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SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Title - Sujet
Sinclair Ctr Revitalization Phase 2

Solicitation No. - N° de l'invitation EZ899-133658/A	**Amendment No. - N° modif.** 003
Client Reference No. - N° de référence du client	**Date** 2013-06-05
GETS Reference No. - N° de référence de SEAG PW-$PWY-004-6990	
File No. - N° de dossier PWY-3-36004 (004)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à** 02:00 PM **on - le** 2013-06-18	**Time Zone** **Fuseau horaire** Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Mestry, Ruth (PWY)	**Buyer Id - Id de l'acheteur** pwy004
Telephone No. - N° de téléphone (604) 775-9385 ( )	**FAX No. - N° de FAX** (604) 775-6633
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:** PWGSC - Sinclair Centre, Vancouver, BC	

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
Vendor/Firm Name and Address **Raison sociale et adresse du fournisseur/de l'entrepreneur** **Telephone No. - N° de téléphone** **Facsimile No. - N° de télécopieur**	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) **Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)** **Signature**	**Date**

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Canada

Les documents français seront disponibles sur demande

The following changes in the Tender Documents are effective IMMEDIATELY.
This addendum will form part of the Contract Documents

Amend / revise Standard Contract Documents as follows:

1.0 Architectural Drawings

1.1 Architectural Drawings A00, A02, A05, A06, A08 to A12, A15, A20 to A22, A25, A28, A31, A34, A37a,b,c, A40 to A45, A47, A48, A60, A64 to A67, AH202, DA200 to DA204 are revised. All revisions are clouded on the drawings.
1.2 Add new drawing A73

2.0 Structural Drawings

2.1 Structural Drawings S101, S304, S311, S312, S313, S314, S315, S316, S317, S318, S401, S402, S411, S412, S413, S414, S415,S416 & S501 are revised. All revisions are clouded on the drawings.
2.2 Add floor diaphragm upgrade requirements in the revised STRUCTURAL DRAWINGS S403, S417. All revisions are clouded on the drawings.
2.3 Add new drawing S418.

3.0 Mechanical Drawings

3.1 Mechanical Drawings M0.02, M0.03, M1.01 to M1.06, M2.03, M2.05 are revised. All revisions are clouded on the drawings.

4.0 Electrical Drawings

4.1 4.1 Electrical Drawings E1, to E5, E9 to E11, E13 to E17, E20, E21 are revised. All revisions are clouded on the drawings.

5.0 Signage Drawings

5.1 Delete the word 'PRELIMINARY NOT FOR CONSTRUCTION' on all Technical Drawings pages 1 - 98, and on Graphic Details Pages 1 – 31
5.2 Delete drawings Technical Drawings 16 and 17 from the Technical Drawings Package

6.0 Reference Drawings

6.1 Reference Drawing GPR-01 Ground Penetrating Radar Survey Result is provided in this addendum.

7.0 As-built Drawings

7.1 Add the following relevant plumbing as-built drawings

.1 2nd Floor plan South
.2 4th Floor plan South
.3 Fan coil pipe riser diagrams Winch Building

8.0 Specifications

8.1 Revised Specification Section 00 00 10 Table of Contents, all changes are in **bold type**
8.2 Revised Specification Section 01 14 00 Work Restriction, all changes are in **bold type**
8.3 Revised Specification Section 01 64 00 Owners Work, all changes are in **bold type**
8.4 Add Specification Section 03 10 30 Strengthening of Granite/Concrete Wall with FRP
8.5 Add Specification Section 25 90 01 EMCS: Site Requirements Applications and Systems Sequences of Operation
8.6 Revise Appendix C Site Photos
8.7 Add Appendix Q Hot Work Permit

9.0 Mechanical Clarification

9.1 Refer to Mechanical Addendum No.1 dated May 31, 2013.

End of Addendum #2

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DIRECTIONAL CONTENT PLAN

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END OF SECTION 00 00 10

1.0 GENERAL

1.1 CODES

.1 Perform work in accordance with National Building Code for Canada 2010, Workers' Compensation Board of BC, Vancouver Building By-law 2007 and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

.2 Meet or exceed requirements of specified standards, codes and referenced documents.

1.2 DESCRIPTION OF WORK

.1 Work under this Contract comprises, but is not limited to, the provision of all labour, materials, services and equipment necessary for the Renovation, Seismic Upgrade and Passport Office Fit-Out at Sinclair Centre, Vancouver, BC, including demolition and construction work at level B2, Lower Mall and Upper Mall, and associated mechanical work at level B3 and mechanical penthouse of Post-Office Building as fully described in the Tender Documents.

1.3 CONTRACT DOCUMENTS

.1 The Contract documents, drawings and specifications are intended to complement each other.

.2 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the work.

.3 Cooperate with pre-purchased equipment suppliers in carrying out their respective works and carry out instructions from Departmental Representative.

.4 Coordinate work with that of pre-purchased equipment suppliers. If any part of work under this Contract depends on its proper execution or result upon work of said suppliers, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of this Work.

1.4 TIME OF COMPLETION

.1 Commence work immediately upon official notification of acceptance of offer and complete Passport Office Fit-out, including testing, adjusting and commissioning within thirty-two (32) weeks after contract award. Remainder of the work must be completed within fifty-nine (59) weeks after award of contract.

.2 Work for kitchen exhaust for Leone must be carried out and completed within the period of July 26, 2013 to August 15, 2013 during which the Leone Kitchen Restaurant will be shut down for the these three weeks. Any costs incurred or lost by Leone for delay beyond these three weeks will be accessed against the contractor accordingly. The kitchen exhaust system must be commissioned and operational before August 15, 2013.

1.5 HOURS OF WORK

.1 All work which generates excessive noise, including cutting and coring, hammer drills and power activated fastening shall be executed outside of the normal operating hours, except Saturday, for Sinclair Centre.

.2 All other work, except for that noted in Clause 1.5.1 shall be executed during the normal operating hours for Sinclair Centre:

Monday through Friday – 07:00 to 17:00 hours.
Saturday – 10:00 to 17:30 hours.
Sunday – Closed.

.3 All work conducted during and outside of normal operating hours will be subject to restrictions outlined in sections 01 14 00 and 01 51 00, including security arrangements.

1.6 WORK SCHEDULE

.1 Carry out work as follows:

.1 Within 10 working days after Contract award, provide a "phasing bar chart" and a schedule showing anticipated progress stages and final completion of the work within the time period required by the Contract documents. Indicate the following:

.1 Submission of shop drawings, product data, MSDS sheets and samples.

.2 Commencement and completion of work of each section of the specifications or trades for each phase as outlined.

.3 Final completion date within the time period required by the Contract documents.

.2 Do not change approved Schedule without notifying Departmental Representative.

.3 Interim reviews of work progress based on work schedule will be conducted as decided by Departmental Representative and schedule updated by Contractor in conjunction with and to approval of Departmental Representative.

1.7 COST BREAKDOWN

.1 Before submitting the first progress claim, submit a breakdown of the Contract price in detail as directed by the Departmental Representative and aggregating Contract price. After approval, the cost breakdown will form the basis of progress payments.

