Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Est
800, rue de La Gauchetière Ouest
7 ième étage
Montréal
Québec
H5A 1L6
FAX pour soumissions: (514) 496-3822

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

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

Issuing Office - Bureau de distribution

Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Est
800, rue de La Gauchetière Ouest
7 ième étage
Montréal
Québec
H5A 1L6

Title - Sujet Réfection de l'Enveloppe-CCC Ogilvy	
Solicitation No. - N° de l'invitation 21301-133107/A	**Amendment No. - N° modif.** 003
Client Reference No. - N° de référence du client 21301-13-3107	**Date** 2013-02-18
GETS Reference No. - N° de référence de SEAG PW-$MTC-775-12231	
File No. - N° de dossier MTC-2-35195 (775)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2013-02-28**	**Time Zone** **Fuseau horaire** Heure Normale du l'Est HNE
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Aguilera, Maria Pia	**Buyer Id - Id de l'acheteur** mtc775
Telephone No. - N° de téléphone (514) 496-3573 ( )	**FAX No. - N° de FAX** (514) 496-3822
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:**	

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**

Canada

ADDENDUM NO. 001

Please find enclosed herewith:

- Addendum S-01 (Civil Ingeneering)
- Addendum-01 (Architecture)
- REPORT: Safety works specifications, removal of asbestos-containing materials
- REPORT: ADDITIONAL EVALUATION OF THE PRESENCE OF ASBESTOS IN THE EXTERIOR WALL MORTARS
- PLANS

The above-mentioned addendum forms part of the tender documents. There will be no further written confirmation. Modifications stated herein have precedence over all previous tender documents.

NOTICE OF TIME EXTENSION

PLEASE NOTE THAT THE TIME LIMIT FOR THE RECEPTION OF TENDERS PREVIOUSLY SET FOR FEBRUARY 21st, 2013 IS REPORTED TO **FEBRUARY 28th, 2013 AT 02:00 PM (EASTERN STANDARD TIME)**.

PART 1. General

1.1 ADDENDA'S DESCRIPTION

.1 This Addendum is an integral part of the call for tenders' documents, the tenderer is requested to take note and include costs related to its content in the amount of the bid. The call for tenders'documents are modified as shown below.

1.2 ARCHITECTURE – GENERAL NOTES

.1 The concrete staircase located on the lateral façade is kept as is.

.2 The existing roofing comprises at least 5 layers.

.3 The front canopy has a fan, which will be kept and reinstalled if necessary.

.4 A 24 gage for the prepainted steel flashing is required. Color to be determined.

.5 The scale of the drawings on pages A-05 and A-06 is 1:50.

.6 The front concrete stool should not be covered with a waterproof membrane.

.7 Waterproof membrane for foundation. – Blueskin WP200 of Bakor or approved equivalent.

1.3 ARCHITECTURE – SPECIFICATIONS

.1 Section 07 52 00:

.1 Section updated and reissued in its entirety. See pages 1 to 21 attached revised general specifications.

1.4 ARCHITECTURE – DRAWINGS

.1 Drawings modified by sketches

.1 A-01, Issued for changed submission. Refer to sketches CRA-01, issued in the joint addendum 01.

.2 A-02, Issued for changed submission. Refer to sketches CRA-02, issued in the joint addendum 01.

.3 A-03, Issued for changed submission. Refer to sketches CRA-03, issued in the joint addendum 01

1.5 STRUCTURE

.1 See structure addendum S-01 in attachment.

1.6 OTHER CONSULTANTS

.1 Not applicable.

PART 2. Products

.1 Not applicable.

PART 3. Execution

.1 Not applicable.

END OF SECTION

General

.1 RELATED SECTIONS

.1 Section 06 10 11 - Rough Carpentry - Short Form.

.2 Section 02 41 19 – Selective structure demolition.

.3 Section 07 62 00 - Sheet Metal Flashing and Trim.

.4 Section 07 92 00 - Joint Sealing.

.2 REFERENCES

.1 Provide written certification issued by a CSA-accredited organization attesting that the proposed roofing system meets the requirements of CAN/ULC-S107-M.

.2 Standards and recommendations contained in Instructions issued by standards association must be considered as making up an integral part of this section, unless otherwise specified elsewhere. Said recommendations thus become requirements of this section.

.3 CSA B35.3-1962, Tapping and Drive Screws (Slotted and Recessed Head, Thread Forming and Thread Cutting Screws, and Metallic Drive Screws).

.4 CGSB 37-GP-56M-80b(A1985), Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

.5 CAN/CGSB-51.26-M86, Faced Urethane and Isocyanurate Insulation Board.

.6 CAN/CGSB-37.29-M89, Rubber and bitumen sealant.

.7 CAN/CGSB-51.20-M87, Polystyrène thermal insulation, board and cladding for piping.

~~.8 CSA A123.3-M1992, Asphalt or Tar Saturated Roofing Felt.~~ **Eliminated Add-01**

.3 SUBMITTALS

.1 Submit technical data sheets for all proposed roofing components.

.2 Indicate flashing materials, finishes, gauge, and details

.3 Provide layout for tapered insulation.

.4 CONTRACTOR QUALIFICATION

~~.1~~ Roofing contractors must, when tendering or performing work, be officially recognized as a roofing contractor by the manufacturer of the roofing materials, be a current member of AMCQ (*Association des Maîtres Couvreurs du Québec*), ~~and include in his bid price the cost for registering the project in the AMCQ quality assurance program.~~ **Eliminated Add-01**

.2 Only qualified, certified installers employed by a company with the appropriate equipment may execute the roofing work.

.3 Foreman to have minimum experience of five years, and at least one member of the workforce to have minimum experience of five years as well. Other members of the workforce must possess the Competency Certificates required to perform the Work of this section.

.4 Heat-welded membrane installers must have completed the fires safety course given by the *Institut de Prévention Incendie du Québec*, and at least 50% of them must also have completed the "Safe Welding" course given by the AMCQ.

.5 MANUFACTURER'S REPRESENTATIVE

.1 The roofing product manufacturer can delegate a representative to visit the work site at the start of roofing installation.

.2 The contractor must at all times enable and facilitate access to the work site by said representative.

.6 INSPECTION

.1 Roofing installation inspection will be done by the roof consultant chosen by the owner.

.2 All inspection fees will be paid by the owner.

.7 WARRANTY

.1 The product manufacturer will issue a written and signed document in the CSC departmental representative, certifying all product performance properties, their conformity to Canadian standards, and that changes to properties of said products will not adversely affect their performance for a period of ten (10) years, starting from the date of acceptance.

~~.2 Roofing contractor will issue standard AMCQ guarantee to CSC departmental representative, backed jointly by the AMCQ and the roofing contractor and bonded by an insurance company for the first five (5) years. An additional warranty period of five (5) years will be backed by the AMCQ and bonded by an insurance company.~~ **Eliminated Add-01**

~~.3 Total warranty period will be ten (10) years, over which period three inspections will be performed by the AMCQ, with reports to be sent to Owner. These inspections will be coordinated by the AMCQ and performed in the presence of the Architect.~~ **Eliminated Add-01**

.4 All workmanship defects observed during these inspections must be repaired with no additional cost to Owner, excluding normal maintenance work which will remain Owner's responsibility.

.5 Provide written and signed document in the CSC departmental representative name stating that sealants required by this section are guaranteed against performance loss, cracking, crumbling, loss of bonding, contraction, loss of consistency, and staining of adjacent surfaces, for a period of three (3) years from date of acceptance.

.8 STORAGE AND HANDLING

.1 All materials will be delivered and stored in their original packaging, displaying the manufacturer's name, product name, weight, and reference standards, as well as all other indications or references considered standard.

