Detailed Design Services for Building Upgrades Richardson Beach Bath House & Newlands Pavilion

For

Corporation of the City of Kingston

RFP No. EN-2010-19

July 2010

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SPECIFICATION

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FOR

DETAILED DESIGN SERVICES FOR BUILDING UPGRADES

TO RICHARDSON BEACH BATH HOUSE AND NEWLANDS PAVILION

KINGSTON ONTARIO

FOR

CORPORATION OF THE CITY OF KINGSTON

PROJECT NO. 2010-31

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List of Drawings

Drawing Number		Dated	Revised
		July 2010	10.08.04
A0	Title Sheet, OBC Data Matrix, Door Schedule & Key Plan		
Architectural			
A1	Existing /Demo Floor Plans and Site Plan	July 2010	10.08.04
A2	Site Plan / First and Second Floor Plan	July 2010	10.08.04
A3	Details	July 2010	10.08.04
A4	Existing/ Demo Elevations	July 2010	10.08.04
A5	Windows and Ramp Details	July 2010	10.08.04
Landscaping			
L1	Landscape Plan	July 2010	10.08.04

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

.1 The Bidding Information, Project Requirements and General Terms and Conditions, and Instructions to Contractor of the Specification are a part of this Section as fully as if recited in full herein.

.2 General Contractor to carefully read the Specifications of all trades to acquaint himself with the extent and nature of work of all trades. Ensure all trades' work is done and materials supplied to complete the work in every detail to the true intent of the plans and specifications.

1.2 SCOPE

.1 The listing hereafter of any article, material, operations or method requires that the Contractor shall provide each item listed of the quality and subject to the qualifications noted; and the Contractor shall perform each operation prescribed, according to the conditions stated, and provide all necessary labour, materials, tools, equipment and incidentals for **Detailed Design Services for Building Upgrades to Richardson Beach Bath House & Newlands Pavilion located off King Street at the intersection of Emily Street, Kingston , Ontario.**

1.3 GENERAL CONTRACTOR

.1 The General Contractor has supervision and direction of the work included in this Contract, of all persons engaged on the work under his Contract, including Contractors and those who supply material and is entirely responsible for their compliance with the provisions of the Contract.

.2 The General Contract includes the supplying of all labour, materials, tools, equipment and incidentals required to properly execute and complete all the work shown on the Drawings, and described in this Specification excepting only such equipment and other services especially listed as being supplied by the Owner, and the administration, co-ordination and supervision of any other Contracts which the Owner may place under the care of the General Contractor.

1.4 EXAMINATION OF SITE

.1 Contractors submitting Tenders for the work shall first examine the sites and all conditions thereof. Bidders must take into consideration such conditions as may affect the work under this Contract.

1.5 LINES AND LEVELS

.1 Contractor shall verify all lines, existing and proposed floor levels and dimensions shown on the Drawings and shall report any errors or inconsistencies to Architect before commencing the work.

1.6 GUARANTEE / WARANTEE

.1 The Contractor shall, in the case of work performed by his sub-contractor and where guarantees are required, secure warranties from said sub-contractors and deliver copies of same to the Architect on completion of the work. The Contractor shall and does hereby warrant and/or guarantee the following for a period of one year from the date of completion, as evidenced by the date of the Final Certificate.

.2 Nothing in the foregoing intends or implies that this guarantee shall apply to work which has been abused or neglected by Owner or his successor in interest.

.3 Where guarantees or warranties are specified in any section of this Specification for a longer term than 12 months, such longer term shall apply.

1.7 PERMITS

.1 Architect will make application and provide required copies of Drawings and Specifications to Office of Building Inspectors. **Applicable Building Permits and Impost and Development Fees to be paid for by Owner.** Appropriate trades Contractor to pay sewer, water, hydro, permit fees and all required certificates and verifications required for occupancy. When obtained, post Building Permit on site as required by Building Inspector and send photocopy to Architect.

.2 Keep copy of Drawings and Specifications bearing approvals of all relevant Provincial, Municipal, County and Governing Authorities on site. Inform Architect of any comments therein which may require change in design.

.3 Secure all certificates of inspection and of occupancy that may be required by authorities having jurisdiction over works and deliver same to the Architect on completion of works.

1.8 PROTECTION

.1 Each Contractor shall be responsible for protecting his work and any areas affected by his work during the duration of his contract.

.1 Protection in General:

.1 Protect all work from damage, providing guards and coverings. Repair or replace any damaged work at no expense to the Owner.

.2 Protect all existing roadways, side

walks, curbs, boulevards, existing buildings, utility poles and fences and all other adjoining public or private properties. Make any necessary repairs at no expense to the Owner.

.3 The successful Contractor shall provide protection around any designated areas to the boundaries and locations indicated on drawings.

.4 This temporary protection shall remain in place prior to commencing construction, during construction and remain until completion of construction.

.2 Weather Protection:

.1 Provide at all times, protection against weather: rain, wind, storms, frost or heat so as to maintain all work, materials, apparatus and fixtures free from injury or damage. At end of day's work, cover all new work liable to be damaged.

.3 Cold Weather:

.1 During cold weather, protect all work from damage. If low temperatures make it impossible to safely continue operations, in spite of cold weather precautions, cease work and notify the Architect.

.4 Fire:

.1 Fires shall not be built on premises.

.2 Provide during construction and maintain in working order standard Underwriters' Labeled fire extinguishers, as required by regulatory agencies.

1.9 SAFETY

.1 Comply with all requirements of Construction Safety Act. Latest standards.

1.10 TEMPORARY SERVICES

.1 The Owner will provide and pay for temporary services as follows:

.1 Heating of building upon enclosure and when interior work commences.

.2 Water for building purposes required by all trades.

.2 Contractors to provide required heat to their building elements up to the time of building enclosure.

1.11 TEMPORARY STAIR, LADDER, RAMPS, RUNWAYS, HOIST

.1 Furnish and maintain all equipment such as temporary ladders, scaffolds, hoists, runways, chutes, etc., required for proper execution of work by trade. Each trade is responsible for the hoisting of their own material.

.2 All such apparatus, equipment and construction shall meet all requirements of labour laws and requirements of authorities having jurisdiction.

1.12 INSURANCE

.1 File with Architect a certificate of Contractor's Liability Insurance. Refer Section IT Article 18 of Insurance Form Page IT-6.

.2 The Contractor and all Sub-Contractors shall carry:
.1 Workers' Compensation as required by labour law.
.2 Public Liability Insurance.

1.13 PROCEEDING WITH WORK

.1 The work shall proceed at once after signing of contract and shall be carried on continuously until completion. Materials shall be carefully and safely placed and stored on site. Rubbish shall be removed from site and job kept in tidy condition at all times.

.2 Comply with Construction Schedule prepared by Contractor and promptly notify the Architect regarding any critical delivery dates or factors affecting this schedule.

1.14 CUTTING AND PATCHING

.1 All necessary cutting and patching of work for the Mechanical, Electrical or associated trades shall be the responsibility of the trade contractor. Confirm with the Owner prior to pouring of concrete, laying up of masonry, installing of finishes to ensure that sub-trades routing, installation of services, finishes, etc. are in place prior to installing.
.1 Execute cutting, fitting and patching required to make-work fit properly together and as necessary for the installation or alteration of new and existing materials.
.2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.
.3 Wherever it becomes necessary to cut or interfere in any manner with existing services and apparatus, do so at such times as approved by the Project Manager. Give minimum advance notice of one week of such requirements.
.4 Where existing items are designed for relocation or removal, relocate or remove these items unless specified to be done by other sections of the specifications. All waste and debris shall be disposed of by the Trade Contractor.
.5 Make good all surfaces and finishes in areas from which items have been removed or in which items are relocated. Cap off all existing services required to be severed to

effect the alterations and do all other work necessary to make good such areas to Architect's satisfaction.

.6 Made good any damage resulting from work of this contract to Owner's satisfaction.

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

.8 Tradesmen qualified in the work being cut and patched shall be employed to ensure that works are correctly done.

.9 Coordinate work of all sections, taking into account existing installations to assure best arrangement of components in available space. For critical locations consult with Architect before commencing work.

1.15 CLEANING

.1 Individual sub-trades shall be responsible for cleaning their area of work during construction and final cleaning of their building elements, in accordance with the schedule. Upon final cleaning, any area soiled by a trade is to be cleaned by same.

.1 Special Cleaning: Contractors shall do following special cleaning for their trades at completion of works:

.2 Remove all surplus glazing compound, paint, plaster droppings, etc., and wash and polish all glass to standards of professional window cleaners.

.3 Remove all marks, stains, fingerprints and other soil or dirt from painted, decorated or varnished work.

.4 Remove all temporary protection from finished floors, aluminum members, etc., and clean off all marks, stains, dirt, adhesive, etc.

.5 Clean and polish all hardware, fixtures, tile work and equipment, removing all fingerprints, dirt, stain, paper labels, etc.

.6 Remove all spots, soil, paint, and plaster droppings, etc., from resilient and ceramic tile work and wash thoroughly.

.7 Clean all plumbing and electrical fixtures, removing all paint spots, stains, dirt and dust.

1.16 SHOP DRAWINGS

.1 The Contractor shall check all sub-contractors' and suppliers' shop and setting drawings to ensure compliance with these requirements before submitting them to the Architect for review. The fact that they have been so checked by the General Contractor shall be indicated clearly on all prints.

.2 Shop and Setting Drawings or Diagrams shall be submitted in quadruplicate for general trades.

1.17 DELIVERY DATES

.1 Submit to Architect a written guarantee of delivery dates of all equipment, conforming to progress schedule.

1.18 TAX CHANGES

.1 If any changes in exemptions or rules should occur, after the date of submission of tender relating to various sales taxes, which directly affect taxes or duty actually borne by Contractor, contract sum shall be increased or decreased as is necessary to exactly eliminate the effect upon the contract of such changes. The contractor shall be prepared to substantiate such changes which will be subject to the verification by Owner.

1.19 MATERIALS OF APPROVED EQUAL

.1 Where items of equipment and/or materials are specifically identified herein by a manufacturer's name, model or catalogue number, ONLY SUCH SPECIFIC ITEM MAY BE USED IN THE BASE BID, except as hereinafter provided.

.2 Items of equipment and/or materials of Contractor's choice may be offered as alternates to items named in specification, either in spaces provided for same in Tender Form or if no space is provided, on the Bidder's letterhead. Alternate proposals must be accompanied by full descriptive and technical data on article proposed, together with statement of amount of addition or deduction from base bid if alternate is accepted. Prior approval by Architect is not required on items submitted as alternate bids.

1.20 WORK NOT IN CONTRACT

.1 All work noted N.I.C. (not in contract) shall not be included in this contract.

1.21 HANDOVER REQUIREMENTS

.1 Applicable sub-trades shall hand over to the Owner at take-over date of the building the following:

- .1 One set of 'as built' architectural, mechanical, and electrical drawings
- .2 One set of 'as built' architectural, mechanical, and electrical specifications
- .3 Three sets of mechanical, electrical and architectural operating instructions and manuals
- .4 Required statutory declarations
- .5 Contractor's written one-year guarantee
- .6 Workers Compensation Certificate of Clearance.

1.22 AS-BUILT DRAWINGS

.1 Owner will provide the Contractor with two (2) complete sets of "white prints" for the purpose of recording as-built information.

.2 Contractor shall keep a record of all significant changes and any re-direction of piping, wiring, etc. during construction phase.

.3 The completed 'White Prints' are to be handed to the Owner as part of the HANDOVER DOCUMENTS specified in Article 21 preceding.

1.23 UNIT PRICES

.1 Submit unit prices for such items of work listed on the Tender Form and appropriate to subject trade.

1.24 SIGNAGE

.1 Signs and notices for safety or instruction to be in French and English language, or commonly understood graphic symbols.

.2 Contractors are limited to one sign per trade. Signs shall be restricted in size and location by Owner.

1.25 JOB MEETINGS

.1 Job meetings shall be held between representatives of General Contractor, Owner and required sub trades. All requested representatives shall attend at designated time and as often as required by Contractor or Owner=s.

.2 It will be the General Contractor=s responsibility to record, prepare and send out >Minutes of Meetings=. Minutes are to be prepared and delivered at least two (2) days prior to next regularly scheduled meeting.

1.26 DRAWINGS

.1 The Architect will furnish to the Contractor free of charge the following: (exclusive of the contract set).

.1 Drawings - 6 Sets
.2 Specifications - 6 Sets

.2 Additional copies of drawings and specifications required will be furnished to Contractor for cost of reproduction.

1.27 CASH ALLOWANCES

.1 Include in the Bulk Tender, cash allowance in the amount listed below. This sum belongs to and is to be at the disposal of the Owner for such work noted herein or such work they might require.

.2 Any sum which is not used shall be deducted from the contract price.

.3 The Contractor shall include in his Tender such sums for expenses and profit in this cash allowance as the Contractors deems essential.

.1 Electrical Connection for new light posts (2) $ 2,000.00
.2 Kiosk Sign and Exterior Building signage $ 2,500.00
.3 Pruning of Trees by licensed Arborist $ 5,000.00

1.28 GENERAL SEQUENCE OF CONSTRUCTION

.1 The work shall precede at once after signing of contract and shall be carried on continuously until completion. Materials shall be carefully and safely placed and stored on site. Rubbish shall be removed from site and job kept in tidy condition at all times.

.2 Site will be available to the General Contractor immediately upon Award of Contract.

.3 A construction schedule shall be submitted to the Architect by the successful General Contractor immediately upon award of Contract for review and/or acceptance by the Owner.

.4 Contractor to work in conjunction with both facilities. Newlands Pavilion has bookings in September and October finishing up on October 17th. All work on Newlands must be carried out after the final booked date for this area. No work to be completed until such time.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 01 56 00 Temporary Barrier and Enclosures.

1.2 ACCESS AND EGRESS

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

1.3 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work Monday to Friday from 7:00 am to 7:00 pm.

.2 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Keep within limits of work and avenues of ingress and egress.

.4 Ingress and egress of Contractor vehicles at site are limited to that directed by the Owner.

.5 Newlands Pavilion work must not start until after October 17th, 2010.

1.4 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not allowed in building .

1.5 PARKING

.1 The contractor may use the paved area on the site for parking.

.2 Do not obstruct the entrance to the site on the street as both buses and emergency vehicles need clear use of Palace Road.

.3 Parking restrictions on site will be enforced.

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 Consultant.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four days in advance of meeting date to Consultant.

.4 Provide physical space and make arrangements 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, Consultant, Contractor, major Subcontractors and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Agenda to include:

- .1 Appointment of official representative of participants in the Work.
- .2 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01330 - Submittal Procedures.
- .3 Requirements for temporary facilities, site sign, offices, storage sheds, utilities and fences.
- .4 Delivery schedule of specified equipment.
- .5 Site security in accordance with Section

01560 - Temporary Barriers and Enclosures.

.5 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.

.6 Owner provided products.

.7 Record drawings in accordance with Section 01330 - Submittal Procedures.

.8 Monthly progress claims, administrative procedures, photographs, hold backs.

.9 Appointment of inspection and testing agencies or firms.

.10 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 During course of Work and weeks prior to project completion, schedule progress meetings bi-weekly.

.2 Contractor, major Subcontractors involved in Work and Consultant are to be in attendance.

.3 Notify parties minimum 4 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.

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 SECTIONS

.1 01311 Project Meetings.

1.2 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Consultant to enable

monitoring of project work in relation to established milestones.

1.3 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.

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01330 - Submittal Procedures.

.2 Submit to Consultant within 7 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

1.5 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Consultant will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

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 Drawings, Samples.
.3 Permits.
.4 Mobilization.
.5 Landscaping
.6 Paving.

1.8 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.

1.9 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.

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 This section specifies general requirements and procedures for contractors submissions of shop drawings, product data, samples and mock-ups to Engineer for review. Additional specific requirements for submissions are specified in individual sections of Divisions 2 to 49.

.2 Do not proceed with work until relevant submissions are reviewed and accepted by Engineer.

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

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

.5 Contractor's responsibility for errors and omissions in submission is not relieved by Engineer ‘s or Designer of Record review of submissions.

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

.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer’s or Designer of Record review of submission, unless Engineer gives written acceptance of specific deviations.

.8 Make any changes in submissions which Engineer may require, consistent with Contract Documents, and resubmit as directed by Engineer.

.9 Notify Engineer, in writing, when resubmitting, of any revisions other than those requested by Engineer.

1.2 SUBMISSION REQUIREMENTS

.1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.

.2 Allow 7 calendar days for Engineer’s review of each submission from time of submission.

.3 Accompany submissions with transmittal letter,

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

.4 Submissions shall 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 Contractors 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.

.5 After Engineer 's review distribute copies.

1.3 SHOP DRAWINGS

.1 Shop drawings: original drawings, or modified standard drawings provided by Contractor, to illustrate details of portions of Work, which are specific to project requirements.

.2 Maximum sheet size: 850 x 1050 mm.

.3 Submit (5) five copies of shop drawings.

.4 Cross-reference shop drawing information to applicable portions of Contract Documents.

1.4 PRODUCT DATA

.1 Product data: manufacturers catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.

.2 Submit (5) five copies of product data.

.3 Sheet size: 215 x 280 mm.

.4 Delete information not applicable to project.

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

.6 Cross-reference product data information to applicable portions of Contract Documents.

1.5 SAMPLES

.1 Samples: examples of materials, equipment, quality, finishes, workmanship.

.2 Where colour, pattern or texture is criterion, submit full range of samples.

.3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

1.7 APPROVAL OF SHOP DRAWINGS PRODUCT DATA

.1 The approval of shop drawings and product data by Engineer and Designer of Record is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean that the Engineer and Designer of Record approves the detail design inherent, content in the shop drawings or product data or responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions or responsibility for meeting all requirements of the construction and contract documents.

.2 Make corrections required by previous review before resubmitting drawing or product data. Do not add new details to drawings which have been reviewed.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES	.1	Ontario Occupational Health and Safety Act and Construction Regulations.
	.2	Canada Labour Code Part II.
	.3	Workers Safety and Insurance Board Act.
1.2 CONSTRUCTION SAFETY MEASURES	.1	Comply with construction safety measures of the National Building Code Part 8, Ontario Building and Fire Codes, Canada Labour Code – Part II, Ontario Occupational Health and Safety Act - Construction Regulations, Workers Safety and Insurance Board and the municipal authority.
	.2	Contractor is responsible for management and enforcement of safety on the work site, related to construction activities, specific to this contract.
1.3 OVERLOADING	.1	Ensure no part of work is subjected to loading that will endanger its safety or cause permanent deformation.
1.4 SCAFFOLDING	.1	Ensure scaffolding is designed and constructed in accordance with CSA S269.2. This includes all required bracing, guardrails, platform planking, toe-boards and locking mechanisms.
1.5 WHMIS	.1	Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, labelling and disposal of hazardous materials; acceptable to Ontario Occupational Health and Safety Act, Construction Regulations.
	.2	Deliver copies of Material Safety Data Sheets to Engineer on delivery of materials.
1.6 SAFETY EQUIPMENT	.1	Contractor’s Supervisor is to ensure all workers adhere to Ontario Occupational Health and Safety Act, Construction Regulations.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Statutes of Canada 1999 Chapter 33. *"Canadian Environmental Protection Act 1999"*.
  .1 SOR/2003-289. *"Federal Halocarbon Regulations, 2003".*

.2 "*Transportation of Dangerous Goods Act*" and pursuant regulations.

.3 Revised Statutes of Ontario 1990, Chapter E.19. *"Environmental Protection Act"*.
  .1 Revised Regulations of Ontario 1990, Regulation 347 *"General—Waste Management".*

.4 City of Kingston Noise By-Law.

.5 *Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems* (the Environment Canada "Refrigeration Code of Practice").

.6 Ontario Provincial Standard Specification 517 *"Construction Specification for Dewatering of Pipeline, Utility, and Associated Structure Excavation*".

.7 Ontario Provincial Standard Specification 518 *"Construction Specification for Control of Water from Dewatering Operations*".

.8 Ontario Provincial Standard Specification 565 *"Construction Specification for the Protection of Trees*".