.2 For funding allocation purposes only, within 30 days after contract award, submit a separate cost breakdown from Clause 1.7.1 above, dividing the contract price between "Base Building" and "Fit-up" costs generally as follows:

Base Building Works:

.1 Architectural- all works as described in architectural drawings except those drawings designated as Passport Office.

.2 Structure- all works as described in structural drawings.

.3 Mechanical- all works as described in mechanical drawings except

.1 HVAC- A/C in LAN Room.

.2 Plumbing-All plumbing distributions & fixtures except those within Passport Office.

.4 Electrical- all works as described in electrical drawings except:

.1 Power- all power distribution from junction box grid in ceiling of passport office.

.2 Lighting- Light fixtures in Meeting Room in Passport Office.

.3 Security- all work described in security drawings.

.5 Signage- all signage work in signage package except:

.1 Signage work as shown in Drawing A50.

.6 Sound System

.1 All work shown in drawing SS-1 to SS-3.

.3 General Contractor, Mechanical and Electrical Sub-Contractor should attend meetings with

Departmental Representative as required to finalize the breakdown.

1.8 CODE, BYLAWS, STANDARDS

.1 Perform work in accordance with the National Building Code of Canada (NBC) 2010, and other indicated Codes, Construction Standards and/or any other Code or Bylaw of local application.

.2 Comply with applicable local bylaws, rules and regulations enforced at the location concerned.

.3 Meet or exceed requirements of Contract documents, specified standards, codes and referenced documents.

.4 In any case of conflict or discrepancy, the most stringent requirements shall apply.

1.9 DOCUMENTS REQUIRED

.1 Maintain one copy each of the following at the job site:

.1 Contract drawings.
.2 Contract specifications.
.3 Addenda to Contract documents.
.4 Copy of work schedule.
.5 Reviewed shop drawings.
.6 Change orders.
.7 Other modifications to Contract.
.8 Field test reports.
.9 Reviewed samples.
.10 Manufacturer's installation and application instructions.
.11 One set of record drawings and specifications for "as-built" purposes.
.12 National Building Code of Canada 2010.
.13 Current construction standards of workmanship listed in technical Sections.
.14 Building Safety Plan.

1.10 REGULATORY REQUIREMENTS

.1 Building Permit

.1 Obtain and pay for Building Permit, Occupancy Permit, Certificates, Licenses and other permits required by City of Vancouver, provincial or federal authorities to complete the work. Obtain 2 building permits, one for base building work and one for Passport Office Fit-Out. Obtain a sign permit from City of Vancouver for exterior banner installations. Commencement of work is independent of issuance of building permit from City of Vancouver.

.2 Provide inspection authorities with plans and information required for issue of acceptance certificates.

.3 Furnish inspection certificates in evidence that the work installed conforms with the requirements of the authority having jurisdiction.

1.11 CONTRACTOR'S USE OF SITE

.1 Use of site:

.1 Exclusive and complete for execution of work.
.2 Assume responsibility for assigned premises for performance of this work.
.3 Be responsible for coordination of all work activities on site, including the work of other contractors engaged by the Departmental Representative.
.4 Cooperate with and coordinate construction/demolition activities with Sinclair Centre

property manager, SNC Lavalin.

.5 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.2 Perform work in accordance with Contract documents. Ensure work is carried out in accordance with approved schedules.

.3 Do not unreasonably encumber site with material or equipment.

1.12 EXAMINATION

.1 Examine site and be familiar and conversant with existing conditions likely to affect work.

1.13 EXISTING SERVICES

.1 Where Work involves breaking into or connecting to existing services, carry out work as directed in Section 01 14 00 – Work Restrictions.

.2 Record locations of maintained, re-routed and abandoned service lines.

.3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.14 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space, and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Departmental Representative of impending installation and obtain his approval for actual location.

.4 Submit field drawings or shop drawings to indicate the relative position of various services and equipment when required by the Departmental Representative and/or as specified.

1.15 CUTTING AND PATCHING

.1 Cut existing surfaces as required to accommodate new work.

.2 Remove items so shown or specified.

.3 Do not cut, bore, or sleeve load-bearing members.

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

.5 Fit work airtight to pipes, sleeves, ducts and conduits.

.6 Conceal pipes, ducts and wiring in raised floors, wall and ceiling construction of finished areas except where indicated otherwise.

.7 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.

.8 Making good is defined as matching construction and finishing materials and the adjacent surfaces

such that there is no visible difference between existing and new surfaces when viewed from 1.5 metres in ambient light, and includes painting the whole surface to the next change in plane.

1.16 SETTING OUT OF WORK

1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.

.2 Provide devices needed to lay out and construct work.

.3 Supply such devices as templates required to facilitate Departmental Representative's inspection of work.

1.17 ACCEPTANCE OF SUBTRADES

1 Each trade shall examine surfaces prepared by others and job conditions which may affect his work, and shall report defects to the Departmental Representative. Commencement of work shall imply acceptance of prepared work or substrate surfaces.

1.18 QUALITY OF WORK

.1 Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman.

.2 The workmanship, erection methods and procedures to meet minimum standards set out in the National Building Code of Canada 2010 and Construction Standards as specified herein.

.3 In cases of dispute, decisions as to standard or quality of work rest solely with the Departmental Representative, whose decision is final.

1.19 WORKS COORDINATION

.1 Coordinate work of sub-trades:

.1 Designate one person to be responsible for review of contract documents and shop drawings and managing coordination of Work.

.2 Convene meetings between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.

.1 Provide each subcontractor with complete plans and specifications for Contract, to assist them in planning and carrying out their respective work.

.2 Develop coordination drawings when required, illustrating potential interference between work of various trades and distribute to affected parties.

.1 Pay particularly close attention to overhead work above ceilings and within or near to building structural elements.

.2 Identify on coordination drawings, building elements, services lines, rough-in points and indicate location services entrance to site.

.3 Facilitate meeting and review coordination drawings. Ensure subcontractors agree and sign off on drawings.

.4 Publish minutes of each meeting.

.5 Plan and coordinate work in such a way to minimize quantity of service line offsets.

.6 Submit copy of coordination drawings and meeting minutes to Departmental Representative for information purposes.

.3 Submit shop drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.

.4 Work cooperation:

.1 Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.
.2 Ensure that each trade provides all other trades reasonable opportunity for completion of Work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed work.
.3 Ensure disputes between subcontractors are resolved.

.5 Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to coordinate Work.

.6 Maintain efficient and continuous supervision.

1.20 APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

.1 In accordance with Section 01 33 00, submit the requested shop drawings, product data, MSDS sheets and samples indicated in each of the technical Sections.

.2 Allow sufficient time for the following:
.1 Review of product data.
.2 Approval of shop drawings.
.3 Review of re-submission.
.4 Ordering of approved material and/or products. Refer to individual technical sections of specifications.

1.21 PROJECT MEETINGS

.1 Contractor shall arrange project meetings and assume responsibility for setting times and distributing minutes.

.2 The contractor shall provide the meeting facilities, record the meeting minutes and issue a meeting agenda 3 days prior to the meeting to Departmental Representative for review.

1.22 TESTING AND INSPECTION

.1 Particular requirements for inspection and testing to be carried out by testing service or laboratory approved by the Departmental Representative are specified in Sections 01 45 00.