.2 At all times, materials will be adequately protected and stored in a dry and properly ventilated area, away from any welding flame or spark and sheltered from the elements or any harmful substance. Only materials destined for same-day use can be removed from this storage area. In cold weather, these materials should be stored in a heated area at a minimum temperature of $+10^0$C and removed prior to application. If rolls cannot be stored in a heated environment, they may be pre-conditioned with a torch before installation.

.3 Store adhesives and emulsion-based waterproofing mastics at a minimum $+5^0$C. Store adhesives and solvent-based mastics at sufficiently high temperatures to ensure ease of application.

.4 Materials delivered in rolls will be carefully stored upright; flashing will be stored to avoid creasing, buckling, scratches or any other possible damage.

.5 Avoid material overloads which may affect the structural integrity of specific roof areas.

.6 Store insulation protected from daylight and weather and deleterious materials.

.9 ENVIRONMENTAL REQUIREMENTS

.1 Do not install roofing when temperature remains below -18 degrees C for torch application, or -10 degrees C, to manufacturers' recommendations, for mop application.

.2 Minimum temperature for solvent-based adhesive is -5 degrees C.

.3 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

.10 SITE PROTECTION

.1 When delivering materials to rooftop and while performing Work of this section, protect exposed surfaces of finished walls with tarps in order to avoid damage. Assume full responsibility for any damage caused by Work.

.2 Where workers circulate or work, and at locations where materials and equipment is to be stored, cover surfaces of installed roofing with 13 mm plywood panels. Keep panels in place and in good condition throughout Work.

.11 COMPATIBILITY

.1 All waterproofing materials will be provided by the same manufacturer and will be compatible with each other. Provide a written declaration to the Architect that all roofing materials and components are compatible.

.2 Modified Bituminous membranes should never be in contact with pressure treated wood.

.12 FIRE PROTECTION

.1 Respect safety measures required by local authorities, by the manufacturer, as well as the all regulations included in the Fire Protection Manuel of the AMCQ.

.2 At the end of each workday, use a heat detector gun to spot any smouldering or concealed fire. Job planning must be organized to ensure workers are still on location at least one hour after torch application.

.3 Never apply the torch directly to old and wood surfaces. Refer to fire safety recommendations of the manufacturer and of the AMCQ.

.4 Throughout roofing installation, maintain a clean site and have one approved ABC fire extinguisher within 6 meters of each roofing torch. Respect all safety measures described in technical data sheets. Torches must never be placed near combustible or flammable products. Torches should never be used where the flame is not visible or cannot be easily controlled.

.5 This job site is a non-smoking environment.

.13 TEMPORARY ROOFING

.1 When work is interrupted for any reason, ensure that roofing remains perfectly waterproof, in order to protect roofing materials as well other materials already installed inside and outside; protect building from any penetration of water that could subsequently cause damage.

.14 CLEANING

.1 Clean site at regular intervals and remove waste and other materials that could negatively affect Work.

.2 At the end of Work, clean site completely.

.15 WASTE MANAGEMENT AND DISPOSAL

.1 Remove on site all packaging material and transport to an adequate recycling unit.

.2 Cleary identify the storage location for the recycled material. Protect these locations with barriers and security measures.

.3 Assure that al empty containers are sealed and stored in a secured location until they are disposed of.

.4 It is forbidden to pour preservation products in the sewage system, in a stream, in a river, in a lake, on the ground, or any other area where it could cause a health risk or damage to the environment.

.5 Fold and flatten the metal bands, and store them in their designated location to be recycled.

.6 Transport all useless metal components to an adequate recycling unit.

.16 Membrane over insulation, ~~on concrete slab~~ MEMBRANE SYSTEMS

.1 Membrane over insulation, ~~on concrete slab~~:

.1 Existing woods deck.

New plywood 12.7mm **Added Add-01**

.2 Vapor Barrier : ~~2 ply felt/asphalt; glued to the asphalt~~ **Eliminated Add-01**

Self-adhesive membrane Sopravap'R **Added Add-01**

.3 Polyisocyanurate Rigid insulation, ~~64.5mm, glued to the asphalt;~~ **Eliminated Add-01** and replace by 2 layers of 50mm.

.4 Polystyrene rigide insulation expanded, sloped 2%, with perlite particle, 13mm ~~glued to asphalt;~~ **Replaced Add-01** by mechanical attach.

.5 Existing Underlay : Modified Bitumen Membrane, sanded underlay and other thermofusion, 180gr, ~~glued to asphalt.~~ **Replaced Add-01** by mechanical attach

.6 Existing Underlay : Modified Bitumen Membrane, self-adhesive underlay and other thermofusion, 180gr, self-adhesive and nailed on the upper parapets.

.7 Cap sheet for field and upstands: elastomeric bitumen membrane, heat-weldable bottom surface, coloured granular top surface, 250gr, torch welded.

Products

.1 CARPENTRY

.1 Refer to section 06 10 11 Rough Carpentry – Short Form.

.2 DECK PRIMER

~~.1 Blend of synthetic SBS rubber, adhesive resins, and volatile solvents. May be used as primer for wood, metal, or concrete surfaces.~~ **Eliminated Add-01**

~~.1 Acceptable product: Appret Blueskin by Bakor or approved equivalent.~~

.2 Blend of elastomeric bitumen, volatile solvents and adhesive enhancing additives used to prime concrete or metal substrates to enhance the adhesion of torch-applied waterproofing membranes:

.1 Acceptable product: ELASTOCOL 500 by SOPREMA. or approved equivalent.

.3 VAPOUR RETARDER

Watershield self adhesif membrane for roof deck.

.1 Acceptable product: ~~Vapor Bloc Sa by Bakor~~ or acceptable equivalent.

Replaced Add-01 by Sopravap'R of Soprema.

.4 INSULATION

.1 Polyisocyanurate insulation, to CAN/CSGB-51.26, paper laminated both faces:

.1 Dimensions: 1220 x 1220 mm, straight edges, thickness as indicated.

.2 Thermal resistance: 1.43 Rsi per 30mm.

.2 Polystyrene expanded insulator, conformed to the standard CAN/CGSB-51.20 and CAN 4-S102, type 2, with expanded perlite particle panel in factory asphalt and protected.

.1 Panel dimension: 1220x1220mm, rectified, 1% slope, minimum thickness of 19mm, including perlite particle panel.

.2 Compression resistance of 125.5Kpa (18.21pound/ po²) for 38mm;

.3 Panel composed of expanded perlite particles blended with binder and cellulose fibres, to ASTM C728 as described on item 2.5

.4 Reference product: BIZOFIBRE FR TYPE 2 HD by FRANSYL or approved equivalent.

.5 INSULATION OVERLAY

.1 Expanded Perlite Particle Panel blended with binder and cellulose fibres, to ASTM C728:

.1 Dimensions: 1220 x 1220 mm x 13 mm thickness.

.2 Thermal resistance: 0.49 Rsi per 25 mm.

.3 Acceptable materials: PERMALITE from BMCA or approved equivalent.

.6 MEMBRANE

.1 Sopraply system: Reinforced elastomeric bitumen waterproofing system with ~~a bitumen~~ **Replaed by mechanical attach Add-01**- adhered base sheet and a heat-welded cap sheet. The top surface of the base sheet is covered with a thermofusible plastic film and the under face is covered with sand. The top surface of the base sheet must have two distinctive blue lines to facilitate roll alignment and fastener positioning. The bottom surface of the cap sheet is covered with a thermofusible plastic film and the top surface is protected by coloured granules.

