout indicating location and spacing of anchors and horizontal lifeline, including dimensions, detail drawings of securement to structure, design details and similar data. Drawings to bear stamp of professional engineer licensed in the Province of Saskatchewan.
 - .4 Upon completion of project, provide Departmental Representative with Log Book for mandatory annual inspection.

- .5 Upon completion of project, provide Departmental Representative with roof plan showing layout of safety anchor system.
- .2 Provide operation and maintenance manual submittals in accordance with Section 01 78 00 – Closeout Submittals.

1.5 QUALITY ASSURANCE

- .1 Horizontal lifeline fall protection system manufacturer to have minimum 5 years documented experience in the design and fabrication of fall protection systems.
- .2 Comply with all requirements of: the 2015 National Building Code of Canada.
- .3 Comply with all requirements of The Occupational Health and Safety Act and the Occupational Health and Safety Regulations of the Province of Saskatchewan.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Handle and store flashing materials to prevent creasing, buckling, scratching, or other damage.
- .3 Waste Management and Disposal:
 - .1 Separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

1.7 SITE CONDITIONS

- .1 Verify dimensions, tolerances, and method of attachment with existing conditions and members. Report any discrepancies to Department Representative before fabrication of fall arrest system.

1.8 WARRANTY

- .1 Warrant products installed under this section of work to be free of leaks, condensation and defects in materials and/or manufacture, as applicable, for a period of 20 years when installed in accordance with the manufacturer's written instructions.

Part 2 Products

2.1 ACCEPTABLE HORIZONTAL LIFELINE SYSTEM PRODUCT

- .1 Thaler Metal Industries; Product: K-703 Easy Slider (Single Span Application)
- .2 Or equal product from following manufacturers:
 - .1 Pro-Bel Enterprises Limited.
 - .2 Trittech Fall Protection Systems.
- .3 Or pre-approved equal.

2.2 MANUFACTURED UNITS

- .1 Horizontal lifeline system (roof application): to CSA-Z91.
 - .1 To include the following:
 - .1 114 mm dia. urethane insulated HSS anchor posts, wall thickness 6 mm, hot dipped galvanized ASTM A123, 305 mm high, welded and bolted to 16 mm x 203 mm x 203 mm 44W base plate, securement to suit substrate;
 - .2 Stainless steel fittings (swaged end, energy absorber, double locking carabiner, shuttles, end tensioner, intermediate brackets, corner pieces)
 - .3 304 stainless steel cable, 10 mm diameter.
 - .4 178 mm high flashing of 0.79 mm Type 304 stainless steel to CSA B272-93, with EPDM triple pressure grommet top seal and EPDM base seal and PVC coated deck flange.
 - .5 Injection molded urethane insulation to ASTM C1029-90,
 - .2 Two compatible full body harnesses with integral shock absorber meeting requirements of authority having jurisdiction.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine areas and existing conditions for compliance with requirements for installation. Proceed with installation only after unsatisfactory conditions have been corrected.
- .2 For roofs employing tapered insulation systems, height adjustments may be necessary i.e. ensure centre line of cable anchor bracket is minimum 230 mm above roof surface and post flashing is compatible with roof details.

3.2 PREPARATION

- .1 For re-roofing or retrofit work, remove existing roof assembly as necessary to allow for installation of roof anchors.
- .2 In the event of structural deficiencies, deck corrosion or deterioration, ensure that a structural engineer licensed in the Province of Saskatchewan has assessed and approved all surfaces upon which the work of this Section depends. Institute repairs and/or reinforcement where necessary.
- .3 If necessary, protect building interior and contents against ingress of water, dust, debris or other material.
- .4 Where possible and as directed by the Departmental Representative, reuse any salvageable materials and restore roofing system to match original.

3.3 INSTALLATION

- .1 Roof Anchors:

- .1 Install anchors or equipment in accordance with manufacturer's printed instructions, shop drawings and as specified.
 - .2 Ensure anchors or equipment is installed under the direct supervision of a professional engineer licensed in the Province of Saskatchewan and a roofing inspector.
 - .3 Where necessary, provide protection against deterioration due to contact of dissimilar materials.
 - .4 Where bolting is used for fastening anchors, no fewer than two threads is to be exposed and the nut is to be positively locked by deforming threads, welding, pinning or equivalent method.
 - .5 Ensure work is inspected by Departmental Representative prior to application of roofing.
- .2 Flashing:
- .1 Install roof support flashing in accordance with manufacturer's printed instructions.
 - .2 Torch membrane until bitumen is fluid and set flashing deck flange into fluid. Flash in flange with two overlapping layers of modified bitumen and seal with asphalt sealer. Do not overheat (melt) EPDM base seal.
- .3 Structural adequacy of roof or other part of the building on which the support system is placed shall be verified by a professional engineer licensed in the Province of Saskatchewan before installing horizontal lifeline.

3.4 FIELD QUALITY CONTROL

- .1 Comply with the requirements of Section 01 45 00 – Quality Control.
- .2 All anchor work to be inspected by a qualified testing agency upon completion of work.

3.5 ADJUSTING AND FINAL INSPECTION

- .1 Verify that all manufactured units have been installed in accordance with specifications and details, and will function as intended. Adjust any items where necessary to ensure proper operation.
- .2 Provide necessary documentation certifying system is acceptable for service (professional engineer's Certificate of Acceptance).

3.6 CLOSEOUT ACTIVITIES

- .1 Comply with the requirements of Section 01 79 00 – Demonstration and Training.
- .2 Provide demonstration of operation of system to owner's personnel. Describe function, operation and inspection of each component. Training to occur at project site.

3.7 CLEANING

- .1 Clean manufactured units using materials and methods approved by manufacturer. Do not use cleaners or techniques which could impair performance of the roofing system.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Manufacturer's product to describe:
 - .1 Caulking compound.
 - .2 Primers.
 - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
 - .3 Submit 2 copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Manufacturer's Instructions:
 - .1 Submit instructions to include installation instructions for each product used.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect joint sealants from nicks, scratches, and blemishes.

- .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, packaging materials, padding and crates as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.5 SITE CONDITIONS

- .1 Ambient Conditions:
 - .1 Proceed with installation of joint sealants only when:
 - .1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.
 - .2 Joint substrates are dry.
 - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
 - .2 Joint-Width Conditions:
 - .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.
 - .3 Joint-Substrate Conditions:
 - .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Safety Data Sheets (SDS) acceptable to Health Canada.
- .2 Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans. Departmental Representative will arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants.

Part 2 Products

2.1 SEALANT MATERIALS

- .1 Do not use caulking that emits strong odours or contains toxic chemicals.
- .2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
- .3 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Silicones one part (Sealant Type 1): to CAN/CGSB-19.13.

- .2 Preformed compressible and non-compressible back-up materials: as recommended by sealant manufacturer.

2.3 SEALANT SELECTION

- .1 Perimeters of exterior openings where frames meet exterior facade of building and to all other exterior joints including around new openings or penetrations through the existing exterior envelope: Sealant Type 1.

2.4 JOINT CLEANER

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.
- .2 Primer: in accordance with sealant manufacturer's written recommendations.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 SURFACE PREPARATION

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP MATERIAL

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

- .1 Sealant:
 - .1 Apply sealant in accordance with manufacturer's written instructions.
 - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - .3 Apply sealant in continuous beads.
 - .4 Apply sealant using gun with proper size nozzle.
 - .5 Use sufficient pressure to fill voids and joints solid.
 - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing:
 - .1 Cure sealants in accordance with sealant manufacturer's instructions.
 - .2 Do not cover up sealants until proper curing has taken place.

3.7 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Clean adjacent surfaces immediately.
 - .3 Remove excess and droppings, using recommended cleaners as work progresses.
 - .4 Remove masking tape after initial set of sealant.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management: separate waste materials for recycling and reuse in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.8 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by joint sealants installation.

Bow Unit Maintenance Access Stair
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JOINT SEALANTS
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END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Environmental Protection Agency (EPA)
 - .1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, EPA Method 24 - Surface Coatings.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Safety Data Sheets (SDS).
- .3 Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
- .4 National Research Council Canada (NRC)
 - .1 National Fire Code of Canada 2015 (NFC).

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Scheduling
 - .1 Provide work schedule for various stages of painting to Departmental Representative for approval. Provide schedule minimum of 48 hours in advance of proposed operations.
 - .2 Obtain written authorization from Departmental Representative for changes in work schedule.
 - .3 Schedule new additions to existing building coordinate painting operations with other trades.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's instructions, printed product literature and data sheets for paint and paint products and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
 - .3 Confirm products to be used are in MPI's approved product list.
 - .4 Upon completion, provide records of products used. List products in relation to finish system and include the following:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 MPI Environmentally Friendly classification system rating.
 - .5 Manufacturer's Safety Data Sheets (SDS).

.6 MPI #.

.3 Samples:

- .1 Provide 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:
 - .1 3 mm plate steel for finishes over metal surfaces.
- .2 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.
- .3 Provide full range of available colours where colour availability is restricted.

1.4 CLOSEOUT SUBMITTALS

- .1 Provide in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: Provide operation and maintenance data for painting materials for incorporation into manual.
- .3 Include:
 - .1 Product name, type and use.
 - .2 Manufacturer's product number.
 - .3 Colour numbers.
 - .4 MPI Environmentally Friendly classification system rating.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Stock Materials:
 - .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Submit four one 1 litre can of each type and colour of finish coating and primer. Identify colour and paint type in relation to established colour schedule and finish system.

1.6 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Qualified journeypersons as defined by local jurisdiction to be engaged in painting work
 - .2 Apprentices: may be employed provided they work under direct supervision of qualified journeyperson in accordance with trade regulations.
 - .3 Conform to latest MPI requirements for exterior painting work including preparation and priming.
 - .4 Materials: in accordance with MPI Painting Specification Manual "Approved Product" listing and from a single manufacturer for each system used.
 - .5 Retain purchase orders, invoices and documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
 - .6 Standard of Acceptance:

- .1 No defects visible from a distance of 1000 mm at 90 degrees to surface.
- .2 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .1 Labels: to indicate:
 - .1 Type of paint or coating.
 - .2 Compliance with applicable standard.
 - .3 Colour number in accordance with established colour schedule.
 - .3 Storage and Handling Requirements:
 - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Observe manufacturer's recommendations for storage and handling.
 - .3 Store materials and supplies away from heat generating devices.
 - .4 Store materials and equipment in well ventilated area with temperature range 7 degrees C to 30 degrees C.
 - .5 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.
 - .6 Remove paint materials from storage only in quantities required for same day use.
 - .7 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
 - .8 Fire Safety Requirements:
 - .1 Provide one 9 kg dry chemical fire extinguisher adjacent to storage area.
 - .2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - .3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada (NFC).
 - .9 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of crates, pallets, padding and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal.

1.8 SITE CONDITIONS

- .1 Ambient Conditions:

- .1 Heating, Ventilation and Lighting:
 - .1 Do not perform painting work unless sufficient heating facilities are in place to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 - .2 Perform no painting work unless a minimum lighting level of 323 Lux is provided on surfaces to be painted. Adequate lighting facilities to be provided by General Contractor.
- .2 Temperature, Humidity and Substrate Moisture Content Levels:
 - .1 Unless specifically pre-approved by specifying body, Paint Inspection Agency and, applied product manufacturer, perform no painting work when:
 - .1 Ambient air and substrate temperatures are below 10 degrees C.
 - .2 Substrate temperature is over 32 degrees C unless paint is specifically formulated for application at high temperatures.
 - .3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.
 - .4 Relative humidity is above 85 % or when dew point is less than 3 degrees C variance between air/surface temperature.
 - .5 Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
- .3 Application Requirements:
 - .1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
 - .2 Apply paint to adequately prepared surfaces and to surfaces within moisture limits noted herein.
 - .3 Apply paint when previous coat of paint is dry or adequately cured.
 - .4 Apply paint finishes when conditions forecast for entire period of application fall within manufacturer's recommendations.
 - .5 Do not apply paint when:
 - .1 Temperature is expected to drop below 10 degrees C before paint has thoroughly cured.
 - .2 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's limits.
 - .3 Surface to be painted is wet, damp or frosted.
 - .6 Provide and maintain cover when paint must be applied in damp or cold weather. Heat substrates and surrounding air to comply with temperature and humidity conditions specified by manufacturer. Protect until paint is dry or until weather conditions are suitable.
 - .7 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning.
 - .8 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

- .9 Paint occupied facilities in accordance with approved schedule only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

- .1 Environmental Performance Requirements:
 - .1 Provide paint products meeting MPI "Environmentally Friendly" E1 or E2 ratings based on VOC (EPA Method 24) content levels.

2.2 MATERIALS

- .1 Only paint materials listed in latest edition of MPI Approved Products List (APL) are acceptable for use on this project.
- .2 Paint materials for paint systems: to be products of single manufacturer.

2.3 COLOURS

- .1 Stair stringers, handrails and exposed portions of the structural outreaches connecting the stairs to the existing building structure as indicated on the drawings are to be painted brown to match the existing metal wall cladding on the Bow Unit building.
- .2 Submit proposed brown colour samples to Departmental Representative for approval.
- .3 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats if requested by Departmental Representative.

2.4 MIXING AND TINTING

- .1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Departmental Representative's written permission.
- .2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
- .3 Add thinner to paint manufacturer's recommendations. Do not use kerosene or organic solvents to thin water-based paints.
- .4 Thin paint for spraying according in accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative.
- .5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.
- .6 Deep and ultra deep colors; 4 coats may be required.

2.5 GLOSS/SHEEN RATINGS

- .1 Paint gloss: defined as sheen rating of applied paint, in accordance with following values:

Gloss Level Category	Units @ 60 Degrees	Units @ 85 Degrees
G1 - matte finish	0 to 5	max. 10
G2 - velvet finish	0 to 10	10 to 35
G3 - eggshell finish	10 to 25	10 to 35
G4 - satin finish	20 to 35	min. 35
G5 - semi-gloss finish	35 to 70	
G6 - gloss finish	70 to 85	
G7 - high gloss finish	> 85	

- .2 Gloss level ratings of painted surfaces as specified.