.2 The Contractor will appoint and pay for the services of testing agency or testing laboratory as specified, and where required for the following:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Testing, adjustment and balancing of mechanical and electrical equipment and systems.
.1 Mill tests and certificates of compliance.
.2 Tests specified in the contract documents to be carried out by Contractor which may be under the Departmental Representative's supervision.

.3 Within 15 working days after Contract award provide a list of proposed testing services or testing laboratories for Departmental Representative’s approval.

.4 The Departmental Representative may require, and pay for, additional inspection and testing services not included in paragraph 1.22.2.

.5 Where tests or inspections by designated testing laboratory reveal work is not in accordance with

the Contract requirements, Contractor shall pay costs for additional tests or inspections as the Departmental Representative may require to verify acceptability of corrected work.

.6 Contractor shall furnish labour and facilities to:
.1 Notify Departmental Representative in advance of planned testing.

.7 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.8 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Departmental Representative.

.9 Provide Departmental Representative with 2 copies of testing laboratory reports as soon as they are available.

.10 Contractor is required to perform on-site testing of the existing concrete slab for 3 floors at Post Office building and 2 floors at Winch building with investigation areas confirmed on site by Departmental Representative. The scope of work includes:

.1 Site visit for planning the field works and marking locations for the removal of concrete cores.

.2 Provide ground radar penetration to identify the existing floor slab reinforcement and in- floor ducts where existed prior to coring the slab.

.3 Locally removal of existing floor finishing as required.

.4 Removal of core samples for compressive strength tests for concrete floor slab and topping in accordance with CSA A23.2 -9C. The total numbers of core samples per floor slab shall be determined in accordance with CSA A23.2. Each core would include both the topping and the concrete base floor slab and would be cut at the topping-slab interface for compressive strength tests to be performed on the slab portion.

.5 Removal of one additional core sample for petrographic examiniation of aggregates in the concrete.

.6 Conduct tensile bond strength tests in accordance with CSA 23.2-6B to determine the bond stress between the topping and base floor slab.

.7 Chipping the concrete to remove rebar and/or wire mesh samples in the floor slab and topping to determine the yield strength of the rebar and/or wire mesh. The total numbers of rebar/wire mesh samples shall be determined in accordance with the Code.

.8 Extract powder samples at top and bottom of the floor base slab core samples (minimum two core samples) and perform a chemical analysis to determine the existence of volatitles, i.e., Semi Volatile Organic Compounds (SVOS) testing and provide comments on the potential environmental issues if existed.

.9 Provide tests on concrete carbonation of the floor base slab. Minimum two core samples per floor slab.

.10 Extract concrete powder samples from two depths (one at the reinforcement depth and one from a depth away from reinforcement) of core sample on floor base slab for laboratory analysis of water soluble chloride ion content (CSA A23.2-4B) and pH of concrete. Minimum two concrete powder samples per floor slab.

.11 Patching of core holes and rebar sampling locations with a high strength mortar.

.12 Reinstall floor finishing to match existing floor finishing unless approved by departmental representative.

.13 Provide a summary report of findings under Professional Engineer's seal and signature within four weeks following the site work.

1.23 AS-BUILT DOCUMENTS

.1 Keep one set of current white prints of all contract drawings and all addenda, revisions, clarifications, change orders, and reviewed shop drawings in the site office; and have them available at all times for inspection by the Consultant.

.2 As the Work progresses, maintain accurate records to show all deviations from the Contract documents. Note on as-built specifications, drawings and shop drawings as changes occur.

.3 At completion of the Work, transfer all deviations, including those called up by addenda, revisions, clarifications, shop drawings and change order, to a set of Issued for Construction drawings. Submit the 'red-marked' as-built set to the Owner, in hard copy and in PDF.

.4 If required by Owner, arrange for the preparation of as-built drawings on AutoCAD computerized drafting system at an hourly rate. This will be charged to the Owner upon the Owner's approval of the estimated cost.

.5 Refer to Section 01 78 00 – Close-out Submittals.

1.24 CLEANING

.1 Refer to Section 01 74 11 - Cleaning.

1.25 DUST CONTROL

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

.2 Protect furnishings and equipment within work area with 0.102 mm thick polyethylene film during construction. Remove film during non- construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function.

.3 Maintain and relocate protection until such work is complete.

1.26 ENVIRONMENTAL PROTECTION

.1 Prevent extraneous materials from contaminating air beyond construction area, by providing temporary enclosures during work.

.2 Do not dispose of waste or volatile materials into water courses, storm or sanitary sewers.

.3 Ensure proper disposal procedures in accordance with all applicable territorial regulations.

1.27 MAINTENANCE MATERIALS, SPECIAL TOOLS AND SPARE PARTS

.1 Specific requirements for maintenance materials, tools and spare parts are specified in individual technical sections of specifications.

1.28 ADDITIONAL DRAWINGS

.1 The Departmental Representative may furnish additional drawings for clarification. These

additional drawings have the same meaning and intent as if they were included with drawings referred to in the Contract Documents.

.2 Upon request, Departmental Representative may furnish up to a maximum of ten (10) sets of Contract Documents for use by the Contractor at no additional cost. Should more than ten (10) sets of documents be required, the Departmental Representative will provide them at additional cost.

1.29 BUILDING SMOKING ENVIRONMENT

.1 Smoking within the building and within 7.5m of all air intakes is not permitted.

.2 A 'No Smoking' sign to be put up by Contactor.

1.30 SYSTEM OF MEASUREMENT

.1 The metric system of measurement (SI) will be employed on this Contract.

1.31 FAMILIARIZATION WITH SITE

.1 Before submitting tender, visit site as indicated in tender documents and become familiar with all conditions likely to affect the cost of the work.

1.32 SECURITY REQUIREMENTS

.1 Refer to Section 01 14 00.

1.33 SUBMISSION OF TENDER

.1 Submission of a tender is deemed to be confirmation of the fact that the Tenderer has analyzed the Contract documents and inspected the site, and is fully conversant with all conditions.

1.34 PARTIAL OCCUPANCY & WARRANTY PERIOD

.1 To maintain uninterrupted operation of the complex during the construction period, construction phasing is expected to be implemented (refer to section 01 14 00 – Work Restrictions). Contractor will schedule progressive hand over of the completed work phase by phase to the Owner for occupancy. Warranty period of that phase or portion of work will deem to start from the date of Acceptance of Work and taken over by the owner for occupancy use.

1.35 SUBSTANTIAL COMPLETION

.1 Notwithstanding clause 1.34.1, Substantial Completion of work will only apply to the whole project and release of lien holdback will be in accordance with BC Builders Lien Act.

END OF SECTION 01 11 00

1.0 GENERAL

1.1 FACILITY OPERATIONS AND SECURITY PROCEDURES

.1 All construction staff shall become thoroughly familiar with and abide by all provisions and requirements of Sinclair Centre's Operations, Safety and Security Procedures and Restrictions.

.2 Cooperate with and coordinate construction/demolition activities with Sinclair Centre Property Management firm, SNC Lavalin.

1.2 ACCESS AND EGRESS

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

.2 Provide hoarding conforming but not limited to the hoarding plans in the contract documents, and scaffolding plan for Departmental Representative to review 5 business days prior to installation.

.3 Refer to Appendix D of this specification for designated Site Access, Site Office and Laydown Area.