.1 Components:

.1 Reinforcement: glass and polyester

.2 Elastomeric bitumen: blend of selected bitumen and SBS polymer

.2 System properties:	MD	XD
.1 Breaking strength (kN/m)	17	12.5
.2 Strain energy (kN/m)	9	7

.3	Ultimate elongation (%)	60	60
.4	Cold bending (at –30°C)	No cracking	
.5	Softening point	≥ 110°C	
.6	Static puncture (N)	400	

.3 Prefabricated membrane, complies with CAN/CGSB 37-GP-56M (9th draft)

.4 Specified products

.1 Base sheet membrane: ELASTOPHENE 180PS by SOPREMA or approved equivalent.

.2 Cap sheet: SOPRALENE FLAM FR GR 250 or approved equivalent.

.2 Upstand system self-adhesive base sheet: Membrane flashing shall be two plies of reinforced modified bitumen membrane and the base sheet shall be self-adhesive. The top surface of the base sheet is covered with a thermofusible plastic film and the bottom surface is protected by silicone release paper. Cap sheet top surface is protected with coloured granules and the bottom surface is covered with a thermofusible plastic film. Cap sheet membrane is applied by heat-welding.

.1 Components

.1 Reinforcement: combination of glass and polyester

.2 Elastomeric bitumen: blend of selected bitumen and SBS polymer

.2	System properties:	MD	XD
.1	Strain energy (kN/m)	8.4	8.3
.2	Breaking strength (N/5 cm)	18	16
.3	Ultimate elongation (%)	55	56
.4	Tear resistance (N)	120	
.5	Static puncture (N)	380	
.6	Dimensional stability (%)	0.1	0.4
.7	Plastic flow (°C)	105	
.8	Cold bending (at -30°C)	-initial No cracking	
		-90 days at 70°C No cracking	

.3 Prefabricated membrane, complies with CAN/CGSB 37-GP-56M, 9th draft

.4 Specified products

.1 Base sheet flashing membrane : SOPRAFLASH FLAM from SOPREMA or approved equivalent.

.2 Cap sheet flashing membrane : SOPRAPLY CAP-550 by SOPREMA or approved equivalent.

.3 Perimeter Membrane: Membrane shall be a heavy-duty SBS modified bitumen base sheet and both faces shall have a sanded surface. Both edges of the top face have a 200 mm (8 inch) selvage protected by a silicone-coated release film. The perimeter membrane shall be installed before the field base sheet and base sheet flashing.

.1 Prefabricated membrane, complies with CAN/Prefabricated membrane, complies with CAN/CGSB 37-GP-56M (9th draft)

.2 Specified product: PERIMET'R by SOPREMA or approved equivalent.

.4 Roofing membrane reinforcement: as 2.4.1.

~~.5 Flexible membrane for expansion joints: waterproofing membrane constructed of woven polyester matrix and thermoplastic polymer modified bitumen. Bottom surface laminated with heat-weldable plastic film. Top surface features aluminum foil adhered to centre of membrane, and is protected with removable siliconized film. Nominal thickness 4.0 mm, width 450 mm.~~

~~.1 Properties:~~

~~.1 Strain energy (10% elongation) 25 N/5 cm~~
~~.2 Puncture resistance 250 N/5 cm~~
~~.3 Ultimate elongation 120 %~~
~~.4 Elongation at -20 °C 100 %~~
~~.5 Cold bending: no cracking at - 30 °C~~
~~.6 Elastic limit 40 %~~
~~.7 Fatigue resistance 1000 cycles~~
~~.8 Acceptable materials: SOPRAJOINT by SOPREMA or approved equivalent~~
Eliminated Add-01

.7 COLOUR

.1 Colour choice: Cap sheet granules will be grey colour.

.8 GRANULES

.1 Provide bulk granules same colour as membrane for sprinkling over visible sealants.

.9 FASTENERS

.1 Roofing nails: twisted nail with 25 mm steel washer head and 3 mm shank, of sufficient length to penetrate at least 38 mm in solid wood supports or at least 20 mm in plywood panel supports.

.2 Base sheet anchors: aluminum, 25 mm x 3000 mm by 3.0 mm thick.

~~.10 BITUMEN~~ Eliminated Add-01

~~.1 Oxidized asphalt: Type 2, to ACNOR A 123.4 M1979.~~

.11 SEALERS

.1 Waterproofing mastic for non-exposed areas: mastic made of synthetic rubbers, plasticized with bitumen and solvents.

.1 Acceptable materials: SOPRAMASTIC by SOPREMA or approved equivalent..

.2 Waterproofing mastic for exposed areas: mastic made of synthetic rubbers, plasticized with bitumen and solvents with aluminum pigments to provide greater resistance to U.-V.

.1 Acceptable materials: SOPRAMASTIC ALU by SOPREMA or approved equivalent.

.3 Waterproofing mastic for other uses (flashing. Masonry joints): modified polyurethane sealant, single component, to CGSB-19-13-M87:

.1 Acceptable materials: DYMONIC by TREMCO or approved equivalent.

.4 Primers: as recommended by manufacturer of waterproofing products.

.5 Joint backers: continuous closed-cell polystyrene foam backer rod, expanded or extruded, diameter 50% wider than joint:

.1 Acceptable materials: ETHAFOAM SB by DOW CHEMICAL or approved equivalent.

.6 Masking product: plastic pressure tape that does not adhere to waterproofing products.

.7 Joint cleaning products: non-corrosive, non-staining products recommended by manufacturers of waterproofing products, compatible with adjacent materials.

.12 DRIPS, FASCIAS, FLASHINGS, AND OTHER METALLIC ACCESSORIES

.1 Hot-dip galvanized steel sheet, pre-painted enamel finish, colour chosen by Architect from standard colours (QC 8306 FUSAIN)), minimum 24 gauge unless otherwise indicated.

.2 Metal flashings and other sheet steel elements must be produced according to typical AMCQ details and as indicated.

.3 Unless otherwise indicated, nails, staples, screws, bolts, washers and all other metal attachments are to be made of compatible anti-rust metal, colour same as adjacent surfaces.

.4 Elements will be produced straight, level and with precision, according to indicated dimensions, exempt from any deformation or other defect that could affect appearance or performance.

.5 Elements will be produced in lengths of 2400 mm maximum. At joints, provide space as required for contraction and expansion.

.6 Take particular care when shaping sheet with pre-applied permanent finish.

.7 Shape sheet metal with bending press. Shaping, finishing, and welding should be done as rapidly as possible on workbench with appropriate tools.

.8 Fold down all exposed edges 12 mm to hide and stiffen edge. Corners to be mitred and sealed with waterproofing mastic.

.9 Provide all metal corners, staples, angles and joint covers in same gauge and finish as metal to be shaped.

.10 Metal surfaces to be cast in concrete or mortar must be coated with protective coating.

.13 DRAIN

.1 Anti-vandal dome with trap door made of aluminium : Model RD-14A-RR from Thaler or approved equivalent..

.2 Copper flange 460 mm x 0.46 mm thick (14 oz.).

.3 Copper drainpipe, 1.47 mm thick (16 oz) x diameter to match existing.

.4 Clamping ring: APDM model T-9,

.14 VENT SLEEVES

.1 22 gauge aluminum cover for vent conduit, diameter 20 mm wider than vent, with cap, insulated with mineral fibre.

Execution

.1 WORKMANSHIP

.1 Unless otherwise indicated, perform Work of this section according to relevant instructions in the AMCQ document entitled "*Devis, couvertures*" and according to Factory Mutual (FM) specifications.

.2 SURFACE EXAMINATION AND PREPARATION

.1 Before roofing work begins, the owner's representative and roofing foreman will inspect and approve deck conditions (including slopes and wood blocking) as well as upstands and parapets, construction joints, roof drains, plumbing vents, ventilation outlets and others. If necessary, a non-conformity notice will be issued to the contractor so that required corrections can be made. The start of roofing work will mean roofing conditions are acceptable for work completion.