.9 Ontario Provincial Standard Drawing 220.01 "Barrier for Tree Protection".

.10 Ontario Provincial Standard Specification 577 *"Construction Specification for Temporary Erosion and Sediment Control Measures*".

1.2 RELATED SECTIONS

.1 Section 01410 – Regulatory Requirements.

1.3 GENERAL

.1 Comply with all federal, provincial, and municipal regulatory requirements and guidelines for environmental protection and natural resource conservation, including the References noted above.

.2 The Work site is subject to inspection by the Base Environment Officer, or designate, or the Engineer, without prior notice.

.3 Failure to comply with environmental requirements may result in a stop work order or assessment of damages commensurate with repair of damage.

.4 The Contractor will be unable to request extra funding to meet environmental requirements.

.5 It is the Contractor's responsibility to be aware of environmental requirements and the best management practices and pollution control measures necessary to meet them.

1.4 PRODUCTS AND MATERIALS

.1 Use products and materials that are as free as possible of noxious or toxic volatile emissions or emissions of irritating or toxic particles, so that the interior air of the completed building is as pollution-free as possible. For example, products emitting benzene, mercury, lead, or other known toxic compounds are not acceptable.

.2 Where odourless products are not available, choose products where possible so that odours are minimized. Set ventilation levels during the construction period sufficiently high to encourage the off-gassing of materials to their minimum levels prior to occupancy of the building, where possible.

.3 Choose products for installation within the air-handling and distribution systems to minimize the introduction of pollutants into the fresh air supply to the building.

1.5 DISPOSAL OF WASTES – GENERAL

.1 Plan for the proper re-use, recycling, or disposal of all waste materials.

.2 Do not dispose of waste into any waterways, storm or sanitary sewers, drainage system, or onto land.

1.6 HAZARDOUS MATERIALS MANAGEMENT

.1 Plan for the proper management of both hazardous materials used in the course of the work, and hazardous materials waste.

.2 The Plan is to include handling, storage, transportation, disposal, and emergency response. Specific minimum requirements to be addressed are listed below.

.3 Refuel equipment within a secondary containment area.

.4 If refueling operations are not within a secondary

containment area, then seal all catchbasins within 30 metres.

.5 Place drip pans as follows:
.1 Under stationary equipment and machinery at all times.
.2 Under mobile equipment and machinery overnight, or when the equipment is not being actively used in the Work.

.6 Store all petroleum, oil, lubricants, and other hazardous materials within secondary containment, or in an appropriate metal clad storage building with containment.

.7 Store incompatible materials separated to prevent reaction.

.8 With respect to liquid spills, provide enough on-site equipment to control for one hour a liquid spill of 100% of any material brought on to—or handled at—the site.

.9 In the event of a spill into the natural environment, do everything practicable to prevent, eliminate, and ameliorate adverse effects, and to restore the natural environment.

.10 Emergency response planning is to include measures to escalate the response in the event of an emergency that exceeds on-site equipment capabilities.

1.7 POLUTION PREVENTION – AIR

.1 Prevent material from sandblasting, saw-cutting, and other operations from contaminating air beyond application area, by providing temporary enclosures in accordance with Ministry of Labour Guidelines; Silica on construction Projects, and Lead on construction Projects.

.2 Minimize the operation and idling of vehicles, and avoid operating and idling vehicles and gas-powered equipment during smog advisories.
Control emissions from equipment and plant to conform with federal, provincial, and municipal requirements.

1.8 NOISE

.1 In accordance with the City of Kingston noise by-law, construction is not permitted from 7 p.m. through 7 a.m., and all day on Sundays and statutory holidays.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 01354 Environmental Protection.

1.2 REFERENCES AND CODES

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

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

1.3 HAZARDOUS MATERIAL DISCOVERY

.1 Not used.

1.4 BUILDING SMOKING ENVIRONMENT

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

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 SECTIONS

.1 Section 01005 General Instructions

.2 Section 01330 Submittal Procedures

1.2 INSPECTION

.1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Consultant may order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, Contractor to correct such Work and pay cost of examination and correction.

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 Consultant 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 REPORTS

.1 Submit 4 copies of inspection and test reports to

Consultant.

.2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.9 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Consultant and may be authorized as recoverable.

1.10 MILL TESTS

.1 Submit mill test certificates as requested.

1.11 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

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 SECTIONS

.1 Refer drawings for extent of silt fence requirements which is to be installed along the shoreline side of construction work with a 1800mm barrier fence surrounding the entire four (4) sides of construction area as indicating on drawings.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.
- .2 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.

.2 Canadian Standards Association (CSA International)
- .1 CSA-O121-M1978(R2003), Douglas Fir Plywood.

1.3 INSTALLATION AND REMOVAL

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

1.5 ACCESS TO SITE

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

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.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Use new material and equipment unless otherwise specified.

.2 Within 7 days of written request by Engineer, submit following information for materials and equipment proposed for supply:
- .1 Name and address of manufacturer,
- .2 trade name, model and catalogue number,
- .3 performance, descriptive and test data,
- .4 manufacturer's installation or application instructions,
- .5 evidence of arrangements to procure.

.3 Use products of one manufacturer for material and equipment of same type or classification unless otherwise specified.

1.2 MANUFACTURERS INSTRUCTIONS

.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.

.2 Notify Architect in writing of any conflict between these specifications and manufacturers instructions. Architect will designate which document is to be followed.

1.3 DELIVERY AND STORAGE

.1 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.

.2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.

.3 Store material and equipment in accordance with suppliers instructions.

.4 Touch-up of damaged factory-finished surfaces maybe permitted to Engineer 's satisfaction or complete replacement of the affected item may be enforced. Where touch up is permitted use primers and paints that are compatible and match factory original. Do not paint over name plates.

1.4 CONTRACTOR’S OPTIONS FOR SELECTION OF MATERIALS FOR TENDERING

.1 Products specified by naming one or more products, select any product named. For the purpose of these specifications, the term ‘Acceptable Product’ is deemed to be a complete and working commodity as described by

a manufacturer's name, catalogue number, trade name or any combination thereof.

1.5 SUBSTITUTION

.1 No substitutions will be permitted after tender award except under special circumstances described herein.

.2 A substitution request must include statements of respective costs of items originally specified and the proposed substitution and itemize any differences in quality, performance and warranty.

.3 A substitution request may be considered by the Architect if:

.1 Materials selected from those specified are not available, discontinued; or

.2 delivery date of materials selected from those specified would unduly delay completion of contract; and

.3 alternative material to those specified, is equivalent in quality, performance and warranty to the material specified and will result in a credit to the Contract amount.

.4 Submitted shop drawings that extend the review period and do not consider the time requirement for review and or the time required to order, manufacture and deliver does not constitute justification or grounds for requesting an alternate material that is readily available for the project. Contractor shall bear all costs associated to provide the acceptable product to deliver the project on schedule.

.5 Should substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for design or drawing changes required as result of substitution.

.6 Amounts of all credits arising from approval of substitutions will be determined by Architect and Contract Price will be reduced accordingly.

1.6 ACCEPTABLE MATERIALS AT TENDER

.1 Materials listed as 'Acceptable Products': within the contents of this specification identify products known to meet the specified criteria. Other products may exist which meet the requirements specified, but have not been listed as 'Acceptable Products'.

.2 Alternates will only be accepted for consideration if information on proposed alternates are submitted to DCC for approval (DCL form 242) a minimum of ten (10) days before bid closing date. After review by DCC should the alternate have been deemed as

satisfying the specified criteria DCC will issue an amendment to all bidders adding accepted alternative. Unless an amendment is issued use only named products.

1.7 CONFORMANCE

.1 When material or equipment is specified by standard or performance specifications, upon request of Architect, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

1.8 CONSTRUCTION EQUIPMENT AND PLANT

.1 On request, prove to the satisfaction of Engineer that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.

.2 Maintain construction equipment and plant in good operating order.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 01321 Construction Progress Schedule.

1.2 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Consultant of findings.

1.3 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 Consultant 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 Consultant.

1.4 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01330 Submittals.

1.2 SUBMITTALS

.1 Submittals: in accordance with Section 01330 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:
- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.3 MATERIALS

.1 Required for original installation.

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

1.4 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to

protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.5 EXECUTION

.1 Execute cutting, fitting, and patching 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 Remove samples of installed Work for testing.

.6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.10 Restore work with new products in accordance with requirements of Contract Documents.

.11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

.1 Conduct cleaning and disposal operations in accordance with all Federal, Provincial or Municipal regulatory requirements and guidelines for environmental protection.

.2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.3 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.4 This section does not apply to cleaning associated with hazardous material removal and disposal operations. Cleaning of these areas is covered in other sections. Once certified as safe by Engineer cleaning methods specified herein are applicable.

1.2 MATERIALS

.1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.3 CLEANING DURING CONSTRUCTION

.1 Site is to be kept neat and orderly at all times.

.2 Provide on-site containers with covers for collection of waste materials, and debris. Empty on regular basis.

.3 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate materials or building systems.

.4 Indoors vacuum up dust and or wash down floor areas adjacent to work areas that become dusty from work, daily.

.5 Scrape and broom clean and hose down paved areas, concrete sidewalks should there be dried or caked on layers of mud or dirt.

1.4 FINAL CLEANING

.1 Interior & exterior cleaning may be performed by Contractors work force.

.2 Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from interior and exterior finished surfaces,

including glass and other polished surfaces.

.3 Clean soiled lighting reflectors, lenses, and other lighting surfaces.

.4 Broom clean paved areas, concrete sidewalks.

.5 Rake clean grounds.

.6 Remove debris and surplus materials.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 02311 Site Grading.

.2 Landscape Drawings.

1.2 REFERENCES

.1 Agriculture and Agri-Food Canada
- .1 The Canadian System of Soil Classification, Third Edition, 1998.

.2 Canadian Council of Ministers of the Environment
- .1 PN1340-2005, Guidelines for Compost Quality.

1.3 DEFINITIONS

.1 Compost:
- .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
- .2 Compost is processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Loss On Ignition (LOI) test.
- .3 Product must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth and contain no toxic or growth inhibiting contaminates.
- .4 Composed bio-solids to: CCME Guidelines for Compost Quality.

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01330 - Submittal Procedures.

1.5 QUALITY ASSURANCE

.1 Inform landscape architect of proposed source of topsoil to be supplied and provide access for sampling. Acceptance of topsoil subject to inspection and/or soil analysis test results. Do not commence work until topsoil accepted by landscape architect.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01741 – Cleaning.

.2 Divert unused soil amendments from landfill to official hazardous material collections site approved by Consultant.

.3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or

environmental hazard.

PART 2 - MATERIALS

2.1 MATERIALS

.1 Topsoil: screened, friable, neither heavy clay nor of very light sandy nature consisting of 45% sand 35% silt, 20% clay with 6 to 7 pH value. Free from subsoil, roots, vegetation, debris, toxic matter, and stones over 25mm diam.

.2 Planting soil for planting trees, shrubs, and groundcovers: mix 9 parts topsoil with 1 part peat moss. Incorporate bonemeal into planting soil at rate of 3 kg/c.m. of soil mixture.

.3 Peat Moss:
- .1 Derived from partially decomposed fibrous or cellular stems and leaves of Sphagnum Mossses.
- .2 Elastic and homogeneous, brown in colour.
- .3 Free of wood and deleterious material which could prohibit growth.
- .4 Shredded particle minimum size: 5mm.

.4 Fertilizer:
- .1 Complete commercial synthetic fertilizer with a minimum 65% insoluble nitrogen.
- .2 Formulation ratio: 1:4:4.
- .3 Bonemeal: finely ground with a minimum analysis of 20% phosphoric acid.

.5 Limestone:
- .1 Ground agricultural limestone containing minimum 85% of total carbonates.
- .2 Gradation requirements: percentage passing by weight, 90% passing 1.0mm sieve; 50% passing 0.125mm sieve.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PREPARATION OF EXISTING GRADE

.1 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.

.3 Remove debris, roots, branches, stones in excess of 50mm diameter and other deleterious materials.
- .1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
- .2 Remove debris which protrudes more than 50mm above surface.
- .3 Dispose of removed material off site.

.4 Cultivate entire area which is to receive topsoil to minimum depth of 150mm.
- .1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.3 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

.1 Place topsoil after landscape architect has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150mm.

.3 For sodded areas keep topsoil 15mm below finished grade.

.4 Spread topsoil to following minimum depths after settlement.
- .1 150mm for sodded areas.
- .2 450mm for planting beds.

.5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.4 SOIL AMENDMENTS

.1 Mix soil amendments into full depth of topsoil prior to application of fertilizer.

3.5 FINISH GRADING

.1 Grade to eliminate rough spots and low areas and ensure positive drainage.
- .1 Prepare loose friable bed by means of cultivation and subsequent raking.

.2 Consolidate topsoil to required bulk density using equipment approved by landscape architect.
- .1 Leave surfaces smooth, uniform and firm against deep footprinting.

3.6 FERTILIZER

.1 Apply fertilizer at least once a week after limestone application.

.2 Spread fertilizer uniformly over entire area of topsoil at manufacturer’s recommended rate of application.

.3 Mix fertilizer thoroughly to full depth of topsoil.

3.9 CLEANING

.1 Proceed in accordance with Section 01741 - Cleaning.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)
.1 CSA S350-M1980(R1998), Code of Practice for Safety in Demolition of Structures.

1.2 EXISTING CONDITIONS

.1 The Contractor shall review the existing conditions prior to submission of the bid. The Contractor shall review the site for existing restrictions and restrictions during construction.

1.3 REGULATORY REQUIREMENTS

.1 Ensure all work is performed in compliance with listed standards and all applicable provincial regulations.

1.4 SUBMITTALS

.1 Supply certified receipts from authorized disposal sites and reuse and recycling facilities for all material removed from site. Written authorization from the Consultant is required to deviate from the haulers, facilities, receiving organizations listed in waste reduction workplan.

PART 2 - PRODUCTS

2.1 EQUIPMENT

.1 Equipment and heavy machinery used to meet or exceed all applicable emission requirements operate in compliance with EPA CFR 86.098-10 and EPA CFR 86.098-11 and MVSA .

.2 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

.3 When equipment is not in use, it shall be placed on the site in a location that will not restrict the flow of pedestrian or vehicular traffic.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect site with Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Obtain and pay for locates for utilities and protect utilities as required. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting work.

3.2 SEQUENCES OF OPERATION

.1 Removal
- .1 Obtain written approval of Consultant prior to removal of any trees not designated .
- .2 Grind, chip, or shred all other vegetation for mulching and composting.
- .3 Stockpile topsoil for final grading and landscaping. Provide erosion control and seeding if not immediately used.

3.3 RESTORATION

.1 Restore areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

3.4 CLEANUP

.1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

.1 Section 02742 - Asphalt Paving for Building Sites.

.2 Section 02770 - Concrete Walks, Curbs and Gutters.

.3 Landscape Drawings.

1.2 References

.1 Asphalt Institute (AI)
- .1 AI MS-2-1993 Sixth Edition, Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-8.1-88, Sieves Testing, Woven Wire, Inch Series.
- .2 CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.
- .3 CAN/CGSB-16.1-M89, Cutback Asphalts for Road Purposes.
- .4 CAN/CGSB-16.2-M89, Emulsified Asphalts, Anionic Type, for Road Purposes.
- .5 CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.

1.3 Existing Conditions

.1 Known underground and surface utility lines and buried objects are as indicated on site plan. Extent and locations of services is not guaranteed. Contractor to establish location of all underground utility lines or other buried objects before commencing work.

1.4 Protection

.1 Protect existing trees, landscaping, natural features, bench marks, buildings, pavement, surface or underground utility lines which are to remain as indicated or directed by Consultant. If damaged, restore to original or better condition unless directed otherwise.

.2 Maintain access roads to prevent accumulation of mud on roads.

.3 Protect existing parking designated to remain.

PART 2 - PRODUCTS

2.1 Materials

.1 Fill material: Type 1 or 2.

.2 Excavated or graded material existing on site may be suitable to use as fill for grading work if approved by Consultant.

PART 3 - EXECUTION

3.1 Stripping of Topsoil

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Consultant.

.2 Commence topsoil stripping of areas as indicated after area has been cleared of grasses and removed from site.

.3 Strip topsoil to depths as indicated after area has been cleared and removed from site. Avoid mixing topsoil with subsoil.

.4 Do not stockpile topsoil on site.

.5 Dispose of unused topsoil off site.

3.2 Grading

.1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.

.2 Rough grade to depths required to suit landscaping. Coordinate landscaping requirements with the Owner prior to commencement of grading.

.3 Slope rough grade away from building 1:50 minimum or as otherwise indicated.

.4 Grade to depth required for run-off as indicated.

.5 Prior to placing fill over existing ground, scarify surface to depth of 150 mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.

.6 Compact filled and disturbed areas to standard Proctor maximum dry density to ASTM D 698-00a, as follows:
.1 85% under landscaped areas.
.2 95 % under paved and walk areas.

.7 Do not disturb soil within branch spread of trees or shrubs to remain.

.8 Ensure positive drainage of all excavated areas and maintain drains and slopes to provide good surface drainage.

3.3 Testing

.1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by ULC. Costs of tests will be paid under a Cash Allowance.

.2 Submit testing procedure, frequency of tests, testing laboratory as designated by ULC or certified testing personnel to Consultant for review.

3.4 Surplus Material

.1 Remove surplus material and material unsuitable for fill, grading or landscaping off site.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)
.1 CSA S350-M1980(R1998), Code of Practice for Safety in Demolition of Structures.

1.2 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01742 - Construction/Demolition Waste Management and Disposal.

1.3 SITE CONDITIONS

.1 Review "Designated Substance Report" and take precautions to protect environment.

.2 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Consultant immediately.
.1 Do not proceed until written instructions have been received from Consultant.

.3 Notify Consultant before disrupting building access or services.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect building with Consultant and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required,

existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Consultant and utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify the Engineer should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PROTECTION

.1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

.5 Do Work in accordance with Section 01353 - Health and Safety Requirements.

3.3 SALVAGE

.1 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.2 Remove items to be reused, store as directed by Consultant.

3.4 SITE REMOVALS

.1 Remove items as indicated.

.2 Removal of Pavements, Curbs and Gutters:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Consultant.

.2 Protect adjacent joints and load transfer devices.

.3 Protect underlying and adjacent granular materials.

3.5 DISPOSAL

.1 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

PART 1 - GENERAL

1.1 References

.1 CAN/CGSB-1.5-M91, Low Flash Petroleum Spirits Thinner.

.2 CGSB 1-GP-12c-68, Standard Paint Colours.

.3 CGSB 1-GP-71-83, Method, of Testing Paints and Pigments.

.4 CGSB 1-GP-74M-79, Paint, Traffic, Alkyd.

1.2 Samples

.1 Submit samples in accordance with Section 01330.

PART 2 - PRODUCTS

2.1 Materials

.1 Paint:
.1 To CGSB 1-GP-74M, alkyd traffic paint.
.2 Colour: to CGSB 1-GP-12C, white.

.2 Thinner: to CAN/CGSB-1.5-M91.

PART 3 - EXECUTION

3.1 Equipment Requirements

.1 Paint applicator to be an approved pressure type distributor capable of applying paint in single, double and dashed lines. Applicator to be capable of applying marking components uniformly, at rates specified, and to dimensions as indicated, and to have positive shut-off.

3.2 Condition of Surfaces

.1 Pavement surface to be free from surface water, frost, ice, dust, oil, grease and other foreign materials.

3.3 Application

.1 Layout pavement markings.

.2 Unless otherwise approved by Architect, apply paint only when air temperature is above 10EC and no rain is forecast.

.3 Apply traffic paint evenly at rate of 3 m^2/L.

3.3 Application Continued

.5 Symbols and letters to conform to dimensions indicated.

.6 Paint lines to be of uniform colour and density with sharp edges.

3.4 Tolerance

.1 Paint markings to be within plus or minus 12 mm of dimensions as indicated.

3.5 Protection of Completed Work

.1 Protect pavement markings until dry.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01741 - Cleaning.

.2 Section 01330 - Submittal Procedures.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM D 4791-99, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.

.2 Flat and elongated particles of coarse aggregate: to ASTM D 4791.