.4 All access through Level B2 loading area as shown in Appendix D will require commissionaires' attendance during normal hours or after hours. Charge out rate as in Section 1.7.3 will apply. Contractor to include cost of commissionaires' attendance in their contract price.

1.3 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security as per Departmental Representatives direction and as specified in 1.7 Security.

.4 Closures: protect work temporarily until permanent enclosures are completed.

.5 Portions of the existing complex will be occupied by the public and government staff during entire construction period.

.6 Coordinate with Departmental Representative in scheduling operations to minimize conflict and to facilitate use of space.

.7 Use designated elevator only for construction use in building for moving workers and materials.
  .1 Accept liability for damage, safety of equipment and overloading of existing equipment.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to Sinclair Centre operations, occupants, and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.5 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 3 working days of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends. The maximum number of shut downs is limited to 4 for the duration of the project.

.1 Optimize and plan shut-downs so that services are restored in time for normal facility operation hours. Coordinate all shut-downs with utility providers, facility users and the property management firm.

.2 Contractor shall be held responsible for damages to facility equipment as the result of service shut-downs.

.3 Contractor shall be held responsible for any and all unscheduled shut-downs of building utilities and services.

.4 Contractor will not be allowed to connect to Departmental Representative's existing data and communication services.

.5 Submit a "Fire Alarm Bypass" request to Departmental Representative 72 hours in advance for approval.

.6 Obtain permission from Departmental Representative for access to restricted areas outside the construction zones 24 hours in advance.

.3 Provide for personnel and vehicular traffic.

.4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work outside the normal operating hours of Sinclair Centre, as per 1.9 Hours of Work.

.1 Means and procedures of controlling and isolating other construction noise affecting occupied areas shall be responsibility of the Contractor and approved by the Departmental Representative.

.2 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart.

.3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

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

.5 Ingress and egress of Contractor vehicles at site is limited to loading dock at Level B2 off West Cordova Street.

.6 Deliver materials outside of peak traffic hours unless otherwise approved by Departmental Representative. Peak traffic is defined as 07:00-9:00 and 15:00-17:00.

1.7 SECURITY

.1 All work scheduled outside normal Sinclair hours will require full-attendance security guard or guards. The Contractor shall make minimum 48 hours advance arrangements with PWGSC for access and security. All security costs will be paid for by PWGSC and reimbursed by the Contractor.

.2 All access to secured areas such as all base building electrical and mechanical rooms, roof and roof penthouse, and other normally secured services rooms will need escort by Commissionaires

during and after normal office hours.

.3 Use of loading dock at Level B2 will need attendance of Commissionaires at all times.

.4 All access to existing occupied tenant spaces in the office towers for installation of banners and associated construction work during or after office hours will need escort by Commissionaires.

.5 Security Service charge will apply for all Commissionaire's escort and attendance.
- .1 Charge-out hourly rate for regular federal work by Commissionaires BC are as follows:
  - .1 Regular rate $ 29
  - .2 Regular overtime rate $ 40.29
  - .3 Double overtime rate $ 51.58
  - .4 Stat Holiday rate $ 40.28
- .2 Overtime is charged after 8 hours, double overtime after 12 hours.

.6 Contractor should have allowed cost of escort by Commissionaires in their contract price.

.7 The Owner will hire and pay for the Commissionaires directly but the contractor will allow for all Commissionaire costs in their contract price. When the final cost is known, the owner will then issue a credit change order for that cost.

1.8 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not permitted within Sinclair Centre.

1.9 NOISE CONTROL

.1 Refer to section 01 11 00 clause 1.5 for policy for excessive noise and vibration generation.

.2 Means and procedures of controlling and isolating construction noise affecting occupied areas shall be responsibility of the contractor and approval of Departmental Representative.

.3 Level of work noise must be maintained at a level no greater than 87 dBA, over an eight-hour period.

.4 If work noise level exceeds 87 dBA, reduce noise either by using engineering devices to reduce or by shortening the duration of exposure.
- .1 Refer to Table of maximum duration of exposure to sound levels higher than 87dBA permitted by Canada Occupational Health and Safety Regulations:

Sound Level in dBA	Maximum Duration of Exposure in Hours per Employee per 24-Hour Period		Sound Level in dBA	Maximum Duration of Exposure in Hours per Employee per 24-Hour Period
87	8.0		104	0.16
88	6.4		105	0.13
89	5.0		106	0.10
90	4.0		107	0.080
91	3.2		108	0.064
92	2.5		109	0.050
93	2.0		110	0.040
94	1.6		111	0.032
95	1.3		112	0.025

96	1.0		113	0.020
97	0.80		114	0.016
98	0.64		115	0.013
99	0.50		116	0.010
100	0.40		117	0.008
101	0.32		118	0.006
102	0.25		119	0.005
103	0.20		120	0.004

.5 All Hoarding enclosing noise generating activities must be acoustically sealed to structure. All temporary construction doors to be solid core wood door installed with door seal, door bottom and threshold.

1.10 CONSTRUCTION PHASING

.1 To maintain Sinclair Centre operational during construction is of upmost priority. To achieve this goal, various construction works cannot be implemented at the same time.

.2 Construction phasing plan and schedule must be submitted for approval by Departmental Representative prior to implementation. Phasing of Work and approximate extent of protective hoarding are generally described in hoarding plans. Phasing criteria are as follows:

.1 A minimum of either the public washrooms in Federal Building or Post Office Building must be maintained operational during normal operating hours.

.2 The new stair/performing stage in the atrium must be substantially completed and open for use prior to demolition of stair at Cordova Street entrance.

.3 Galleria glazed entrances modification and upgrade must be carried out sequentially one at a time. No more than 2 entrances can be closed for construction at the same time.

.4 Glazing adjustment along the galleria skylight must be carried out bay by bay and must not block the egress way.

.5 Removal of existing signs must only be done right before installation of new signs.

.6 Removal of existing galleria and atrium furniture must only be done right before installation of new furniture.

.7 The following must be completed at the same time or before substantial completion of Passport Office:

.1 Seismic and lighting upgrade at Post Office Building Lower Mall Level elevator lobby.

.2 Seismic and Lighting upgrade at Lower Mall Level along the north frontage of Passport Office.

.3 Glass block and concrete slab replacement at Upper Mall Level along the north frontage of Passport Office.

1.11 WORK OR SITE VISIT WITHIN OCCUPIED TENANT SPACE

.1 Sinclair Centre : Protocol to enter space and lines of communication

All contractors requesting access to tenant spaces are required to submit a request a minimum of 48hrs in advance to the SNC Facility Representative. The request shall include: Purpose of the visit/duration/date and time. Request must be in writing. The SNC Facility contact will forward the request to the tenant occupying the space. Contractors should wait for confirmation before making the arrangements to visit the site, or carry out any construction work within the occupied tenant space.

SNC Lavalin O & M Contacts

Jim Kwan Jen Vann

SNC Facility Manager (604) 488-1684 SNC Property Service Coordinator (604) 488-0672

Jim.Kwan@snclavalinom.com Jen.Vann@snclavalinom.com

1.12 HOT WORK PERMIT

.1 Any hot work must be provided with 48 hours prior notice by completing a hot work permit application as per Appendix Q. Notify SNC Lavalin Facility Site Manager Jim Scott (jim.scott@snclavalin.com), (604) 809-9764

END OF SECTION 01 14 00

1.0 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 11 00 General Instructions

1.2 COORDINATION

.1 Contractor shall coordinate Owner supplied products and services with the Construction Schedule for delivery dates.