2.6 EXTERIOR PAINTING SYSTEMS

- .1 Galvanized Metal (Ship Stair, Roof Top Steps & Guardrail): not chromate passivated.
.1 EXT 5.3L - Polyurethane, Pigmented (over epoxy primer).

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 GENERAL

- .1 Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable to be painted in accordance with manufacturer's written instructions:
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.4 PREPARATION

- .1 Perform preparation and operations for exterior painting in accordance with MPI Maintenance Repainting Manual except where specified otherwise.
.2 Apply paint materials in accordance with paint manufacturer's written application instructions.

- .3 Clean and prepare exterior surfaces to be repainted in accordance with MPI Maintenance Repainting Manual requirements. Refer to the MPI Manual in regard to specific requirements and as follows:
 - .1 Remove dust, dirt, and surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
 - .2 Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
 - .3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
 - .4 Allow surfaces to drain completely and to dry thoroughly. Allow sufficient drying time and test surfaces using electronic moisture meter before commencing work.
 - .5 Use water-based cleaners in place of organic solvents where surfaces will be repainted using water based paints.
 - .6 Many water-based paints cannot be removed with water once dried. Minimize use of kerosene or such organic solvents to clean up water-based paints.
- .4 Clean metal surfaces to be repainted by removing rust, dirt, oil, grease and foreign substances in accordance with MPI requirements. Remove such contaminants from surfaces, pockets and corners to be repainted by brushing with clean brushes, blowing with clean dry compressed air, or brushing/vacuum cleaning as required.
- .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
- .6 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.
- .7 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

3.5 EXISTING CONDITIONS

- .1 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple “cover patch test” and report findings to Departmental Representative. Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

3.6 PROTECTION

- .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Departmental Representative.
- .2 Protect general public and building occupants in and about building.
- .3 Remove light fixtures, surface hardware on doors, and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Store items and re-install after painting is completed.

- .4 As painting operations progress, place "WET PAINT" signs in pedestrian and vehicle traffic areas to approval of Departmental Representative.

3.7 APPLICATION

- .1 Method of application to be approved by Departmental Representative. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application:
 - .1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.
 - .2 Work paint into cracks, crevices and corners.
 - .3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 - .4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces to be free of roller tracking and heavy stipple unless approved by Departmental Representative.
 - .5 Remove runs, sags and brush marks from finished work and repaint.
- .3 Spray Application:
 - .1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 - .2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 - .3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.
 - .4 Brush out immediately runs and sags.
 - .5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.
 - .6 Wood, stucco, concrete, cement masonry units CMU's and brick; if sprayed, must be back rolled.
- .4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Departmental Representative.
- .5 Apply coats of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .7 Sand and dust between coats to remove visible defects.
- .8 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.
- .9 Finish top, bottom, edges and cut-outs of doors after fitting as specified for door surfaces.

3.8 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 – 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 00 – Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.9 RESTORATION

- .1 Clean and re-install hardware items removed before undertaken painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.
- .5 Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Departmental Representative.

END OF SECTION

Bow Unit Maintenance Access Stair
Regional Psychiatric Centre, Saskatoon, SK
Project No. R.100537.001

APPENDIX 1

REGIONAL PSYCHIATRIC CENTRE (PRAIRIES) - CONTRACTORS SECURITY BRIEFING FORM

Regional Psychiatric Centre (Prairies) - Contractors Security Briefing Form

It is the responsibility of the CONTRACTOR to inform their staff of these security requirements and shall display a copy of these requirements at their job site.

Once read, there is room at the end of this document that requires the signature of all contract staff that will be conducting work on institutional property.

1. ALCOHOL AND NARCOTICS / DISORDERLY CONDUCT

- Alcoholic beverages and narcotics are not permitted on institutional property.
- Removal of any person employed on the project that appear to be intoxicated or under the influence.
- Removal of any person employed on the project that acts in a disorderly manner.

2. CORRECTIONAL AND CONDITIONAL RELEASE ACT

- This is a medical facility within the Correctional Service of Canada, and as such is governed by Rules and Regulations as defined by both the Criminal Code of Canada, and the Corrections and Conditional Release Act and Regulations.
- Attached are the Corrections and Conditional Release Regulation Section 45 which is of **EXTREME IMPORTANCE** for your personnel to be informed of (ANNEX A and B).

- Searches of your person and vehicles will be done. This is part of our security procedure and is not intended to embarrass you, but rather to assist the Operations Division in maintaining the security of the Institution.
- Searches include, but are not limited to, searches by the Institutional Drug Dog, the Drug Detection Machine known as the Itemiser, X-ray machine, and the walk through/hand held scanner.

3. CONTRABAND AND UNAUTHORIZED ITEMS

- "**CONTRABAND**" and unauthorized items is indicated in section two (2) of the Act. It is an offence to use, trade, or barter with an inmate or for an inmate to attempt to barter with you. It is your responsibility to report any such bartering to the Correctional Staff.
- Offenders, staff members, **contractors**, volunteers and **visitors** are not permitted to smoke inside correctional facilities (including private family visiting units) or outdoors within the perimeter of a correctional facility.
- Staff members, **contractors**, volunteers and **visitors** must not possess unauthorized smoking items within the perimeter of a correctional facility.
- CSC **contractors**, volunteers and **visitors** who are in violation of this policy will be requested to cease smoking or dispose of any unauthorized smoking items and if they persist will be directed to leave the institution or CCC.
- **Definition:** Unauthorized smoking items: smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing tobacco, cigarette making machines, matches and lighters are unauthorized items within the meaning of section 2 of the *Corrections and Conditional Release Regulations*, except tobacco and ignition sources used for the accommodation of Aboriginal spirituality or other religious practices.

-
- While it is totally incomprehensible to expect yourself to identify any item as contraband, or an unauthorized item(s), if you accidentally find any item(s), inform the Correctional Supervisor or a staff member identified by a CSC tag, so that appropriate action can be taken. **WHAT MAY SEEM INNOCENT TO YOU MAY BE OF SERIOUS CONCERN TO US.**

4. PERSONNEL

- In order to assist in providing a secure environment and a simple means of having all the work completed, we require information on the following :
 - 1) Names of all personnel who will be working on the project. This must include the full names of the individuals and their date of birth.
 - 2) Nature of the job (what is being done)
 - 3) Extent of the work (what you will be doing)
 - 4) Hours you intend to work
 - 5) Anticipated number of days required on site.

THE INSTITUTION IS OPEN FROM 0800-1200 AND 1230-1600

- All personnel working at the job site must have prior security clearance before any work is started. All names must be submitted on a CPIC Form. The names must be clearly printed and state the persons name in full and persons date of birth. **All clearance requests require at least 72 hours before approval or denial is granted.**
- All contract personnel must bring their identification, with picture ID to gain access into the Institution.

5. ACCESS TO THE SITE

- You must inform the **Correctional Supervisor at 975-5402** of any overtime you intend to work at least 24 hours in advance. We must know your intentions in the event that we require any additional security measures. Be informed that overtime may not be granted although every consideration will be given.
- If you are working in two or more different areas within the Institution at the same time, inform the Correctional Supervisor at 975-5402 of your intention so that if required an escort can be provided. Movement within the Institution is restricted and prior arrangements must be made.

6. OBSERVATIONS, INSPECTIONS AND EMERGENCIES

- Construction activity is subject to observation and inspection by Correctional Officers to ensure security of the Institution is maintained.
- It is not anticipated that an emergency will arise in which you will be asked to leave an area abruptly. However, if you are asked to vacate an area in a hurry, pick up all your equipment as best as you can and follow the Correctional Officer's instructions.

7. DISCIPLINE OF INMATES

- When a contractor, or an employee of a contractor, witnesses unacceptable behaviour on the part of one or more inmates, he or she shall take the necessary immediate action :
 - 1) Inform a member of the Service immediately.
 - 2) Be prepared to provide a statement of the occurrence to a member of the service as required.

8. INSTITUTIONAL IDENTIFICATION

- The Institutional Head may require facial close-up photographs to be taken of construction personnel and to have them displayed in a prominent location within the premises. Normally photos will be taken when work will exceed two or more days on site.
- Should you be issued with an Identification card it must be worn at all times when working within the confines of the Institutional grounds. The ID cards shall be worn on the right chest at all times.
- **YOUR ID CARD IS YOUR RESPONSIBILITY AND SHOULD BE REPORTED TO THE SECURITY MAINTENANCE OFFICER OR THE CORRECTIONAL SUPERVISOR IMMEDIATELY IF LOST (on Institutional property, as well as off Institutional Property).**

9. TOOLS AND EQUIPMENT

- **TOOL POLICY** : It is RPC's policy **NOT** to provide, loan or otherwise distribute any tool, ladder, and / or miscellaneous part(s) to outside contractors.
- All outside contractors and service personnel are required to fill out an "**OUTSIDE CONTRACTORS TOOL INVENTORY**" prior to any tools being taken inside the Institution.
- The white copy of the "Outside Contractors Tool Inventory" form will then remain at the Principal Entrance so as to verify your tools going in and out of the Institution. You are to hold the yellow copy of the above stated form on your person at all times. When taking any tools out, the yellow copy must be given to the Visitor Security Officer at the Principal Entrance.

9. TOOLS AND EQUIPMENT CONTINUED

- You must report any additions and/or deletions to your tool list prior to bringing them in or removing them from the Institution.
- Tools are classified into three (3) basic groups:
 - N** = NON-RESTRICTED
 - R** = RESTRICTED
 - P** = PROHIBITED

Any tool classified as "**PROHIBITED**" will be allowed into the institution but must be removed from the Institution once the work with that tool is completed. There are times when these tools are allowed to remain within the institution but ensure that arrangements have been made with the Security Maintenance Officer for "secure storage".

- All power "shot," Ram-set, Hilit or any other power-driven tool must have all cartridges accounted for including those which have been used must be returned to the Principal Entrance so as to verify the correct count going in as well as going out on a daily basis.

10. TOOL SAFETY

- Keep all tools and equipment under constant supervision and do not leave them unattended. Pay particular attention to power driven tools, files, saw blades, rod saws, wire, rope, and ladders. If you must leave the area ensure that your tool kits are locked or leave them with a fellow employee or in a secure area which has been designated for your use. This safe guard is done not only to protect your tools but also to prevent a tool from being stolen.
- All broken blades and tools must be accounted for. **DO NOT THROW OUT ANY BROKEN TOOLS.**

A DAILY INVENTORY OF YOUR TOOLS IS REQUIRED

- If you notice a tool missing, contact the Correctional Supervisor and/or the Security Maintenance Officer **IMMEDIATELY!** It is extremely important that we know when you last had the tool, what

the tool is, where you were working and if you noticed anyone in the area the time you last had the tool.

- **YOU ARE RESPONSIBLE FOR YOUR TOOLS. IN THE EVENT OF A LOST TOOL, YOU ARE RESPONSIBLE FOR LOCATING AND FINDING THE TOOL.**

11. CONTRACTORS AND CONSTRUCTION VEHICLES

- You may park your vehicle(s) in the visitors parking area, but ensure all doors and windows are locked. In the event you require your vehicle inside the institution for the transportation of tools and/or materials, your vehicle(s) is subject to a search by the officer at the Principal Entrance.
- The driver of the vehicle and the passenger are required to step out of the vehicle before being let in or out of the institutional grounds.
- The driver of the vehicle will shut-off the vehicles motor and open all doors, hood and trunk of the vehicle.
- The driver will be required to sign the Vehicle Registration log book at the Principal Entrance.

ONCE YOUR VEHICLE(S) IS INSIDE THE INSTITUTION, REMOVE THE KEYS, HAVE ALL WINDOWS TURNED UP AND LOCK ALL DOORS. TOOL CRIBS WILL BE LOCKED AND ALL LOOSE ITEMS WILL BE SECURED ESPECIALLY THOSE ITEMS IN AN OPEN BOX TRUCK.

- **Vehicle entry into the institution is on a "NEED ONLY" basis and not to be confused with convenience.** We do not encourage vehicles to be left inside the institution for any reason, therefore it is strongly recommended that if you must bring your vehicle into the institutional grounds that you do so with the intent that your vehicle will be brought out immediately.

ALL VEHICLES COMING ONTO THE PROPERTY BEYOND THE PERIMETER GATES MUST HAVE LOCKING GAS CAPS.

12. DELIVERIES TO SITE OR FOR THE CONTRACTORS

- No deliveries will be accepted by the Officer at the Principal Entrance. If deliveries are expected, it is advisable to notify the Officer(s) at the Principal Entrance as to when and where any deliveries are to be made and whom to contact upon their arrival.
- Deliveries to departmental areas rather than job sites should be arranged through the appropriate departmental heads, as some departments will not accept deliveries between 1100 - 1300 hours.
- Vehicles must be out of the Institution by 1600 hours unless prior approval has been given to allow it to remain inside.

13. KEY TAGS

- One person out of the group of contractors is issued a set (2) of key tags which allow them to issue keys from key safes within the Institution. Only the person who is issued to the key tag is allowed to use this key tag. No one else can issue any keys using this key tag.
- If there is a time that the person who the key tags are issued to can not be here for the day, that said person can authorize one other person to issue the keys for that day. The said person shall notify the Security Maintenance Officer who the authorized person is.

14. KEY CONTROL

A) THE GENERAL CONTRACTOR SHALL MAINTAIN CONTROL OF ALL NEW KEYS AS FOLLOWS:

- I. **Upon receipt of keys from the Security hardware supplier / installer:**

- a) Provide a receipt to the security hardware supplier, listing all keys and quantity of each key code.
- b) Provide a copy of the receipt to the appropriate CSC representative at the site.
- c) Procure and install a locked metal cupboard adequately equipped with sufficient key hooks to receive and accommodate one of each key be key code.
- d) Store two (2) spare sets of all keys in bonded storage with access limited to one person in the employ of the general contractor and one person in the employ of CSC. Access to bonded storage shall be joint, i.e., one party cannot gain access to the storage without the presence of the other party.
- e) Supply proof to CSC that keys have been put in bonded storage such as a bank safety deposit vault or equal.
- f) Appoint one of his employees to be Key Control Officer responsible for the issue and receipt of keys.
- g) Issue instructions to all employees and sub-trades as necessary to ensure safe custody of the operational set of keys.