.2 Do not begin any work before surfaces are smooth, dry, exempt of ice and debris. Use of calcium or salt is forbidden for ice or snow removal.

.3 Be sure plumbing , carpentry and all other work have been duly completed.

.4 No materials will be installed during rain or snowfall.

.3 METHOD OF INSTALLATION

.1 Install roofing elements on clean and dry surfaces, in conformance with manufacturer's instructions and recommendations.

.2 Roofing work must be completed in a continuous fashion as surfaces are readied and weather conditions permit.

.3 Preferably seal all seams that are not covered by a cap sheet membrane in the same day. The cap sheet cannot be installed if any moisture is present at/in the base sheet seams.

.4 Whenever membranes are torch applied, a continuous and even bead of molten bitumen must be visible as the membrane is unrolled and torched.

.5 Ensure waterproofing conditions for roofs at all times, including protection during installation work by other trades and progressive protection as work is completed (e.g. vents, drains, etc.).

.4 APPLICATION PRIMER

.1 Patch and repair existing concrete slab as needed. Fill openings as described on the drawings.

.2 Roofing substrates of wood, concrete, masonry or metal will receive a coat of asphalt primer at a rate of 0.15 to 0.25l/m^2 (Elastocol 500) or 0.2 l/m^2 (Elastocol 700) or approved equivalent..

.3 All surfaces to be primed must be free of rust, dust or any residue that may hinder adherence. Cover primed surfaces with roofing membrane as soon as possible (same day coverage for self-adhesive membranes).

.5 INSTALLATION OF VAPOUR RETARDER

~~.1 Unroll vapour retarder onto hot asphalt layer spread at rate of 1 kg/m^2 to 1.5 kg/m^2.~~

~~.2 Apply asphalt on roofing at a temperature of about 230°C and heat in kettle at about 250°C (never exceed asphalt's flash point temperature). Follow supplier's recommendations. In cold weather (below 10°C), warm membrane's under face by sweeping torch over roll's entire width.~~

~~.3 The roof vapour retarder must meet and overlap the air/vapour barrier on adjoining walls to ensure total continuity. Adhesive bitumen and membrane must not exceed base sheet by more than 25 mm.~~

~~.4 Varnish the Vapour-barrier screen if the insulation is not put in place immediately.~~

Eliminated Add-01

.6 INSULATION INSTALLATION

.1 Install composite insulation panels over vapour barrier with staggered end joints.

.2 Apply coat of hot asphalt to vapour retarder for entire area of insulation panel, in conformance with methods and temperatures recommended by insulation manufacturer, at a rate of 1 kg/square meter. While asphalt is at recommended temperature, install insulation panels by butting edges snugly and without warping.

.3 Install second row of insulation using the same method while taking good care as to not damage the expanded polystyrene which is exposed to the heat cleared by the asphalt.

.4 Install only as much insulation as can be covered in the same day.

.7 INSTALLATION OF INSULATION OVERLAY

.1 Install support panels for membrane using the same method as the insulation.

.2 All the panels must be in perfect connection, without any significant differences in level, and must be adhered on all their surfaces completely.

.3 All vertical joints between boards and insulation will be staggered.

.4 Apply only as many boards as can be covered in the same day.

.5 Around the drain, cut out a slight slope of 0 to 10 mm in a 600-mm radius.

.8 BASE SHEET INSTALLATION

.1 Unroll base sheet at drain level with first side lap lined up with drain centre (parallel to roof edge).

.2 Overlap side laps by 75 mm along lines provided to this end, and overlap end laps by 150 mm. Stagger end joints by a minimum of 300 mm.

.3 This base sheet membrane will be rerolled and then unrolled in a bed of hot asphalt poured in front of the membrane as it is unrolled. Apply 25 to 50 mm of asphalt over longitudinal and transversal overlaps. Torch and trowel overlaps before the end of workday.

.4 Heat the asphalt to approximately 250°C in a kettle and pour in front of the roll at a temperature of approximately 230°C. The minimum temperature at the point of contact should be 220–230°C. Do not spread more than three metres of asphalt in front of the roll. At temperatures below 10°C, do not spread more than one metre of asphalt in front of the roll, and heat plastic film on top surface by moving torch in zig-zag pattern. When unrolling the membrane in the hot asphalt, heat the top surface of the base sheet membrane by aiming the flame at the back of the roll in a back-and-forth motion. Do not aim the flame directly at the bitumen. Unless otherwise specified by supplier, asphalt in kettle should not reach temperature higher than flash point of bitumen. Ensure continuous use of asphalt in kettle in order to prevent distillation.

.5 Under no circumstances shall hot asphalt be applied over heat-weldable film, and on upstands, it shall not exceed 25 mm in height over field base sheet.

.6 Provide 25 mm vertical overlap along junction with upstands and anchor along length of joint with aluminum anchor strips.

.7 Avoid creating wrinkles, blisters, and fishmouths.

.9 INSTALLLATION OF PERIMETER BASE SHEETS WITH HOT BITUMEN.

.1 Unroll a strip of membrane without adhering at the base of the parapets and upstands.

.2 This base sheet membrane will be rerolled and then unrolled in a bed of hot asphalt poured in front of the membrane as it is unrolled.

.3 Heat the asphalt to approximately 250°C in a kettle and pour in front of the roll at a temperature of approximately 230°C. The minimum temperature at the point of contact should be 220–230°C. Do not spread more than three metres of asphalt in front of the roll. At temperatures below 15°C, do not spread more than one metre of asphalt in front of the roll. When unrolling the membrane in the hot asphalt, heat the top surface of the base sheet membrane by aiming the flame at the back of the roll in a back-and-forth motion. Do not aim the flame directly at the bitumen.

.4 Just before installing the base sheet membrane on the field surface or on the upstands, remove the protection strip from each edge of the membrane to adhere the base sheet membrane to the perimeter membrane.

.5 Apply a 25 to 50-mm-wide band of asphalt along the end and side selvedges only. The remainder of the overlaps must be sealed using a torch and trowel before the end of the day.

.6 Avoid creating wrinkles, blisters, and fishmouths.

.7 The base sheet membrane should end over the cant strip or at the edge of the substrate.

.10 INSTALLATION OF BASE SHEETS ON UPSTANDS AND PARAPETS

.1 Apply base sheet flashing only once primer coat is dry.

.2 Before applying membranes, always remove the plastic film on the section to be covered if there is an overlap (inside and outside corners and field surface). For sanded base sheet membranes, apply ELASTOCOL STICK to the area to be covered at the foot of the parapets.

.3 Position the pre-cut membrane piece. Peel back 4 to 6 inches (100 to 150 mm) of the silicone release paper to hold the membrane in place at the top of the parapet.

.4 Then, gradually peel back the remaining silicone release paper, pressing down on the membrane with an aluminium applicator to ensure good adhesion. Use the aluminium applicator to ensure a perfect transition between the upstand and the field surface. Smooth the entire membrane surface with a roller for full adhesion.

.5 Cut off corners at end laps to be covered by the next roll.

.6 Install a reinforcing gusset in all inside and outside corners.

.7 Always seal overlaps at the end of the workday.

.8 Nail membrane in the upper part with roofing nails.

.11 ROOFING CAP SHEET INSTALLATION

.1 Once base sheet is applied and no defects are apparent, proceed with cap sheet installation.

.2 Begin with double-selvage starter roll. If starter roll is not used, side laps covered in granules must be degranulated by embedding side laps in torch-heated bitumen over a 75 mm width.