.2 Contractor shall coordinate with the Owner for installation of Owner installed items, blocking and servicing requirements and confirm dimensional requirements for items being built-in or attached to Contractor work.

.3 Contractor shall coordinate Owner supplied products, installed by Contractor for installation requirements, blocking and servicing requirements and confirm dimensional requirements for items being built-in or attached to Contractor's work.

2.0 PRODUCTS

2.1 OWNER'S WORK

.1 The Owner has established the items of work as indicated in Appendix F to be Owner's supplied and installed, or Owner's supplied and Contractor to install. All Owner's work to be coordinated by Contractor.

.2 Rental cost of existing telescopic shoring in the new passport office space will be paid by owner. The contractor will be responsible for maintaining the shoring and avoid any damage. Any costs due to damage incurred by the owner will be recovered from the contractor by change order. Contractor to provide notification for removal of shoring to Departmental Representative after all structural rectification work as specified has been completed and reviewed. Owner will arrange to have the shoring removed. Owner is not responsible for the schedule in removal of shoring. Contractor must allow reasonable sufficient prior notice so as not to delay the construction schedule.

3.0 EXECUTION

3.1 PREPARATION

.1 Contractor shall provide all necessary framing, support and blocking to receive Owner's Work, all services roughing-in, in accordance with shop drawings, which will be, supplied by the Owner if available or products delivered on site, at no additional cost to the Contract.

END OF SECTION 01 64 00

1.0 GENERAL

1.1 DESCRIPTION OF WORK

.1 This specification is intended to define the minimum requirements of structural strengthening using externally bonded fiber reinforced polymer (FRP) composite systems.

.2 The work includes the furnishing of all materials, labor, equipment and services for the supply, installation and finish of all structural strengthening using externally bonded FRP systems.

.3 The general contractor or subcontractor shall furnish all materials, tools, equipment, transportation, necessary storage, access, labor and supervision required for the proper installation of the externally bonded FRP systems.

1.2 WORK INCLUDED

This Section of the Specification is not necessarily complete in itself. Read in conjunction with the Contract Document. Note also that Specification “call numbers” may vary as per project.

1.3 REFERENCE STANDARDS

GENERAL
The publications listed below form a part of this specification to the extent referenced. Where a date is given for referenced standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of the Notice of Invitation to Bid shall be used.

CANADIAN STANDARDS ASSOCIATION (CAN/CSA-S806-12)

.1 Design and Construction of Building Components with Fibre-Reinforced Polymers

INTERNATIONAL CODE COUNCIL (ICC)

.2 ICC AC125, Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber Reinforced Polymer (FRP) Composite Systems.

.3 ICC AC178, Interim Criteria for Inspection and Verification of Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber Reinforced (FRP) Composite Systems.

AMERICAN STANDARD FOR TESTING AND MATERIALS (ASTM)

.4 ASTM D7565, Standard Test Method for Determining Tensile Properties of Fiber Reinforced Polymer Matrix Composites Used for Strengthening of Civil Structures.

.5 ASTM D3039, Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.

.6 ASTM D7522, Standard Test Method for Pull-Off Strength for FRP Bonded to Concrete Substrate.

.7 ASTM D4541, Standard Test Method for Pull-off Strength of Coating Using Portable Adhesive-Testers.

.8 Fire Protection: ASTM E84 (regarding flame spread and smoke development requirement) and ASTM E119 (regarding hourly fire-rated requirement).

AMERICAN CONCRETE INSTITUTE (ACI)

.9 ACI 440.2R-08, Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures.

INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI)

.10 ICRI Technical Guideline No. 310.2-1997 (formerly No. 03732), Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

1.4 SUBMITTALS

QUALITY CONTROL AND QUALITY ASSURANCE:

.1 Submit manufacture specified QA/QC manual indicating product standards, physical and chemical characteristics, technical specifications, limitations, installation instructions, maintenance instructions and general recommendations regarding each individual material.

Note: Only epoxy resins will be accepted for construction of FRP systems referenced in this specification. Other resins, such as polyesters/vinyl esters, are not allowed as substitutes. The manufacturer shall clearly define the epoxy resin working time. Any batch that exceeds the batch life shall not be used.

.2 Durability Requirements: The proposed FRP systems shall be compliant with all testing requirements as per ICC AC125 and a current ICC Evaluation Service Report compliant with the 2009 International Building Code (IBC) shall be provided (see Section 1.5.8 of this specification).

.3 Submit a list of completed surface bonded FRP composite strengthening projects completed with the manufacturer's FRP system in the past 3 years. The list should include at a minimum 5 projects with proposed FRP system, the dates of work, description and amount of work performed.

.4 All FRP composite systems shall be installed by certified applicator with written consent from manufacturer that the contractor has been trained. The certified applicator shall prove a minimum of 5 years experience in performing retrofits using FRP systems and submit a list of no fewer than 5 successful installations.

Note: The Departmental Representative may suspend the work if the Contractor substitutes an unapproved FRP system or unapproved personnel during construction.

.5 Identify a manufacturer approved testing laboratory that can perform the required ASTM D7565 and/or ASTM D3039 tests as per Section 3.3 of this specification, if required.

DESIGN AND WORKING DRAWINGS:

.6 Structural calculations and shop drawings performed by a Professional Engineer. Design shall follow criteria in Section 1.6 of this specification and be based on the clearly written performance criteria defined on the structural drawings.

.7 Working drawings shall detail the type, locations, dimensions, numbers of layers, and orientation of all FRP materials and coatings to be installed.

PRODUCT INFORMATION:

.8 Provide a current ICC Evaluation Service Report, compliant with the 2009 IBC, for the proposed products.

.9 If fire protection is required, provide approved U.L. rated assembly data for any required fire-resistant finish (2 or 4 hour rated assembly per ASTM E119 or Class A Building, Flame Spread & Smoke Development per ASTM E84) as proposed with the FRP system. Note: Due to the temperature sensitive nature of FRP systems, no fire resistance system shall be allowed without the aforementioned U.L. rated assembly testing verification.

.10 Manufacturer's product data sheets indicating physical, mechanical and chemical characteristics of all materials used in the FRP system. Data sheets to also include properties of the cured FRP laminates as determined by laboratory testing in accordance with ASTM D7565 and/or ASTM D3039 (ultimate and design tensile modulus, stress and strain).

.11 Manufacturer's Material Safety Data Sheets (MSDS) for all materials to be used.

.12 Certification by the manufacturer that supplied products comply with local regulations controlling use of volatile organic compounds (VOC's). Products that require the use of respirators do not comply with local regulations controlling use of VOC's and shall not be allowed.

1.5 PERFORMANCE

.1 Design the composite system to achieve the structural performance shown on the structural drawings E x A and shall be submitted for approval by the Departmental Representative, and shall be performed by a Professional Engineer registered in the British Columbia.

.2 Calculations shall conform to the requirements set forth in Canadian Standards Association (CAN/CSA S806-12) and be based on the design modulus and associated area of the cured laminate for the FRP system to be installed. FRP laminate design values must be lower than the calculated mean determined from the test results of the ASTM D7565 and/or ASTM D3039 field test specimens (See Section 3.3 of this specification).