II. Upon putting Operational Keys into use:

- a) Issue instructions to the company Key Control Officer to ensure that keys are issued to responsible personnel only and that keys are returned to the Key Control Officer when they are no longer required for the days work.
- b) Issue instructions that all keys are to be turned in at the end of each days work. No keys are to be retained by any employee for any period longer than that for which the key is required.
- c) Institute a system whereby the issue and receipt of all keys is recorded showing the date, time key code number, whom issued to ,

including the name of the recipient and the employer. The time of return should be signed in by the Key Control Officer and witnessed by the CSC site representative at the end of each working day.

- d) **REPORT IN WRITING** any untoward circumstances such as loss, disfigurement, misuse, or mishandling, etc., to the Security Hardware Supplier, identifying key code and/or number so that appropriate action may be taken to effect replacement or abandonment of that particular code as circumstances may warrant.
- e) Send a copy of each report to the CSC site representative.

B) UPON COMPLETION OF THE CONTRACT AND TAKE-OVER OF THE BUILDING:

- a) Provide a list of all keys by number and/or key code, with space for the signatures of recipients (both PWC representative(s) and CSC representative) and the date of receipt by the CSC representative.
- b) Provide certification to Public Works Canada that all reasonable caution and care has been exercised in accordance with these instructions and include a copy for CSC.

15. TELEPHONES

- Obtain approval of telephone installation from the Institutional Head. Locate telephones to be inaccessible to inmates.
- Cell phones are not allowed in the institution. However, in special cases cell phones may be approved for entry into the Institution only by the Institutional Head. The cell phone will have to be signed in and out daily with the number given to the Visitor Security Officer.

16. REMINDERS

- If you have any questions or concerns contact the Correctional Supervisor at 975-5402
- **BE PATIENT --** Expect that it takes some time to be processed. Our key objective is first and foremost for the **SECURITY** of the Institution and everyone in it.
- **Watch your wallets/currency/keys and /or ID** There are lockers available at the Principal Entrance if you would like to lock your wallets, keys or ID for the day.
- Ensure that all Federal and Provincial safety precautions are followed. Appropriate dress and protective clothing. Ensure use of all Personal Protective Equipment.
- **Maintenance Contact Numbers.** If no one is available to take your call, please leave a message.
 - Maintenance Supervisor - 975- 5633**
 - Building Maintenance - 975- 5383**
 - Grounds Maintenance - 975- 4856**
 - Environmental - 975- 4856**
 - Mechanic - 975-5525**
 - Department fax - 975-6493**

I, _____, have read the Regional Psychiatric Centre "**Contractor's Security Briefing Form**" and understand the requirements made out to myself and my employees and / or contractors.

(Signature of Contractor)

(Date)

Names and signatures of employees who have been informed and read this document.

Summary Conviction Offences:

45. Every person commits a summary conviction offence who:

- (a) is in possession of contraband beyond the visitor control point in a penitentiary;
- (b) Is in possession of anything referred to in paragraph (b) or (c) of the definition "contraband" in section 2 before the visitor control point at a penitentiary;
- (c) Delivers contraband to, or receives contraband from, an inmate;
- (d) Without prior authorization, delivers jewellery to, or receives jewellery from, an inmate; or
- (e) Trespasses at a penitentiary.

Annex B

"Contraband" is stated as:

- (a) an intoxicant,
- (b) a weapon or a component thereof,

ammunition for a weapon, and anything that is designed to kill, injure, or disable a person or that is altered so as to be capable of killing, injuring, or disabling a person, when possessed without prior authorization.

- (c) an explosive or a bomb or a component thereof,
- (d) currency over any applicable prescribed limit, when possessed without prior authorization, and
- (e) any item not described in paragraphs (a) to (d) that could jeopardise the security of a penitentiary or the safety of persons, when that item is possessed without prior authorization.

Bow Unit Maintenance Access Stair
Regional Psychiatric Centre, Saskatoon, SK
Project No. R.100537.001

APPENDIX 2

FOR ALL CONTRACTORS WHO PERFORM WORK IN AN INSTITUTIONAL ENVIRONMENT



INFORMATION GUIDE FOR CONTRACTORS

MODULE 3

**For All Contractors Who Perform Work
in an Institutional Environment**

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2.0 TARGET CLIENTELE OF THIS MODULE

This module was designed for all contractors and/or their employees and/or subcontractors who perform work in an **institutional environment**.

3.0 MODULE METHODOLOGY

The information in this module was gathered together from a variety of sources to give you – the contractor – some vital information that will help you arrive at your contractual work location better prepared to work in a CSC institution, facility or government office. These sources include information taken from various orientation training packages designed for CSC staff and volunteers. Sources also include interviews with former CSC contractors who, based on their own personal experiences, had specific ideas about what information would be helpful for new contractors to have in advance before starting contractual work for CSC. This module's content was then verified by various subject matter experts to ensure that the module included information that was relevant to the work of a contractor new to CSC.

4.0 MODULE OBJECTIVES

By the end of this module, you will be familiar with:

- ◆ A definition of institutional environments, including institutional routines and structures;
- ◆ The offender profile;
- ◆ Types of offender contact;
- ◆ Security issues and strategies in an institution;
- ◆ The offender code and prison sub-culture;
- ◆ Developing professional relationships with offenders and avoiding being manipulated;
- ◆ Health risks associated with offenders; and
- ◆ Emergency, crisis and conflict management within an institutional environment.

5.0 INSTITUTIONAL ENVIRONMENT

An institutional environment refers to any federal institution, penitentiary that houses offenders who are currently serving a sentence of 2 years or more. Federal institutions include all levels of security, from a Special Handling Unit (SHU), to multi-level, maximum, medium and minimum security facilities.

Each facility has its own unique set of routines and policies – however, all must operate within the policies and procedures that govern the Correctional Service of Canada.¹

¹ For a detailed break-down of CSC's institutional structures, please refer back to Module 1, section 6.6 "CSC's Physical Environment."

5.1 Institutional Structure

An institution can be compared to a mini-community as it contains living quarters for offenders (cells or rooms), a kitchen, a hospital, work locations, a store (canteen), one or more churches, one or more family units (for Private Family Visits), a large yard, a gym, and a library. Some institutions have “micro”-communities within an institution where offenders have their own living quarters and share a kitchen, living room and bathroom with 8 to 10 other offenders. In those settings, offenders are required to cooperatively work with the other offenders on the unit for meal preparation and cleanliness of the living area.

Some institutions are located within other institutions and will share services. For example, the Regional Treatment Center in the Ontario Region is within the structure of Kingston Penitentiary (KP). The Regional Treatment Center is a stand alone institution but shares services with KP for meal preparation, clothing issues, some hospital or medical issues, and at set times, allows access to its large yard when not in use by KP offenders.

Each institution has a perimeter structure. Maximum and medium security institutions have either walls or double fences surrounding the perimeter, along with razor wire, motion detector systems and cameras to deter escapes. These facilities are usually secured by manned towers and monitored by vehicle patrols, as well as a Main Communications and Control Post (MCCP) from which motion detector systems, cameras and radios are operated.

Minimum security facilities are structured to resemble a more conventional community setting, allowing offenders more freedom to come and go from the grounds with permission.

5.2 Institutional Routine

Each institution has a routine that governs an offender’s day. There are two basic day routines - one for the weekday and one for the weekend. The evening routines for both weekday and weekend, including holidays, remain the same.

The following is a general example of what you can expect regarding an institution’s routine. Keep in mind, however, that times and routine structures will vary from institution to institution and across institutional security levels. Offenders are expected to adhere to the established routine of their institution as well as any routine changes that may occur.

5.2.1 Daytime Routine (Monday to Friday)

The following is a general example of the normal daytime routine between Mondays and Fridays:

Time	Activity
06:00	Early kitchen workers proceed to the kitchen
07:00	Cells are unlocked and breakfast is announced
07:10	Diabetics are allowed access to the Health Care Department
07:40	Offenders who need medicine are allowed to go to health care to

	pick up their medication.
08:00	“Work-up” is announced – offenders go to their school or work programs; offenders who are not working, excused from duty or are unemployed will be locked in their cells
08:00	All cell doors are locked, except those permitted to remain open
10:30	Cells are unlocked
11:20	Offenders return from their work location
12:00	Offenders are counted
12:15	Once the count has been verified, lunch is announced
13:00	Work-up is announced - offenders not working, excused from duty or are unemployed will be locked in their cell
15:30	Cells are unlocked
16:00	Offenders are counted
16:15	Once the count has been verified, dinner is announced

5.2.2 Evening Routine (Monday to Friday)

During the evening routine, offenders have the option of remaining in their cells or proceeding to the yard or gymnasium, library, evening programs or other permitted activities by way of *change-overs / movement*.

A change-over / movement is the process where the cells are unlocked at various intervals permitting offenders to move from the recreational areas back to their cells and vice-versa. Once lock-up has been called, the offender must remain at that location until the next change-over / movement.

At 22:00 hours, the yard is cleared and at 22:30 hours, the gymnasium and any recreational, program or offender office location(s) is cleared. At 23:00 hours, the final count of the day is called and all offenders are secured in their cells for the night.

5.2.3 Weekend and Holiday Routine

The following is a general example of a typical weekend or holiday institutional routine:

Time	Activity
07:00	Cells are unlocked and breakfast is announced
08:00	Recreational activities begin - offenders are permitted to move from their cells to the recreational activities, either to the yard or to the gym; offender movement is governed by change-overs / movements
12:00	Offenders are counted
12:15	Lunch is announced once the noon count has been certified correct
13:00	Recreational activities and movement to recreational areas begin, governed by change-overs / movements
16:00	Offenders are counted

16:15	Dinner is announced once the count has been certified correct
-------	---

Note that the movement of offenders is strictly controlled in a Special Handling Unit (SHU) – however, movement of offenders becomes less controlled the lower the security level of the institution or community center.

5.3 Institutional Counts

There are 3 types of counts: **formal**, **informal** and **CCC** counts.

A **formal count** is a process where an offender is assessed as alive and well. During a formal count, an offender is usually counted in his/her cell – this applies to maximum, medium and multi-level security institutions. At minimum institutions and with institutions with bedrooms instead of cells, the offenders do not have to be in their cells, but must be visible and remain in place during the count.

There are 4 formal counts per day as well as one “stand-to” count. A *stand-to* count is a count where the offender must be in his/her cell, in a standing position, facing the officer for facial identification and to ensure that the offender is alive and breathing.

Most institutions will have formal counts at 00:00, 05:00, 12:00, 16:00 and 23:00. Stand-to counts are either at 12:00 or 16:00. These hours may vary depending on the internal routine of the institution.

An **informal count** is a process where offenders are counted individually without interference in their activities. Informal counts are usually done during walks *i.e.* an officer or staff member enters a range or work location and checks to see that the area is in good order as well as counts the number of offenders in that area. During an informal count, offenders could be doing a range of activities such as sleeping, working, exercising, *etc.*

A **CCC** count is a process used in a Community Correction Center where a sign-in sheet is used to count the offenders. Unlike formal counts, a CCC count does not require that all residents be counted at the same time. As long as the offenders’ whereabouts are known *i.e.* at work, in the community or in the center, the count can be completed.

5.4 OFFENDER Dress

During work hours, offenders are required to wear regulation dress. The following is a list of standard issue institutional clothing that the offender may wear at any given time during the work day (the items available may vary at each institution):

- institutional blue jeans;
- belt (institutional head to decide if offenders are to be issued belts);
- institutional golf shirts (red, blue);
- white t-shirt or white undershirt (sometimes worn under golf shirt);

- institutional parka or jacket (depending on the weather);
- institutional green coveralls (to be left in work area);
- institutional white clothing (kitchen/hospital workers);
- leisure shoes, or running shoes; and
- work boots (must be authorized and must remain in the work location)

During leisure hours, offenders are permitted to wear their own personal clothing. Note that women offenders are permitted to wear approved personal clothing within the institution in lieu of institutionally issued clothing during both work and leisure hours.

5.5 Offender Profiles

The offender population is comprised of offenders serving their first federal sentence, long time offenders and “recidivist” offenders *i.e.* offenders who have been in the federal correctional environment more than once as a result of more than one sentence.

In federal institutions, offenders could be serving sentences from two years plus one day to life sentences. Offender offences range from minor offences, break and enter, assault, possession of drugs, to more serious offences such as manslaughter or murder.

The following information is provided to give you an idea of this unique community setting. However, this population is ever changing. CSC is now faced with both an aging offender population and an influx of younger offenders who are continually challenging authority, whether it be the correctional system or the traditional offender hierarchy. Some of these offenders also arrive in the institution with substance abuse problems, physical problems and/or mental health issues.²

5.6 Case Management

Case Management is defined as a process of reintegration of the offender into society as a law-abiding member of the community. Every offender has a Case Management Team or CMT that consists of the offender, a Correctional Officer / Primary Worker and a Parole Officer. Each member of the team has a specific role to play in assisting the offender to become a law-abiding citizen and to reduce the risk that the offender may pose to the public.

The task of the CMT is to gather information about the offender, identify the factors that contributed to the offender’s crime cycle, analyze that information in order to assist the offender to minimize the risk that he/she poses and to assist the offender in safely reintegrating back into society.

This is an ongoing process that starts on the first day the offender is placed in federal custody and continues, with the exception of offenders serving indeterminate or life sentences, until the offender has reached the expiration of their sentence or long-term

² For more information on offender profiles, please refer to Module 1, section 6.7

supervision order. In the case of life or indeterminate sentences, the case management process continues until either the offender's risk has been minimized or the offender dies.

5.6.1 Case Management Components

There are three components to the case management process:

- (1) **Reintegration planning;**
- (2) **Intervention;** and
- (3) **Decision-making.**

5.6.1.1 Reintegration planning

The reintegration process begins on the first day of the offender's sentence. This process involves the development of a strategy or Correctional Plan for the supervision of the offender throughout his/her entire sentence. The key activities involved in this component include gathering and analyzing information about the offender and assessing the offender's level of risk. This determines the appropriate security classification of the offender and his/her assignment to specific programs that will target factors that contribute to criminal behaviour.