.3 Unroll cap sheet at drain. Carefully align first side lap (parallel to roof edge).

.4 Weld cap sheet onto base sheet with torch recommended by membrane manufacturer. During application, simultaneously melt both designated contact surfaces so that the two membranes are welded together. Maintain appropriate pace for welding.

.5 Avoid overheating membranes or reinforcing.

.6 Make sure joints between the two layers are staggered by at least 300 mm.

.7 Overlap cap sheet side laps by 75 mm and end laps by 150 mm. Cut off corners at end laps to be covered by next roll. All overlap surfaces must be degranulated.

.8 Complete perfect welds between two membranes. Leave no zone unwelded. Torch sufficiently and continuously to avoid wrinkles, air pockets or fishmouths. In cold weather, adjust welding time to obtain homogenous seam (it may be necessary to slow down in certain cases).

.9 Once cap sheet is installed, carefully check all overlapped joints.

.10 During installation, take care to avoid excessive bitumen bleed-out at joints.

.12 INSTALLATION OF CAP SHEETS ON UPSTANDS AND PARAPETS (HEAT-WELDED)

.1 This cap sheet must be installed in one-metre-wide strips. The side joints must overlap by 75 mm and must be staggered by at least 100 mm with respect to the joints of the cap sheet on the field surface to avoid areas of excessive membrane thickness. The overlaps on the field surface must be 50 mm wider than those of the base sheet membrane on the upstands and parapets. At end laps, angle-cut the corners that will be covered by the following roll.

.2 Use a chalk line to draw a straight line on the field surface 150 mm from the upstands and parapets.

.3 Using torch and round-pointed trowel, embed surface granules in hot asphalt from chalkline on roofing field to edge of upstand or parapet, as well as on overlapping vertical surfaces.

.4 This cap sheet will be heat-welded directly to the base sheet membrane, proceeding from bottom to top. This technique softens both membranes in order to obtain even, continuous weld.

.5 During installation, be careful not to overheat the membrane or to create excessive bitumen bleeding at the joints.

.13 DRAIN INSTALLATION

.1 Install copper drains in conformance with detail SPS-Q from the AMCQ manual and according to following specifications.

.2 Torch weld reinforcement band 1 metre x 1 metre of base sheet type membrane in a diagonal position to base sheet and previously primed drain flange. Install flush with edge of opening by applying manual pressure at drain connectors.

.3 Install cap sheet to edge of opening.

.4 Fasten dome to drain.

.14 WATERPROOFING DETAILS

.1 Install waterproofing membranes in conformance with various roofing details illustrated in AMCQ manual or manufacturer's instructions.

.15 SEALING

.1 At joint between membrane and metal fascia or other visible locations, seal with mastic as specified and sprinkle with bulk granules, same colour as membrane.

.2 At non-visible locations, aluminum pigmented mastic may be used.

.16 FLASHINGS, METAL FASCIAS, AND SHEET METAL

.1 All sheet metal work shall be done according to details, profiles shall be clearly defined and straight, and free of deformations or other defects that cold affect appearance.

.2 At corners and joints, provide space required for normal contraction and expansion of metal.

.3 No nail or screw shall be apparent. All metal shall be stapled and all folds and corners perfectly aligned.

.4 Seal all sheet metal joints, including junctions with other materials.

.17 CLEANING

.1 Remove Bitumen markings on the finished surface.

.2 In the case of any tarnished finished surface following the work of the present section, contact the manufacturer of the surface in question for advice on the cleaning and follow the instruction.

.3 Repair and replace all furnished surfaces that were altered or damaged following the work of the present section.

END OF SECTION

GENIVAR

ADDENDUM

Addendum no. :	**S-01**	**Project :**	**Service Correctionnel Canada CCC OGILVY – Réparation de l'enveloppe du bâtiment**
Discipline :	STRUCTURE		
GENIVAR File:	081-50619-05	**Title :**	Addendum S-01
Date :	2013-02-06	Number of pages:	1
Attached documents :	No ☒ Yes ☐	Number of documents	
Attached drawing :	No ☒ Yes ☐	Number of drawings:	

1. GENERAL

This addendum is part of the drawings and specifications issued by our firm for tender on August 6th 2012.

2. DESCRIPTION

Drawing S-3 :

- SECTION 1/1
  - The new drain will be installed only if there is an existing drain and the connection will be done on the exterior section of the existing drain and not in the interior as shown on the existing basement detail. The cost for the supply and installation of the new drain shall be included in the tender.
- EXISTING BASEMENT
  - Clean and unblock the rear drain (T.A.) .

Please return a signed copy by fax prooving reception of the addendum.

Issued by :	Robert Grondin, ing., M.Sc.	Signature :	Robert Grondin, ing

MONTRÉAL	1600, boul. René-Lévesque Ouest, 16e étage, Montréal (Québec) H3H 1P9	Tél. : (514) 340-0046	**Fax : (514) 340-1337** ☐
LONGUEUIL	2405, boul. Fernand-Lafontaine, bureau 101, Longueuil (Québec) J4N 1N7	Tél. : (450) 679-7220	**Fax : (450) 646-4305** ☐
LAVAL	2525, boul. Daniel-Johnson, bureau 525, Laval (Québec) H7T 1S9	Tél. : (450) 686-0980	**Fax : (450) 686-0987** ☒

Travaux publics et
Services gouvernementaux
Canada

SAFETY WORKS SPECIFICATIONS
REMOVAL OF ASBESTOS-CONTAINING MATERIALS

Ogilvy CCC, 435, Ogilvy Street, Montréal (Québec)

Ref.: HDS-7281-9

January, 30th 2013

Prepared by:

ENVIRONNEMENT

Hudon Desbiens St-Germain Environnement inc.
640 West Saint-Paul Street, Suite 100
Montréal (Québec) H3C 1H9
Tel.: (514) 398-0553
Fax: (514) 398-0554
Email: info@hdsenv.com
Website: www.hdsenv.com

APPENDIX 4

Safety Work Specifications
Removal of asbestos-containing Materials

TABLE OF CONTENT

PART 1. GENERAL INSTRUCTIONS

1.1 GENERALITIES

Unless otherwise specified, the various directives presented in the following technical specifications are applicable to renovation works for the exterior wall on the south side (front side) of the Ogilvy Community Correctional Center (CCC), located at 435, Ogilvy Street in Montréal (Québec). Following a characterization of asbestos containing materials (ACMs) completed by Hudon Desbiens St-Germain Environnement inc. (HDS Environnement), it was concluded that the mortar between the bricks of the front wall of Ogilvy CCC contains chrysotile asbestos fibers.

Federal laws and regulations apply to this establishment, not excluding application of other provincial or municipal laws and regulations covering among other things the undertaking of construction works and occupational health and safety.

1.2 DESCRIPTION OF WORKS

According to information obtained from Public Work and Governmental Services Canada (PWGSC), the activity consists in the dismantling of the south exterior brick wall of the Ogilvy CCC.

Taking into account the nature of the worksite and the presence of chrysotile asbestos, the removal of bricks and mortar is considered as « high-risk work » according to the *Safety Code for the Construction Industry*. A description of the main implications (security measures, air quality monitoring, etc.) of undertaking works under such conditions are presented in Section 2 of the current technical specifications.

Asbestos abatement works include, without being restricted to:

- the preparation of the work areas;
- the removal of bricks from the south exterior wall of the CCC;
- the monitoring of ambient air quality in work areas;
- the complete cleanup of works areas upon work completion;
- the transportation and disposal of waste materials.

1.3 APPLICABLE REQUIREMENTS

The Contractor must undertake his works to meet and exceeds the requirements from laws, regulations, standards, codes, contractual documents and other reference documents.