1.6 PRODUCT DELIVERY, HANDLING AND STORAGE

.1 Deliver epoxy materials in factory-sealed containers with the manufacturer's labels intact and legible with verification of date of manufacture and shelf life.

.2 Store materials in a protected area at a temperature between 40°F and 100°F.

.3 Products shall be stored according to the manufacturer's requirements and shall avoid contact with soil and moisture. Products shall be stored to avoid UV exposure.

1.7 COORDINATE WITH OTHER TRANDES

Prior to construction, the trades shall be briefed on any new or unusual construction procedures to ensure that they are aware of special conditions (e.g. new penetrations, construction anomalies).

2.0 PRODUCTS

2.1 ACCEPTABLE COMPOSITE STRENGTHENING SYSTEM

Composite system by to achieve the structural performance shown on the structural drawings. FRP system manufacturers must provide all items listed in Section 1.4 of this specification for approval.

2.2 CERTIFIED APPLICATORS

.1 Installations of FRP Systems shall be performed by certified applicators only. Certified applicators shall have the minimum experience and written consent by the FRP manufacturer (See Section 1.5.4 of this specification).

2.3 OTHER MATERIALS

Contractor to provide compatible primer, filler and other materials recommended by the manufacturer as needed for the proper installation of the complete surface bonded FRP composite system.

3.0 APPLICATION

3.1 SURFACE PREPARATION

.1 Surfaces shall be prepared for bonding by means of abrasive blasting or grinding to remove existing laitance and expose aggregate [minimum ICRI CSP-2 concrete surface profile]. All contact surfaces shall then be cleaned by hand or compressed air. Prior to the application of the saturated composite fabric, prime surfaces and fill any uneven surfaces with the manufacturer's thickened epoxy. Provide anchorage as detailed on construction drawings, if required.

.2 Round off sharp and chamfered corners (to be wrapped around) to a minimum radius of 0.75" by means of grinding or forming with the system's thickened epoxy. Variations in the radius along the edge shall not exceed 0.5" for each 12" of length.

3.2 INSTALLATION

.1 Preparation work for project: Visit site to ensure that all patch work is complete and cured. Review project specifications in detail.

.2 Verify ambient and concrete temperatures. No work shall proceed if the temperature of the concrete surface is less than 40°F or greater than 100°F or as specified on the epoxy component labels. The ambient temperature and temperature of the components shall be between 40°F and 100°F, unless provisions have been made to ensure components' temperature is maintained within this range or the range specified by the manufacturer.

.3 Prepare the epoxy matrix by combining components at a weight (or volume) ratio specified by the manufacturer. The components of epoxy resin shall be mixed with a mechanical mixer until uniformly mixed, typically 5 minutes at 400-600 rpm.

.4 Components that have exceeded their shelf life shall not be used.

.5 Saturation of the fabric shall be performed and monitored according to the manufacturer's specified fiber-epoxy resin ratio. Fabric shall be completely saturated prior to application to contact surface in order to ensure complete impregnation. Saturation shall be supervised and checked by the certified installer. Both the epoxy resin and fabric shall be measured accurately, combined, and applied uniformly at the rates shown on the approved working drawings and per manufacturer's recommendations.

.6 All cutting of fabrics, mixing of epoxy and combination thereof shall take place in a protected area away from critical structure functions and any electrical equipment.

.7 Prepare surfaces as required, including corner preparation.

.8 Remove dust and debris by hand or with compressed air as per specification.

.9 Clean up and protect area adjacent to element where FRP system is being applied.

.10 Using a roller or trowel, apply one prime coat of epoxy resin to the substrate (2 mil min.). Allow primer to become tacky to the touch.

.11 Fill any uneven surfaces or recesses with thickened epoxy.

.12 Apply saturated fabric to substrate surface by hand lay-up, using methods that produce a uniform, constant tensile force that is distributed across the entire width of the fabric, and ensure proper orientation of the fabric. Under certain application conditions, the system may be placed entirely by hand methods assuring a uniform, even final appearance. Gaps between composite bands may not exceed 0.5" width in the fabric's transverse joint unless otherwise noted on project drawings. A lap length of at least 6" is required at all necessary overlaps in the primary fiber direction of the fabric.

.13 Apply subsequent layers, continuously or spliced, until designed number of layers is achieved, per project drawings.

.14 Using a roller or hand pressure, release or roll out entrapped air, and ensure that each individual layer is firmly embedded and adhered to the preceding layer or substrate.

.15 Detail all fabric edges, including termination points and edges, with thickened epoxy.

.16 Finish: All edges and seams must be feathered. Finish as specified between 24 and 72 hours after final application of epoxy. If finish is provided beyond 72 hours of the application of the epoxy, the surface must be roughened by hand sanding or brush blasting, prior to finishing.

.17 System may incorporate structural fasteners but limitations and detailing must be verified with FRP system manufacturer.

3.3 INSPECTION AND TESTING

.1 Field Inspection

.1 The contractor shall monitor the mixing of all epoxy components for proper ratio and adherence to manufacturer's recommendations. Record batch numbers for fabric and epoxy used each day, and note locations of installation. Measure square footage of fabric and volume of epoxy used each day. Complete report and submit to Departmental Representative, and FRP composite system manufacturer.

.2 If a Certified Special Inspector is required, the Certified Special Inspector shall periodically observe all aspects of preparation, mixing, and application. All FRP composite applied areas shall be inspected, in accordance with the manufacturer's specifications for voids, bubbles, and delaminations. All defective areas shall be repaired as per Section 3.4 in this specification.

.2 ASTM D7522 and/or ASTM D4541 – Direct Tension Adhesion Tests

.1 Direct tension adhesion testing shall be conducted using the method described by ASTM D7522 and/or ASTM D4541. A minimum of one such test shall be performed for each 1,000 ft² (45m²) of surface area to be covered by the FRP application. Pull-off tests shall be performed on a representative adjacent area to the area being strengthened whenever possible. Tests shall be performed on each type of substrate or for each surface preparation technique used.

.2 The epoxy bonded to the prepared surface shall be allowed to cure as per manufacturer's requirements before execution of the direct tension pull-off test. The locations of the pull-off tests shall be representative and on flat surfaces. If no adjacent areas exist, the tests shall be conducted on areas of the installed FRP system subjected to relatively low stress during service.

.3 The minimum acceptable value for any pull-off test is 175 psi (100 psi for masonry). The average of the tests shall not be less than 200 psi (120 psi for masonry). Additional tests may be performed to qualify the work at each identified area. Each pull-off test is to exhibit a failure mode in the substrate and not the epoxy-to-substrate bond plane.

.4 NOTE: ASTM D7522/4541 testing is only required for "Bond-Critical" applications of the FRP system (i.e. bond of FRP-to-concrete is critical to strengthening performance of the system), unless otherwise required by the Departmental Representative.

.3 Laboratory Testing

SAMPLING

.1 Record lot number of fabric and epoxy resin used, and location of installation. Measure square footage of fabric and volume of epoxy used each day. Label each sample from each day's production.