5.6.1.2 Intervention

Intervention is defined as any activity that may impact the contributing factors and so reduce the offender's risk or increase his/her level of reintegration potential. Interventions used in the offender's case must address the contributing factors defined in the offender's Correctional Plan. Some intervention strategies include change of thinking or cognitive processes *i.e.* increased social skills, change in values, and change in acting out behaviours.

There are several intervention vehicles including structured programs/core programs, psychological counselling, support groups, employment, and education or vocational training.

When assessing an offender, CSC examines certain factors that have been statistically proven to measure both an offender's risk to re-offend, either violently or non-violently, and his/her risk of escaping. CSC uses the three following risk assessment tools in this kind of analysis: (1) **Static risk factors**, (2) **Dynamic risk factors** and (3) **Contributing risk factors**.

- **Static risk factors** are those factors relating to the offenders past. Past behaviour is important to examine as it has been proven that past behaviour is the best predictor of future behaviour. Static risk factors include the offender's previous history of violence, instability in employment and relationships, physical or psychological indicators such as drug or alcohol abuse or personality disorders, and the offender's current offence.

- **Dynamic risk factors** refer to the offender's values and beliefs. Offender behaviours that are considered socially acceptable will lower the offender's dynamic risk, whereas negative offender behaviour that is socially unacceptable and/or criminal will raise the offender's risk. Examples of dynamic risk factors are the offender's marital status, attitude, employment, and peer association (social vs. anti-social peers).
- **Contributing risk factors** are those factors that drive or influence the offender's criminal behaviour. For example, an offender may have a drinking and drug problem, but the offender may only be more prone to committing crimes when on drugs. In this case, drugs would be a contributing risk factor for the offender, whereas alcohol would not. CSC staff is specifically concerned with identifying these needs.

During the intervention phase, there are several key dynamics that contribute to the lowering of an offender's risk to the public and to his/her reintegration back into the community. These dynamics include positive influences from a spouse and/or family member, community contact and/or support, support from spiritual or ethnic leaders, support groups both within the institution and within the community, volunteers, and various CSC staff. Such staff could include a psychologist, psychiatrist, nurse, physician, librarian, program delivery officer, shop instructor or work supervisor, and/or various members of the CSC team who have a positive rapport with the offender.

5.6.1.3 Correctional Programs

Correctional programs play a significant role in the rehabilitation of an offender. There are a number of offender reintegration programs offered at CSC designed to address the various criminogenic needs found in the offender population. It is important to note that CSC is recognized around the world for the quality of its programs and their contribution to the safe reintegration of offenders.

Correctional programs are divided into 5 categories:

- correctional programs;
- mental health programs;
- educational programs;
- employability programs; and
- social programs.

The following is a brief definition of each category:

Correctional Programs

The primary goal of Correctional Programs is to help offenders safely and successfully reintegrate into the community. These programs involve interventions that focus on the many factors that directly contribute to criminal behaviour and include clearly defined objectives, participant selection criteria, a process for evaluating participant progress, and a process for evaluating the effectiveness of the program. Correctional programs are delivered by either program officers or psychologists, who are both trained and qualified.

Mental Health Programs

Mental health programs can be defined as therapeutic interventions that address criminal behaviours and provide for essential needs of good mental health.

Educational Programs

Educational programs help prepare offenders for participation in Correctional Programs and employability programs by increasing their level of education, comprehension and critical thinking to optimize the impact of the interventions. They are offered by certified and trained teachers who have met the requirements of the applicable provincial ministries of education.

Employability Programs

Employability programs are interventions aimed at enhancing the job readiness of offenders. Job-readiness training, the professional training programs and assignments to institutional employment are considered tools that help to bridge the considerable gaps that have been identified in the area of offender employment. Employability programs play a key role in CSC's efforts to actively encourage offenders to become law-abiding citizens.

Social Programs

Social programs are interventions that focus on the safe reintegration of offenders. These programs help offenders define pro-social lifestyles so they will be better able to choose to engage in activities that will allow them to become productive members of society and law-abiding citizens. Social programs also encourage and reinforce the transfer of skills learned in Correctional Programs.

5.6.1.4 Decision making

Decision making regarding the various forms of offender release refers to the process of preparing and presenting the offender's case to the decision maker. The decision maker is either the National Parole Board (NPB) (for parole or statutory release decisions) or the Warden/Director of the institution (for short term absences). Decisions are based on an assessment of the success of intervention strategies in lowering the offender's level of risk to the point where release to the community or transfer to a lower security is the appropriate and

least restrictive measure of control consistent with the protection of the public, CSC staff and the offender him/herself.

6.0 DEFINITIONS OF OFFENDER CONTACT

During your contract term, depending on the type of institution that you are working in, you will come into contact with offenders either through **peripheral**, **casual** or even **regular** and direct contact.

Peripheral contact means that while the offender is within sight but that there is no physical interaction or verbal contact between you and the offender. For example, you may be contracted to do clerical work in the administration building, and an offender is within sight of you; however, the distance between you and he/she makes conversation unlikely.

Casual contact means that you may come into occasional contact with an offender, where verbal interaction with and/or physical proximity to an offender may occur. For example, you may be working in the administrative building and the cleanliness of the area is being maintained by an offender. He/She may come into your work location and remove the garbage, sweep the floors, etc.

Regular contact means that you have direct and/or regular contact with an offender. For example, you might be a teacher providing instruction and guidance to an offender pursuing his scholastic education or you may be contracted to facilitate a program to offenders.

It is important that you understand the security challenges that are an inevitable part of your environment when you work in an institution regardless of your level of contact with offenders.

7.0 SECURITY ISSUES

There are certain steadfast rules that must be observed in order to keep your interaction with an offender within professional boundaries and to assist you in guarding your safety, the safety of CSC staff and the public.

7.1 Dynamic Security

Contractors working in an institution work in a secure environment where a key focus is dynamic security. Dynamic security can be defined as:

- **Any activity that contributes to the safe and secure correctional environment by encouraging constructive relationships and by increasing awareness of factors that contribute to or detract from a safe and secure environment.**

Specifically, it also means being alert to safety issues by actively observing, listening to and interacting with offenders. Paying attention, often gives staff the opportunity to act in a timely manner to maintain everyone’s safety and well-being.

As a contractor, your contribution to dynamic security adds to the overall safety of the institution. When you pay attention to your environment, you may see or hear things that you do not expect and leave you unsure of what to do. Always consult CSC staff in this situation.

7.2 Security Strategies

Because you will interact peripherally, casually or directly with offenders in an institution, there are some important security strategies that you must employ in order to prevent you from placing yourself in a compromising or dangerous position. The following chart outlines some specific strategies you can use to contribute to dynamic security:³

GENERAL AREAS	SPECIFIC TIPS
Attitude	<ul style="list-style-type: none"> ◆ No matter what your position, part of your contractual work obligations involves contributing to a safe and secure environment. A safe secure environment allows you to perform your other functions. ◆ Security is NOT someone else’s job. It is YOUR job. ◆ Practice professional behaviour.
Observe and report	<ul style="list-style-type: none"> ◆ Report and/or document anything you may feel is “unusual.” ◆ Constantly be aware of your environment. ◆ Get to know your offender’s usual behaviour; report unusual behaviours (they might not be significant to you but may be very important to other staff).
Be aware of your environment	<ul style="list-style-type: none"> ◆ As you move throughout your work environment, use your senses to gather information.
Dress	<ul style="list-style-type: none"> ◆ Offenders will gain information about you by the way you dress (professional; don’t care attitude; advertising your sexuality, etc.). ◆ Wear footwear that is comfortable and lets you move quickly.

³ Note that this list contains only a few points of consideration and is by no means exhaustive. Your judgement when dealing with offenders in an institution is vital to ensure the safety and security of yourself, the environment you work in, the staff around you and the public. Address any questions or concerns to your CSC representative, project authority, or senior CSC staff.

<p>Teamwork</p>	<ul style="list-style-type: none"> ◆ Communicate with each other - pass important information on to others verbally and in writing. ◆ If you locate an emergency, get help. ◆ If a fight breaks out between offenders, get help. ◆ If you work in an isolated area, use a buddy system to enhance your personal safety. ◆ If required by your contractual work duties, always wear your personal panic alarm (PPA).
<p>Car safety</p>	<ul style="list-style-type: none"> ◆ Park your vehicle in the parking lot and lock all doors. ◆ Check the inside of your car before entering to ensure that no one is hiding inside the car. ◆ Once safely inside, lock the car doors to ensure that no one can open up a door and enter before you have a chance to leave. ◆ Do not leave any valuables or personal information in plain sight within the vehicle.
<p>Personal conduct</p>	<ul style="list-style-type: none"> ◆ Your conduct should reflect a professional attitude. ◆ Do your job properly. Offenders know who does their job properly and those who do not. They target those who do not for manipulation. ◆ Do not run unless necessary; this behaviour tells staff that something is wrong. ◆ Tell staff if you have prescription drugs (which are necessary for your own well-being) with you while working with an offender.
<p>Key control</p>	<ul style="list-style-type: none"> ◆ Practice good key control - make it a habit ◆ Keep your keys on your person or lock them in a wall safe. ◆ Never leave your keys in a door. ◆ Never give your keys to an offender. ◆ Don't "give" your keys to another staff member by throwing them down a hallway like a bowling ball. ◆ If you have multiple keys, know which key opens which door (you may need to open a door or close a door quickly during an emergency). ◆ If you lose your keys, report it immediately. If your keys are lost, security is compromised.
<p>Tool control</p>	<ul style="list-style-type: none"> ◆ Use shadow boards for easy identification of missing tools. ◆ Never give or loan tools to offenders that they are not authorized to possess. ◆ Immediately report missing tools.

<p>Communication with staff</p>	<ul style="list-style-type: none"> ◆ Wear your PPA (Personal Panic Alarm) at all times if required by your contractual work obligations. ◆ Test your PPA daily at the start of your shift. ◆ Know if your PPA is a static or tracking model. ◆ Know how to use your PPA and/or radio. ◆ Part of good teamwork is good communications. ◆ By knowing what other departments do, you are able to pass on information that may be useful to them in performing their roles. ◆ Be aware of offenders who may be within earshot when discussing personal information or information about another offender. ◆ Post emergency numbers (i.e. security office, supervisor’s office, etc.) in an easily observed location near your phone.
<p>Communication and relationships with offenders</p>	<ul style="list-style-type: none"> ◆ Be professional. ◆ Relationships with offenders must be professional. It is okay to be friendly during your interactions with offenders. IT IS NOT OK to be friends with an offender. There is a difference. ◆ Never enter into a personal relationship with an offender, either platonic or otherwise. ◆ Do not share personal information with an offender. You do not want to put yourself in a position where the offender knows where you live, where your children go to school, etc. Possession of this information may provide an offender the opportunity to put you in a compromising position. ◆ Be firm but fair. ◆ Be consistent (don’t play favourites). ◆ There is no need to be confrontational (when you are, the offender will likely try to save face by being confrontational in return). ◆ Acquire skills to defuse situations. ◆ Don’t discuss an offender’s situation or problems with other offenders. ◆ Be aware that some offenders can read quite well upside down (i.e., while they are talking to you, they are reading the paperwork on your desk). ◆ Be aware of and alert for manipulative behaviours. ◆ Avoid bringing anything in or taking anything out for an offender (“nothing in, nothing out”) no matter how insignificant it appears to be, unless authorized in writing by appropriate CSC staff.

	<ul style="list-style-type: none"> ◆ If an offender tries to influence or threaten you to bring drugs or anything else into your contracted work environment, either the offender is testing you or you have already placed yourself in a compromising position. Report this immediately to staff.
<p>Computer security</p>	<ul style="list-style-type: none"> ◆ Never give your password(s) to other staff or offenders. ◆ Don't write your passwords down or post them on your bulletin board. ◆ Be aware of offender presence or ability to observe you while you log on to your computer. ◆ Never leave your office unattended when you have logged on to the system. ◆ If you leave your office, log off. ◆ Never let an offender use your computer. No exceptions. ◆ Lock up your computer disks and/or USB keys. ◆ If you think someone has tampered with your computer equipment, report it to security and IT department immediately. ◆ Be aware of your office and computer set up. Ensure offenders cannot see (and read) your screen as you work.
<p>Electronics</p>	<ul style="list-style-type: none"> ◆ Leave all pieces of electronic equipment (cell phone, Palm Pilots, blackberry, etc.) and photographs in the locker with your other personal effects. If possible, leave them at home.
<p>Static control devices</p>	<ul style="list-style-type: none"> ◆ Doors serve to control or restrict movement. Never leave your office unattended if offenders are permitted to be in the area. ◆ A locked door is a secure door. ◆ If you think your door or lock has been tampered with, report it. ◆ Understand the purpose of barriers and the rationale for only opening one barrier at a time (be patient).
<p>Personal possessions and information</p>	<ul style="list-style-type: none"> ◆ Do not bring large quantities of cash or valuables into an institution or to your community contractual work environment. ◆ Do not leave your purse or wallet where offenders may have access. Lock them up or don't bring them. ◆ Decide what personal information you are and are not willing to divulge to an offender. At some point, you

	<p>need to draw a line.</p> <ul style="list-style-type: none"> ◆ Be aware that offenders can gain a great deal of information about you by the pictures/photographs you have in your office, your children's art on the wall, <i>etc.</i> Decide if this is acceptable to you and realize the possible consequences of their knowing.
Other tips	<ul style="list-style-type: none"> ◆ Immediately report inappropriate offender conduct (touching you, threatening you, sexual advances, love letters, <i>etc.</i>). ◆ Information is sensitive. Information is categorized as Protected A, B or C. Observe the precautions for handling, storing and transporting these various classes of information (see module 1 for refresher on this information). ◆ Be aware of and adhere to CSC policies, routines and procedures. ◆ Do not do “favours” for offenders. Do your job, but not favours.
Seek advice or help	<ul style="list-style-type: none"> ◆ When you don't know or are unsure of a routine or procedure, <u>ASK</u> a CSC staff member for help. ◆ Never be afraid to ask a staff member questions or to report any unusual conversations or situations with them. In these situations, an offender may be trying to convey to you some important information, or may be attempting to place you in a compromising position.

By following these security strategies listed above, you will go a long way towards ensuring your own personal protection while working with offenders.

7.3 Unauthorized Items/Contraband

Offenders have limited access to goods in an institution and will go to great lengths to try and obtain them. These goods are very desirable commodities in an institution and can be used as currency in the institution's “black market.”