.1 Greatest dimension to exceed five times least dimension.

.3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:

.1 Natural sand.
.2 Manufactured sand.
.3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.

.4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:

.1 Crushed rock.
.2 Gravel and crushed gravel composed of naturally formed particles of stone.
.3 Light weight aggregate, including slag and expanded shale.

2.2 SOURCE QUALITY CONTROL

.1 Inform Consultant of proposed source of aggregates and provide access for sampling at least 4 weeks prior to commencing production.

.2 If, in opinion of Consultant, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements,

locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.

.3 Advise Consultant 4 weeks in advance of proposed change of material source.

.4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Processing
- .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
- .2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by Consultant.
- .3 Wash aggregates, if required to meet specifications. Use only equipment approved by Consultant.
- .4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.

.2 Handling
- .1 Handle and transport aggregates to avoid segregation, contamination and degradation.

.3 Stockpiling
- .1 Stockpile aggregates on site in locations as indicated unless directed otherwise by Consultant. Do not stockpile on completed pavement surfaces.
- .2 Stockpile aggregates in sufficient quantities to meet Project schedules.
- .3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
- .4 Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than 300mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom 300mm of pile into Work.
- .5 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough

apart to prevent intermixing.

.6 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Consultant within 48h of rejection.

.7 Stockpile materials in uniform layers of thickness as follows:

.1 Max 1.5m for coarse aggregate and base course materials.

.2 Max 1.5m for fine aggregate and sub-base materials.

.3 Max 1.5m for other materials.

.8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.

.9 Do not cone piles or spill material over edges of piles.

.10 Do not use conveying stackers.

.11 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

3.2 CLEANING

.1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.

.2 Remove any unused aggregates off site.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

.1 Section 01741 - Cleaning.

.2 Section 02701 - Aggregate Materials.

1.2 References

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
- .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 Waste Management and Disposal

.1 Separate and recycle waste materials in accordance with Section 01741 - Cleaning.

PART 2 - PRODUCTS

2.1 Materials

.1 Granular sub-base material: in accordance with Section 02701 - Aggregate Materials and following requirements:
- .1 Crushed, pit run or screened stone, gravel or sand.
- .2 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1, CAN/CGSB-8.2.
- .3 Table

Sieve Designation	% Passing			
100 mm	-	-	-	-
75 mm	[100]	[100]	[100]	-
50 mm	-	-	-	[100]
37.5 mm	-	-	-	-
25 mm	[55-100]	-	-	[60-100]
19 mm	-	-	-	-
12.5 mm	-	-	-	[38-70]
9.5 mm	-	-	-	-
4.75 mm	[25-100]	[25-85]	-	[22-55]
2.00 mm	[15-80]	-	-	[13-42]
0.425 mm	[4-50]	[5-30]	[0-30]	[5-28]
0.180 mm	-	-	-	-
0.075 mm	[0-8]	[0-10]	[0-8]	[2-10]

.4 Other Properties as follows:

.1 Liquid Limit: to ASTM D 4318, Maximum 25.
.2 Plasticity Index: to ASTM D 4318, Maximum 6.
.3 Los Angeles degradation: to ASTM C 131. Max% Loss by mass: 40 or 50.
.4 Particles smaller than 0.02 mm: to ASTM D 422, Maximum 3%.
.5 Soaked CBR: to ASTM D 1883, Min 40 when compacted to 100% of ASTM D 1557.

PART 3 - EXECUTION

3.1 Placing

.1 Place granular sub-base after subgrade is inspected and approved by Consultant.

.2 Construct granular sub-base to depth and grade in areas indicated.

.3 Ensure no frozen material is placed.

.4 Place material only on clean unfrozen surface, free from snow or ice.

.5 Begin spreading sub-base material on crown line or high side of one-way slope.

.6 Place granular sub-base materials using methods which do not lead to segregation or degradation.

.7 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness.

.8 Place material to full width in uniform layers not exceeding 150mm compacted thickness. Consultant may authorize thicker lifts (layers) if specified compaction can be achieved.

.9 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

.10 Remove and replace portion of layer in which material has become segregated during spreading.

3.2 Compaction

.1 Compaction equipment to be capable of obtaining required material densities.

.2 Compact to density of not less than 98% corrected maximum dry density ASTM D 698, ASTM D 1557.

.3 Shape and roll alternately to obtain smooth, even and uniformly compacted sub-base.

.4 Apply water as necessary during compaction to obtain specified density.

.5 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Consultant.

.6 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.3 Proof Rolling

.1 For proof rolling use standard roller of 45400kg gross mass with four pneumatic tires each carrying 11350kg and inflated to 620kPa. Four tires arranged abreast with centre to centre spacing of 730mm maximum.

.2 Obtain approval from Consultant to use non standard proof rolling equipment.

.3 Proof roll at level in sub-base as indicated. If non standard proof rolling equipment is approved, Consultant to determine level of proof rolling.

.4 Make sufficient passes with proof roller to subject every point on surface to three separate passes of loaded tire.

.5 Where proof rolling reveals areas of defective subgrade:

.1 Remove sub-base and subgrade material to depth and extent as directed by Consultant.

.2 Backfill excavated subgrade with common material and compact in accordance with this section.

.3 Replace sub-base material and compact.

.6 Where proof rolling reveals areas of defective sub-base, remove and replace in accordance with this section at no extra cost.

3.4 Site Tolerances

.1 Finished sub-base surface to be within 10mm of elevation as indicated but not uniformly high or low.

3.5 Protection

.1 Maintain finished sub-base in condition conforming to this section until succeeding base is constructed, or until Consultant accepts granular sub-base.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Materials and installation for asphalt concrete pavement for car park areas, driveways to buildings, bikeways and walks or play areas.

1.2 RELATED SECTIONS

.1 Section 01330 - Submittal Procedures.

.2 Section 01741 – Cleaning and Waste Management.

.3 Section 01450 - Quality Control.

.4 Section 02701 - Aggregate Materials.

.6 Section 03300 – Cast-in-Place Concrete.

1.3 REFERENCES

.1 Asphalt Institute (AI)
- .1 AI MS-2-1993 Sixth Edition, Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-8.1-88, Sieves Testing, Woven Wire, Inch Series.
- .2 CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.
- .3 CAN/CGSB-16.1-M89, Cutback Asphalts for Road Purposes.
- .4 CAN/CGSB-16.2-M89, Emulsified Asphalts, Anionic Type, for Road Purposes.
- .5 CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.

1.5 SUBMITTALS

.1 Submit product data in accordance with Section 01330 - Submittal Procedures.

.2 Submit asphalt concrete mix design and trial mix test results to Consultant for review/approval.

.3 Submit samples in accordance with Section 01330 - Submittal Procedures.

.4 Inform Consultant of proposed source of aggregates and provide access for sampling at least 4 weeks prior to commencing work.

.5 Submit samples of following materials proposed for use at least 4 weeks prior to commencing work:
- .1 One 5L container of asphalt cement.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01741 - Cleaning.

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.4 Divert unused asphalt materials from landfill to local quarry or facility as approved by Consultant.

.5 Divert unused aggregate materials from landfill to quarry or facility for reuse as approved by Consultant.

.6 Unused protective coating material must be disposed of at an official hazardous material collections site as approved by Consultant.

.7 Unused protective coating material 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.

.8 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Granular base and sub-base material: to Section 02701 - Aggregate Materials and following requirements:
.1 Crushed or screened stone, gravel or sand.
.2 Gradations: within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1, CAN/CGSB-8.2.
.3 Table

Sieve Designation	Granular Base		Granular Sub-Base	
200 mm	-	-	-	-
75 mm	-	-	[100]	[100]
50 mm	[100]	-	-	-
38.1 m	[70-100]	-	-	-
25 mm	-	-	[55-100]	-
19 mm	[50-75]	[100]	-	-
12.5 mm	-	[70-100]	-	-
9.5 mm	[40-65]	-	-	-

4.75 mm	[30-50]	[40-70]	[25-100]	-
2.00 mm	-	[23-50]	[15-80]	-
0.425 mm	[10-30]	[7-25]	[4-50]	[0-30]
0.180 mm	-	-	-	-
0.075 mm	[3-8]	[3-8]	[0-8]	[0-8]

.4 Granular base aggregates:
.1 Crushed particles: at least 60% of particles by mass retained on 4.75mm sieve to have at least 1 freshly fractured face.
.2 Liquid limit: to ASTM D 4318, maximum 25.
.3 Plasticity index: to ASTM D 4318, maximum 6.

.2 Asphalt concrete aggregates:
.1 Coarse aggregate is aggregate retained on 4.75mm sieve and fine aggregate is aggregate passing 4.75mm sieve when tested to ASTM C 117.
.2 When dryer drum plant or plant without hot screening is used, process fine aggregate through 4.75mm sieve and stockpile separately from coarse aggregate.
.3 Separate stock piles for coarse and fine aggregate are not required for sheet asphalt.
.4 Do not use aggregates having known polishing characteristics in mixes for surface courses.
.5 Aggregate: material to Section 02701 - Aggregate Materials and following requirements:
.6 Crushed stone or gravel.
.7 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1, CAN/CGSB-8.2.
.8 Table

Sieve Designation	% Passing	
	Asphalt Concrete	Sheet Asphalt
200 mm	-	-
75 mm	-	-
50 mm	-	-
38.1 mm	-	-
25 mm	-	-
19.0 mm	[100]	-
12.5	-	[100]
9.5 mm	[60-80]	[100]
4.75 mm	[40-65]	[85-100]
2.00 mm	[30-50]	[80-95]
0.425 mm	[15-30]	[40-70]
0.180 mm	[5-20]	[10-35]
0.075 mm	[3-8]	[4-14]

.9 Sand equivalent: to ASTM D 2419, Minimum 50.

.10 Magnesium Sulphate soundness: to ASTM C 88. Max % loss by weight: coarse aggregate 12, fine aggregate 16.

.11 Los Angeles Degradation: to ASTM C 131. Max % loss by weight: coarse aggregate, 35.

.12 Absorption: to ASTM C 127. Max % by weight: coarse aggregate, 1.75.

.13 Lightweight particles: to ASTM C 123. Max % by mass, with less than 1.95. Relative density (formally Specific Gravity): 1.5.

.14 Flat and elongated particles: to ASTM D 4791, (with length to thickness ratio greater than 5): Max % by weight: coarse aggregate, 15.

.15 Crushed particles: at least 60% of particles by mass within each of following sieve designation ranges to have at least 1 freshly fractured face. Material to be divided into ranges using methods of ASTM C 136.

.16 Table

Passing		Retained on
[19] mm	to	[9.5] mm
[9.5] mm	to	[4.75] mm

.17 Regardless of compliance with specified physical requirements, fine aggregates may be accepted or rejected on basis of past field performance.

PART 3 – EXECUTION

3.1 EXECUTION

.1 Refer to Drawings for detail on both normal & heavy duty asphalt paving.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

.1 Section 02311 - Site Grading.

.2 Section 03100 - Concrete Formwork.

.3 Section 03200 - Concrete Reinforcement.

.4 Section 03300 - Cast-in-Place Concrete.

1.2 References

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-3.3-99(March 2004), Kerosene, Amend. No. 1, National Standard of Canada.
- .2 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.

.2 Canadian Standards Association (CSA International)
- .1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

PART 2 - PRODUCTS

2.1 Materials

.1 Concrete mixes and materials: to Section 03300.

.2 Reinforcing steel: to Section 03200.

.3 Joint filler: to Section 03300.

.4 Granular base: to Section 02315, type 1 fill.

.5 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water soluble soap.

.6 Fill material: to Section 02315, type 2 fill.

.7 Boiled linseed oil: to CAN/CGSB-1.2-98.

.8 Kerosene: to CAN/CGSB-3.3-99.

.9 Curing compounds for concrete: to be white pigmented membrane conforming to CGSB Standard 90-GP-/a Type 2 Compound.

.10 Expansion control joint filler: asphalt impregnated fibreboard, 12mm thick.

PART 3 - EXECUTION

3.1 Grade Preparation

.1 Do grade preparation work in accordance with Section 02311.

.2 Place fill in maximum 150 mm layers and compact to at least 95% of maximum density to ASTM D 698-00a.

.3 All grades are not to exceed a 1 and 25 slope for all walks.

3.2 Granular Base

.1 Obtain Consultant's approval of subgrade before placing granular base.

.2 Place granular base material to lines, widths, and depths as indicated.

.3 Compact granular base to at least 95% of maximum density to ASTM D 698-00a.

3.3 Concrete

.1 Obtain Consultant's approval of granular base and reinforcing steel prior to placing concrete.

.2 Do concrete work in accordance with Section 03300, Municipal Standards and OPSD Standards.

.3 Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom perpendicular to length of sidewalk or ramp.

.4 Round edges including edges of points with 15mm and 75mm radius edging tool.

.5 Slip-form pavers equipped with string line system for line and grade control may be used if quality of work acceptable to Consultant can be demonstrated. Hand finish surfaces when directed by Consultant.

.6 Finish surfaces to be within 3mm in 3m from line level or grade as measured with a straight edge placed on surface.

.7 Construct curbs in accordance with notes on Drawings.

.8 Depressed curbs shall be constructed where shown on drawings.

.9 Tie in new curbs with abutting existing curbs or walks, remove any existing curb no longer required with new entry and parking layout. Refer also drawings.

3.4 Expansion and Contraction Joints

.1 Install tooled transverse contraction joints after floating, when concrete is stiff, but still plastic, at intervals of 1.5 m.

.2 Install expansion joints as indicated at intervals of 6m.

.3 Install expansion joints around manholes and catch basins and along length adjacent to concrete curbs, catch basins, buildings, or permanent structure.

.4 When sidewalk is adjacent to curb, make joints of curb, gutters and sidewalk coincide.

.5 Install joint filler in expansion joints in accordance with Section 03300.

.6 Seal expansion joints with sealant approved by Consultant.

3.5 Curing

.1 Cure concrete by adding moisture continuously in accordance with CAN/CSA-A23.1-00 to exposed finished surfaces for at least 1 day after placing, or sealing moisture in by curing compound approved by Consultant.

.2 Where burlap is used for moist curing, place two prewetted layers on concrete surface and keep continuously wet during curing period.

.3 Apply curing compound evenly to form continuous film. In accordance with manufacturer's requirements.

3.6 Backfill

.1 Allow concrete to cure for 7 days prior to backfilling.

.2 Backfill to designated elevations with material approved by Consultant. Compact and shape to required contours as indicated or as directed by Consultant.

3.7 Linseed Oil Treatment

.1 After concrete has cured for specified curing time and when surface of concrete is clean and dry, apply two coats of linseed oil mixture uniformly to surfaces of curbs, walks and gutters.

.2 Linseed oil mixture to consist of 50% boiled linseed oil and 50% mineral spirits by volume.

.3 Apply treatment when air temperature above 10°C.

.4 Apply first coat at 135 mL/m^2.

.5 Apply second coat at 90 mL/m^2 when first coat has dried.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01330 - Submittal Procedures.

.2 Section 01741 - Cleaning.

.3 Section 02212 - Topsoil Placement and Grading.

1.3 SUBMITTALS

.1 Samples.
- .1 Submit samples in accordance with Section 01330 - Submittal Procedures.

1.5 SCHEDULING

.1 Schedule sod laying to coincide with preparation of soil surface.

.2 Schedule sod installation when frost is not present in ground.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01741 - Cleaning.

.2 Divert unused fertilizer from landfill to official hazardous material collections site approved by landscape architect.

.3 Do not dispose of unused fertilizer into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.
- .1 Turf Grass Nursery Sod types:
  - .1 Number One Kentucky Bluegrass Sod: Nursery Sod grown solely from seed of cultivars of Kentucky Bluegrass, containing not less than 50% Kentucky Bluegrass cultivars.
- .2 Broken, dry, discolored pieces will be rejected by landscape architect.

.3 Sod establishment support:
- .1 Wooden pegs: 17 x 8 x 200mm.

.2 Biodegradable starch pegs: 17 x 8 x 200mm.

.4 Water:
.1 Potable.

.5 Fertilizer:
.1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
.2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

2.2 SOURCE QUALITY CONTROL

.1 Obtain approval from landscape architect of sod at source.

.2 When proposed source of sod is approved, use no other source without written authorization from landscape architect.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Verify that grades are correct and prepared in accordance with Section 02212 - Topsoil Placement and Grading. If discrepancies occur, notify landscape architect and do not commence work until instructed by landscape architect.

.2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.

.3 Fine grade surface free of humps and hollows to smooth, even grade, to contours and elevations indicated, to tolerance of plus or minus 8mm, for Turf Grass Nursery Sod, for surface to drain naturally.

.4 Remove and dispose of weeds; debris; stones 50mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site or in location as directed by landscape architect.

3.2 SOD PLACEMENT

.1 Lay sod within 24 hours of being lifted if air temperature exceeds 20°C.

.2 Lay sod sections in rows, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.

.3 Roll sod as directed by landscape architect. Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.

3.3 SOD PLACEMENT ON SLOPES AND PEGGING

.1 Install and secure geotextile fabric in areas indicated, in accordance with manufacturer's instructions.

.2 Start laying sod at bottom of slopes.

.3 Peg sod on slopes steeper than 3 horizontal to 1 vertical, within 1m of catch basins and within 1m of drainage channels and ditches to following pattern:

.1 100mm below top edge at 200mm on centre for first sod sections along contours of slopes.
.2 Not less than 3-6 pegs per square metre.
.3 Not less than 6-9 pegs per square metre in drainage structures. Adjust pattern as directed by landscape architect.
.4 Drive pegs to 20mm above soil surface of sod sections.

3.4 FERTILIZING PROGRAM

.1 Fertilize during establishment and warranty periods to following program: one month after sodding with 2:1:1 ratio fertilizer. Spread evenly at manufacturer’s rate and water in well.

3.5 MAINTENANCE DURING ESTABLISHMENT PERIOD

.1 Perform following operations from time of installation until acceptance.

.2 Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 75 to 100mm.

.3 Cut grass to 50mm when or prior to it reaching height of 75mm. Remove clippings which will smother grassed areas.

.4 Maintain sodded areas weed free 95%.

.5 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.

3.6 ACCEPTANCE

.1 Turf Grass Nursery Sod areas will be accepted by landscape architect provided that:

.1 Sodded areas are properly established.
.2 Sod is free of bare and dead spots.
.3 No surface soil is visible from height of 1500mm when grass has been cut to height of 50mm.
.4 Sodded areas have been cut minimum 2 times prior to acceptance.

.3 Areas sodded in fall will be accepted in following

spring one month after start of growing season provided acceptance conditions are fulfilled.

3.7 MAINTENANCE DURING WARRANTY PERIOD

.1 Perform following operations from time of acceptance until end of warranty period:
- .1 Water sodded Turf Grass Nursery Sod areas at weekly intervals to obtain optimum soil moisture conditions to depth of 100mm.

.2 Repair and resod dead or bare spots to satisfaction of landscape architect.

.3 Cut grass and remove clippings that will smother grass to height as follows:
- .1 Turf Grass Nursery Sod:
  - .1 50mm during normal growing conditions.
- .3 Cut grass at 2 week intervals or as directed by landscape architect, but at intervals so that approximately one third of growth is removed in single cut.
- .4 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.
- .5 Eliminate weeds by mechanical or chemical means to extent acceptable to landscape architect.

3.8 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)
- .1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-O86S1-05, Supplement No. 1 to CAN/CSA-O86-01, Engineering Design in Wood.
- .3 CSA O121-M1978(R2003), Douglas Fir Plywood.
- .4 CSA O151-04, Canadian Softwood Plywood.
- .5 CSA O153-M1980(R2003), Poplar Plywood.
- .6 CAN/CSA-O325.0-92(R2003), Construction Sheathing.
- .7 CSA O437 Series-93(R2006), Standards for OSB and Waferboard.
- .8 CSA S269.1-1975(R2003), Falsework for Construction Purposes.
- .9 CAN/CSA-S269.3-M92(R2003), Concrete Formwork, National Standard of Canada

.2 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

1.3 SUBMITTALS

.1 Submittals in accordance with Section 01330 - Submittal Procedures.