.2 A "sample batch" shall consist of two 12" by 12" samples of cured composite (note: one 12" by 12" sample creates 5 coupons for ASTM D7565 and/or ASTM D3039 Tension Tests, see 3.3.5 and 3.3.6 of this specification). A minimum of one "sample batch" shall be made daily. Each sample of the "sample batch" will be taken at appropriate times during the day as to ensure the maximum material deviance in the components of the FRP composite.

.4 Preparation of Samples

.1 Prepare sample on a smooth, flat, level surface covered with polyethylene sheeting, or 16 mil plastic film, prime with epoxy resin. Then place one layer of saturated fabric and apply additional topping of epoxy. Cover with plastic film and squeegee out all bubbles.

.2 Samples shall be stored in a sample box and not moved for a minimum 48 hours after casting. The prepared, identified samples shall be given to a pre-approved and experienced testing laboratory. The laboratory shall then precondition samples for 48 hours at 140°F before testing.

.5 ASTM D7565 and/or ASTM D3039 – Material Tension Tests

.1 A minimum of fifteen-percent of all 12"x12" sample panels shall be tested. Testing specimens shall be cut from samples and tested for ultimate tensile strength, tensile modulus and percentage elongation as per ASTM D7565 and/or ASTM D3039 in the longitudinal fiber direction.

.2 Tensile properties must meet or exceed FRP composite system properties as defined in project specifications. If one coupon does not achieve the design properties, additional coupons from the same sample shall be tested. If these coupons fail (on average), coupons from the other 12-inch-by-12-inch sample, from the same batch for that day, shall be tested. If all tested samples of the sample batch do not meet the conditions of acceptance, it is recommended that 25 percent of all samples be tested.

.6 Acceptance Criteria

FRP design values must be lower than the calculated mean determined from the test results received from the ASTM D7565 and/or ASTM D3039 field test specimens. Acceptable minimum values for ultimate tensile strength, tensile modulus, and elongation shall not be below the submitted design values unless calculations are performed using the tested values that exhibit an acceptable capacity as per the original design demands and concept.

.7 NOTE: Samples and associated ASTM D7565/D3039 testing (Sections 3.3.3 through 3.3.6 above in this specification) are only required if the FRP system is designed primarily for “strengthening”, i.e. to add capacity to elements. If the Departmental Representative determines that the FRP system is designed primarily for “repair and restoration” of elements, no such testing will be required.

3.4 REQUIRED REMEDIATION

.1 Small voids and bubbles [on the order of 3” diameter] shall be injected or back filled with epoxy.

.2 Voids and delaminations on the order of 6” in diameter or an area of 5” x 5” shall be reported to the Departmental Representative and remediation shall be submitted by the contractor for approval.

.3 In the event that the FRP system does not meet the Acceptance Criteria as per laboratory testing and calculations (refer to Section 3.3.6 of this specification), remedial measures shall be taken. Any structural member where the installed FRP system does not meet the Acceptance Criteria, additional layers shall be installed until the FRP meets design requirements, or any other remediation directed by the Departmental Representative.

3.5 MAKE GOOD

.1 Make good at no cost to the Departmental Representative, any damage to the new or existing structures, property or services caused by the installation and testing of the FRP system.

3.6 CLEAN UP

.1 Remove all surplus material, equipment and debris from the site on completion of the work. Leave the site clean.

END OF SECTION 03 10 00

1. GENERAL

1.1 Summary

.1 Section Includes:

.1 Narrative description of Sequence of Operation of systems being part of this project.

.2 The control sequences contain a general description of the intent of the operation of the systems to be controlled.

.3 Read sequence in conjunction with DDC points list, Allow for any additional control points to ensure that system is meeting design intent from operational prospective.

.4 Consult with the Engineer during the shop drawing stage to finalize the control sequences for each system.

1.2 References

.1 Public Works and Government Services Canada (PWGSC) Architectural and Engineering Services.

2. PRODUCTS

.1 Not Applicable

3. EXECUTION

3.1 Sequence of Operation:

.1 Passport Office ventilation systems SF-6 and EF-11:

.1 SF-6 and EF-11 are dedicated fans (systems) for Passport Office area. Run these two fans as per schedules (schedules to be adjustable by Owners operators).

.2 SF-6 supply air system is to run as typical as VAV system, responding to static pressure sensor readings located somewhere in ductwork within Passport area. Modulate fan speed to maintain required static pressure sensors set point of 2" (adjustable). Incorporate static pressure set point reset by tracking each VAV box actuator position, ensuring that at least one box is 95% open. This strategy is part of energy conservation measures.

.3 Exhaust fan EF-11 is to have volumetric offset compering to supply fan SF-6 to ensure that passport area is always slightly positively pressurized, relative to adjacent Atrium. Install pressure differential sensor between Passport and Atrium Area for the monitoring purposes.

.4 Leaving supply air temperature (SAT) on SF-6 air system is to be set to 12°C (55°F). Modulate chilled water and hot water control valves as required to ensure meeting SAT. PID control loop required to ensure discharge temperature stabilization.

.2 Passport Office – VAV boxes:

.1 Vary each variable air volume (VAV) box as required to meet desired thermal comfort levels.

.2 Space indoor temperature set-point is to be 24°C (75°F) (summer) and 22°C (72°F (winter) (adjustable). All temperature sensors installed within space are to have capability of being adjusted by occupants. Install at least one temperature sensor per VAV box.

.3 VAV air flow control will vary air flow between maximum and minimum air flow set points (minimum flow is to be 30%, adjustable) to offset space load meeting thermal comfort. If space temperature is still below minimum set-point dead band (tolerances) regardless of VAV box running at minimum pre-set air flow, then activate reheat mode. Modulate heating water loop control valve during reheat mode as required to meet desired space temperature set-point.

.4 Where floating control of air flow is used on VAV box, ensure that once a day during unoccupied time, VAV boxes are reset (commanded to closed position) to start from fully closed position, to minimize error accumulated as result of damper motor actuator inertia.

.5 Install CO2 sensors throughout the Passport space (allow for at least 6, including also dedicated CO2 sensors for high volume occupied rooms, such as meeting rooms) for monitoring purposes. Ensure that sequence and control strategy is incorporated for increasing air flow volume on the VAV box, in case space CO2 levels are above set-point dead band (tolerances).

.3 Atrium – ventilation system:

.1 Atrium is served by existing air handling unit SF-11 and return fan RF-5. System is typical mixing system.

.2 Atrium skylight dome is also equipped with existing motorized dampers used for passive natural ventilation utilizing benefits of stack effect during summer time. Re-commission existing dampers, and ensure that natural ventilation strategy is incorporated and utilized as a part of energy conservation measure.

.3 Ensure that existing free cooling strategy is re-commissioned and fully operational.

.4 Air handling unit system SF-11 presently has two (2) hydronic coils, where one (1) is used for heat recovery from steam condensate and other is used as switch over coil for cooling or heating. As presently switch over operation between cooling and heating season is done strictly manually, decision has been made to make it over process strictly electronically (refer to drawings for more information). Incorporate new sequence and control strategy for above mentioned electronic switch over.

.4 Female Washroom – Electric ceiling mounted forced flow heater:

.1 Electrical Forced flow heater is to be controlled with packaged thermostat.