One way that offenders try to get items that they want but are not supposed to have is by asking you to provide them. It is important that you understand the classification of these items as well as the negative consequences for you if you give in to an offender's demands.

There are two categories of items that offenders may ask you to bring in for them. They are referred to as ***contraband*** and ***unauthorized item***:

- **Contraband** includes an intoxicant (such as alcohol), weapons and/or ammunition, an explosive device and/or any of its components, currency, and drugs of any sort. Any item not listed here that could jeopardize the security of the correctional environment or the safety of any person, can also be considered contraband.
- **Unauthorized items** refer to any other item that an offender is either not authorized to have or may be authorized to have but is acquiring or attempting to acquire the item from sources other than approved channels. Unauthorized items include mundane things such as cigarettes and other tobacco products, stamps and writing paper, books and magazines, clothing, jewellery, or junk food. The list of items an offender may ask for is endless. These are just a few examples.

Anyone who is providing or attempting to provide an offender with contraband could receive a criminal record, a prison term, be fined, or receive all three. Anytime an item that you provided or are attempting to provide to an offender is classified as contraband or an unauthorized item, it will be taken very seriously and may result in serious consequences.

Note that it is not up to you to decide what is appropriate or not appropriate to provide to the offender. Remember that offenders in institutions have limited resources for a reason and are supposed to obtain items through appropriate means. Asking you to provide something for an offender is not appropriate under any circumstances. **Report any such requests made to you by offenders.**

8.0 OFFENDER CODE AND PRISION SUB-CULTURE

Offenders in any institution are part of a prison sub-culture and follow an offender code of conduct. The features and dynamics of this sub-culture can be very foreign to most people who have never worked within a correctional setting.

In order to protect yourself as a contracted worker, you need to be aware of the offender code and the prison culture in order to be aware of potential situations that could affect your safety and security and of those around you.

8.1 Prison Sub-Culture

The prison sub-culture is an unwritten code of conduct that is used by offenders within an institutional setting, much like social norms that informally govern people in the community. The difference with the prison sub-culture is that many of the values and beliefs upon which it is based are actually imported from the “street.” Offenders come to prison with their criminally oriented attitudes, values, associations, social structure, jargon, rules, sanctions, *etc.* and are usually still influenced – at least partly - by this sub-culture when released into the community.

The visible expression of prison culture varies from day to day, depending on what is happening that day and the internal and external pressures that might exist at any given time. This unwritten code is more apparent in a maximum-security setting, and becomes less

noticeable as you progress down to a minimum-security institution or to a non-institutional environment. An offender may not be consciously aware of the code but will adhere to it intuitively.

The prison code includes the following principles in which an offender:

- minds his/her own business and does not interfere with what other offenders are doing;
- never reports another offender's business to authorities for any reason;
- is tough and takes anything that happens to him during his sentence;
- never gets upset when interacting with other offenders;
- treats CSC staff with suspicion, contempt or mere tolerance;
- always pays his/her debts (*i.e.* when an offender owes another offender money, drugs, or services).
- does not steal from other offenders;
- does not go into another offender's cell without permission;
- does not break his word to other offenders;
- never asks someone what they are serving time for;
- does not get staff to solve his/her problems; and
- does not associate with outcasts.

Breaking any of these rules could have dire consequences. For example, the offender could:

- find himself/herself at the bottom of the hierarchy;
- be placed in segregation for his/her own protection; or
- find his or her life in danger which could result in injuries, assaults and even death.

The code also cautions offenders to be wary of those with whom they associate. For example, offenders learn in the prison sub-culture to:

- ♦ not divulge personal information to anyone;
- ♦ stay away from someone that cannot be trusted; and
- ♦ if someone is found that can be trusted, to stick with them.

Due to the new influx of young offenders, however, the old code of conduct is not as strictly enforced – consequently, many of the rules of the offender code today tend to be paid mainly “lip service.” In today's prison environment, therefore, the code of today does not have to be followed as much as it must *appear* to be followed. For example, an offender may be hostile or quarrelsome with CSC staff in front of other offenders, but may be pleasant with staff while on an outside escort. An offender is always concerned with his or her “joint image” and “saving face” when around peers.

Offenders will, however, violate the code *if* it is in their best interests. For example, an offender who is caught with narcotics may volunteer information on the drug trade and institutional drug dealers in order to avoid punishment or obtain some type of preferential

treatment. In this case, an offender violated the code (“don't rat on another offender”) because it was in his/her best interest.

In contrast, other offenders follow the code without fail. It is easy to identify this group of offenders because they resist attempts by staff to establish any type of positive rapport and as a result may be antagonistic and disruptive.

8.2 Offender Hierarchy⁴

Within each institution, there is a unique offender hierarchy. This hierarchy exists in spite of CSC's efforts and strategies aimed at eliminating its negative criminal influences. Every offender fits somewhere within the social structure. This structure is a system of social organization and control that establishes behavioural expectations for the offender population. The hierarchy also sanctions punishments for those who violate the accepted norms and rules of behaviour. The hierarchy helps define a person's identity (voluntary or not) within the offender population.

For the most part, the sub-culture that develops inside a prison is actually imported from the "street." Offenders come to prison with their criminally oriented attitudes, values, associations, social structure, jargon, rules and sanctions. The prison sub-culture or social system is actually a logical extension of offenders' lives in the community. Once inside, criminally oriented offenders attempt to establish and perpetuate an infrastructure that supports their needs, values and attitudes.

The social structure and hierarchy that is developed, accepted and reinforced is the one that best meets the needs, interests and values of the membership, particularly those members who hold power and influence.

The offender hierarchy consists of the following, by order of importance:

- Leader(s);
- Advisors and Enforcers;
- Followers and offender middle-class;
- Unaligned offenders;
- Disgraced/unaccepted/outsideers; and
- Outcasts.

The following is a description of the roles of each of these types of people in the offender hierarchy:

⁴ The reader is cautioned to keep in mind that the following explanation of the offender hierarchy is simply a tool to help illustrate a very complex social phenomenon. It is by no means an absolute analysis of the issue.

8.2.1 Leaders

At the top of the hierarchy are usually one (1) and sometimes two (2) or more offenders who are the strongest in terms of influence or power. These leaders are usually offenders who are key players in the overall control of the offender population and economy. On occasion, a combination of the most dominant leaders may result in an alliance of power. These powerful people are seldom a problem for staff because they have their followers who take all the risks associated with any criminal activities. The leaders present the appearance of compliance with institutional regulations and tend to avoid unnecessary confrontations with staff.

8.2.2 Advisors & Enforcers

Beneath the leaders are the support groups for the leader(s). They are comprised of advisors and enforcers. The advisors help maintain and organize criminal activities between those in prison and those "on the street." They may simply be skilled manipulators who can organize and control followers. The enforcers, for the most part, are those offenders who use intimidation and violence to achieve the goals of the leader.

8.2.3 Followers/Middle Class

The followers and the middle class tend to make up the bulk of the offender population. They usually comply with the basic rules of the institution and will go along with participating in correctional programming to varying degrees in order to take advantage of conditional release opportunities. To avoid formal disciplinary sanctions, members of this group will usually behave so as not to deliberately attract attention to themselves.

Offenders from this group are usually the consumers who are the driving force for the underground economy. Some of its members may also sometimes play minor roles in the activities of the leaders (*i.e.* running drugs, watching others, holding or hiding weapons for enforcers, watching out for CSC staff).

8.2.4 Unaligned Offenders

Various types of offenders find themselves in this hierarchical position. This group includes new offenders who may not be aware of the social structure and rules. Consequently, they are often a target of exploitation, particularly by offenders who are higher in the social structure.

Young, tough and violent offenders looking for a group with whom to associate usually fall into this category. They are less vulnerable to exploitation or victimization because of their behaviour. Another component of this group is comprised of the loners who may pay to be left alone, as well as the older offenders who have "matured out" but

still have sufficient power, reputation or status to permit them to remain on the sidelines.

8.2.5 Outsiders

Offenders who fall into this category include those who have broken the "code" or unwritten rules of the prison sub-culture or those who have served as informants for staff. Additionally, offenders who are perceived as associating too closely with staff and those offenders who are mentally challenged or have special needs often fall into this position in the hierarchy.

In general, this group consists of unaccepted, disgraced and/or different offenders. They are ostracized by the general offender population and have no power or meaningful status. Consequently, they are the most victimized and exploited group of offenders.

8.2.6 Outcasts

At the very bottom of the hierarchy are the *outcasts*. This group is rarely or only temporarily encountered in open population and can usually be found in protective custody for their own protection. This group usually consists of offenders serving time for unacceptable crimes *i.e.* infanticide or infant murder, sexual assault of children/child molestation, repeat violators of the offender code, and former law enforcement officers. An offender who wishes to enhance their status or position within the hierarchy may be able to do so by injuring or killing one of these outcast members.

8.3 Hierarchy Dynamics

Many factors affect a person's relative position in the hierarchy. Rank is not permanent. All offenders can gain or lose status based on their behaviour while in the institution. Certain actions, behaviours or factors are perceived by the rest of the population, especially the leaders, as being *status enhancing* or *status reducing*.

8.3.1 Status Enhancing Actions, Behaviours or Factors

There are several factors that can enhance an offender's status in an institution. These are:

- **Gang or underworld affiliation on the street:** Imported power and status because of prior reputation, position within organized crime in the community, and/or valuable connections for obtaining drugs or weapons.
- **Incarcerated for a sensational crime:** Imported reputation and potential status. An offender who has committed a violent offence comes to the institution with the reputation of someone who is not afraid to use violence.

Murder of a police officer carries a special status. Offenders serving a life sentence are usually afforded a higher status within the institution because of the nature of their crime.

- **Ability to supply items demanded by the prison population:** Most offenders want to make prison as easy and enjoyable as possible. Often, the general population demands goods and services that are normally denied by institutional rules. Offenders who have the connections to supply goods and services that are difficult to acquire enjoy significant power, influence and position within the institutional hierarchy.
- **The ability to have narcotics brought into the institution:** Those participating in the drug trade can acquire a great deal of power. Offenders who can supply this product earn a high position on the social ladder. Drug dealing is extremely profitable allowing drug dealers to buy position and status.
- **Having served time in prison before:** Offenders who have served prior terms of incarceration and have proven themselves as "solid cons" will be able to move into higher positions within the hierarchy more rapidly than someone coming into the institution for the first time.
- **Having the willingness and physical size and/or skill to use extreme violence:** Status and power are afforded to those offenders who have demonstrated their ability and willingness to use violence. The power of a leader, enforcer, or gang comes from the fear that can be instilled in the rest of the population. Offenders who are not afraid to use force quickly establish a reputation and gain status in the eyes of most of the population. Furthermore, the ability and willingness to use violence is a marketable commodity that is a useful service to a number of powerful individuals within the institution.
- **Possessing ethnic, cultural or spiritual status in the community:** If an institution has a high percentage of the offender population of a particular ethnic, cultural or spiritual background, an offender who has significant power or status within that ethnic, cultural or spiritual group in the community may gain higher status within the institution (*i.e.* Jamaican, Islamic or Aboriginal leader).
- **Possession of status symbol items:** Goods and services within the institution take on a symbolic value far in excess of the true value of the item. The more difficult the item is to acquire, the higher the item is in terms of status value. Possession of status symbols can set the offender apart from the rest of the offender population. Furthermore, an offender who possesses such a status symbol also has significant purchasing power.
- **Committing an important action or service within the institution:** Performing or participating in some action that is often difficult, dangerous or illegal is a proven method of improving one's status within the prison

population. Having the willingness to take risks and do someone else's dirty work is a way of proving oneself.

8.3.2 Status Reducing Actions, Behaviours or Factors

As with factors that improve an offender's status within an institution, there are also factors that can reduce an offender's status. These are:

- **Being in prison for the first time:** New offenders are not always aware of the prison social structure and rules. They are not trusted by the experienced offenders and are usually kept at arms length while the offender population checks them out and while they prove themselves to be a "solid con." They may make mistakes that make them unworthy of respect.
- **Being physically non-threatening due to age, mental capacity, personality or size:** All of these traits are associated with a person who is perceived as weak and vulnerable. Within the prison environment, this type of person automatically becomes a potential victim or target. Stronger, more aggressive offenders will take advantage of this type of offender. When this happens, other offenders watch to see whether the victim will attempt to defend themselves or their property. If they do not, they lose further reputation and social standing. Without the protection of another influential offender, this type of person is a constant target.
- **Serving time for an offence which the offender population considers repugnant (i.e. sexual assault of a child/child molestation, the murder of an infant):** This type of offender is relegated to the lowest strata of the prison hierarchy. To gain status or acceptance, this type of offender must associate himself/herself with another offender who already has status, power and influence. If this type of offender can provide a service or commodity to a leader or gang, they can gain a measure of acceptance and protection. While the prison population may not agree with the leader's or gang members' "hands off" policy, few will actively oppose it.
- **Not possessing the connections or resources to pay for goods or change one's status:** One of the rules of the offender code is to "pay your debts." Offenders who persistently are unable to pay for goods or services that they have used lose respect and status. This type of offender soon becomes ostracized and may have no other choice but to seek the protection of staff.
- **Having served time at an institution considered as a "protective custody" prison:** Offender populations are fully aware of the "type" of offender who resides in specific institutions. They know that certain institutions are predominately comprised of sex offenders. Regardless of the type of crime the offender has actually committed, offenders transferring in from that "type" of institution are automatically labelled as being that "type" of

offender. The rest of the population slots them into one of the lower positions in the hierarchy. In order to move upwards, the offender must prove that he is not that “type” of offender.

- **Being too friendly with CSC staff:** When the offender population perceives an offender as being too friendly with staff, they become suspicious that the offender is “ratting out” on other offenders and their illegal activities. Unless the population is aware that the friendliness is part of a set-up ploy to manipulate the staff member, they will either ostracize the culprit or introduce harsher sanctions. New offenders may unwittingly fall into the trap of being too friendly with staff.

8.3.3 Other Factors that Influence Hierarchy Dynamics

If an offender is transferred from one institution to another or is released to the community, his/her movement creates a vacancy within the prison hierarchy from the institution he/she left. If the offender is transferred to another institution, his/her position within the new institution’s hierarchy will depend on the status and power that the offender brings with him/her. An offender’s status is not automatically transferable.