.2 Submit shop drawings for formwork and falsework.
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province(s)of Canada.

.3 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1, for falsework drawings and Comply with CAN/CSA-S269.3 for formwork drawings.

.4 Indicate formwork design data: permissible rate of concrete placement, and temperature of concrete, in forms.

.5 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:
- .1 Separate waste materials for reuse and recycling in accordance with Section 01472 - Construction/Demolition Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic in designated containers.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Formwork materials:
- .1 For concrete without special architectural features, use wood and wood product formwork materials to CSA-O121, CAN/CSA-O86, CSA O437 Series or CSA-O153.
- .2 For concrete with special architectural features, use formwork materials to CSA-A23.1/A23.2.
- .3 Rigid insulation board: to CAN/ULC-S701.

.2 Pan forms: removable, permanent, steel, reinforced plastic or aluminum as indicated.

.3 Tubular column forms: round, spirally wound laminated fibre forms, steel, internally treated with release material.
- .1 Spiral pattern to show in hardened concrete.

.4 Form ties:
- .1 For concrete not designated 'Architectural', use removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface.
- .2 For Architectural concrete, use snap ties complete with plastic cones and light grey concrete plugs.

.5 Form liner:
- .1 Plywood: high density overlay

.6 Form release agent: non-toxic, low VOC.

.7 Form stripping agent: colourless mineral oil, non-toxic, low VOC, free of kerosene, with viscosity between 70 and 110s Saybolt Universal 15 to 24 mm^2/s at 40°C, flashpoint minimum 150°C, open cup.

.8 Falsework materials: to CSA-S269.1.

.9 Sealant: to Section 07920 - Joint Sealing.

PART 3 - EXECUTION

3.1 FABRICATION AND ERECTION

.1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

.2 Obtain Architect's approval for use of earth forms framing openings not indicated on drawings.

.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.4 Fabricate and erect falsework in accordance with CSA S269.1.

.5 Refer to architectural drawings for concrete members requiring architectural exposed finishes.

.6 Do not place shores and mud sills on frozen ground.

.7 Provide site drainage to prevent washout of soil supporting mud sills and shores.

.8 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.

.9 Align form joints and make watertight.
- .1 Keep form joints to minimum.

.10 Locate horizontal form joints for exposed columns 2400mm above finished floor elevation.

.11 Use 25mm chamfer strips on external corners and/or 25mm fillets at interior corners, joints, unless specified otherwise.

.12 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.13 Build in anchors, sleeves, and other inserts required accommodating Work specified in other sections.
- .1 Ensure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

.14 Line forms for following surfaces:
- .1 Outer face of outside, girders, beams, and vertical edge of bridge sidewalk slab.
- .2 Soffit of girders and underside of bridge decks if exposed.

.3 Exposed faces of abutments, wingwalls, piers and pylons: do not stagger joints of form lining material and align joints to obtain uniform pattern.

.4 Secure lining taut to formwork to prevent folds.

.5 Pull down lining over edges of formwork panels.

.6 Ensure lining is new and not reused material.

.7 Ensure lining is dry and free of oil when concrete is poured.

.8 Application of form release agents on formwork surface is prohibited where drainage lining is used.

.9 If concrete surfaces require cleaning after form removal, use only pressurized water stream so as not to alter concrete's smooth finish.

.10 Cost of textile lining is included in price of concrete for corresponding portion of Work.

.15 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

.16 When slip forming and flying forms are used, submit details as indicated in PART 1 - SUBMITTALS.

END OF SECTION

PART 1 - GENERAL

1.1 MEASUREMENT PROCEDURES

.1 Measure reinforcing steel in kilograms of steel incorporated into Work, computed from theoretical unit mass specified in CAN/CSA-G30.18 for lengths and sizes of bars as indicated or authorized in writing by Architect.

.2 No measurement will be made under this Section.
- .1 Include reinforcement costs in items of concrete work in Section 03300 - Cast-In-Place Concrete.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)
- .1 CSA-A23.1-[04]/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-A23.3-04, Design of Concrete Structures.
- .3 CAN/CSA-G30.18-M92(R2002), Billet-Steel Bars for Concrete Reinforcement, A National Standard of Canada.
- .4 CSA-G40.20/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .5 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles, A National Standard of Canada.
- .6 CSA W186-M1990(R2002), Welding of Reinforcing Bars in Reinforced Concrete Construction.

.4 Reinforcing Steel Institute of Canada (RSIC)
- .1 RSIC-2004, Reinforcing Steel Manual of Standard Practice.

1.3 SUBMITTALS

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

.2 Detail lap lengths and bar development lengths to CSA-A23.3, unless otherwise indicated.
- .1 Provide type A tension lap splices unless otherwise indicated.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:
- .1 Separate waste materials for reuse and recycling in accordance with Section 01472 - Construction/Demolition Waste Management and Disposal.
- .2 Place materials defined as hazardous or toxic in designated containers.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Substitute different size bars only if permitted in writing by Departmental Representative.

.2 Reinforcing steel: billet steel, grade 400, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.

.3 Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-G30.18.

.4 Cold-drawn annealed steel wire ties: to ASTM A 497/A 497M.

.5 Deformed steel wire for concrete reinforcement: to ASTM A 497/A 497M.

.6 Welded steel wire fabric: to ASTM A 185/A 185M.
- .1 Provide in flat sheets only.

.7 Welded deformed steel wire fabric: to ASTM A 497/A 497M.
- .1 Provide in flat sheets only.

.8 Epoxy Coating of non-prestressed reinforcement: to ASTM A 775/A 775M.

.9 Galvanizing of non-prestressed reinforcement: to CAN/CSA-G164, minimum zinc coating 610g/m².
- .1 Protect galvanized reinforcing steel with chromate treatment to prevent reaction with Portland cement paste.
- .2 If chromate treatment is carried out immediately after galvanizing, soak steel in aqueous solution containing minimum 0.2% by weight sodium dichromate or 0.2% chromic acid.
  - .1 Temperature of solution equal to or greater than 32 degrees and galvanized steels immersed for minimum 20 seconds.
- .3 If galvanized steels are at ambient temperature, add sulphuric acid as bonding agent at concentration of 0.5% to 1%.
  - .1 In this case, no restriction applies to temperature of solution.
- .4 Chromate solution sold for this purpose may replace solution described above, provided it is of equivalent effectiveness.
  - .1 Provide product description as described in PART 1 - SUBMITTALS

2.2 FABRICATION

.1 Fabricate reinforcing steel in accordance with CSA-A23.1/A23.2 or ACI 315 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
.1 ACI 315R unless indicated otherwise.

.2 Obtain Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.

.3 Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.

.4 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.
.1 Ship epoxy coated bars in accordance with ASTM A 775A/A 775M.

2.3 SOURCE QUALITY CONTROL

.1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 4 weeks prior to beginning reinforcing work.

.2 Upon request inform Departmental Representative of proposed source of material to be supplied.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Galvanizing to include chromate treatment.
.1 Duration of treatment to be 1 hour per 25 mm of bar diameter.

.2 Conduct bending tests to verify galvanized bar fragility in accordance with ASTM A 143/A 143M.

3.2 FIELD BENDING

.1 Do not field bend or field weld reinforcement.

.2 When field bending is authorized, bend without heat, applying slow and steady pressure.

.3 Replace bars, which develop cracks or splits.

3.3 PLACING REINFORCEMENT

.1 Place reinforcing steel as indicated on placing drawings and in accordance with CSA-A23.1/A23.2.

.2 Use plain round bars as slip dowels in concrete.
.1 Paint portion of dowel intended to move within hardened concrete with one coat of asphalt paint.
.2 When paint is dry, apply thick even film of

mineral lubricating grease.

.3 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.

.4 Ensure cover to reinforcement is maintained during concrete pour.

.5 Protect epoxy and paint coated portions of bars with covering during transportation and handling.

3.4 FIELD TOUCH-UP

.1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcing steel with compatible finish to provide continuous coating.

END OF SECTION

PART 1 - GENERAL

1.1 MEASUREMENT PROCEDURES

.1 Measurement Procedures: in accordance with Section 01 29 00 - Payment Procedures.

.2 Measure cast-in-place concrete in sub-structure in cubic metres calculated from neat dimensions as authorized in writing by Departmental Representative.
- .1 Concrete placed beyond dimensions indicated will not be measured.

.3 No deductions will be made for volume of concrete displaced by reinforcing steel, structural steel, or piles.

.4 No deductions will be made for volume of concrete less than $0.1m^2$ in cross sectional area displaced by individual drainage openings.

.5 Supply and installation of anchor bolts, nuts and washers and bolt grouting will not be measured but considered incidental to work.

.6 Measure supply and installation of waterstops in lineal metres installed.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-37.2-M88, Emulsified Asphalt, Mineral Colloid-Type, Unfilled, for Dampproofing and Waterproofing and for Roof Coatings.
- .2 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.2 Canadian Standards Association (CSA International)
- .1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA A283-00(R2003), Qualification Code for Concrete Testing Laboratories.
- .3 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
  - .1 CSA-A3001-03, Cementitious Materials for Use in Concrete.

1.3 ACRONYMS AND TYPES

.1 Cement: hydraulic cement or blended hydraulic cement (XXb - where b denotes blended).

.1 Type GU or GUb - General use cement.
.2 Type MS or MSb - Moderate sulphate-resistant cement.
.3 Type MH or MHb - Moderate heat of hydration cement.
.4 Type HE or Heb - High early-strength cement.
.5 Type LH or LHb - Low heat of hydration cement.
.6 Type HS or HSb - High sulphate-resistant cement.

.2 Fly ash:
.1 Type F - with CaO content less than 8%.
.2 Type CI - with CaO content ranging from 8 to 20%.
.3 Type CH - with CaO greater than 20%.

.3 GGBFS - Ground, granulated blast-furnace slag.

1.4 DESIGN REQUIREMENTS

.1 Alternative 1 - Performance: in accordance with CSA-A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

.2 Alternative 2 - Prescription: in accordance with CSA-A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

1.5 SUBMITTALS

.1 Submittals in accordance with Section 01330 - Submittal Procedures.

1.6 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01450 - Quality Control.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Concrete hauling time: maximum allowable time for concrete to be delivered to site of Work and discharged not to exceed 120 minutes after batching.
.1 Modifications to maximum time limit must be agreed to Departmental Representative and concrete producer as described in CSA A23.1/A23.2.
.2 Deviations to be submitted for review by Departmental Representative.

.2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

.3 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.2 Divert unused concrete materials from landfill to local quarry or facility approved

by Departmental Representative.

.3 Provide an appropriate area on the job site where concrete trucks can be safely washed.

.4 Divert unused admixtures and additive materials (pigments, fibres) from landfill to official hazardous material collections site as approved by the Architect.

.5 Unused admixtures and additive materials must not be disposed of into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

.6 Prevent admixtures and additive materials from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with inert, noncombustible material and remove for disposal. Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Cement: to CAN/CSA-A3001, Type GU.

.2 Blended hydraulic cement: Type Gub or GU to CAN/CSA-A3001.

.3 Water: to CSA-A23.1.

.4 Aggregates: to CAN/CSA-A23.1/A23.2.

.5 Admixtures:

.1 Air entraining admixture: to ASTM C 260.

.2 Chemical admixture: to ASTM C 494 or ASTM C 1017. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.6 Shrinkage compensating grout: premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA-A23.1/A23.2.

.1 Compressive strength: 40 MPa at 28 days.

.7 Non premixed dry pack grout: composition of non metallic aggregate Portland cement with sufficient water for mixture to retain its shape when made into ball by hand and capable of developing

compressive strength of 30 MPa at 28 days.

.8 Curing compound: to CSA-A23.1/A23.2 white and ASTM C 309, Type 1-chlorinated rubber.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Obtain Consultant's approval before placing concrete.
- .1 Provide 24 hours notice prior to placing of concrete.

.2 Place concrete reinforcing in accordance with Section 03200 - Concrete Reinforcing.

.3 During concreting operations:
- .1 Development of cold joints not allowed.
- .2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.

.4 Pumping of concrete will not be permitted.

.5 Ensure reinforcement and inserts are not disturbed during concrete placement.

.6 Prior to placing of concrete obtain Consultant's approval of proposed method for protection of concrete during placing and curing in adverse weather.

.7 Protect previous Work from staining.

.8 Clean and remove stains prior to application for concrete finishes.

.9 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.

.10 In locations where new concrete is dowelled to existing work, drill holes in existing concrete.
- .1 Place steel dowels of deformed steel reinforcing bars and pack solidly with shrinkage compensating grout to anchor and hold dowels in positions as indicated.

.11 Do not place load upon new concrete until authorized by Consultant's.

3.2 CONSTRUCTION

.1 Do cast-in-place concrete work in accordance with CSA-A23.1/A23.2.

.2 Sleeves and inserts:
- .1 Do not permit penetrations, sleeves, ducts, pipes or other openings to pass through joists, beams, column capitals or columns, except where indicated or approved by Consultant.
- .2 Where approved by Consultant, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere.
- .3 Sleeves and openings greater than 100 x 100mm not indicated, must be reviewed by Consultant.
- .4 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain approval of modifications from Consultant before placing of concrete.
- .5 Check locations and sizes of sleeves and openings shown on drawings.
- .6 Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.

.3 Anchor bolts:
- .1 Set anchor bolts to templates under supervision of appropriate trade prior to placing concrete.
- .2 With approval of Consultant grout anchor bolts in preformed holes or holes drilled after concrete has set. Formed holes to be minimum 100mm diameter. Drilled holes to be minimum 25mm larger in diameter than bolts used to manufacturers' recommendations.
- .3 Protect anchor bolt holes from water accumulations, snow and ice build-ups.
- .4 Set bolts and fill holes with shrinkage compensating grout.
- .5 Locate anchor bolts used in connection with expansion shoes, rollers and rockers with due regard to ambient temperature at time of erection.

.6 Grout under base plates using procedures in accordance with manufacturer's recommendations which result in 100% contact over grouted area.

.7 Finishing and curing:
- .1 Finish concrete in accordance with CSA-A23.1/A23.2.

- .2 Use procedures as reviewed by Consultant or those noted in CSA-A23.1/A23.2 to remove

excess bleed water. Ensure surface is not damaged.

.3 Use curing compounds compatible with applied finish on concrete surfaces. Applied finish on concrete: Provide written declaration that compounds used are compatible.

.4 Finish concrete floor to meet requirements of CSA-A23.1/A23.2.

.5 Concrete floor to have finish hardness equal or greater than Mohs hardness in accordance with CSA-A23.1/A23.2.

.6 Provide screed finish where floor tile is to be applied.

.7 Provide screed finish unless otherwise indicated.

.8 Rub exposed sharp edges of concrete with carborundum to produce 3 mm radius edges unless otherwise indicated.

.8 Joint fillers:

.1 Furnish filler for each joint in single piece for depth and width required for joint, unless otherwise authorized by Consultant.

.2 When more than one piece is required for joint, fasten abutting ends and hold securely to shape by stapling or other positive fastening.

.3 Locate and form isolation, construction and expansion joints as indicated.

.4 Install joint filler.

.5 Use 12mm thick joint filler to separate slabs-on-grade from vertical surfaces and extend joint filler from bottom of slab to within 12mm of finished slab surface unless indicated otherwise.

3.3 SURFACE TOLERANCE

.1 Concrete tolerance in accordance with CSA-A23.1/A23.2

3.4 FIELD QUALITY CONTROL

.1 Site tests: conduct following test in accordance with Section 01450 - Quality Control and submit report as described in PART 1 - SUBMITTALS.

.1 Concrete pours.

.2 Slump tests.

.2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Departmental Representative for review in accordance with CSA-A23.1/A23.2.

.1 Ensure testing laboratory is certified in accordance with CSA A283.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03300 - Cast-in-Place Concrete.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-25.20-95, Surface Sealer for Floors.

.2 Canadian Standards Association (CSA)
.1 CSA-A23.1-94, Concrete Materials and Methods of Concrete Construction.

1.3 PERFORMANCE REQUIREMENTS

.1 Product quality and quality of work in accordance with Section 01610 - Common Product Requirements.

1.4 PRODUCT DATA

.1 Submit product data in accordance with Section 01330 - Submittal Procedures.

.2 Include application instructions for concrete ramp treatment(s).

PART 2 - PRODUCTS

2.1 RAMP FINISH

.1 Accessibility Ramp to have a non slip broom finish.

2.2 EXISTING CONCRETE STAIR AND PLATFORM FINISH

.1 TOPCRETE Finish to existing exterior treads, risers and platform. CPD TOPCRETE or approved equal.

.2 Acrylic Cure and Seal Water based. CPD Acrylic Cure and Seal or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verify that ramp slab surfaces are ready to receive work and elevations are as indicated.

3.2 CONCRETE FINISHES STAIRS AND PLATFORM

TOPCRETE FINISH (To entire existing concrete risers, treads and platform on waterside of Bathhouse.)

.1 Concrete must be structurally sound and free from dust, loose particles and all foreign contaminatnts. Mechanically remove all punky

concrete. Sand blast and epoxy coat any reinforcing rods or steel exposed in the patching areas.

.2 Pre dampen the surface to receive the patch and apply a slurry bond coat of CPD Topcrete and CPD Concentrated Latex Adhesive (diluted 1:1 with water. Apply the mixed CPD Topcrete while the slurry bond coat is still tacky.

.3 Trowel the mixed CPD Topcrete over the areas to be patched using sufficient pressure to fill all voids and holes. For large areas use a screed. DO NOT OVER TROWEL. After placing prduct allow 12 hours to pass before resuming any traffic. Apply a water based curing compound as noted below after finishing.

ACRYLIC CURE AND SEAL (WATER BASED)

.1 Thoroughly clean the concree to remove all dirt, dust, grease, oil or any other contamination with a concrete compatible cleaner. Allow to dry prior to applying sealer.

.2 Thoroughly mix prior to using. Apply low pressure hand or power sprayer or short nap roller. When spraying, hold spray tip 5-20cm from concrete surface. Apply uniformly, leaving no pinholes or gaps and avoid over applying or puddling.

.3 Apply after all surface water has dissipated and when application will not mar the surface. Apply second coat following day to assure a uniform finish.

.4 Thoroughly mix prior to using. Apply low pressure hand or power sprayer or short nap roller. When spraying, hold spray tip 5-20cm from concrete surface. Apply uniformly, leaving no pinholes or gaps and avoid over applying or puddling.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

.1 Elevation drawings indicating hatched areas where repointing is required.

1.2 References

.1 Canadian Standards Association (CSA)
.1 CSA A23.1-94, Construction Materials and Methods of Concrete Construction.
.2 CAN3-A371-94, Masonry Construction for Buildings.

1.3 Definitions

.1 Raking: the removal of loose/deteriorated mortar until sound mortar 4x the joint thickness is reached.

.2 Repointing: filling and finishing of masonry joints from which mortar is missing has been raked out or has been omitted.

.3 Tooling: finishing of masonry joints using tool to provide final contour.

.4 Repair: using adhesives to rebond sections of fractured masonry.

.5 Consolidation: strengthening masonry units to prevent deterioration (spalling).

.6 Descaling: the removal of loose portions of the masonry (usually spalled area) through impact with a brush hammer or similar device.

1.4 System Description

.1 Work of this Section includes but is not limited to:
.1 Visually inspecting for obvious signs of deteriorated masonry and testing/verification of masonry joints.
.2 Raking identified unsound joints.
.3 Preparation of masonry surface including joints surface cleaning, flushing of voids and open joints, and masonry wetting.
.4 Repointing of identified masonry joints.
.5 Removal of loose portions on stone surface.
.6 Resetting of dislodged masonry units.
.7 Ensuring cure of mortar.
.8 Grouting by hand, small voids.
.9 Consolidation of fractured masonry units or spalled units.

.10 Replacement of deteriorated or missing units.

1.5 Qualifications

.1 Contractor-Mason:
.1 Use single Contractor-mason for all masonry work. Ensure Contractor-mason has 10 years minimum in masonry work especially historic stone masonry.
.2 Ensure mason has certificate of qualification with experience in stone masonry. Ensure that all masonry work is strictly undertaken by certified masons.