The Contractor must forward to the Commission de la santé et de la sécurité au travail (CSST) a written worksite opening notification at least ten (10) days before the start of the activities on this worksite in accordance to article 2.4.1 of the *Safety Code for the Construction Industry*. A worksite closure notification must be forwarded by the Contractor to the CSST at least ten (10) days before the end of the activities on this worksite. A copy of these notifications will be forwarded to the Project Manager.

A certification of the implementation of a training program, compliant to the requirements of article 3.23.7 of the *Safety Code for the Construction Industry,* will be included with the worksite opening notification.

PART 2. ASBESTOS ABATEMENT WORKS

2.1 DEFINITIONS

Asbestos Wastes Container: 6-mil minimal thickness bag or puncture-resistant and leak-proof barrel labelled as per the *Safety Code for the Construction Industry*.

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

High-Efficiency Filter: equipment filtering 0.3-µm particles with a 99.97%-efficiency.

High-Efficiency Filter Vacuum: vacuum equipment with connections, tools and necessary accessories; all air intake goes through the high-efficiency filter.

Protective Clothing: disposal work clothes (Tyvek or equivalent) or reusable work clothes resistant to the penetration of asbestos fibres, covering all the body with the exclusion of the face, hands and feet, closed to the neck, wrists and ankles.

Work Area: area where the removal of potential or known asbestos-containing materials is taken place.

2.2 GENERAL OBLIGATIONS

The Contractor must ensure that the undertaking of the works meets the approved schedule and the works are completed in compliance with standards, regulations and other requirements of the technical specifications. Works can be interrupted following an order of the Project Manager or the Consultant if these conditions are not met or if there is a risk of contamination to adjacent areas.

The Contractor must ensure that all person present within the work area where asbestos abatement works are on-going wear his personal protection equipment properly and has receive training meeting the requirements of the *Safety Code for the Construction Industry*.

Before the beginning of the works, the Contractor must produce a document which will be available on site and that contains the following information:

- equipments and tools required to complete the works and appropriate measures to be taken into account for their installation, use, maintenance, protection and mobilisation;

The knowledge of the employees with respect to asbestos will be reviewed before the undertaking of the works. The particularities of the worksite and of the works to be performed will be explained to them.

2.5 POSTING

The contractor shall post a sign at the entrance to each work area. That sign shall be yellow, 500 millimetres high by 350 millimetres wide and shall indicate in black letters of the size specified below the following information in the following order:

Information	Size of letters
ASBESTOS	50 mm
DANGER	40 mm
Do not breathe dust	15 mm
Protective equipment must be worn	15 mm
No admittance	15 mm
Inhaling asbestos dust may be harmful to your health	10 mm

2.6 PERSONAL PROTECTION EQUIPMENT

2.6.1 Respiratory Protection Apparatus

Wearing a full-face mask with assisted ventilation and high-efficiency filter is compulsory during removal works of containing asbestos materials when they are deeply wet. This respiratory protection equipment must be equipped with a high-efficiency filter (HEPA filter).

For asbestos containing friable material not deeply wet, respiratory protection equipment with breathable air adduction, continuous flow or adjusted to the demand and with positive pressure must be used as required by the *Safety Code for the Construction Industry*.

Respiratory masks must be officially certified by the National Institute for Occupational Safety and Health (NIOSH) or compliant to the "*Guide des appareils de protection respiratoire utilisés au Québec*", published by the "Institut de recherche Robert-Sauvé en santé et en sécurité du travail". Filters in sufficient quantities must be available in a clean area outside the work areas. The equipment must be choose, adjusted, utilized and maintained according to the CSA Z94.4-93 Standard.

- health and safety risks and measures according to the works to be conducted;
- asbestos type (in this case chrysotile) and other possible contaminants which could be present during the works;
- personal and collective protective equipments that have to be used;
- emergency responses, which should include localization of emergency exits from the working area and from the worksite.

2.3 DOCUMENTS TO PROVIDE

A certification that the workers have received proper training with respect to risks, prevention methods and safe work, in compliance to the requirements of the *Safety Code for the Construction Industry*.

A register maintained by the Contractor of all persons entering the work area, including their name, date and type of personal protection they are wearing.

A copy of the waste material transportation manifest and a copy of the reception proof at the disposal site.

2.4 EMPLOYEE TRAINING

Employees having access to the worksite must have received a training meeting the requirements of the *Safety Code for the Construction Industry*. The training and information programme must contain at least:

- the employer's general obligations;
- the effects of asbestos on health;
- the standards applicable and the sampling to be carried out;
- the worker's rights and obligations;
- individual and common protective devices and equipment;
- the tasks to be carried out and the equipment and tools to be used;
- safe working methods and procedures;
- prevention and verification methods.

The information and training provided for in the first paragraph must have previously been established in writing.

2.6.2 Protective Clothing

Any person entering designated asbestos-containing areas must wear protective clothing. Disposable clothing must be disposed as asbestos wastes. Reusable protective clothing must be washed before reuse. The Contractor must provide clean protective clothing to each employee, for each work shift.

The protective clothing must cover all the body, including the head, and must be fitted tight to the wrists and ankles. It must be replaced when torn. The safety boots must be equipped with anti-slipping sole on wet ground in compliance with the *Safety Code for the Construction Industry*.

2.7 ADDITIONAL PERSONAL PROTECTION EQUIPMENT

In addition to the protection equipment for his employees, the Contractor should provide respiratory masks and protective clothing, as required under the previous article, to designated Project Manager's representatives or visitors.

The additional protection equipment will be maintained clean, in good condition and available at all time at the worksite.

The Contractor must ensure that any person entering the worksite will be properly informed as to the use of protection equipment and applicable entry and exit procedures from work areas.

2.8 REMOVAL PROCEDURES

The Contractor shall follow the procedures described in the *Safety Code for the Construction Industry* for high risk work.

- Friable materials that contain asbestos and that are likely to be spread shall be kept thoroughly wetted for the duration of the work, except where the procedure may create a danger to the health, safety and physical integrity of the worker and where the danger cannot be eliminated by another means. All friable materials that contain asbestos and that are spread in the work area shall be removed in accordance after having wet those materials thoroughly or with a vacuum cleaner equipped with a high-efficiency filter.
- As the removal works are performed outside, the Contractor shall isolate the working area with a membrane in order to prevent dispersion of asbestos containing materials.
- As the removal works are performed outside, a sealed enclosure is required only for the work clothes changing room. In this case, the path

between the working area and the work clothes changing room must be delineated with emergency signals. The sealed enclosure for work clothes changing room shall be ventilated by an exhaust ventilation system. This ventilation system must:

- be equipped with a high-efficiency filter;
- produce at least four (4) changes of air per hour;
- ensure negative pressure of between 1 and 4 pascals (Pa).

- At the beginning and end of each shift, the employer shall ensure that the airtight enclosure is in good condition. If the enclosure is punctured or becomes defective, the work shall cease until the enclosure is repaired.
- During work, debris of materials containing asbestos shall be placed in airtight containers appropriate to the type of debris, regularly during the work shift and at the end of the work shift. Debris shall be removed by means of a vacuum cleaner equipped with a high-efficiency filter or by wetting the debris before it is removed. The containers shall be placed in such a way as to cause no inconvenience.
- Upon completion of work where airtight drop sheets were used to protect the work area, drop sheets intended for re-use must be cleaned with a vacuum cleaner equipped with a high-efficiency filter. Drop sheets intended for disposal must first be wetted and then folded so that they hold all the dust that they have collected and, finally, placed in an airtight container.
- Upon completion of work, the work area and the area around it must be cleaned with a vacuum cleaner equipped with a high-efficiency filter or by damp wiping the surfaces and then cleaning them.