Movement within the hierarchy may also occur as a result of a power struggle between leaders or rival gangs. Depending upon the outcome of the conflict, major restructuring of the prison hierarchy may occur.

When a vacancy is created, the departing offender may have already trained his/her replacement, which is usually ready to assume their new role and responsibilities before the departing offender leaves.

8.4 Prison Economy

The driving force behind the institutional economy is the items that offenders are not entitled to have or items that are limited. Due to their incarceration, offenders are cut off from easy access to some of the forms of entertainment and sources of pleasure that they enjoyed when they were in the community.

Incarceration does not affect the demand for certain goods or services. The prison economy exists to meet the many and varied demands of offender consumers.

CSC must provide offenders with the necessities of life such as food, shelter, clothing and medical care. Additionally, offenders are provided with an allowance or pay in order to purchase personal items. These items may include canteen, hobby craft items or additional personal items for cell use.

The institutional economy goes beyond those goods and services provided by CSC or what the offender acquired through his/her pay. In such an environment, a business person can make a profit and place himself/herself well within the hierarchy.

Since, with the exception of minimum security institutions money is not allowed in institutions prison currency is any item or service that has value to another offender. An offender can pay for something with an item from his/her personal property, through a specialized skill or through a service. Personal items may consist of any item that the offender has in his/her possession. A specialized skill is any skill the offender may possess, such as tattooing, brew-making, legal advice, weapon making, *etc.* A service may include running errands, holding or storing contraband or unauthorized items, sexual favours, *etc.*

The types of items that are highly sought are drugs, brew or distilled alcohol (also referred to as shine) and cigarettes or tobacco products. Canteen items, hobby craft items and personal items are usually exchanged for these items, therefore making them also highly sought. In the case of personal items and some hobby craft items, these items are always assigned an owner. If it is discovered that the offender who has the item in his/her possession is not the rightful owner of that item, the item is confiscated and the registered owner is located. If the owner cannot be located, the item becomes a crown asset and is disposed of.

8.5 Impact of the prison economy

After having discussed what drives the prison economy, we will now examine how the prison economy impacts the security of the institution, the offender population and the staff as well as anyone else who works in a correctional facility or environment.

Many offenders are subject to exploitation generated by the prison economy. For those who are constant consumers and distributors of what the economy has to offer, the pressures associated with payment and interest rates on late payments can create serious problems for both the offenders and the institution.

When an offender gets himself/herself in debt, the offender must pay back the principal and the interest within a week or a set date. If not, the offender is charged at an interest rate of 100% per week, quickly causing the offender to go further and further in debt, until he/she finds himself/herself unable to pay their debt.

Offenders with credit payment problems will sometimes resort to measures that see him/her stealing from or muscling weaker offenders, becoming involved in the drug trade, (including pressuring spouses and family members to bring in drugs or money), becoming an informant to the institution, seeking protective custody and even seeking out more powerful offenders or loan sharks, with the result that the offender becomes even more actively involved in the prison sub-culture.

An offender going through these difficult choices is not thinking about either their correctional plan or participating in programs. This is when CSC's role in assisting the offender to

become a law abiding citizen and/or to assisting the offender to attend programs to reduce their risk to the public is jeopardized.

Apart from offenders, staff members and other people working within the institution, volunteers and even spouses and family members of an offender may also fall prey to intimidation and manipulation, either from an offender who has found himself/herself in this situation or from the member at the top of the offender hierarchy.

There are many ways for an offender to acquire drugs and other commodities. CSC uses various methods and techniques to prevent this from happening; however, these methods and techniques are not fail-safe. The tools and methods to detect and intercept drugs are Ion Scanners, drug dogs, searches and staff observations. Offender informants may also provide staff with information, but the reliability of that information and its source(s) must be constantly verified. When there are reasonable grounds to believe that an offender may have drugs on their person, in their person, or hidden within the institution, CSC can use dry cells,⁵ searches and in some cases x-rays under the direction of a medical professional to locate the drugs.

There are several ways for offenders to acquire drugs. An item, such as a tennis ball or an arrow with drugs can be sent over the wall. Visitors could bring the drugs in via a visit, private family visit (PFV) or through a family or social event. Staff, contractors, volunteers or anyone else working within an institutional setting could also be coerced or manipulated into providing this service to offenders.

It is therefore imperative that as a contractor, you be aware that you as well as any staff member or volunteer within CSC, if not equipped with this knowledge, could fall prey to an offender's manipulative tactics.

9.0 MANIPULATION TACTICS

It is very important when working in an institution to understand the dynamics of offender manipulation and to be alert for manipulative behaviours. Contractors can be vulnerable to manipulation by offenders, particularly if they do not have previous experience in an institutional environment. Even seasoned contractors (those with previous experience) may be vulnerable to manipulation by offenders.

You must be aware of how offenders can manipulate you into doing something that you should not. A good motto to follow is this: ***If it doesn't feel right, it probably isn't.*** Let's now take a look at what manipulation is and how you can protect yourself.

Manipulation is defined as:

- To influence or to manage shrewdly or deviously, especially to one's own advantage; and

⁵ A dry cell is a special type of washroom facility that allows CSC staff to collect and examine human waste from the offender for drugs or items that the offender had previously ingested.

- To use or control by artful or indirect means to one’s own advantage.

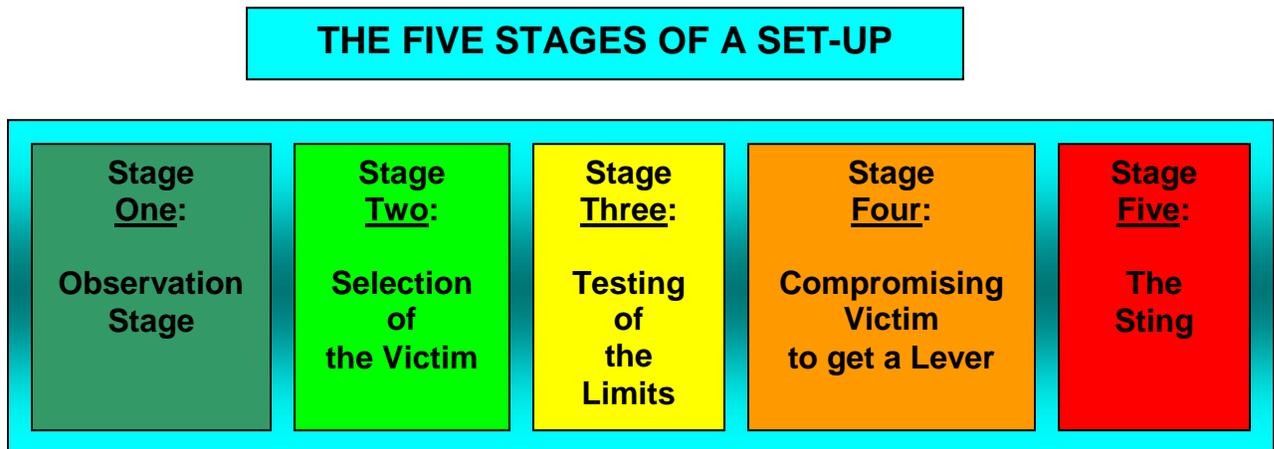
Keep in mind that some offenders are exceptionally skilled at manipulation. Moreover, there are several stages of manipulation and it is not always based on a single incident. Manipulation involves a series of steps or stages that can serve as warnings if you are aware of the dynamics of a **set-up**.

A **set-up** works because the offender has gathered information about you and uses manipulative techniques that exploit a vulnerability that has been perceived. Vulnerabilities may be physical, emotional, spiritual or financial in origin. It is therefore very important to understand the dynamics of manipulation and recognize what actions you can take to lessen the chances of this happening to you.

9.1 Five Stages of a Set-up

There are five stages that may occur when an offender is trying to manipulate her or her victim. These are (1) *Observation*, (2) *Selection of a Victim*, (3) *Testing the Limits*, (4) *Compromising the Victim and Creation of a Lever*, and (5) *the Sting*.

The following chart illustrates these five stages:



Stage One: Observation

During the observation stage, the offender is observing you - particularly how you interact with staff and other offenders – where he/she tries to pinpoint any vulnerabilities you may have that can be used to his/her advantage.

Stage Two: Selection of a Victim

In the “Selection of a Victim” stage, the offender gathers and analyzes information about the victim, followed by a discussion of the next course of action with all of the players involved in the set-up.

Stage Three: Testing the Limits

The third stage is called “Testing of the Limits” and involves one or more offenders who wish to exploit the victim’s vulnerabilities. This stage usually involves progressive steps in which the offender is continually testing their victim’s vulnerabilities. This is done to see if the offender can place the victim in a compromising position in order to create a “lever” or leverage against the victim.

There are several manipulative mechanisms that offenders will use to try to place you in a compromising position. Here are a few of those mechanisms. *(Note that there are variations to these techniques and that this list is by no means exhaustive):*

- The Support System: The support system works best in a situation where the victim has a strong desire to be liked by and to like others. The offender will use this system to create a situation where the victim views the offender more as a peer rather than an offender.
- The Sympathy Play: In this technique, the offender is attempting to elicit feelings of pity, compassion or sympathy from the victim. The offender may also use some emotional crisis or experience that the victim recently experienced.
- The Plea for Help: The offender will use this technique if the victim has a strong desire to help others, and will at times combine it with the sympathy play.
- The We/They Syndrome: This technique works best when the offender has perceived the victim’s difficulty in being accepted by the people around him/her. The offender will attempt to separate the victim from their peers and isolate them from their protection.
- The Offer of Protection: This technique is used in order to create a sense of protection from other offenders. The offender will deliberately set up a scenario where the victim would feel that the protection of the offender would be best.
- Allusions of Sex: This is a probing manipulative technique to see if the victim might entertain further advances such as sexual touching or a sexual act. This technique is usually followed by the touch test.
- The Rumour Mill: This technique is used solely for the purpose of isolating and alienating the victim from their peers in order to make them vulnerable to other forms of manipulation. An offender will start a rumour and then gets staff members to pass it around.

Stage Four: Compromising of the Victim and Creation of a Lever

The fourth step is to “Compromise the Victim and Create a Lever”. With each successful manipulation, the victim’s actions result in further compromise. Through the process, the

victim is asked to progressively break increasingly serious rules, regulations, policies and even the law. The offender will continue to increase his/her hold on the victim by collecting enough evidence against him/her until the offender feels that enough has been accomplished to enter into the final stage of the manipulation.

Stage Five: The Sting

The last stage is called “The Sting”. Once the offender feels confident that he/she has developed a strong “lever” against the victim, the offender will then expose the set-up and explain the evidence that he/she now has against the victim. The offender will then threaten to expose the victim if his/her demands are not met. This is usually done in the form of an ultimatum where the offender gives the victim a choice: either the victim complies with the offender’s demands or the victim’s wrong-doing will be exposed, forcing the victim to face the consequences.

9.2 Strategies to Prevent Manipulation

An offender may have various reasons for engaging in manipulative behaviour. What is important is that you are aware of the stages of manipulation, notice the signs and exercise caution.

There are several strategies you can employ in order to discourage any attempt at manipulation:

Paraverbal

- The tone of your voice should reflect confidence
- Keep your voice firm and non-threatening

Non-Verbal

- Your body language should reflect confidence by using a supportive stance but should be non-confrontational
- Avoid nervous body movements such as wringing your hands, crossing & uncrossing your arms, shifting from one foot to the other, *etc.*
- Make eye contact without staring
- Avoid glancing away or looking down
- Your body and voice must support your verbal message; indicate clearly that you follow the rules and that you are not sorry you do so. Do not show regret or say “I’m sorry.”

Send a clear message:

- Make your message factual without being confrontational or antagonistic;
- State that what they are asking for or what they are doing is inappropriate and you will not tolerate it;

- Ensure you are sending a "NO" message. **Avoid** phrases such as:
 - "I'd like to but I really can't ..."
 - "Not now ..."
 - "I don't think that it would be right ..."
 - "I'm sorry but ..."
 - "I'd like to but it is against the rules ..."
 - "I'm not allowed to do that ..."
- Use your communication skills to redirect them to appropriate channels (i.e. "No, I won't mail your letter on the way home. You know that it is against the rules. You can put it in the mail in the morning.")
- If you think you are being tested, say something. For example, "You know I can't do that!" perhaps in a slightly incredulous voice. Afterwards, change the subject to an appropriate topic.
- Remember that **if you say or do nothing, it is an invitation for more.**

Behaviour:

- Do not do anything that an offender asks you to do if you know it is against the rules or if it is inappropriate even though there may be no specific rule against it.
- If you are not sure if it is OK to do something, check it out before agreeing and say so: "I'm not sure I can do that; I'll have to check first with staff."
- Do not discuss your personal problems with an offender.
- Do not allow an offender to touch you. This is against the rules and regulations. You can simply say that you do not like people touching you. If an offender does touch you, you need to report this immediately to staff.
- Tell staff about any incident; talk it over with them even if the offender denies it or it seems extremely minor to you.
- If you realize you have done something inappropriate, remember that it is not too late. Alert staff immediately. Yes, there may be consequences for you, but not as serious as what will happen if you do not report the situation promptly to staff.

Always remember that if you feel that you have been set-up or compromised, **talk to a CSC representative**. If you give in to the offender's demands, you will only dig yourself in deeper. It is always better for you to alert staff to a situation rather than allow it to continue and only become worse.

9.3 Obtaining Offender Updates

Another strategy for preventing manipulation is to be aware of the current status or emotional state of the offender(s) with whom are you in contact with, particularly when you have a close working relationship with an offender.

For example, if an offender has recently experienced a serious disappointment i.e. his/her parole was denied, or she/he in serious debt in the institution, he/she may be more volatile and/or exhibit unpredictable behaviour. It is to your advantage to be aware of any recent

changes in the lives of the offenders with whom you are working , particularly when you work in close proximity with them in the institutions.