1.6 Existing Conditions

.1 Report in writing, to Consultant areas of deteriorated masonry revealed during work. Obtain Consultant's approval and instructions of repair and replacement of masonry units before proceeding with repair work.

1.7 Environmental Requirements

.1 When temperature is 10°C or less:

.1 Store cements and sands for immediate use within heated enclosure. Allow these materials to reach minimum temperature of 10°C (that is equilibrium with air temperature in enclosure).
.2 Heat water to minimum of 20°C and maximum of 30°C:
.1 At time of use temperature of mortar to be minimum of 15°C and maximum of 30°C.
.2 Do not mix cement with water or with aggregate or with water-aggregate mixtures having higher temperature than 30°C.

PART 2 - PRODUCTS

2.1 Materials

.1 Mortar materials: to Section 04051 Masonry and Mortar Grout.

PART 3 - EXECUTION

3.1 General

.1 Perform work in accordance with CAN3-A371.

.2 Use manual raking tool to remove deteriorated mortar and ensure that no masonry units are chipped/altered/damaged by work to remove mortar.

.3 Tool and compact using jointing tool to force mortar into joint.

.4 Finish joints to match existing joints, except where specified otherwise.

.5 Use suitable approved jointing tool to form compacted concave tooled joints.

3.2 Repointing

.1 Procedure of testing: inspect joints visually for obvious signs of deteriorated masonry. Test joints not visually deteriorated as follows:
.1 Test for voids and weakness by using hammers or other approved means.
.2 Perform testing in co-operation with Consultant so that unsound joints can be marked and recorded.

.2 Raking joints:
.1 Rake unsound joints free of deteriorated and loose mortar, dirt and other undesirable material.

.2 Clean joints to full depth of deteriorated mortar but in no case to less than 50 mm. Clean out voids and cavities encountered.

.3 Clean by compressed air, surfaces of joints without damaging texture of exposed joints.
.4 Flush open joints and voids; clean open joints and voids with low pressure water and if not free draining blow clean with compressed air.
.5 Leave no standing water.

.3 Repointing:
.1 Dampen joints and completely fill with mortar. If surface of masonry units/ stone has worn rounded edges keep pointing back from surface to keep same width of joint. Avoid feather edges. Pack mortar solidly into voids and joints.
.2 Keep masonry damp while pointing is being performed.
.3 Do no pointing in freezing weather.
.4 Build-up pointing in layers not exceeding 12 mm in depth. Allow bottom layers to set before applying subsequent layers. Maintain joint width.
.5 Tool joints behind masonry face with identical tools used for weathered joints. Match weathered joint.
.6 Remove excess mortar from masonry face before it sets. Finish jointing neatly as specified.

3.3 Resetting

.1 Fix dislodged masonry units in correct location with water soaked hardwood wedges .

.2 Insert and compress firm mortar to within 50 mm of pointing surface. Allow mortar to set 24 hours.

.3 Pull out wood wedges when dried and shrunken.

.4 Point to surface in two layers.

3.4 Grouting

.1 Clean out void with water until water runs clear.

.2 Fill joints and cracks with mortar set back 50 mm from final mortar surface.

.3 Pour cement grout through tube until void is full.

.4 Point as rest of work.

3.5 Repair

.1 Remove fractured unit without losing pieces or worsening damage or damaging adjacent units.

.2 Reinstate repaired units into work and repoint with specified mortar as rest of work.

3.6 Cleaning

.1 Clean surfaces of mortar droppings, stains and other blemishes resulting from work of this contract as work progresses.

.2 Do further cleaning after mortar has set and cured.

PART 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA)

.1 CSA A179-04, Mortar and Grout for Unit Masonry.

.2 CSA-A371-04, Masonry Construction for Buildings.

.3 CSA-A370-04, Connectors for Masonry

.4 CSA-S304.1-04, Masonry Design for Buildings.

1.2 SUBMITTALS

.1 Submit samples in accordance with Section 01330 – Submittal Procedures.

.2 Submit laboratory test reports certifying compliance of masonry units and mortar ingredients with specification requirements.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials to job site in dry condition.

.2 Keep materials dry until use.

.3 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.4 SITE CONDITIONS

.1 Determine any potential interference with existing services and protect from disruption and damage.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Cold weather requirements

.1 Supplement Clause 6.7.2 of CSA-A371 with following requirements:

.1 Maintain temperature of mortar between 5ºC and 50ºC until batch is used.

.2 Hot weather requirements

.1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.

.2 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until masonry work is completed and protected by flashings or other permanent construction.

.3 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

.4 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.

PART 2 Products

2.1 MATERIALS

.1 Masonry materials are specified in related Sections.

.2 Dampproof course and flashing

.1 Reinforced SBS rubberized asphalt compound laminated to cross-laminated polyethylene film, 40 mils thick; Blueskin TWF by Bakor Inc. Complete with primer and ‘Air-Bloc 21' adhesive by Bakor Inc.

PART 3 Execution

3.1 REVIEW OF CONSTRUCTION

.1 Construction reviews are undertaken by the Consultant and the Inspection and Testing Agency so that the Owner may be informed as to the quality of the Contractor's performance and for the protection of the Owner. They will be carried out by review or examination of representative samples of the Work. The performance of the contract is not the Consultant’s responsibility, nor is the Consultant responsible for ensuring that deficiencies noted are satisfactorily rectified. The Contractor is solely responsible for quality control, for adequately addressing all deficiencies in the work and for ensuring that the persons carrying out the work are qualified, and suitably accredited where applicable, to carry out the tasks they have been assigned.

.2 The Contractor will receive copies of the construction review reports and the results of material tests. He will thereby be informed of any defects or deficiencies found.

.3 Bring to the attention of the Consultant, any defects or deficiencies in the Work, which may occur during construction together with a proposal for remedy. The Consultant will decide what corrective action may be taken and will issue the necessary instructions.

.4 Provide the Consultant with a minimum of 24 hours notice of intended grout pours to allow review of reinforcement and connectors.

3.2 PREPARATION

.1 Before commencing masonry work, verify required limitations for wall heights, wall thicknesses, openings, bond, anchorage, lateral support, and compressive strengths of masonry units and mortars.

3.3 FIELD MEASUREMENTS

.1 Make field measurements necessary to ensure the proper fit of members.

.2 Identify on shop drawings dimensions which have been obtained by field measurement.

3.4 GENERAL CONSTRUCTION

.1 Do masonry work in accordance with CSA-A371 except where specified otherwise.

.2 Do not use admixtures without Engineer's written acceptance.

.3 Remove chipped, cracked, and otherwise damaged units and replace with undamaged units.

3.5 JOINTING

.1 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, joints true to line, compressed, uniformly concave joints.

.2 Install masonry with 10 mm thick joints unless indicated otherwise. Make vertical and horizontal joints equal and of uniform thickness.

.3 Stagger end joints in every course, unless stack pattern is indicated on the structural drawings. Align joints plumb over each other in every other course.

.4 Mortar joints shall be 10 mm thick. Bed joints of the starting course shall not be less than 6 mm nor more than 20 mm.

3.6 MORTAR AND GROUT MIXING

.1 Thoroughly mix mortar and ingredients in proper quantities needed for immediate use to requirements of CSA A179.

.2 Measure and batch mortar and grout materials either by volume or weight, to accurately control and maintain proportions. Do not measure materials by shovel.

.3 Mix mortar with maximum amount of water consistent with workability for maximum tensile bond strength within capacity of mortar.

.4 Mix grout to semi-fluid consistency with a slump of between 200 and 250 mm.

.5 Do not use mortar which has begun to set. Use mortar within 2 hours after initial mixing. Re-temper mortar during 2 hour period only as required to restore workability.

.6 Grout not placed within 1 ½ hours after water is first added shall be discarded.

.7 Add admixtures to requirements of manufacturer's instructions.

.8 Provide uniformity of mix.

3.7 GROUTING

.1 Grout masonry in accordance with CSA-S304.1, CSA-A371 and CSA-A179 and as indicated.

.2 Fill all frogged ends of masonry units solid and ensure that no voids, gaps or air pockets are left.

.3 When laying up the units, place mortar on cross webs adjacent to cells receiving grout.

3.8 SITE TOLERANCES

.1 Tolerances in notes to Clause 6.2 of CSA-A371 apply.

3.9 FIELD QUALITY CONTROL

.1 Inspection and testing will be carried out by Testing Laboratory designated by Owner.

3.10 CLEANING

.1 Glazed masonry: Clean masonry as work progresses using soft, clean cloths, within few minutes after laying. Upon completion, when mortar has set so that it will not be damaged by cleaning, clean with soft sponge or clean cloths, brush, and clean water. Polish with soft, clean cloths.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01330 - Submittal Procedures.

.2 Section 04030 – Masonry and Mortar Repair.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International).

.1 CSA A179-94(R1999), Mortar and Grout for Unit Masonry.

1.3 SUBMITTALS

.1 Product Data.

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's mortar, grout, parging, colour additives and admixtures.

.2 Manufacturer's Instructions.

.1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 11 - Construction/Demolition Waste Management And Disposal.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Use same brands of materials and source of

aggregate for entire project.

.2 Mortar and grout: CSA A179.

.3 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.

.4 Colour: ground coloured natural aggregates or metallic oxide pigments to match existing.

.5 Mortar for exterior masonry above grade:
.1 Loadbearing: type N.
.2 Non-Loadbearing: type N.
.3 Parapet walls, chimneys, unprotected walls: type N.

.6 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: type M .

.7 Mortar for interior masonry.
.1 Loadbearing: type N.
.2 Non-Loadbearing: type N

.8 Following applies regardless of mortar types and uses specified above:
.1 Mortar for calcium silicate brick and concrete brick: type O based on Proportion specifications.
.2 Mortar for stonework: type N based on specifications.
.3 Mortar for grouted reinforced masonry: type S based on specifications.

.9 White mortar: use white Portland cement, and lime to produce mortar type specified.

.10 Coloured mortar: use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match existing.

.11 Non-Staining mortar: use non-staining masonry cement for cementitious portion of specified mortar type.

.12 Grout: to CSA A179, Table 3.

.13 Parging mortar: to CSA A179.

2.2 MIXES .1 Colour and admixtures: mix grout to semi-fluid

consistency.

.2 Coloured mortars: incorporate colour and admixtures into mixes in accordance with manufacturer's instructions.
.1 Use clean mixer for coloured mortar.

.3 Pointing mortar: prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour nor more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

PART 3 - EXECUTION

3.1 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.

3.2 CONSTRUCTION

.1 Do masonry mortar and grout work in accordance with CSA A179 except where specified otherwise.

3.3 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01330 - Submittal Procedures.

.2 Section 01741 – Cleaning and Waste Management.

.3 Section 09911 - Painting.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
- .2 CAN/CGSB-1.181-92, Ready-Mixed, Organic Zinc-Rich Coating.

.2 Canadian Standards Association (CSA International)
- .1 CAN/CSA-G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel.
- .2 CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-S16.1-01, Limit States Design of Steel Structures.
- .4 CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
- .5 CSA W59-1989(R2001),Welded Steel Construction (Metal Arc Welding) (Imperial Version).

1.3 SUBMITTALS

.1 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01330 - Submittal Procedures.
- .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01330 - Submittal Procedures. Indicate VOC's:
  - .1 For finishes, coatings, primers and paints.

.2 Shop Drawings
- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

.1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.2 Deliver, store, handle and protect materials in accordance with Section 01610 - Common Product Requirements.

.3 Storage and Protection:

.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.

.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01741 – Cleaning and Waste Management.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.4 Divert unused metal materials from landfill to metal recycling facility approved by Consultant.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.

.2 Steel pipe: to ASTM A 53/A 53M standard weight, black finish.

.3 Welding materials: to CSA W59.

.4 Welding electrodes: to CSA W48 Series.

.5 Bolts and anchor bolts: to ASTM A 307.

.6 Stainless steel tubing: to ASTM A 269, Type 302 Commercial grade, Seamless welded with AISI No. 4 finish.

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

.8 Refer Plans & Sections for location and sizes of steel pipe railings that require scraping, sandblasting, resetting and repainting and location and quantity of new railing required.

2.2 FABRICATION

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

.2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.

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

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

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600g/m² to CAN/CSA-G164.

.2 Chromium plating: chrome on steel with plating sequence of 0.009mm thickness of copper 0.010mm thickness of nickel and 0.0025mm thickness of chromium.

.3 Shop coat primer: to CAN/CGSB-1.40.

.4 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.4 ISOLATION COATING

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

2.5 SHOP PAINTING

.1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7ºC.

.3 Clean surfaces to be field welded; do not paint.

PART 3 - EXECUTION

3.1 ERECTION

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

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

.3 Provide suitable means of anchorage acceptable to Architect such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

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

.5 Provide components for building by other sections in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CAN/CSA-S16.1, or weld.

.7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.

.8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

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

3.2 PIPE RAILINGS

.1 Install pipe railings to stairs.

.2 Set railing standards in concrete. Grout to fill hole. Trowel surface smooth and flush with adjacent surfaces.

3.3 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)
- .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
- .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CSA O121-M1978(R2003), Douglas Fir Plywood.
- .4 CSA O141-05, Softwood Lumber.
- .5 CSA O151-04, Canadian Softwood Plywood.
- .6 CSA O153-M1980 (R2003), Poplar Plywood.
- .7 CAN/CSA-O325.0-92(R2003), Construction Sheathing.

.2 Forest Stewardship Council (FSC)
- .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .2 FSC-STD-20-002-2004, Structure and Content of Forest Stewardship Standards V2-1.
- .3 FSC Accredited Certified Bodies.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.4 National Lumber Grades Authority (NLGA)
- .1 Standard Grading Rules for Canadian Lumber 2005.

1.2 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.

1.3 DELIVERY, STORAGE, AND HANDLING

.1 Waste Management and Disposal:

.2 Separate waste materials for reuse and recycling in accordance with Section 01741 – Cleaning and Waste Management.

PART 2 - PRODUCTS

2.1 LUMBER MATERIAL

.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.

.2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
.1 S2S is acceptable.
.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.

2.2 PANEL MATERIALS

.1 Canadian softwood plywood (CSP): to CSA O151, standard construction.
.1 Urea-formaldehyde free.

.2 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.

2.4 ACCESSORIES

.1 Nails, spikes and staples: to CSA B111.

.2 Bolts: 12.5mm diameter unless indicated otherwise, complete with nuts and washers.

2.5 FINISHES

.1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work.

.2 Stainless steel: use stainless steel 316 alloy for exposed features in finish work.

PART 3 - EXECUTION

3.1 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 one 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:
.1 Wood cants, fascia backing, curbs, nailers, sleepers on roof deck.
.2 Wood sleepers supporting wood subflooring over concrete slabs in contact with ground or fill.

3.2 INSTALLATION

.1 Comply with requirements of OBC, supplemented by the following paragraphs.

.2 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.

.3 Align and plumb faces of furring and blocking to tolerance of 1:600.

.4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

3.3 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink bolts where necessary to provide clearance for other work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Removal and Replication of existing soffit details as indicated on drawings.

1.2 Related Sections

.1 Section 01330 - Submittal Procedures.

.2 Section 01610 - Common Product Requirements.

1.3 References

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-11.3-M87, Hardboard.

.2 Canadian Standards Association (CSA)
- .1 CAN/CSA-A247-M86(R1996), Insulating Fibreboard.
- .2 CSA B111-74(R1998), Wire Nails, Spikes and Staples.
- .3 CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 CSA O115-M82(R2001), Hardwood and Decorative Plywood.
- .5 CSA O121-M78(R1998), Douglas Fir Plywood.
- .6 CAN/CSA O141-91(R1999), Softwood Lumber.
- .7 CSA O151-M78 (R1998), Canadian Softwood Plywood.
- .8 CSA O153-M80 (R1998), Poplar Plywood.
- .9 CSA Z760-94, Life Cycle Assessment.

.3 Underwriters Laboratories of Canada (ULC)
- .1 CAN4-S104-80(R1985), Fire Tests of Door Assemblies.
- .2 CAN4-S105-85(R1992), Fire Door Frames, meeting the Performance Required by CAN4-S104.

1.4 Shop Drawings

.1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.

.2 Indicate details of construction, profiles, jointing, fastening and other related details.

.3 Indicate materials, thicknesses and finishes.

1.5 Samples

.1 Submit samples in accordance with Section 01330 - Submittal Procedures.

1.6 Regulatory Requirements

.1 Detail of soffit, brackets posts etc from Newlands and / or Richardson beach bathhouse thickness of material etc must me a duplicate of existing style.

1.7 Delivery, Storage, and Handling

.1 Deliver, handle, store and protect materials in accordance with Section 01610 - Common Product Requirements.

.2 Protect materials against dampness during and after delivery.

.3 Store materials in ventilated areas, protected from extreme changes of temperature or humidity.

PART 2 - PRODUCTS

2.1 Lumber Material

.1 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less in accordance with following standards:
- .1 CAN/CSA-O141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 AWMAC premium grade, moisture content as specified.

.2 Machine stress-rated lumber is acceptable.

.3 Hardwood lumber: moisture content 9% or less in accordance with following standards:
- .1 National Hardwood Lumber Association (NHLA).
- .2 AWMAC [custom] [premium] grade, moisture content as specified.

2.2 Panel Material

.1 Douglas fir plywood (DFP): to CSA O121, standard construction.

.2 Canadian softwood plywood (CSP): to CSA O151, standard construction.

.3 Hardwood plywood: to CSA O115.

.4 Poplar plywood (PP): to CSA O153, standard construction.

.5 Particleboard: to ANSI A208.1.

.6 Hardboard: to CAN/CGSB-11.3.

.7 Medium density fibreboard (MDF): to ANSI A208.2, density 640-800 kg/m³.

- .1 Medium density fibreboard must:
- .2 be manufactured such that formaldehyde emissions do not exceed [0.30 ppm] (0.260 m² /m³) when tested in accordance with ASTM E 1333.

.8 Low density fibreboard: to CSA-A247M.

.1 Ensure fibreboard is not manufactured with binders, coatings or adhesives which contain resins or other compounds that have potential to release formaldehyde during final product's use.

2.3 Accessories

.1 Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior work, interior humid areas and for treated lumber; plain finish elsewhere.

.2 Wood screws: plain type and size to suit application.

.3 Splines: plastic.

.4 Adhesive: recommended by manufacturer.

PART 3 - EXECUTION

3.1 Installation

.1 Do finish carpentry to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.

.2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.

3.2 Construction

.1 Fastening.

.1 Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.

.2 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.

.3 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round cleanly cut hole and plug with wood plug to match material being secured.

.4 Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.

PART 1 - GENERAL

1.1 Related Sections

.1 Section 07620 - Sheet Metal Flashing and Trim.

.2 Section 09250 - Gypsum Board.

1.2 References

.1 Canadian General Standards Board (CGSB)
- .1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
- .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
- .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

1.3 Delivery, Storage, and Handling

.1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.4 Environmental and Safety Requirements

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada.

.2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

.3 Ventilate area of work as directed by Consultant by use of approved portable supply and exhaust fans.

PART 2 - PRODUCTS

2.1 Sealant

.1 Sealants and caulking compounds must:

Materials

.1 Meet or exceed all applicable governmental and industrial safety and performance standards; and

.2 Be manufactured and transported in such a manner that all steps of the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the fisheries Act and the Canadian Environmental Protection Act (CEPA).

.2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, barium or their compounds, except barium sulfate.

.3 Sealant and caulking compounds must not contain a total of volatile organic compounds (VOCs) in excess of 5% by weight as calculated from records of the amounts of constituents used to make the product;

.4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.

.5 Caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant shall not be used in air handling units.

.6 When low toxicity caulks are not possible, confine usage to areas which off-gas to the exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off-gas time.

.7 In the selection of the products and materials of this section preference will be given to those with the following characteristics: Water based, water soluble, water clean-up, non-flammable, Biodegradable, low Volatile Organic Compound (VOC) content, manufactured without compounds which contribute to ozone depletion in the upper atmosphere, manufactured without compounds which contribute to smog in the lower atmosphere, does not contain methylene chloride, does not contain chlorinated hydrocarbons.