2.9 AIR QUALITY MONITORING

The Contractor shall take a sample of the concentration of airborne breathable asbestos fibres in the work area, in accordance with section 44 of the *Regulation Respecting Occupational Health and Safety*, at least once per shift during the work, send it immediately to a laboratory for analysis and take reasonable measures to obtain the results of those analyses within 24 hours; the results shall be recorded in a register that is available on the work premises during all the work.

Upon completion of the work, it shall be prohibited to dismantle the airtight enclosure or to remove the airtight drop sheets before the concentration of airborne breathable asbestos fibres in these areas drops to less than 0,01 fibers/cm^3. That reading shall be taken in accordance with section 44 of the *Regulation Respecting Occupational Health and Safety*.

2.10 DECONTAMINATION PROCEDURES

The Contractor shall make available to each worker working in the work area a street clothes changing room and a work clothes changing room, between which a shower room is set up so that workers may shower before putting on their street clothes; those facilities shall be set up in the following manner:

- they shall be near the work area;
- the changing rooms and shower room shall be located in separate, communicating rooms used exclusively for that purpose;
- the street clothes changing room shall contain at least one locker per worker present in the work area;
- there shall be at least 0,14 cubic metres of storage space in each locker and at least 600 mm of space in front of each row of lockers;
- the Contractor shall ensure that any worker leaving the work area follows the decontamination procedure described below:

    1. workers shall remove their disposable protective clothing in the work clothes changing room and treat them as waste or shall remove their reusable protective clothing and put it immediately in a receptacle filled with water or, where clothes are washed in the work clothes changing room, in the tub of a washer filled with water;
    2. workers shall remove their work clothes and protective footwear in the work clothes changing room and those articles, before being put away, shall be washed or cleaned by means of a vacuum cleaner equipped with a high-efficiency filter;
    3. workers shall wash and remove their safety helmets and respirators under the shower; disposable cartridges shall be thrown into a garbage can and the other parts of the respirator shall be washed under the shower and then hung to dry in a clean area free of dust;

4. workers shall shower immediately before entering the street clothes changing room;

5. work clothes and protective footwear shall be washed before being transported outside the work premises referred to in this section; where the work clothes are winter clothes, they shall be cleaned by means of a vacuum cleaner equipped with a high-efficiency filter and placed in an airtight bag and the employer shall cause them to be dry cleaned and water-proofed.

2.11 PROHIBITION

The use of compressed air is prohibited in a work area covered by this subdivision, except compressed air necessary to operate a respirator.

Smoking, eating, drinking or chewing any substance in a work area covered by this subdivision is prohibited.

2.12 ASBESTOS-CONTAINING MATERIALS MANAGEMENT

The Contractor will package, transport and dispose all waste materials produced by his works. Asbestos-containing materials are not consider as "residual hazardous materials" under *Regulation Respecting Hazardous Materials* and can be disposed in authorized landfill sites in Quebec. The waste materials must be covered by a layer of soil upon their arrival at the landfill site, taking care of not breaking the containers and disperse asbestos fibres in the ambient air.

The waste material containers will be identified according to the *Safety Code for the Construction Industry* as followed:

Material containing asbestos
Toxic by inhalation
Keep container tightly closed
Do not breathe the dust

Transportation of waste materials will be undertaken:

- in compliance with the *Transportation of Dangerous Goods Regulation*, these materials being included in class 9.1 (miscellaneous dangerous goods);
- along the exits and routes pre-determined with the Project Manager;
- within the time periods pre-determined with the Project Manager;

- by anticipating all required personal protection equipment and tools required to recover properly asbestos debris which could fall from an asbestos container in case of a breakage or tear on the latter.

Waste materials containers will be:

- handled within pre-determined periods without interrupting normal operations;
- stored in areas determined with the Project Manager and kept clean at all time;
- covered and closed as long as they are in the vicinity of the building.

At the request of the Project Manager, the Contractor will clean the waste materials unloading areas and the paths used for the transportation of waste materials. The cleaning will be done using appropriate procedures, such as those described for the works covered in this section.

The Contractor will provide to the Consultant a copy of the transportation manifest and of a proof of disposal of the waste materials to the landfill site with the information described on the *Transportation of Dangerous Goods Regulation* for each shipment of waste materials from the worksite.

Public Works and Government Services Canada

ADDITIONAL EVALUATION OF THE PRESENCE OF ASBESTOS IN THE EXTERIOR WALL MORTARS

Ogilvy Community Correctional Center
435, Ogilvy Street, Montréal (Québec)

February 12th, 2013

File HDS-7281-9
Project number: R.019563.107

Hudon Desbiens St-Germain Environment inc.
640, Saint-Paul West Street, Office 100
Montréal (Québec) H3C 1L9
Tel.: (514) 398-0553 Fax: (514) 398-0554
info@hdsenv.com www.hdsenv.com

TABLE OF CONTENT

TABLE

APPENDICES

PROJECT TEAM

Hudon Desbiens St-Germain Environnement inc.

André Denis	Industrial hygienist
Jean-François Raoult	Project manager
Bruno Welfringer	Intermediate professional
Kamal Chahboub	Drawings
Johanne Lafond	Clerical

Report prepared by: _____
Jean-François Raoult, Eng.

and: _____
Bruno Welfringer, Eng. & M.Sc.

Report reviewed by: _____
André Denis, ROH

1.0 INTRODUCTION

1.1 Mandate and Objectives

The services of Hudon Desbiens St-Germain Environnement inc. (HDS Environnement) were retained on January 28th, 2013 to realize an additional characterization of asbestos in the mortars of exterior walls of an institutional building located at 435, Ogilvy Street in Montréal (Québec). Additional characterization works were performed on January 22nd and 30th, 2013.

The study was completed upon a request from Public Work and Government Services Canada (PWGSC) on behalf of Correctional Services Canada (CSC), the owner of the property. The goal of this study was to proceed to an additional characterization of asbestos potentially contained in the mortars between the bricks of the four (4) exterior walls.

1.2 Study Scope and Approach

Two (2) mortar samples had already been collected during a preliminary inventory conducted by HDS Environnement (February 25th, 2013)[1], one (1) on the South front wall and one (1) on the East wall. The sample collected on the South wall (front wall) had revealed the presence of chrysotile asbestos (< 1%), whereas the samples from the East wall did not contained asbestos.

Considering future renovation/demolition works, the current report focuses on the additional characterization performed on the different mortars on the exterior walls of the studied building, in order to outline more precisely the presence of asbestos containing materials (ACMs). This report includes the following elements:

- legal requirements;
- sampling and analysis methodology;
- obtained results;
- conclusions and recommendations;
- references.

[1] Hudon Desbiens St-Germain Environnement inc., **25 janvier 2013**. *Relevé des matériaux contenant de l'amiante*. Centre Correctionnel Communautaire Ogilvy. 435, rue Ogilvy, Montréal (Québec). Dossier HDS-7281-9. N° de projet TPSGC R.019563.107.

1.3 Limitations

The conclusions and recommendations included in this report are based upon professional opinions specifically formulated within the scope of the mandate given to HDS Environnement by PWGSC. HDS Environnement accepts no responsibility for any use of this report in another context or by third parties, unless being expressively notified of such use and having accepted this use.

2.0 LEGAL REQUIREMENTS

Inventory and characterization of potential ACMs were conducted in accordance to the following legal requirements:

- Canadien Labour Code, Parts II, X and XIV;
- PWGSC Ministerial Policy PM 057 – Asbestos management;
- Québec Act Respecting Occupational Health and Safety;
- Québec Regulation Respecting Occupational Health and Safety;
- Québec Regulation Respecting Hazardous Materials;
- Québec Safety Code for the Construction Industry.