Contracted workers who work in close proximity to offenders in the institutions would be wise to develop a system to receive regular offender updates. This could be accomplished by developing a close relationship with members of the offender's case management team to ensure that any relevant information that might affect the state of the offender's emotional well-being is passed on to the contracted worker so that he or she is better prepared to deal with any crisis. This information is also vital for the contracted worker to prevent attempted manipulation by the offender.

Regardless of which institution you are contracted to work in, if you are working closely with offenders, ensure that you work out a system to receive updates on the offenders with whom you work. Talk to the CSC staff with whom you have contact or your project authority for more information regarding how to best be kept apprised of this valuable information.

10.0 PROFESSIONAL RELATIONSHIPS WITH OFFENDERS

In the course of your duties as a contracted worker in an institution, you will come into contact with offenders. In all your interactions with them, CSC expects you to act professionally and respectfully. CSC also requires you to respect offenders' cultural identity, racial and ethnic backgrounds, and religious beliefs, as well as their fundamental freedoms and rights under the law. Moreover, creating and maintaining professional relationships with offenders will help ensure you protect yourself from compromising situations.

10.1 General Offender Behaviour

In order to maintain a professional relationship with an offender, it is important for you to gain an understanding of some commonalities in offender behaviour. Understanding what they do can assist you in how you interact professionally with them.

Note that all offenders do not fit one definitive profile. That being said, there are some similarities shared by most offenders since prison life will affect an offender's behaviour. The following are some commonalities among offenders that you may find:

- Lack of internal controls *i.e.* impulsiveness
- Grew up in a disruptive home environment
- Difficulties with learning and usually lacking formal education
- Low self-esteem and may display a helpless attitude
- Lack of marketable work skills and unstable work history
- Rationalization of behaviours
- Lack of adequate problem solving, social, and general life skills
- History of drug or alcohol abuse
- Generally negative attitude and a value system unique to the criminal subculture

10.2 Understanding the Offender's Frustration and Limitations

Offenders are confined and live with a great deal of frustration and stress in comparison with the general population. For example, offenders have:

- Less opportunity to exercise independence and individuality;
- More pressure to embrace criminal values;
- Less privacy;
- Infrequent change of routine and unchanging scenery;
- Restricted access to relationships and contact with their families and friends;
- Limited visits and calls to loved ones; and
- Restricted access to many goods and services commonly available outside prison.

Contractors and/or their employees and/or subcontractors who have contact with offenders must understand that the offender is a human being with problems and needs. Criminal behaviour is not always inherited. Often times, an offender did not have access to basic needs such as a stable home environment, self-respect, a sense of belonging or commitment to the community or economical security. In some cases, these deprivations may have provided motivation for the offender's criminal behaviour.

Being cognisant of these aspects of offender behaviour can help you keep your relationship with offenders more professional. Ensure that you develop personal techniques for maintaining your professionalism, even when faced with negative behaviour on the part of the offender.

11.0 HEALTH ISSUES: RISKS AND PREVENTIVE MEASURES

Being aware of the institutional environment and the potential for health issues that an offender may be exposed to or is afflicted by will assist you in taking any necessary precautions.

Some offenders arrive at a federal institution with physical and psychological conditions that could pose a risk to themselves, staff and others. Within the institutions there are some offenders who are considered a high risk for infectious disease such as HIV/AIDS, Hepatitis A, B and C, and Tuberculosis (TB). Research shows that many offenders have substance abuse problems and some have serious mental disorders that require specialized treatment.

Since the medical history of any offender falls under the protection of a doctor/patient confidentiality/privilege.

The following is an overview of the conditions that are most prevalent in the correctional setting:

11.1 Infectious Diseases

Incarcerated men and women are at a higher risk for HIV/AIDS, Hepatitis, and other infectious diseases due to high-risk behaviours they may engage in both before they arrive in prison and while incarcerated. High-risk behaviours include sharing needles, tattooing and piercing equipment, crack pipes and straws (for snorting) and having unprotected sex. These diseases are blood-borne and sexually transmitted and are not a threat to people who engage in casual contact with those infected.

Tuberculosis (TB), however, is transmitted through the inhalation of airborne germs. Shared air space and a large number of people living in a confined location, such as an institutional environment, increases the potential for transmission of this airborne disease.

In some cases, volunteers and contractors must provide documentation of their baseline TB status to CSC prior to starting work in a CSC facility. Further assessment, *i.e.* annual screening, may also be required if these individuals have direct and extended contact with offenders.

Should you wish to discuss any health issues, please speak with a CSC representative. They can provide you with specific policies and guidelines about how to prevent exposure to infectious diseases in an institutional environment.

11.2 Mental Disorders

There is a higher rate of mental disorders among prisoners than is found in the general population. Offenders with mental disorders have difficulty adjusting to life in prison. They have a higher risk of suicide or self-injury. They usually require more assistance for successful reintegration as they may need more support services in the community *i.e.* alternative housing and additional counselling. Unfortunately, there are limited community supports for these offenders and this adversely affects their eligibility for conditional release.

Roughly 19% of the offender population suffer from a mental disorder that may require specialized intervention. Upon entering a CSC facility, offenders are assessed to determine where they should be placed and what treatment they require.

Should you have any questions related to offenders with mental disorders, please speak with a CSC representative.

12.0 EMERGENCY, CRISIS AND CONFLICT MANAGEMENT

During the course of your contractual term, you may be involved in an emergency or crisis situation that may require conflict management. It is therefore important that you learn the rules and regulations of the institution you will be working in as well as the processes that are used by staff in order to manage the situation and bring it to a safe conclusion. With a clear understanding of the security issues that exist in the correctional environment, you will be able to contribute to the overall safety of yourself, staff and the offenders.

12.1 Management of Emergencies

When you work in an institutional environment, there are times when emergencies will occur. Some of these situations may be the result of an offender's actions while others may not. Emergencies can include major or minor disturbances, assaults as well as captive (hostage-taking) and barricade situations. The goal of CSC in responding to emergencies is to:

- Isolate and contain the emergency as soon as possible;
- Ensure personal safety;
- Prevent escapes, where applicable;
- Minimize damage to property;
- Resolve the situation using minimum level of force; and
- Restore order as soon as possible.

CSC staff are trained in crisis management to deal with and respond to various emergencies. During an emergency situation, all contractors must follow the direction of staff and/or stay in their assigned areas until directed otherwise.

When, however, you are dealing with a situation on your own *i.e.* in the case where you are alone with an offender in a private office, there are several strategies you can employ to protect yourself which are outlined in the following section.

12.1.1 Managing personal portable alarms⁶

Some CSC staff and contractors wear a personal portable alarm (PPA). A personal portable alarm is defined as:

- An alarm unit which, when activated, triggers an alarm at a central control centre, and identifies the specific alarm unit and/or its designated location. Please note that only institutions equipped with a Personal Alarm Locating System (PALS) are capable of displaying the alarm unit location.

Note that if your contractual obligations require you to carry a personal portable alarm on your person, you must test your alarm at the beginning of each shift. The test shall take place at the alarm's assigned location where the results will be recorded. Note that personal portable alarms that are assigned to a specific location are not to be removed unless they malfunction.

Offenders are NOT allowed to possess personal portable alarms. Report any such incidents immediately to CSC authorities.

⁶ For more information, please refer to the Commissioner's Directive 567-2 "Use of and Responding to Alarms." This can be found either on the CSC Infonet or by making a request to your project authority.

If you are required to wear one, you must leave it on for the duration of your shift. Note also that any press of the alarm will be treated as a genuine emergency, so do not use the alarm except for testing purposes at the beginning of your shift or in the case of a real emergency.

If you are not required to wear one, it is a good idea to be aware of who around you in your work environment does wear one. If you are faced with an emergency and are near a person with a PPA, you could alert them to your situation.

12.1.2 Managing fixed point alarms

Institutions have fixed point alarms at various locations inside their facilities. A fixed point alarm is defined as:

- An alarm unit which is permanently installed in key locations of a facility.

Ask your CSC representative if there is a fixed point alarm established at your contractual work location and where it is located. Use the alarm only in the case of an emergency or if you are required to use for testing purposes as any press of the alarm will be treated as a genuine emergency.

12.2 Crisis and Conflict Management

Interpersonal conflict is defined as a clash between the interests, values, actions or attitudes of two or more people. Interpersonal conflict is a fact of life and is inevitable. In an institution where offender behaviour can often be volatile, knowing how to properly manage interpersonal conflict will contribute to your personal safety, the safety of CSC staff, and the offender.

During your contract term, you may be a witness to or a victim of aggressive and hostile offender behaviour. You must be able to react effectively, while minimizing the risk of injury. It is also very important that you remain calm, whether you are involved in or are a witness to the incident. Furthermore, if you obtain any information or encounter a situation that risks compromising the safety of any person, you have a responsibility to inform staff immediately. In most cases, staff will make every attempt to diffuse the situation.

If you are alone, however, and/or there is no staff in the area, you will be required to diffuse the situation yourself.

If the incident involves an offender who appears to be in crisis to a degree where he has lost all rational thinking, if appropriate you may safely and effectively defuse this behaviour in a professional manner. This requires sound crisis intervention strategies and skills.

Once the emotion is defused, you can begin to manage the conflict underlying this emotional behaviour. Successful conflict management involves the effective use of problem solving

skills. Effectively defusing the other person’s emotions increases the chances of enlisting that person as a cooperative partner in the problem solving process.

After the incident is diffused, report the incident to CSC staff.

12.2.1 Stages of the crisis cycle

In order to effectively diffuse a situation, you need to be aware of the various stages of the crisis cycle. When you know what stage of the crisis you are in, it will help you choose a better strategy for diffusing the situation:

Stage in the Crisis cycle	Warning signals
Beginning of the defensive stage	<ul style="list-style-type: none"> • door banging, slamming behaviour • negative tone of voice • negative verbal comments • non-verbal signals of anger
Deeper into defensive stage - losing rationality	<ul style="list-style-type: none"> • shouting • very heated verbal exchanges
Defensive stage: challenging	<ul style="list-style-type: none"> • profanity • challenges of authority • blaming others • verbal and paraverbal signals more aggressive
Borderline crisis stage	<ul style="list-style-type: none"> • fight/flight reaction very close • non-verbal (body language) signals indicate that this situation could become physical very quickly

12.2.2 Behaviours that may escalate a situation

There are several behaviours to avoid in order to prevent a crisis from escalating into a physical confrontation. These are:

- Ignoring the offender’s first indications of anger;
- Immediately threatening the offender;
- Failing to listen to what the offender has to say;
- Interrupting the offender;
- Escalating verbal and paraverbal messages;
- Finger pointing;
- Non-verbal signals that are threatening and challenging;
- Losing personal self control, rationality and common sense;
- Invading the offender’s body space;

- Overall strategy of trying to get the offender to do something on the basis that “offenders have to do what they are told to do”; and
- Overall strategy of “forcing” the offender to do something that in turn causes the offender to become more resistant and uncooperative.

12.2.3 Behaviours that effectively defuse crisis situations

Should you encounter an offender entering or in the crisis stage, there are several strategies to employ that can help calm the offender down as well as reduce the possibility of a physical encounter:

- Using safe distance and a supportive stance;
- Using verbal intervention to defuse a verbal confrontation;
- Avoiding unnecessary physical contact or handling;
- When setting limits, phrasing the limits in such a manner that the consequences of continuing to be verbally loud and aggressive are clear AND the consequences of the offender ceasing this behaviour are clear and much more acceptable;
- Setting limits on the offender’s behaviour in a non-threatening manner;
- Allowing the offender to make the choice as to whether s/he will become less aggressive and loud;
- Demonstrating good listening skills (physical and verbal attending, mirroring, paraphrasing, and summarizing);
- Modeling appropriate behaviour (*i.e.* verbal, paraverbal and non-verbal messages are all acceptable examples of a normal conversation);
- Removing the offender from the source of conflict or anger, if possible. For example, if the offender is angry with a person in the room, remove the offender from that person’s presence; and
- Listening to the offender. Ask the offender to explain why they are angry and be non-judgemental in the process.

12.3 Hostage-taking and Forcible Confinement

Hostage-taking can occur in either an institutional or community environment. Although it is a relatively rare occurrence, it is important to know what to do in the event that hostage-taking occurs. To prepare you, this section will provide you with an overview of how to apply preventative strategies to decrease the risk of hostage taking and forcible confinement as well as how to apply effective survival behaviours appropriate to a hostage taking and to a forcible confinement.

12.3.1 Motivations for hostage-taking and for forcible confinement

There are many reasons why an offender may wish to take someone hostage, but some of the main reasons are:

- A desire to escape or gain freedom for the taker or for fellow offenders;
- A desire for recognition, attention, thrill seeking; and/or
- A desire to implement some change, promote some cause.

12.3.2 Key survival strategies if taken hostage

If you are taken hostage, it is important that you do the following:

- Avoid resistance;
- Avoid sudden movements, gestures, loud noises;
- Be cooperative, follow orders;
- Reflect calmness;
- Reduce anxiety in the hostage taker(s);
- If the opportunity for communication occurs, speak softly and slowly;
- Watch the effects of your actions. Avoid actions that antagonize the offender;
- Be seen as a human being (i.e., say you are scared, tired, hungry, etc.);
- If the hostage taker(s) provides the opportunity to establish dialogue, take it;
- Try to develop a rapport with the hostage taker;
- Do not attempt to escape unless you are convinced that the attempt will succeed;
- Inform the hostage taker if you have medical problems/require medication;
- Try to stay together with other hostages;
- Try to stay in one spot if possible; and
- Be honest, don't lie. Getting caught in a lie will only antagonize the hostage taker.

Being aware of these strategies could help save your life should you ever find yourself in the position of being taken hostage.

12.3.3 Preventing forcible confinement and possible sexual assault

Forcible confinement for sexual purposes is a different situation from being taken hostage. Where an offender has forcibly confined someone for sexual purposes, the following key information usually plays a role:

- Usually no substantive demands are being given by the offender;
- Any demands given appear spontaneous *i.e.* spur of the moment;
- The offender may have been charged with sexual assault against women;
- The offender has a history of violence against women;
- The offender fits the profile of an offender who confines for sexual purposes.

Research shows that sexual assault normally occurs within the first 20 minutes of a forcible confinement if the motivation is sexual. The goal of CSC is to resolve the incident before the offender assaults and/or is able to sexually assault again.