2.2 Sealant Material Designations

.1 Polysulfide One Part: Non-Sag to CAN/CGSB-19.13-M87, colour selected by Consultant.

.2 Urethanes One Part: Self-Leveling to CAN/CGSB-19.13-M87, Type 1, colour selected by Consultant.

.3 Silicones One Part: To CAN/CGSB-19.22-M89 (Mildew resistant).

.4 Silicones One Part: To CAN/CGSB-19.13-M87, interior and exterior paintable.

.5 Acrylic Latex One Part: to CAN/CGSB-19.17-M90.

.6 Acoustical Sealant: To CAN/CGSB-19.21-M87.

.7 Preformed Compressible back-up materials:
.1 Vinyl Foam.
.1 Extruded closed cell foam backer rod.
.2 Size: oversize 30 to 50 %.
.2 Bond Breaker Tape.
.1 Polyethylene sheet bond breaker tape which will not bond to sealant.

2.3 Sealant Selection

.1 Perimeters of exterior openings where frames meet exterior facade of building (ie. stone, block, precast masonry): Sealant type: silicone one part.

.2 Control and expansion joints in exterior surfaces of unit masonry walls: Sealant type: silicone one part.

.3 Seal interior perimeters of exterior openings as detailed on drawings: Sealant type: silicone, one part, paintable.

.4 Control and expansion joints on the interior of exterior surfaces of unit masonry walls: Sealant type: silicone, one part, paintable.

.5 Interior control and expansion joints in floor surfaces: Sealant type: urethane, one part self levelling.

.6 Perimeters of interior frames, as detailed and itemized: Sealant type: latex.

.7 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): Sealant type: polysulphide, non-sag.

.8 Joints at tops of non-load bearing masonry walls at the underside of poured concrete: Sealant type: acoustic.

.9 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities): Sealant type: mildew resistant silicone.

.10 Exposed interior control joints in drywall: Sealant type: interior silicone, paintable.

2.4 Joint Cleaner

.1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

3.1 Protection

.1 Protect installed work of other trades from staining or contamination.

3.2 Preparation of Joint Surfaces

.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 Cleanup.

.1 Clean adjacent surfaces immediately and leave work neat and clean.

.2 Remove excess and droppings, using recommended cleaners as work progresses.

.3 Remove masking tape after initial set of sealant.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01330 - Submittal Procedures.

.2 Section 06100 - Rough Carpentry

.3 Section 07900 - Joint Sealers.

.4 Section 08710 - Finish Hardware

.5 Section 08800 - Glazing.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB).
- .1 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.

.2 Canadian Standards Association (CSA International).
- .1 CSA A440.2-98(R2003), Energy Performance of Windows and Other Fenestration Systems.
- .2 CSA W59-M1989(R2001), Welded Steel Construction (Metal Arc Welding).
- .3 CSA Certification Program for Windows and Doors 2000.

1.3 SUBMITTALS

.1 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01330 - Submittal Procedures.
- .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01330 - Submittal Procedures. Indicate VOC's for caulking materials during application and curing.

.2 Shop Drawings:
- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Indicate each type of door, material, thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware and fire rating.
- .3 Indicate each type frame, material, thickness, reinforcements, glazing stops, anchorages and exposed fastenings.
- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.4 QUALITY ASSURANCE

.1 Requirements of Regulatory Agencies:
- .1 Steel fire rated doors and frames: labeled and listed by an organization accredited by

Standards Council of Canada in conformance with CAN4-S104M and CAN4-S105M for ratings specified or indicated.

.2 Install labeled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

.2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

PART 2 - PRODUCTS

2.1 STEEL

.1 Exposed fasteners:
.1 Stainless steel Type to ASTM A 167.

.2 All other components: in accordance with SDI, Specification for Commercial Steel Doors and Frames, Thickness of Steel for Component Parts, commercial grade steel to ASTM A 653, ZF75 minimum base steel thickness in accordance with SDI - Thickness of Steel for Component Parts.

2.2 DOOR CORE MATERIALS

.1 Steel doors to be standard 16 gauge galvanize steel.

2.3 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

.2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

.3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 PRIMERS

.1 Rust inhibitive touch-up only.

2.5 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Top caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma or stainless steel channel inserts.

.3 Frame thermal breaks: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.

2.6 ISOLATION COATING

.1 Alkali-resistant bituminous paint.

2.7 FABRICATION FRAME PRODUCTS GENERAL

.1 Fabricate frames to profiles and maximum face sizes as indicated. Provide minimum 16 mm stop height for factory-sealed double-glazed units.

.2 Exterior frames: 1.6mm welded type construction thermally broken.

.3 Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier.

.4 Protect mortised cutouts with steel guard boxes.

.5 Reinforce frames for surface mounted hardware.

.6 Frame anchorage:
- .1 Provide concealed anchorage to floor and wall construction.
- .2 Locate wall anchors immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
- .4 Locate anchors for frames in previously placed concrete, masonry or structural steel not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

.7 Manufacturer's nameplates on frames and screens are not permitted.

.8 Direction of stainless steel grain:
- .1 Vertical on frame faces, door faces and edges.

2.8 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints of sub-frame for stainless steel clad units, frames fabricated from stainless steel to smooth uniform finish. Accurately mitre cladding or frames manufactured from XL Buff with visible hair-line type joint.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

.7 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.8 Fabricate frame products for openings in sections indicated, splice joints for field assembly.

2.9 FABRICATION DOORS GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.

.2 Exterior insulated and interior doors honeycomb construction.

.3 Fabricate doors with longitudinal edges of base door, when clad mechanically inter-locked with visible edge seams. Fabricate clad doors with visible hair-line butted joints at door edges.

.4 Blank, reinforce, drill doors and tap for mortised, templated hardware.

.5 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.6 Reinforce doors where required, for surface mounted hardware. Provide flush PVC top caps to exterior doors. Provide inverted top and bottom channels to interior doors.

.7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

2.10 DOORS: HONEYCOMB CORE CONSTRUCTION

.1 Exterior doors – hollow steel construction insulated core.

2.11 THERMALLY

.1 Construct thermally broken frames and insulated

BROKEN FRAMES

doors by using insulated cores and separating exterior frame parts from interior frame parts with continuous polyvinyl chloride breaks.

2.12 GLAZING STOPS FOR DOORS AND FRAMES

.1 Make provisions for louvres and glazing as indicated and provide necessary glazing stops.
.1 Provide removable stainless steel glazing stops for use with glazing tapes and compounds and secured with countersunk stainless steel screws.

.2 Design exterior glazing stops to be tamperproof.

PART 3 - EXECUTION

3.1 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.

3.2 INSTALLATION

.1 Isolate stainless steel from direct contact with dissimilar metals, concrete and masonry.

.2 Set frames plumb, square, level and at correct elevation.

.3 Install fire labeled doors and frames in accordance with NFPA-80.

.4 Secure anchorages and connections to adjacent construction.

.5 Brace frames rigidly in position until built-in. Remove temporary steel shipping jamb spreaders. Install wood spreaders at third points of frame rebate height to maintain frame width until building-in work completed. Provide vertical support at centre of head for openings exceeding 1200 mm in width.

.6 Install doors and surface mounted hardware in accordance with hardware templates and manufacturers' instructions.

.7 Install glazing in accordance with Section 088050 - Glazing.

.8 Install door silencers.

.9 Protect thresholds, hardware, frames, doors and glass from damage. Lock operative door bottom in up

position.

.10 Install protective covering to exposed components and repair damaged protective covering.

3.3 FIELD QUALITY CONTROL

.1 Have manufacturer of products supplied under this Section review Work involved in handling, installation/application, protection and cleaning of its product[s], and submit written reports in acceptable format to verify compliance of Work with Contract.

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

3.4 CLEANING

.1 Perform cleaning soon after installation to remove construction and accumulated environmental dirt.

.2 Clean stainless steel with damp rag and approved non-abrasive cleaner in accordance with manufacture's instructions.

.3 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

.4 Clean glass and glazing materials with approved non-abrasive cleaner.

.5 On completion of installation remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 07900 - Joint Sealers

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.
- .2 CAN/CGSB-79.1-M91, Insect Screens.

.2 Canadian Standards Association (CSA) International
- .1 CSA PKG.A440-00/A440.1-00, A440-00, Windows / Special Publication A440.1-00, User Selection Guide to CSA PKG.A440-00, Windows.
- .2 CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-Z91-M90, Safety Code for Window Cleaning Operations.

1.3 SHOP DRAWINGS

.1 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim, junction between combination units, elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes, fasteners, and caulking. Indicate location of manufacturer's nameplates.

1.4 SAMPLES

.1 Submit one representative model of each type window.

.2 Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.

1.5 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for windows for incorporation into manual specified.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Materials: to CSA PKG.A440-00 supplemented as follows:

.2 All windows to be solid metal framed to identically match existing size and profile with minor adjustments required to suit new dual glazed thermally insulated pane complete with screens on operable sections as indicated.

.3 Glass: to Section 08800 - Glazing.

.4 Isolation coating: alkali resistant bituminous paint.

.5 Weatherstripping: dual durometer TPE, dust plug.

2.2 WINDOW TYPE AND CLASSIFICATION

.1 Types:
.1 Casement style with fixed units in center with insulating glass.

.2 Classification rating - sliding: to CSA PKG.A440-00.
.1 Air tightness: A3.
.2 Water tightness: B4.
.3 Wind load resistance: C4.
.4 Forced Entry: F2.

2.3 FABRICATION

.1 Fabricate in accordance with CSA PKG.A440-00 supplemented as follows:

.2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.

.3 Face dimensions detailed are maximum permissible sizes.

.4 Brace frames to maintain squareness and rigidity during shipment and installation.

2.5 GLAZING

.1 Glaze windows in accordance with Section 08800.

PART 3 - EXECUTION

3.1 WINDOW INSTALLATION

.1 Install in accordance with CSA PKG.A440-00.

.2 Arrange components to prevent abrupt variation in colour.

3.2 SILL INSTALLATION

.1 Install steel sills with uniform wash to exterior, level in length, straight in alignment with plumb up stands and faces. Use one piece at each location.

.2 Cut sills to fit window opening.

.3 Secure sills in place with anchoring devices located at ends and evenly spaced 600 mm on centre

in between.

.4 Maintain 6 to 9 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.

3.3 CAULKING

.1 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill up stand and window-frame. Caulk butt joints in continuous sills.

.2 Apply sealant in accordance with Section 07900.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01741 – Cleaning and Waste Management.

.2 Section 01610 - Common Products.

.3 Section 08111 – Metal Doors and Frames

1.2 REFERENCES

.1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).
- .1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.

.2 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-69.17-M86(R1993), Bored and Preassembled Locks and Latches.
- .2 CAN/CGSB-69.18-M90]/ANSI/BHMA A156.1-1981, Butts and Hinges.
- .3 CAN/CGSB-69.19-93/ANSI/BHMA A156.3-1984, Exit Devices.
- .4 CAN/CGSB-69.20-M90/ANSI/BHMA A156.4-1986, Door Controls (Closers).
- .5 CAN/CGSB-69.21-M90/ANSI/BHMA A156.5-1984, Auxiliary Locks and Associated Products.
- .6 CAN/CGSB-69.22-M90/ANSI/BHMA A156.6-1986, Architectural Door Trim.
- .7 CAN/CGSB-69.24-M90/ANSI/BHMA A156.8-1982, Door Controls - Overhead Holders.
- .8 CAN/CGSB-69.26-96/ANSI/BHMA A156.10-1991, Power-operated Pedestrian Doors.
- .9 CAN/CGSB-69.28-M90/ANSI/BHMA A156.12-1986, Interconnected Locks and Latches.
- .10 CAN/CGSB-69.29-93/ANSI/BHMA A156.13-1987, Mortise Locks and Latches.
- .11 CAN/CGSB-69.30-93/ANSI/BHMA A156.14-1991, Sliding and Folding Door Hardware.
- .12 CAN/CGSB-69.31-M89/ANSI/BHMA A156.15-1981, Closer/Holder Release Device.
- .13 CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-1981, Auxiliary Hardware.
- .14 CAN/CGSB-69.33-M90/ANSI/BHMA A156.17-1987, Self-closing Hinges and Pivots.
- .15 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.
- .16 CAN/CGSB-69.35-M89/ANSI/BHMA A156.19-1984, Power Assist and Low Energy Power Operated Doors.
- .17 CAN/CGSB-69.36-M90/ANSI/BHMA A156.20-1984, Strap and Tee Hinges and Hasps.

1.3 SUBMITTALS

.1 Samples:
.1 Submit samples of complete line of hardware and finishes to Architect for approval, if and when requested, to accompany any proposal for substitution.

1.4 WARRANTY

.1 Warrant work of this Section against defects and deficiencies for period of 5 years for door closers and 2 years for other hardware, in accordance with General Conditions of the Contract. Promptly correct defects and deficiencies which become apparent within warranty period, to satisfaction to Architect and at no expense to Owner.

1.5 SYSTEM DESCRIPTION .

.1 Keying System
.1 Lay out keying system for building in consultation with Architect. Keying system shall include keying alike, keying differently, keying in groups, sub-master keying and grand-master keying locks as required.
.2 Prepare and submit keying chart and related explanatory data to Architect for approval. Do not commence lock work until written confirmation of keying arrangements is received from Consultant.

.2 Supply following keys:
.1 3 Grand-master keys
.2 2 Change keys for each lock

PART 2 - PRODUCTS

2.1 HARDWARE ITEMS

.1 Equivalent hardware manufactured by following firms are acceptable subject to approval by Architect of samples and list of items proposed:

.1 Hinges:
.1 Hagar Hinge Canada Ltd.
.2 Stanley Hardware
.3 Mont-Hard (Canada) Inc.
.2 Locks:
.1 Yale-Corbin Canada Ltd.
.2 Falcon Locks
.4 Schlage Locks-Ingersoll-Rand Door Hardware
.5 Sargent of Canada Ltd.
.6 Ilco Unican Inc. Dominican Lock Division
.7 Best Universal Locks Ltd.
.8 Arrow Lock Canada Ltd.

.9 PDQ Industries Inc.

.3 Exit Devices:
- .1 Yale-Corbin Canada Ltd.
- .2 Sargent of Canada Ltd.
- .3 Von Duprin-Ingersoll-Rand Door Hardware
- .4 Magnokrom Inc.
- .5 Arrow Lock Canada Ltd.
- .6 American Device Mfg. Co. (Dorma Door Controls)

.4 Door Closers:
- .1 LCN Closers-Ingersoll-Rand Door Hardware
- .2 Sargent of Canada Ltd.
- .3 Yale-Corbin Canada Limited
- .4 Yale-Rixson Firemark (Can) Ltd. (floor type only)
- .5 Norton Closers-Yale-Corbin Canada Ltd.
- .6 Dorma Door Controls Ltd.

.5 Door Holders:
- .1 Magnokrom Inc.
- .2 Glynn-Johnson Ingersoll-Rand Door Hardware
- .3 Sargent of Canada Ltd.
- .4 K.M. Thomas Co. Ltd.

.6 Door Stops:
- .1 Glynn-Johnson Ingersoll-Rand Door Hardware
- .2 Canadian Builders Hardware Manufacturers Ltd.
- .3 Hager Architectural Hardware
- .4 General Hardware
- .5 Standard Metal Hardware Mfg. Ltd.
- .6 Ives of Canada Ltd.

.7 Pushplates/Door Pulls:
- .1 Canadian Builders Hardware Manufacturers Ltd.
- .2 Hager Architectural Hardware
- .3 General Hardware
- .4 Standard Metal Hardware Mfg. Ltd.
- .5 Ives of Canada Ltd.

.8 Kickplates:
- .1 Canadian Builders Hardware Manufacturers Ltd.
- .2 Hager Architectural Hardware
- .3 General Hardware
- .4 Standard Metal Hardware Mfg. Ltd.
- .5 Ives of Canada Ltd.

.9 Thresholds:
- .1 K.N. Crowder Mfg.
- .2 Sound Seals: Hager Architectural Hardware
- .3 Zero Manufacturing Ltd.

.10 Weatherstripping:
- .1 K.N. Crowder Mfg.
- .2 Sound Seals: Hager Architectural Hardware

.3 Zero Manufacturing Ltd.

.11 Miscellaneous:
- .1 Canadian Builders Hardware Manufacturers Ltd.
- .2 Hager Architectural Hardware
- .3 Gallery Specialty Hardware Ltd.
- .4 Dominion Brass Products Ltd.
- .5 Standard Metal Hardware Mfg. Ltd.

.12 Millwork Hardware:
- .1 Blum Manufacturing (hinges, drawer slides)
- .2 Knape & Vogt (drawer slides, pilaster and supports)
- .3 Canadian Builders Hardware Mfg. Ltd. (pulls)
- .4 General Hardware (pulls)
- .5 Standard Metal Hardware Mfg. Ltd. (pulls)
- .6 Ives of Canada Ltd. (pulls)

2.2 FABRICATION

.1 Strikes:
- .1 Lock strikes shall be standard template box strikes, with extended lips to protect door frames and trim from marking with bolts and shall be set flush in hollow metal door frames.
- .2 Blank standardized template strikes for hollow metal door frames shall be supplied as scheduled for such doors without locks.

.2 Door Closers:
- .1 Door closers shall be rack and pinion type with back checking feature and shall be of proper sizes to operate each respective door efficiently. Shaft packing shall be leak proof.

.3 Kick and Bumper Plates:
- .1 Kick and bumper plates shall be as scheduled with edges cut square and smoothed off and shall have countersunk holes and oval head screws which shall be placed at each corner and symmetrically arranged at maximum spacing of 200mm (8″) along edges.
- .2 Stainless steel kick plates shall be 1.27mm (0.05″) minimum thickness, satin finish, Type 304.

.4 Thresholds:
- .1 Supply thresholds complete with countersunk holes and with screws and anchors as required for proper anchorage.

.5 Fasteners:
- .1 Supply hardware complete with screws, bolts, expansion shields and other fastening devices

as required for satisfactory installation and operating of the hardware.

.2 Supply fastening devices of same finish as hardware, which is to be fastened.

.3 Where pull is scheduled on one side of door and push plate on other side, issue installation directions to trade responsible for fixing, sot that the pull shall be secured through door from reverse side and push plate installed to cover screws. Flush pulls shall be supplied with machine screws for attaching as specified above.

.6 Finishes:

.1 Type and finish of hardware shall be equal in all respects to samples of hardware and finishes approved by Consultant.

.2 Metal finishes shall be free from defects, clean and unstained and of uniform colour.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Before furnishing any hardware, carefully check all architectural Drawings of work requiring hardware, verify door swings, door and frame material and operating conditions and assure that hardware will fit work to which it is to be attached.

.2 Check shop drawings and frame and door lists affecting hardware type and installation and certify to correctness thereof, or advise Consultant in writing of required revisions.

3.2 LOCATION OF HARDWARE

.1 Hinge Locations:

.1 Doors 1981mm to 2286mm (6′-6″ to 7′-6″) in height and requiring 3 hinges.

.1 Top Hinge: 298mm (11-3/4″) maximum from centerline of hinge to frame head rabbet.

.2 Centre Hinge: equal distance from center line of top and bottom hinge.

.3 Bottom Hinge: 330mm (13″) maximum from centerline of hinge to bottom of frame.

.2 Doors 2311mm (7′-7″) and over in height and requiring 4 or more hinges.

.1 Top Hinge: 298mm (11-3/4″) maximum from centerline of hinge to frame head of rabbet.

.2 Centre Hinges: symmetrically spaced between top and bottom hinge.

.3 Bottom Hinge: 330mm (13″0 maximum from centerline of hinge to bottom of frame.

.2 Lock Location: 1024mm (40-5/16″) from centerline of lock to bottom of frame.

.3 Deadlock Strike Location: 1219mm (48″) from centerline of strike to bottom of frame.

.4 Door Pulls:
- .1 1067mm (42″) from centerline of grip or push bar to bottom of frame.
- .2 Hospital Arm Pulls: 1143mm (45″) from centerline of base to bottom of frame.

.5 Push Plates: 1143mm (45″) from centerline of plate to bottom of frame.