.5 LAN – A/C Units:

.1 LAN Room will have packaged A/C units for space cooling. Units are to work in lead/lag configuration. Enable/Disable units thru DDC.

.2 Space humidity is to be maintained thru control of packaged steam humidifier operation.

.3 Monitor space humidity and temperature.

.4 Status of all equipment serving LAN room is to be monitored.

Provide data base for all hardware points listed for system operation to meet specification operating sequences.

END OF SECTION

APPENDIX C – SITE PHOTOS

DRAWING REFERENCE :
DA200 – EXTERIOR DEMOLITION

P1.

REMOVE EXISTING SIGN

DEMOLISH EXISTING CANOPY

REMOVE EX. LIGHT FIXTURE (REFER TO ELEC.)

P2.

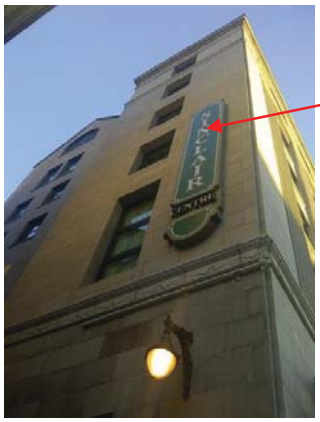
DEMOLISH EXISTING CANOPY

DEMOLISH EXISTING RWL, CAP PIPES FOR REUSE

P3.

DEMOLISH EXISTING SIGN

P4.

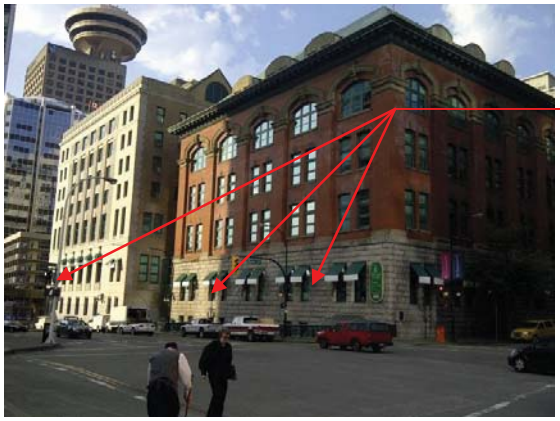


DEMOLISH EXISTING SIGN

P5

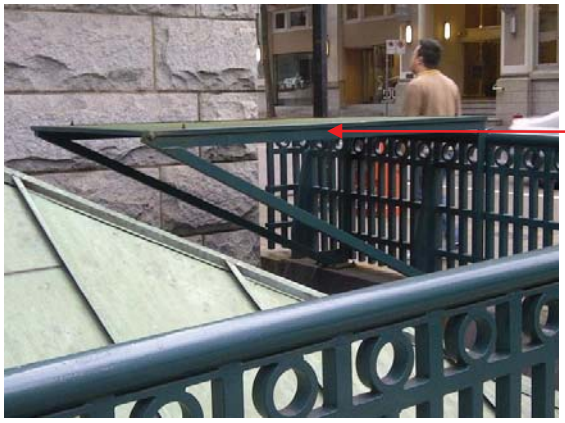
DEMOLISH EXISTING SIGN

P6



REMOVE ALL EXISTING AWNINGS

P7.



REMOVE EXISTING STEEL PLATFORM

P8.

APPENDIX C – SITE PHOTOS

DRAWING REFERENCE :
DA203 – DEMOLITIONS (LOWER MALL FLOOR PLAN (NE))

P1.

P2.

P3.

P4.

P5.

P6.

P7.

P8.

P9.

P10.

P11.

P12.

APPENDIX C – SITE PHOTOS

P13.

P14.

SINCLAIR CENTRE REVITALIZATION
PHASE 2

VANCOUVER, BRITISH COLUMBIA

APPENDIX Q

HOT WORK PERMIT

SNC·LAVALIN O&M

Incident Report(s)Form:		
Building Address:	757 W. Hastings	
Date:	23-Apr-13	
Start time/End time:	1728 hours	1810 hours
Is this a Critical Incident?:	**YES**	**NO**
Who (Name):	Jim McCallum West York	
Address of Injured:	n/a	
Telephone Number:	n/a	
Weather Conditions:	n/a	
Client(s) Affected:	BCCC/SNC/HC POW	
Incident Description:	**Smoke detector triggers alarm**	
Sequence of Events:	1728 smoke detector in Escada in alarm . No SNC techs on site. Comm	
Ali dispatched to investigate.		
1730 Ali advises it is a false alarm triggered by contractor's saw		
1731 Comm Wade phones and advises Tyco it is a false alarm. Tyco reports VFD is enroute.		
1733 Wade contacts Sinc 02, Jim Scott, by cell phone. Scott will attend.		
1735 Wade contacts MWO Hall by cell phone.		
1737 VFD onsite. Ali escorts to Escada.		
1742 VFD attends at Base - authorizes alarms to be silenced.		
1745 Wade silences alarm		
1745 Wade contacts Hall - Panel not to be reset until Scott arrives. Panel not to be bypassed without Hot Permit.		
1752 West York employee Jim McCallum advises he is leaving site. He believes alarm was triggered by his skill saw		
cutting drywall.		
1755 Scott arrives onsite and reviews the situation with Wade		
1758 Scott resets fire panel		
1800 Ali reports elevators still grounded		
1810 Scott advises elevators are back online. Scott leaves site.		
Where did it Happen?:	PO/Winch former Escada space, Upper Mall.	
(Location)		
Cause:	No Hot Work permit, smoke dectectors not bypassed.	
Immediate Action Taken/Corrective Measures:	Comm. Ali sent to investigate. Tyco advises Fire Department enroute.	
Subsequent/Preventative Measure Required:	VFD authorizes Silence of Alarms at 1742 hours.	
Fire panel restored by Jim Scott.		
Cost Implications: Approx.	n/a	
Other Details or Comments	Alberto Leone is fuming. States he is going to have alarm speakers in his	
store removed.		
Reporting Staff Contact Information:	Ron Hall, supervisor Sinclair Security,	
Witness(es):	Comm. Wade 3756, Comm Ali 3979, SNC maintenance supervisor	
Jim Scott.		

The following addendum supersedes information contained in drawings and specifications issued for the project to the extent referenced. This Addendum forms part of the Tender Documents and is subject to all of the conditions set out in the contract conditions.

1.0 REQUEST FOR ALTERNATE

Note that all alternates are subject to final approval of shop drawings, and the contractor is responsible for any and all costs associated with installation of approved alternates.

The following manufacturers are mechanically acceptable alternates:

Water Hammer Arrestors:	Sioux Chief
Automatic Trap Primers:	Sioux Chief
Faucets:	Chicago Faucets, Sloan, Symmons, Zurn
Traps, Strainers, Accessories:	McGuire
Flush Valves:	Sloan (note: urinals are waterless)
Service Sinks:	Stern Williams, Onex
Thermostatic Mixing Valves:	Symmons
Drainage:	Watts, Zurn
Air Terminals:	Price
Waterless Urinals:	Must conform to max width of 502mm and all criteria indicated on architectural drawings to conform to barrier free standard – see architectural washroom elevations for coordination.
ADD:	Contractor to note that all renovation control systems are to be tied into the existing base building DDC system.

END OF MECHANICAL ADDENDUM NO. 1