12.3.4 Profile of an offender who forcibly confines for sexual purposes

Offenders who forcibly confine victims for sexual purposes often – but not always – fit into the following profile:

- Sexual offence history against adult women on record
- History of violent aggression against women
- May have unlawfully confined or sexually assaulted in a secure setting
- Serving a lengthy sentence (no imminent release)
- May be receiving or trying to receive medication or treatment to reduce sex drive
- Evidence of current stressors (recent detention, parole denial, etc.)
- Evidence of pre-planning may exist (targeting the victim)
- Male, 30-50 years of age

12.3.5 Strategies to avoid being forcibly confined for sexual purposes

The sexual assault of a prison staff member is a rare phenomenon committed by a small minority of offenders. However, even one such assault can have devastating impacts.

Should you find yourself in a position where you fear that an offender is attempting to forcibly confine you for sexual purposes, there are several strategies you can employ to prevent the forcible confinement from occurring. These are:

- Being aware of your environment (doors, exits, when you are alone or isolated, etc.) - especially in regards to offender movement;
- Being aware of the presence/location of other staff;
- Follow security procedures and post orders;
- Do your job properly;
- Be aware that other staff are doing their job properly (i.e. searches);
- Wearing and testing your PPA at all times, if applicable;
- Knowing where the fixed point alarm or panic buttons are;
- Arranging your office so that you do not trap yourself in the room (if possible);
- Backing up other staff in monitoring offender activity;
- Reporting unusual offender activity (stalking behaviours, love letters, inappropriate conduct, etc.);
- Being alert to unusual offender behaviour;
- Not letting offenders into unauthorized areas;
- Not letting offenders manipulate you into not following proper security procedures;
- Not dealing with offenders who are extremely agitated by yourself. In such situations, obtain staff back-up;

- At the first signs of trouble summoning help, or going to where other staff are located;
- Making noise (especially if the offender closes and locks the door shut);
- If you feel threatened, summoning staff;
- If you work in an isolated area, becoming informed of the profile of offenders who work in your area. Talking to the parole officer;
- Being security conscious at all times;
- Setting limits or terminating the session with the offender when an offender tries to physically touch you;
- Continuing to work with the offender only AFTER advising security of your concerns about the offender's emotional state;
- Requesting other CSC staff or contracted workers to periodically check on you;
- Communicating your concerns with other staff at the time;
- Using the presence of other staff/contracted workers to terminate the interview as you now have "back-up";
- If the situation becomes volatile and you do not have access to a PPA or fixed point alarm, not hesitating to use the phone; and
- Use the desk or other equipment as a barrier to buy time while you make noise to alert staff to the problem – do not try to barge past the offender as that may give them the opportunity to take control of your person.

These are examples of some actions and behaviours that can be taken that may reduce the risk of being forcibly confined. Moreover, it is important to remember that as long as the offender does not have control of you, there may be opportunities for more active resistance (making noise or calling out to gain attention, pressing PPA, using the phone, *etc.*).

12.3.6 Survival behaviours to employ if you are forcibly confined

If you are forcibly confined for sexual purposes, in order to prevent being further harmed or re-assaulted, there are some strategies you can employ while waiting for help or an opportunity to escape. These are:

- Keeping your voice and body language predominately calm;
- Keeping your body language non-aggressive, non-threatening;
- Attempting to humanize yourself,
- Not verbalizing your anger (*i.e.* purposely provoking the offender);
- Trying to develop rapport and empathy with the offender;
- Making eye contact with the offender;
- Making requests infrequently and quietly;
- Speaking softly;
- Staying away from topics which increase emotions; and
- Trying to reason with gain sympathy from the offender (*i.e.*, saying you have kids that need picking up at the day care).

If you are being threatened with a knife or weapon, however, there are some difficult choices you may have to make. For example, if the offender is threatening you with a knife, you will have to make a personal choice:

- offer no resistance in order to prevent being cut or injured; or
- offer resistance to prevent being raped.

If the offender does not have the knife or is not physically in control of you, however, you can be more flexible in your response, *i.e.* you can yell, scream, use the desk as a barrier, use something as a weapon to defend yourself, try to talk the offender out of his intentions, *etc.*

If the sexual assault is imminent, give the offender the clear message that you do not want to be assaulted. Changing the subject, *e.g.* asking for water, cigarette, toilet, crying, fainting or fighting may all be options depending on the circumstances.

12.3.7 When help arrives

Should an emergency response team be deployed, it is suggested that you drop to the ground where you are, and not to run or seek a hiding place. There may be a loud noise and tear gas may be used. A removal team will bring you out quickly and let you shower/clean and see medical staff.

Remember that prevention is your best defense.

12.3.8 After it is over

Survivors of hostage-taking and forcible confinement may experience a number of symptoms after the fact. These can include:

- Anxiety;
- Hyper-vigilance;
- Sleep disturbance;
- Hostility;
- Feelings of powerlessness;
- Shock;
- Fears/Phobias;
- Feelings of isolation; and/or
- Nightmares.

Often survivors experience a multitude of these symptoms. However, many survivors return to work within a few weeks and most by about 12 months.

Return to psychological health can be augmented by having supportive family, friends, co-workers and administration. It is also useful to know that CSC has a critical incident debriefing policy, and that employees and contractual workers can take advantage of the Employee Assistance Program (EAP) which provides free short-term counselling services for a variety of issues as well as referrals for longer term counselling. These services are also available for immediate family (*i.e.* spouses and children) of staff and contracted workers.

Remember: Anytime you are involved in an emergency, crisis or conflict situation, seek help from a staff member or inform a staff member as soon as possible.

13.0 GENERAL TIPS TO REMEMBER

GENERAL AREAS	TIPS
Institutional Environment	<ul style="list-style-type: none"> ◆ Ensure that you understand the rules and procedures of the institution where you are contracted to work. ◆ Learn what is “usual” in your contracted work location, <i>i.e.</i> counts, routine, <i>etc.</i> ◆ Learn about the offenders with whom you will be working closely.
Security	<ul style="list-style-type: none"> ◆ Pay attention to your surroundings. If you hear or see something that is out of the ordinary, advise staff. ◆ Remember that security is everyone’s job. ◆ Your judgement when dealing with an offender is vital to your safety and to the safety of those around you. ◆ An offender is constantly checking to see if you can be manipulated. Be aware of the signs and deal with the situation appropriately. ◆ Print out the list of security strategies listed in this module and review them periodically. ◆ Practice professional behaviour. ◆ Dress professionally and with comfortable footwear. ◆ Know where your keys are at all times. ◆ Know where your tools are at all times. ◆ Never give out your passwords. ◆ Always log off your computer when it is not in use. ◆ Always lock doors and never leave your office unlocked if it is unattended. ◆ Do not bring large quantities of cash or valuables to your work environment. ◆ Do not bring anything in or out for an offender, especially contraband or unauthorized items. ◆ Report any inappropriate offender conduct.

	<ul style="list-style-type: none"> ◆ Observe the precautions for information that is categorized as Protected A, B or C. ◆ Understand the prison sub-culture. ◆ Employ strategies to prevent manipulation by offenders. ◆ Know what to do in case of a crisis or emergency. ◆ Wear your PPA if applicable or know where panic buttons are located. ◆ Remember that dynamic security is everyone's job.
Offender Code and Prison Sub-Culture	<ul style="list-style-type: none"> ◆ Develop a solid understanding of the prison sub-culture and offender code. ◆ Understand the dynamics that affect the prison hierarchy. ◆ Understand how the prison economy works.
Manipulation Tactics	<ul style="list-style-type: none"> ◆ Learn to recognize the 5 stages of a set-up. ◆ Develop strategies to deal with attempted manipulation by offenders. ◆ Keep up-to-date with changes that occur with offenders with whom will be in close contact. ◆ Talk to a CSC representative anytime you feel an offender has tried to manipulate you or if you feel you have done something inappropriate. Stop the manipulation before it advances beyond your control.
Communication	<ul style="list-style-type: none"> ◆ Communicate with staff/other team members. ◆ Acquire skills to diffuse situations. ◆ Work with CSC staff to receive updates on prisoners with whom you may be working.
Professional Relationships with Offenders	<ul style="list-style-type: none"> ◆ Establish appropriate boundaries with offenders. ◆ Act in a professional and respectful manner. ◆ Understand frustrations that offenders have – this may help you deal more professionally with them. ◆ Be respectful of diversity among offenders. ◆ Do not make “friends” with offenders. ◆ Do not discuss one offender with other offenders. ◆ Do not divulge personal information to an offender.
Health	<ul style="list-style-type: none"> ◆ Be aware of potential health risks and take any necessary precautions. ◆ Learn about protocols regarding health issues in an institution. ◆ Talk to your CSC representative about any concerns you have regarding health issues such as infectious disease or working with offenders with mental health issues.

Conflict	<ul style="list-style-type: none">◆ If you are a witness to a crisis or emergency situation, remain calm and take direction from CSC staff. If you are not asked to assist in the situation, do not interfere.◆ If you are the victim of a crisis or emergency situation, remain calm. Take direction from staff if present, and do not interfere unless told to do so.◆ Learn about strategies to use if you are ever in a hostage-taking or forcible-confinement situation.◆ If you are alone during the crisis or emergency situation, you must effectively and safely diffuse the situation yourself. Once you have safely diffused the situation, you must advise staff as soon as possible.
Seek advice or help	<ul style="list-style-type: none">◆ Be aware of and adhere to CSC policy, routines and procedures.◆ When you do not know or are unsure of a routine or procedure, ask a CSC Representative or an experienced staff member for help. A CSC staff member will be glad to help you.

Bow Unit Maintenance Access Stair
Regional Psychiatric Centre, Saskatoon, SK
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APPENDIX 3

SMACNA FLASHING DETAIL

WALL PENETRATION FLASHING

Figure 6-37 shows a rectangular tube penetration of a wall. Structural backup members are attached to the tube in a secure and waterproof manner. Head, jamb, and sill flashings are custom installed to prevent water from collecting in the wall system. Jamb and sill flashings are attached to the wall panels. Openings and structural members including attachments are provided by the wall contractor. Flashings are compatible

FIGURE 6-37

with the appearance and nature of the materials they are in contact with. The ends of wall panels are profile closed and end capped to prevent water that is on the flashing from wicking into insulation. Cracks are sealed to prevent water and vermin entry. Sloped flashings tend to wash dirt from ledges and extend service life.

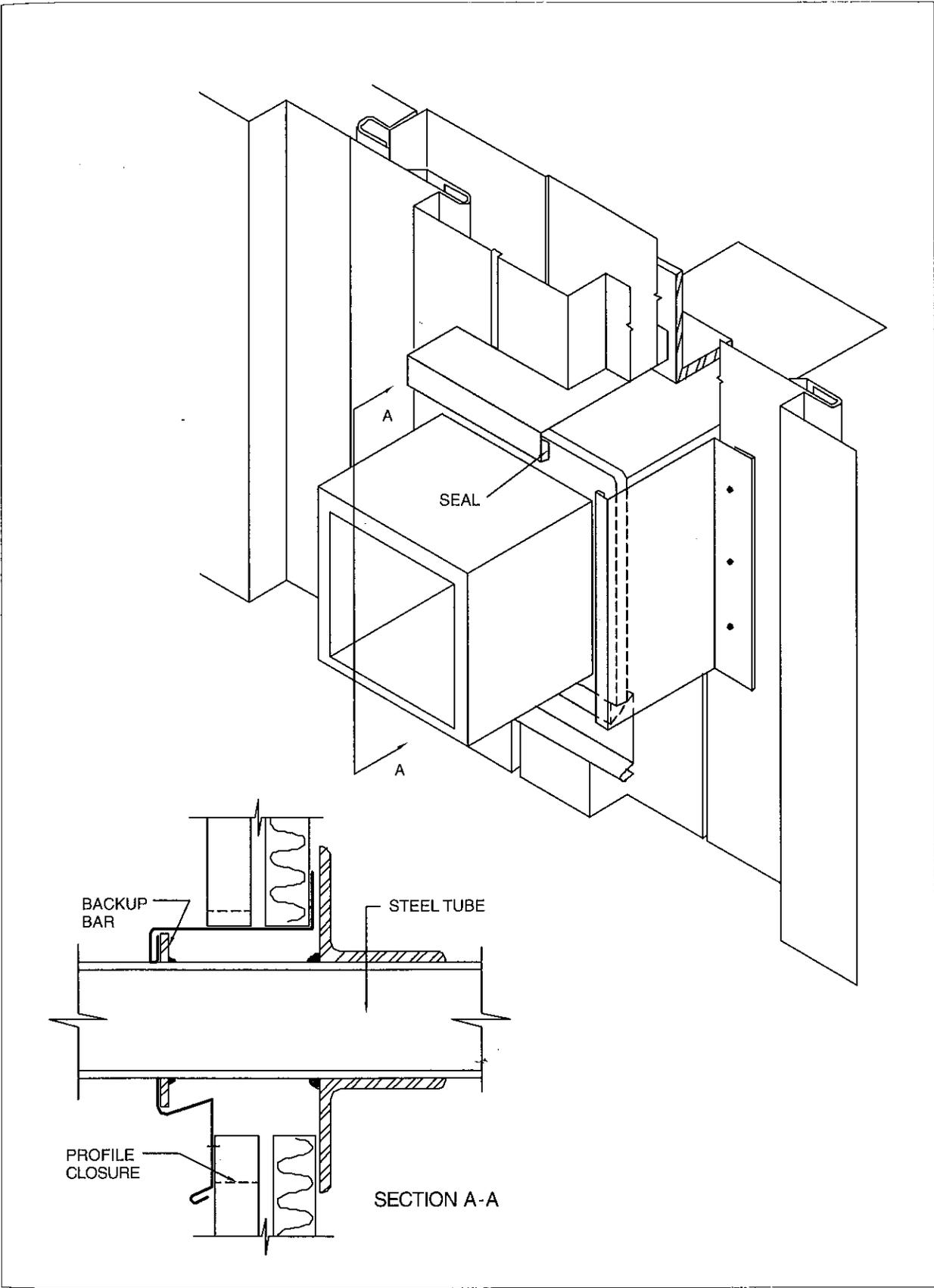


FIGURE 6-37 WALL PENETRATION FLASHING