.6 Kick Plate: Within 6mm (1/4″) of door bottom.
- .1 Single Door Width:
  - .1 Push side: less 50mm (2″) of door width.
  - .2 Pull side: less 25mm (1″) of door width.
- .2 Double Door Width:
  - .1 Push side: less 25mm (1″) of door width.
  - .2 Pull side: less 25mm (1″) of door width.

3.3 FIELD QUALITY CONTROL

.1 Provide services of competent mechanic without additional cost to Owner to assist with verification of hardware received and operation and adjustment of operating hardware items.

3.4 SCHEDULES

.1 Abbreviations used in the Hardware Schedule are as follows:

.1 Finishes:

	CGSB	BHMA
Prime Coat	CP	600
Bright Brass (polished)	C3	605
Bright Nickel (polished)	C14	618
Dull Nickel	C15	619
Dull Nickel on Steel (hinges)	C15D	646
Bright Chrome (polished)	C26	625
Dull Chrome	C26D	626
Satin Aluminum Anodized	C28	628
Bright Stainless Steel (polished)	C32	629
Dull Stainless Steel	C32D	630

.2 Doors:

HMD	Hollow Metal Door
PL	Plastic Laminate
Kal	Kalamein
WD	Wood Door

.3 Frames:

CIF	Channel Iron Frame
PSF	Pressed Steel Frame

.4 Fastening:

ATMS	Arm Template Machine Screws
ATB	Arm Through Bolts
BS	Backset
MS	Machine Screws
NRP	Non-Removable Pin
STS	Self Tapping Screws
STMS	Strike Template Machine Screws
TBGN	Through Bolts & Grommet Nuts
TMS	Template Machine Screws
WS	Wood Screws
WS/LS	Wood Screws/Lead Sheilds

.5 Keying:

CMK	Construction Master Keyed
EK	Emergency Key
GMK	Grand Master Keyed
KA	Keyed Alike
KD	Keyed Different
MK	Master Keyed
SMK	Sub Master Key

.2 Hardware Schedule:

.1 Item #1 Dr 100 Lobby Main Entry –
40″ x 84″x 1 ¾″ (1000x2135x45mm) HMD
PSF RHR

Fitted with but not limited to:
1 ½ pr hinges
1 exit device hardware
1 closer
1 lock set
1 kick plate
1 HDCP Actuator/ Operator
1 Door stop

3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.

.3 Remove protective material from hardware items where present.

.4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

.1 Section 08111- Metal Doors and Frames.

.2 Section 08500- Exterior Windows.

1.2 References

.1 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
- .2 CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.
- .3 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
- .4 CAN/CGSB-12.4-M91, Heat Absorbing Glass.
- .5 CAN/CGSB-12.5-M86, Mirrors, Silvered.
- .6 CAN/CGSB-12.6-M91, Transparent (One-Way) Mirrors.
- .7 CAN/CGSB-12.8-97, Insulating Glass Units.
- .8 CAN/CGSB-12.9-M91, Spandrel Glass.
- .9 CAN/CGSB-12.10-M76, Glass, Light and Heat Reflecting.
- .10 CAN/CGSB-12.11-M90, Wired Safety Glass.
- .11 CAN/CGSB-12.12-M90, Plastic Safety Glazing.
- .12 CAN/CGSB-12.13-M91, Patterned Glass.

.2 Canadian Standards Association (CSA International).
- .1 CSA A440.2-98, Energy Performance Evaluation of Windows and Sliding Glass Doors.
- .2 CSA Certification Program for Windows and Doors 2000.

.3 Environmental Choice Program (ECP).
- .1 CCD-045-95, Sealants and Caulking.

.4 Flat Glass Manufacturers Association (FGMA).
- .1 FGMA Glazing Manual - 1997.

.5 Laminators Safety Glass Association (LSGA).
- .1 LSGA Laminated Glass Design Guide 2000.

1.3 Performance Requirements

.1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
- .1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.2 Size glass to withstand wind loads, dead loads and positive and negative live loads acting normal to plane of glass to a design pressure as measured in accordance with ASTM E 330-02.

.3 Limit glass deflection to flexural limit of glass with full recovery of glazing materials.

1.4 Closeout Submittals

.1 Provide maintenance data including cleaning instructions for incorporation into manual specified.

1.5 Quality Assurance

.1 Perform work in accordance with FGMA Glazing Manual IGMAC and Laminators Safety Glass Association - Standards Manual for glazing installation methods.

.2 Maintain one copy of each standard document on site.

.3 Provide shop inspection and testing for glass.

1.6 Environmental Requirements

.1 Install glazing when ambient temperature is 10°C minimum. Maintain ventilated environment for 24 hours after application.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.7 Waste Management and Disposal

.1 Divert metal cut-offs from landfill by disposal into on-site Metal recycling bin at nearest metal recycling facility.

.2 Divert uninstalled materials for reuse at nearest used building materials facility or similar type facility.

.3 Divert unused caulking and sealant materials from landfill through disposal at special wastes depot.

PART 2 - PRODUCTS

2.1 Materials: Sealed Insulating Glass

.1 Sealed insulating glass units: to CAN/CGSB-12.8-M97, double unit.
- .1 Glass: clear to CAN/CGSB-12.1-M91, each light.
- .2 Glass thickness: 6 mm float glass and Low E.
- .3 Inter-cavity space thickness: 12 mm.
- .4 6 mm tempered outer lights on entrances sidelight and door.
- .5 Glass coating: surface number 3, low "E", shading coefficient not greater than 0.50.
- .6 Inert gas fill: argon.

2.2 Materials: Flat Glass

.1 Safety glass: to CAN/CGSB-12.1-M90, transparent, 6 mm thick.
- .1 Type 2 - tempered.
- .2 Class B - float.
- .3 Category 1.
- .4 Polished Edges

2.3 Accessories

.1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D 2240-02b, length of 25 mm for each square meter of glazing to suit glazing method, glass light weight and area.

.2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D 2240-02b, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Glazing tape:
.1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D 2240-02b; coiled on release paper; 3 x 9 mm size; black colour.

.4 Glazing splines: resilient silicone, extruded shape to suit glazing channel retaining slot, black colour.

.5 Glazing clips: manufacturer's standard type.

.6 Lock-strip gaskets: to ASTM C 542-94(1999).

PART 3 - EXECUTION

3.1 Examination

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.2 Preparation

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.3 Installation: Dry Method (Tape and Tape)

.1 Cut glazing tape to length and set against permanent stops, projecting 1.6mm above sight line.

.2 Place setting blocks at 1/3 points, with edge block maximum 150 mm from corners.

.3 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.

.4 Place glazing tape on free perimeter of glazing in same manner described in 3.6.3.

.5 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

.6 Knife trim protruding tape.

3.4 Cleaning

.1 Remove glazing materials from finish surfaces.

.2 Remove labels after work is complete.

.3 Clean glass and mirrors.

3.5 Protection of Finished Work

.1 After installation mark light with an "X" by using removable plastic tape or paste.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01330 - Submittal Procedures.

.2 Section 01741 - Construction/Demolition Waste Management And Disposal.

1.2 REFERENCES

.1 Association of the Wall and Ceilings Industries International (AWEI)

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .2 CAN/CGSB-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.

.3 Underwriters' Laboratories of Canada (ULC)
- .1 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.

.2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.

.3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.4 SITE ENVIRONMENTAL REQUIREMENTS

.1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.

.2 Apply board and joint treatment to dry, frost free surfaces.

.3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01741 - Construction/Demolition Waste Management And Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene & corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

.4 Divert unused gypsum from landfill to gypsum recycling facility for disposal approved by Consultant.

.5 Divert unused metal materials from landfill to metal recycling facility approved by Consultant.

.6 Divert unused wood materials from landfill to facility approved by Consultant.

.7 Divert unused paint and caulking material from landfill to official hazardous material collections site approved by Consultant.

.8 Do not dispose of unused paint and caulking materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Standard board: to ASTM C 36/C 36M regular, 12.7mm thick and Type X, 15.9mm thick, 1200mm wide x maximum practical length, ends square cut, edges squared.

.2 Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82-30-M1980.

.3 Drywall furring channels: 0.5mm core thickness galvanized steel channels for screw attachment of gypsum board.

.4 Resilient drywall furring: 0.5mm base steel thickness galvanized steel for resilient attachment of gypsum board.

.5 Nails: to ASTM C 514.

.6 Steel drill screws: to ASTM C 1002.

.7 Stud adhesive: to CAN/CGSB-71.25 ASTM C 557.

.8 Laminating compound: as recommended by manufacturer, asbestos-free.

.9 Casing beads, corner beads, control joints and edge trim: to ASTM C 1047, ABS, PVC, Zinc, metal, zinc-coated by hot-dip process, zinc-coated by electrolytic process, aluminum coated, phosphatized, 0.5mm base thickness, perforated flanges, one piece length per location.

.10 Sealants: in accordance with Section 07 92 00 - Joint Sealing.

.11 Polyethylene: to CAN/CGSB-51.34, Type 2.

.12 Insulating strip: rubberized, moisture resistant, 3mm thick closed cell neoprene strip, 12mm wide, with self sticking permanent adhesive on one face, lengths as required.

.13 Joint compound: to ASTM C 475, asbestos-free.

2.2 FINISHES

.1 Texture finish: asbestos-free standard white texture coating and primer-sealer, recommended by gypsum board manufacturer.

PART 3 - EXECUTION

3.1 ERECTION

.1 Do application and finishing of gypsum board in accordance with ASTM C 840 except where specified otherwise.

.2 Do application of gypsum sheathing in accordance with ASTM C 1280.

.3 Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except where specified otherwise.

.4 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.

.5 Install work level to tolerance of 1:1200.

.6 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.

.7 Install 19 x 64mm furring channels parallel to, and

at exact locations of steel stud partition header track.

.8 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.

.9 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

.10 Install wall furring for gypsum board wall finishes in accordance with ASTM C 840, except where specified otherwise.

.11 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

.12 Furr duct shafts, beams, columns, pipes and exposed services where indicated.

.13 Erect drywall resilient furring transversely across studs, joists, between the layers of gypsum board, spaced maximum 600mm on centre and not more than 150mm from ceiling/wall juncture. Secure to each support with 38mm common nail 25mm drywall screw.

.14 Install 150mm continuous strip of 12.7mm gypsum board along base of partitions where resilient furring installed.

3.2 APPLICATION

.1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.

.2 Apply single, double, or triple layer gypsum board to wood, metal furring or framing using screw fasteners for first layer, screw fasteners for second layer. Maximum spacing of screws 300mm on centre.

.1 Single-Layer Application:

.1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C 840.

.2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.

.2 Double-Layer Application:

.1 Install gypsum board for base layer and exposed gypsum board for face layer.

.2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.

.3 Apply base layers at right angles to supports unless otherwise indicated.

.4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.

.3 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250mm.

.4 Install gypsum board with face side out.

.5 Do not install damaged or damp boards.

.6 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3 INSTALLATION

.1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150mm on centre using contact adhesive for full length.

.2 Install casing beads around perimeter of suspended ceilings.

.3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.

.4 Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.

.5 Install shadow mould at gypsum board/ceiling juncture as indicated. Minimize joints; use corner pieces and splicers.

.6 Construct control joints of preformed units two back-to-back casing beads set in gypsum board facing and supported independently on both sides of joint.

.7 Provide continuous polyethylene dust barrier behind and across control joints.

.8 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:

.9 Finish corner beads, control joints and trim as required with two coats of joint compound and one

coat of taping compound, feathered out onto panel faces.

.10 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.

.11 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

.12 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

.13 Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.

.14 Mix joint compound slightly thinner than for joint taping.

.15 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.

.16 Allow skim coat to dry completely.

.17 Remove ridges by light sanding or wiping with damp cloth.

.18 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes:
- .1 Material and installation of site applied paint finishes to new interior surfaces, including site painting of shop primed surfaces.

.2 Related Sections:
- .1 Section 01330 - Submittal Procedures.
- .2 Section 01610 - Common Products.
- .3 Section 01741 – Cleaning and Waste Management.

1.2 REFERENCES

.1 Environmental Protection Agency (EPA)
- .1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.4 Master Painters Institute (MPI)
- .1 MPI Architectural Painting Specifications Manual, 2004.

1.3 QUALITY ASSURANCE

.1 Qualifications:
- .1 Contractor: minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
- .2 Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.
- .3 Apprentices: working under direct supervision of qualified trades person in accordance with trade regulations.

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01330 - Submittal Procedures.

.2 Product Data:
- .1 Submit product data and instructions for each paint and coating product to be used.
- .2 Submit product data for the use and application of paint thinner.
- .3 Submit two copies of Workplace Hazardous

Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01330 - Submittal Procedures. Indicate VOCs during application and curing.

1.5 MAINTENANCE

.1 Extra Materials:
- .1 Deliver to extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.
- .2 Quantity: provide one - four litre can of each type and colour of primer, stain & finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
- .3 Delivery, storage and protection: comply with Consultant requirements for delivery and storage of extra materials.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
- .1 Pack, ship, handle and unload materials in accordance with Section 01610 - Common Products and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.2 Provide paint materials for paint systems from single manufacturer.

.3 Only qualified products with E2 or E3 "Environmentally Friendly" rating are acceptable for use on this project.

.4 Conform to latest MPI requirements for interior painting work including preparation and priming.

.5 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.

.6 Linseed oil, shellac, and turpentine: highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.

.7 Provide paint products meeting MPI "Environmentally Friendly" E1, E2 or E3 ratings based on VOC (EPA Method 24) content levels.

.8 Use MPI listed materials having minimum E2 or E3 rating where indoor air quality (odour) requirements exist.

.9 Paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids:
- .1 Water-based.
- .2 non-flammable.
- .3 Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
- .4 Manufactured without compounds which contribute to smog in the lower atmosphere.
- .5 Do not contain methylene chloride, chlorinated hydrocarbons, toxic metal pigments.
- .6 Recycled content of 50% post-consumer or post-industrial waste.

.10 Formulate and manufacture water-borne surface coatings with no aromatic solvents, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium or their compounds.

.11 Flash point: 61.0°C or greater for water-borne surface coatings and recycled water-borne surface coatings.

.12 Ensure manufacture and process of both water-borne surface coatings and recycled water-borne surface coatings does not release:
- .1 Matter in undiluted production plant effluent generating 'Biochemical Oxygen Demand' (BOD) in excess of 15mg/L to natural watercourse or sewage treatment facility lacking secondary treatment.
- .2 Total Suspended Solids (TSS) in undiluted production plant effluent in excess of 15mg/L to natural watercourse or a sewage treatment facility lacking secondary treatment.

.13 Water-borne paints and stains, recycled water-borne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.

.14 Recycled water-borne surface coatings to contain 50% post-consumer material by volume.

.15 Recycled water-borne surface coatings must not contain:
- .1 Lead in excess of 600.0ppm weight/weight

total solids.

.2 Mercury in excess of 50.0ppm weight/weight total product.

.3 Cadmium in excess of 1.0ppm weight/weight total product.

.4 Hexavelant chromium in excess of 3.0ppm weight/weight total product.

.5 Organochlorines or polychlorinated biphenyls (PCBS) in excess of 1.0ppm weight/weight total product.

2.2 COLOURS

.1 Selection of colours from manufacturers full range of colours.

.2 Where specific products are available in restricted range of colours, selection based on limited range.

.3 Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Consultant for tinting of painting materials.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.4 Thin paint for spraying in accordance with paint manufacturer's instructions.

.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.

2.4 GLOSS/SHEEN RATINGS

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

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35

Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

.2 Gloss level ratings of painted surfaces as indicated and as noted on Finish Schedule.

2.5 INTERIOR PAINTING SYSTEMS

.1 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:

.1 INT 9.2A - Latex finish (over latex sealer).
.2 INT 9.2B - High performance architectural latex finish.
.3 INT 9.2C - Alkyd finish (over latex sealer).
.4 INT 9.2E - Epoxy (tile-like) finish.
.5 INT 9.2F - Waterborne epoxy (tile-like) finish.
.6 INT 9.2G - Multicolour finish.
.7 INT 9.2H - Clear Pigmented fire retardant coating (ULC rated).
.8 INT 9.2J - Waterborne fire retardant coating (ULC rated).
.9 INT 9.2K - Latex finish (over alkyd primer).
.10 INT 9.2L - Waterborne light industrial coating.
.11 INT 9.2M - Institutional low odour/low VOC finish.

2.6 SOURCE QUALITY CONTROL

.1 Perform following tests on each batch of consolidated post-consumer material before surface coating is reformulated and canned. Testing by laboratory or facility which has been accredited by Standards Council of Canada.

.1 Lead, cadmium and chromium are to be determined using ICP-AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy) technique no. 6010 as defined in EPA SW-846.
.2 Mercury is to be determined by Cold Vapour Atomic Absorption Spectroscopy using Technique no. 7471 as defined in EPA SW-846.
.3 Organochlorines and PCBs are to be determined by Gas Chromatography using Technique no.

8081 as defined in EPA SW-846.

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 data sheet.

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 PREPARATION

.1 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 surfaces as directed by Consultant.
- .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
- .3 Protect factory finished products and equipment.
- .4 Protect passing pedestrians, building occupants and general public in and about the building.

.2 Surface Preparation:

- .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
- .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
- .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Consultant.

.3 Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other 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 allow to dry thoroughly.
.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.
.6 Use trigger operated spray nozzles for water hoses.
.7 Many water-based paints cannot be removed with water once dried. Minimize use of mineral spirits or organic solvents to clean up water-based paints.

.4 Clean following surfaces with high pressure water washing:

.5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

.6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
.2 Apply wood filler to nail holes and cracks.
.3 Tint filler to match stains for stained woodwork.

.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 1000mm.

.8 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes blowing with clean dry compressed air or vacuum cleaning.

3.4 APPLICATION

.1 Method of application to be as approved by Consultant. Apply paint by brush or roller. Conform to manufacturer's application instructions

unless specified otherwise.

.2 Brush and Roller Application:
- .1 Apply paint in uniform layer using brush and/or roller type 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 free of roller tracking and heavy stipple.
- .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 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 uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
- .4 Brush out immediately all runs and sags.
- .5 Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.

.4 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.

.5 Apply coats of paint 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 tops of interior cupboards and cabinets and projecting ledges.

.9 Finish inside of cupboards and cabinets as

specified for outside surfaces.

.10 Finish closets and alcoves as specified for adjoining rooms.

.11 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.5 SITE TOLERANCES

.1 Walls: no defects visible from a distance of 1000mm at 90 degrees to surface.

.2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.

.3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.6 FIELD QUALITY CONTROL

.1 Interior painting and decorating work shall be inspected by a Paint Inspection Agency (inspector) acceptable to the specifying authority and local Painting Contractor's Association. Painting contractor shall notify Paint Inspection Agency a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.

.2 Interior surfaces requiring painting shall be inspected by Paint Inspection Agency who shall notify Engineer and General Contractor in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.

.3 Where "special" painting, coating or decorating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer shall provide as part of this work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Engineer.

.4 Standard of Acceptance:
- .1 Walls: no defects visible from a distance of 1000mm at 90 degrees to surface.
- .2 Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- .3 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

.5 Field inspection of painting operations to be carried out be independent inspection firm as designated by Engineer.

.6 Advise Engineer when surfaces and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved.

.7 Cooperate with inspection firm and provide access to areas of work.

.8 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Engineer.

3.7 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.

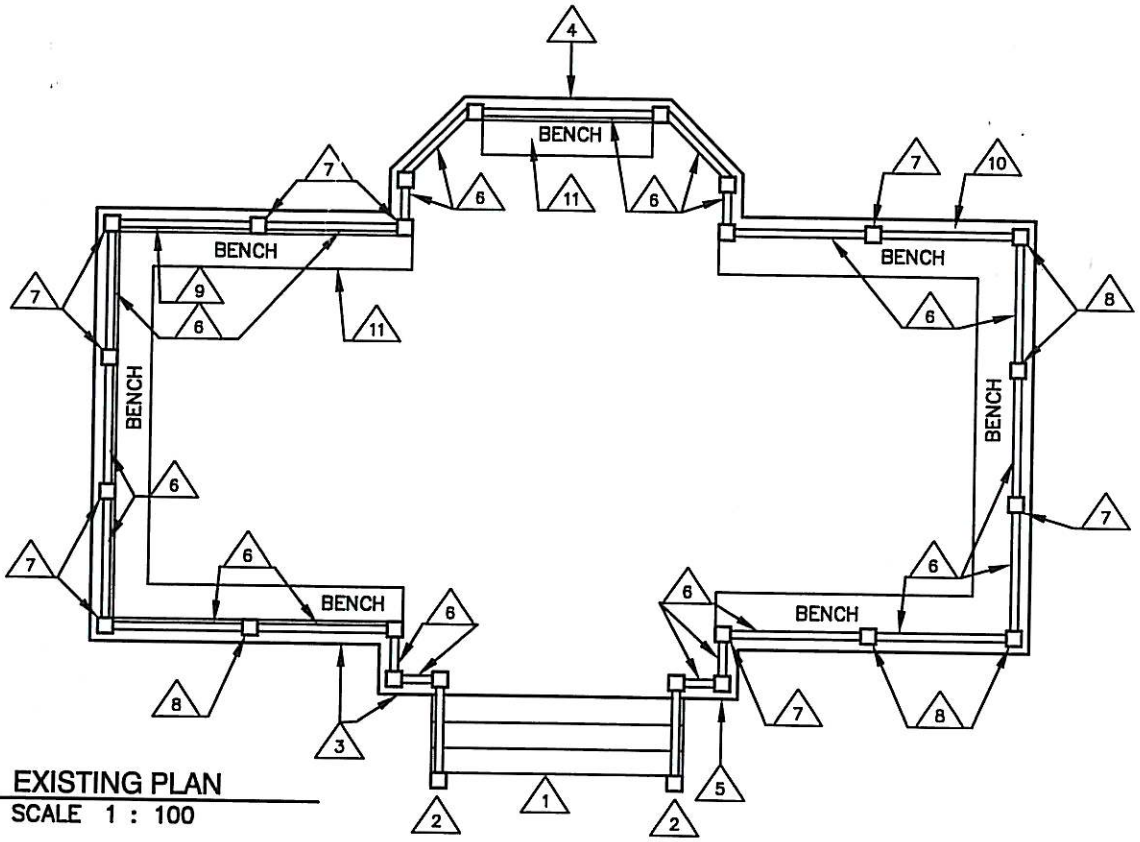
.4 Protect freshly completed surfaces from paint droppings and dust to approval of Engineer. Avoid scuffing newly applied paint.

End of Section

REPAIR, REPLACEMENT & REPAINTING TO NEWLANDS PAVILION

KINGSTON, ONTARIO

ernest a. cromarty architect inc. kingston ontario	project NEWLANDS PAVILION	title TITLE PAGE	
	location KING ST. EAST, KINGSTON, ONTARIO	scale 1:100	job no. 2010–31
	for CITY OF KINGSTON	date JULY 2010	dwg. no. 2010–31 A0



1/A1 EXISTING PLAN
SCALE 1 : 100

CONSTRUCTION NOTES

1. EXISTING CONCRETE STAIR TO NORTH TO REMAIN. SCRAPE & PAINT
2. SCRAPE, PATCH & REPAIR POST & GUARD RAIL. RE-SECURE SPINDLES & REPAINT TO MATCH EXISTING.
3. SCRAPE PAINT, RE-SECURE ALL WOOD SIDING AROUND SKIRT. MAKE READY FOR RE-PAINTING
4. SCRAPE & RE-PAINT ACCESS DOORS & TRIM.
5. SCRAPE, PAINT & RE-SECURE RAILING & SPINDLES. (REPLACE SPINDLES)
6. SCRAPE, PAINT & RE-SECURE RAILING & SPINDLES.
7. CAREFULLY BRACE & REMOVE EXISTING ROTTED WOOD POST. RE-SECURE NEW PRESSURE TREATED POST TO MATCH IN STYLE & SIZE. RE-SECURE RAILING TO POST AS EXISTING. (RE-SECURE ALL WOOD TRIM TEMPORARILY REMOVED FOR REPLACEMENT.) REPAINT
8. SCRAPE & PAINT
9. SCRAPE & PAINT, REPLACE FIVE (5) SPINDLES & BOTTOM RAIL RE-SECURE ALL COMPONENTS.
10. REPLACE TOP & BOTTOM RAIL & TWO (2) SPINDLES. SCRAPE, PAINT & RE-SECURE ALL.
11. SCRAPE & PAINT BENCH, BRACKETS, ETC. REPLACE 1 BOARD ON SOUTHWEST & 4 BOARDS ON THE SOUTH.
12. CLEAN ENTIRE CEILING.

NOTE:
CONTRACTOR TO PREP EXISTING PAVILION READY FOR NEW PAINT FINISH. (TYPICAL EXCEPT FLOOR AND CEILING IS TO REMAIN)

ernest a. cromarty architect inc. kingston ontario	project: NEWLANDS PAVILION	title: EXISTING PLAN	
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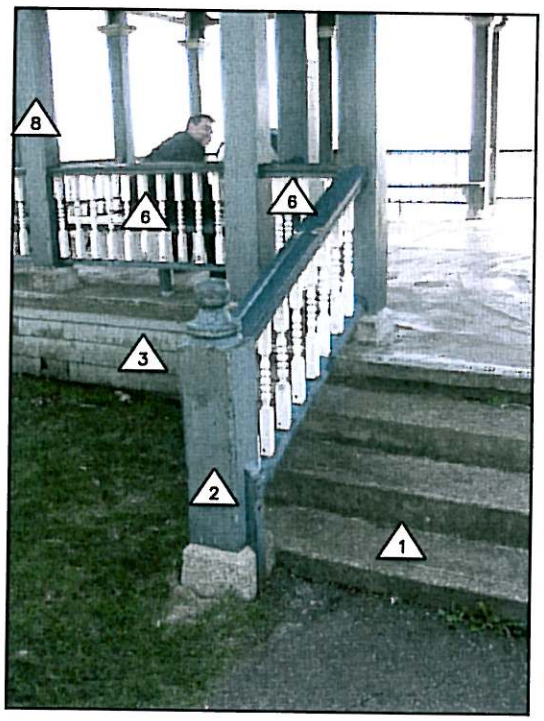

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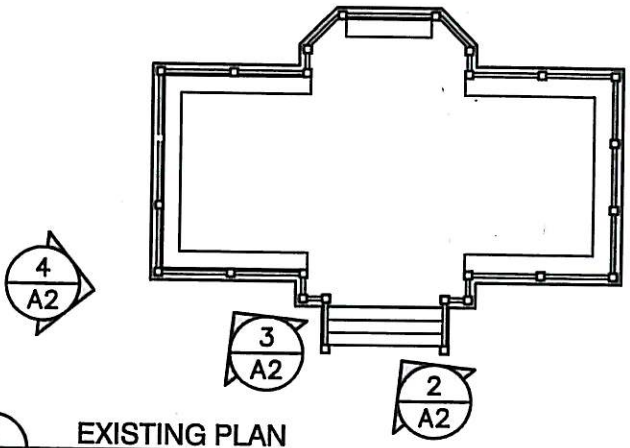

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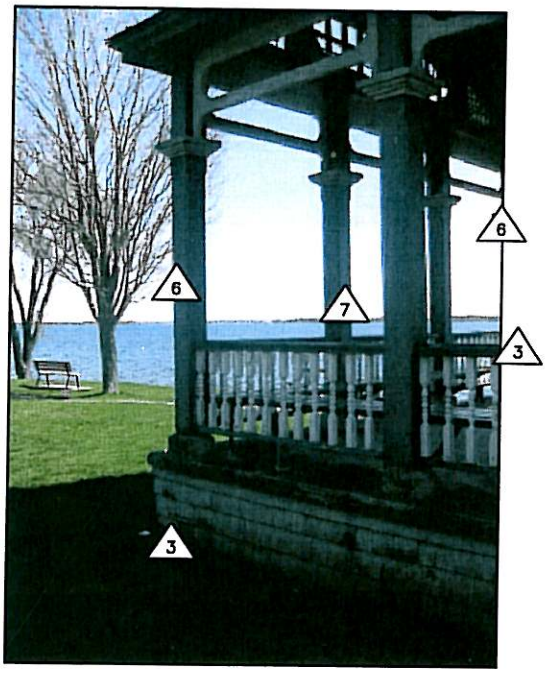

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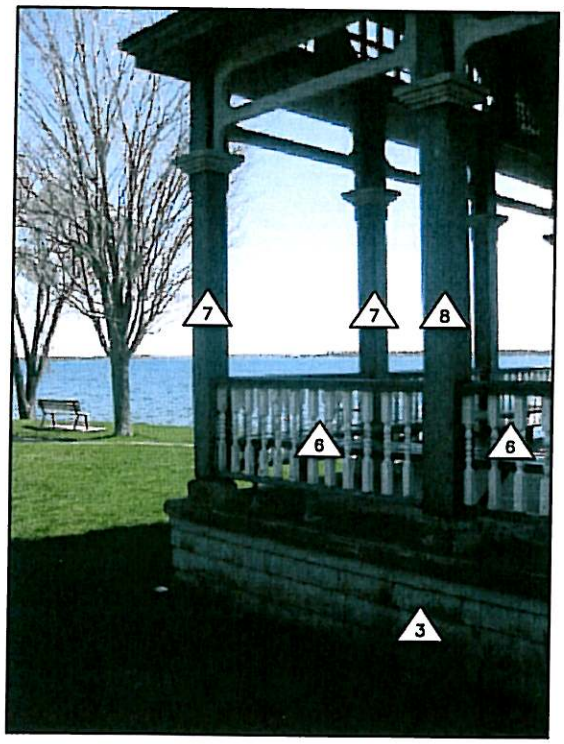

3 / A2 PHOTOGRAPH
SCALE NTS

ernest a. cromarty architect inc. kingston ontario	project NEWLANDS PAVILION	title EXISTING PLAN	
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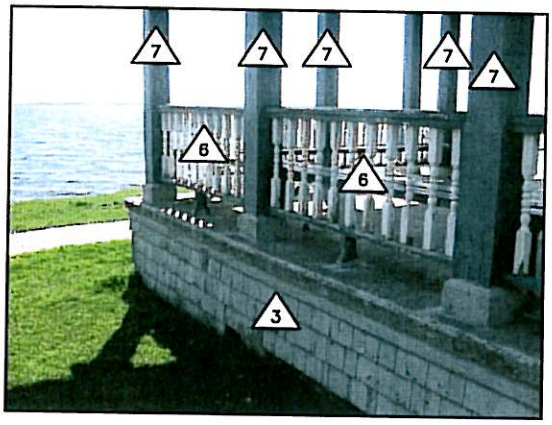
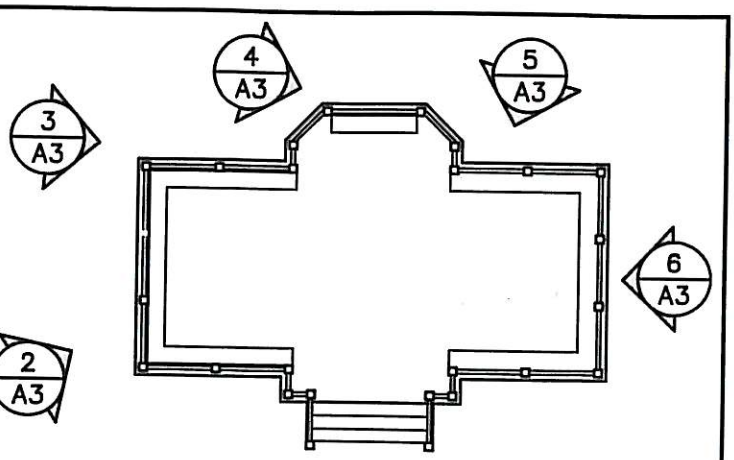
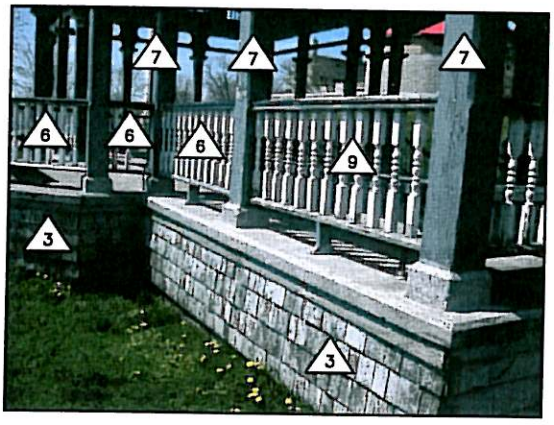
	for CITY OF KINGSTON	date JULY 2010	dwg. no. 2010-31 A2



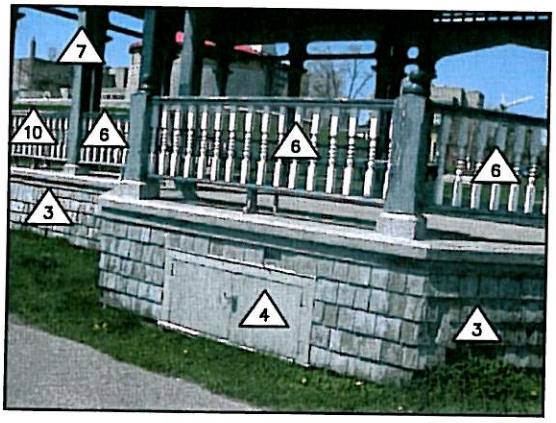
2 / A3 PHOTOGRAPH
SCALE NTS



1 / A3 EXISTING PLAN
SCALE 1 : 200



3 / A3 PHOTOGRAPH
SCALE NTS



4 / A3 PHOTOGRAPH
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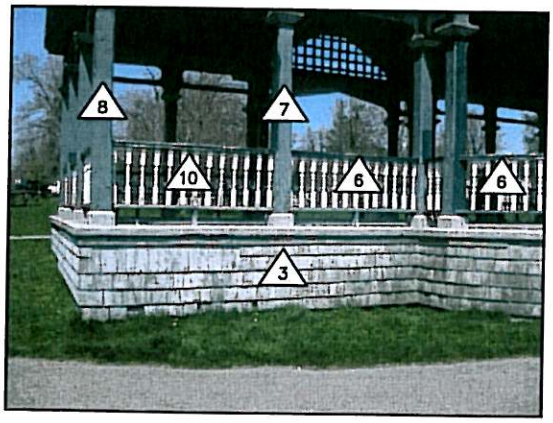
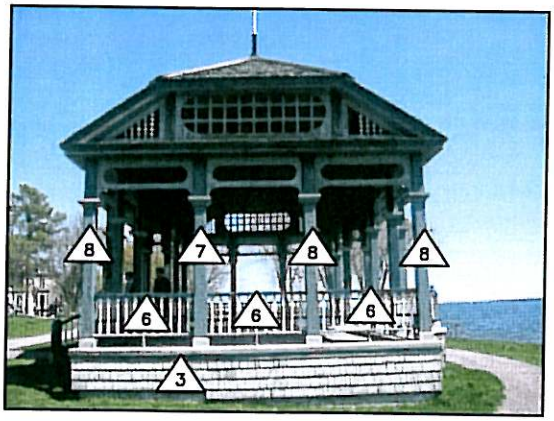
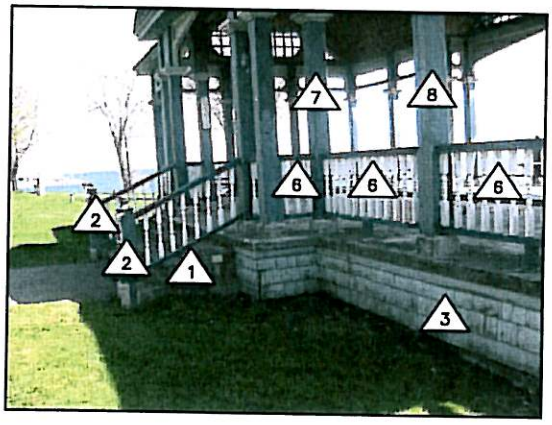


5 / A3 PHOTOGRAPH
SCALE NTS

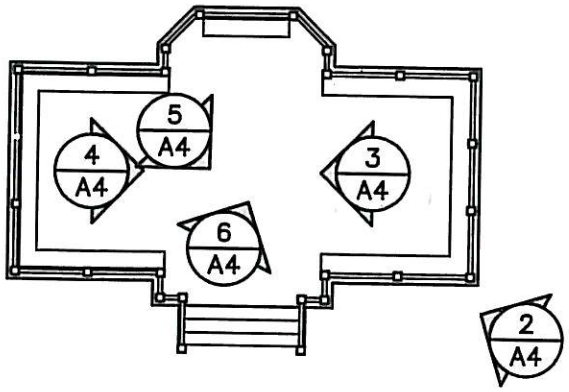


6 / A3 PHOTOGRAPH
SCALE NTS

ernest a. cromarty architect inc. kingston ontario	project NEWLANDS PAVILION	title EXISTING PLAN	
	location KING ST. EAST, KINGSTON, ONTARIO	scale AS NOTED	job no. 2010-31
	for CITY OF KINGSTON	date JULY 2010	dwg. no. 2010-31 A3

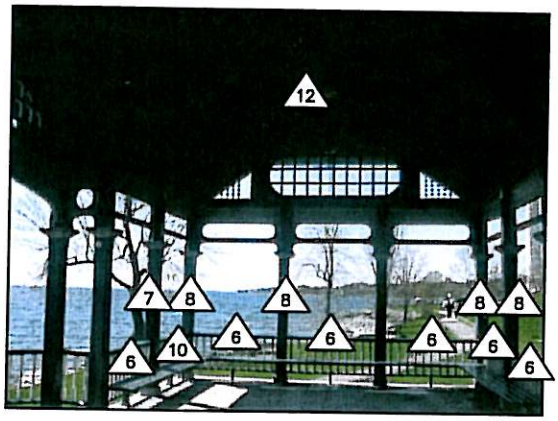


2 / A4 PHOTOGRAPH
SCALE NTS



1 / A4 EXISTING PLAN
SCALE 1 : 200

3 / A4 PHOTOGRAPH
SCALE NTS



4 / A4 PHOTOGRAPH
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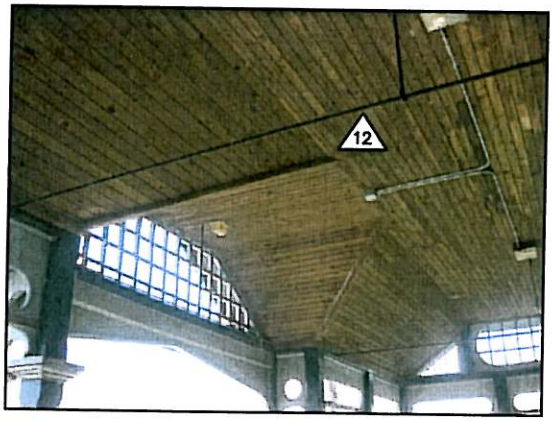
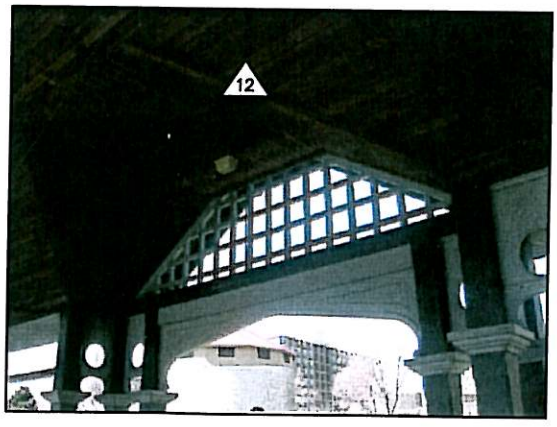


5 / A4 PHOTOGRAPH
SCALE NTS



6 / A4 PHOTOGRAPH
SCALE NTS

ernest a. cromarty architect inc. kingston ontario	project NEWLANDS PAVILION	title EXISTING PLAN	
	location KING ST. EAST, KINGSTON, ONTARIO	scale AS NOTED	job no. 2010-31
	for CITY OF KINGSTON	date JULY 2010	dwg. no. 2010-31 A4