Legal definition regarding asbestos (fiber types, minimal concentration) and safety measures, which have to be implemented during works with possible asbestos dust air emissions, are covered through the *Safety Code for the Construction Industry*. Safety measures are established according to three risk levels (low, moderate and high) and by taking into account the nature of the works and the type of asbestos fibers present.

In order to confirm or infirm the presence of asbestos, representative samples of several potential ACMs have to be collected and analyzed in laboratory. According to the guidelines of the *Commission de la santé et sécurité au travail* (Health and Safety at Work Commission), a minimal number of samples for each type of material is required depending on the homogenous material surface. For each type of potential ACM, the minimal number of required samples is as follow:

- area less than 100 m^2: 3 samples;
- area from 100 to 500 m^2: 5 samples;
- area more than 500 m^2: 7 samples.

3.0 METHODOLOGY

3.1 Sampling

Mortar sampling was performed using a cold chisel and a hammer. Respiratory protection equipment (half-mask face piece equipped with P100 cartridges), coverall clothing (Tyvek) and latex gloves were worn during sampling. Potential ACM samples were put in sealed plastic bags, which were themselves also put in a larger sealed plastic bag, and were numbered in a sequential order (O2-1, O2-2…). Sampling sites were located on a building schematic plan and are presented in Appendix 1. A photographic document is included in appendix 2.

3.2 Number of Samples

Several mortar types were observed on the four (4) exterior walls of the studied building:

- a mortar found on the whole surface of the South wall (front wall);
- a mortar generally found on East, West and North exterior walls;
- a mortar found at the junction of South and side (East and West) walls;
- a mortar found on repairs around windows on the East wall;
- a mortar found on repairs around windows on the West wall;
- a mortar found on repairs around a former window on the North wall.

Five (5) samples were collected from the mortars generally found on East, West and North walls as the whole area of these three (3) walls is comprised between 100 m^2 and 500 m^2. On these three (3) walls, several different mortars (probably due to repairs) have been noticed. Since these repairs areas are less than 100 m^2, three (3) mortar samples were collected for each of them. Finally, the South wall area being less than 100 m^2, three (3) additional mortar samples were collected from this wall.

3.3 Analyzes

All potential ACM samples were sent to *Paracel Laboratories Ltd* (Paracel), a laboratory member of the *National Voluntary Laboratory Accreditation Program* (NVLAP), especially for asbestos. Samples were analyzed by optic microscopy in polarized light according to reference method EPA 600/R-93/113, with a detection limit of 0.1%. Analytical certificate is available in Appendix 3.

4.0 RESULTS

4.1 Asbestos Presence

Analytical results of mortar samples collected under this additional characterization are presented in table 1. Results of collected samples under the preliminary characterization are also presented in this table for comparison. Highlights of these results are as following.

East, West and North Walls Mortars

- Asbestos presence was not detected in the seventeen (17) mortar samples collected on the east, west and north walls, whatever the type of mortar it was. The sample collected during the preliminary inventory (O-19) did not revealed the presence of asbestos as well.

South Wall Mortar (Front Wall)

- Asbestos presence was not detected in the three (3) mortar samples collected on the South wall (front wall). However, the sample collected during the preliminary inventory (O-18) had revealed a chysotile asbestos concentration (< 1%).

4.2 Asbestos-containing Material Volumes

Regarding the O-18 sample result, all mortars present on the South wall (front wall) have to be considered as containing chrysotile asbestos (< 1%). Consequently, it is necessary to evaluate the mortar volume in order to determine the risk level of hypothetical renovation/demolition works.

Total area of South wall (front wall) impacted with asbestos-containing mortars, including the extra wall around the front door, was estimated at about 80 m^2. Windows areas on this wall is about 10 m^2, resulting in a mortar plus bricks surface of about 70 m^2. Assuming that the mortars represents about 30% of the total surface, the mortar surface can be evaluated at about 21 m^2, with a volume of about 2.1 m^3 assuming a 10-cm thickness.

South wall asbestos mortar volume is about 2.1 m^3 and exceeds 0.3 m^3. All manipulation or removal works should consequently be preformed as **high-risk works**. The location of the asbestos-containing mortars is specified in appendix 1.

Table 1. Analytical Results of Collected Samples

Sample number (collecting date)	Material description	Location	Asbestos fibre (%) and type
O-18 (20-11-2012)[(a)]	General brick mortar	South wall (front wall)	(< 1%) chrysotile
O3-1 (30-01-2013)			n.d.[(b)]
O3-2 (30-01-2013)			n.d.
O3-2 (30-01-2013)			n.d.
O-19 (20-11-2012)[(a)]	General brick mortar, on the three East, West and North walls	East wall	n.d.
O2-1 (22-01-2013)		West wall	n.d.
O2-2 (22-01-2013)			n.d.
O2-3 (22-01-2013)		East wall	n.d.
O2-4 (22-01-2013)		North wall	n.d.
O2-5 (22-01-2013)			n.d.
O2-6 (22-01-2013)	Brick mortar, at the junction of South and side walls	East wall	n.d.
O2-7 (22-01-2013)			n.d.
O2-8 (22-01-2013)		West wall	n.d.
O2-9 (22-01-2013)	Brick mortar, repairs on East wall	East wall	n.d.
O2-10 (22-01-2013)			n.d.
O2-11 (22-01-2013)			n.d.
O2-12 (22-01-2013)	Brick mortar, repairs on West wall	West wall	n.d.
O2-13 (22-01-2013)			n.d.
O2-14 (22-01-2013)			n.d.
O2-15 (22-01-2013)	Brick mortar, repairs on North wall	North wall (backyard wall)	n.d.
O2-16 (22-01-2013)			n.d.
O2-17 (22-01-2013)			n.d.

Notes:

[(a)] Sample collected during the preliminary inventory in November 2012
[(b)] n.d. : Not detected

5.0 CONCLUSIONS AND RECOMMENDATIONS

Following a preliminary inventory of potential ACMs completed in November 2012 which revealed asbestos presence in the mortar between bricks of the exterior South wall (front wall) of an institutional building located at 435, Ogilvy Street in Montréal (Québec), HDS Environnement was mandated to perform an additional characterization of mortars present on the four (4) exterior walls of this building. Including the two (2) samples from the preliminary inventory, a total of twenty-two (22) mortar samples were collected and analysed from the four (4) walls. The sample numbers respected the CSST guidelines regarding the number of samples considering the area of investigated materials.

From both characterizations, no sample from the **East, West or North walls** revealed the presence of asbestos.

Considering the **South wall** (front wall), which involves an homogenous brick mortar, one (1) sample revealed the presence of chrysotile asbestos fibers. Despite the fact that the three (3) other samples collected on the south wall did not reveal the presence of asbestos, it is mandatory to conclude that all mortars from the South wall contains asbestos. Since the volume of this asbestos containing mortar exceeds 0.3 m^3, every manipulation or removal work performed on this wall would have to be realized as high-risk works.

For renovation/demolition works, safety measures from the *Safety Code for the Construction Industry* for high-risk level works would have to be implemented, including:

- wearing of protection clothes and respiratory protection equipment (half-mask or full-face mask, with assisted ventilation and high-efficiency filter or breathable air adduction, continuous flow or adjusted to the demand and with positive pressure must be used as required by the *Guide des appareils de protection respiratoire utilisés au Québec*, published by the IRSST ;
- sampling and analysis of air samples for breathable asbestos fiber concentrations, in the working area and the street clothes changing room during works;
- isolation of the working area and the work clothes changing room from the rest of the building with an enclosure.

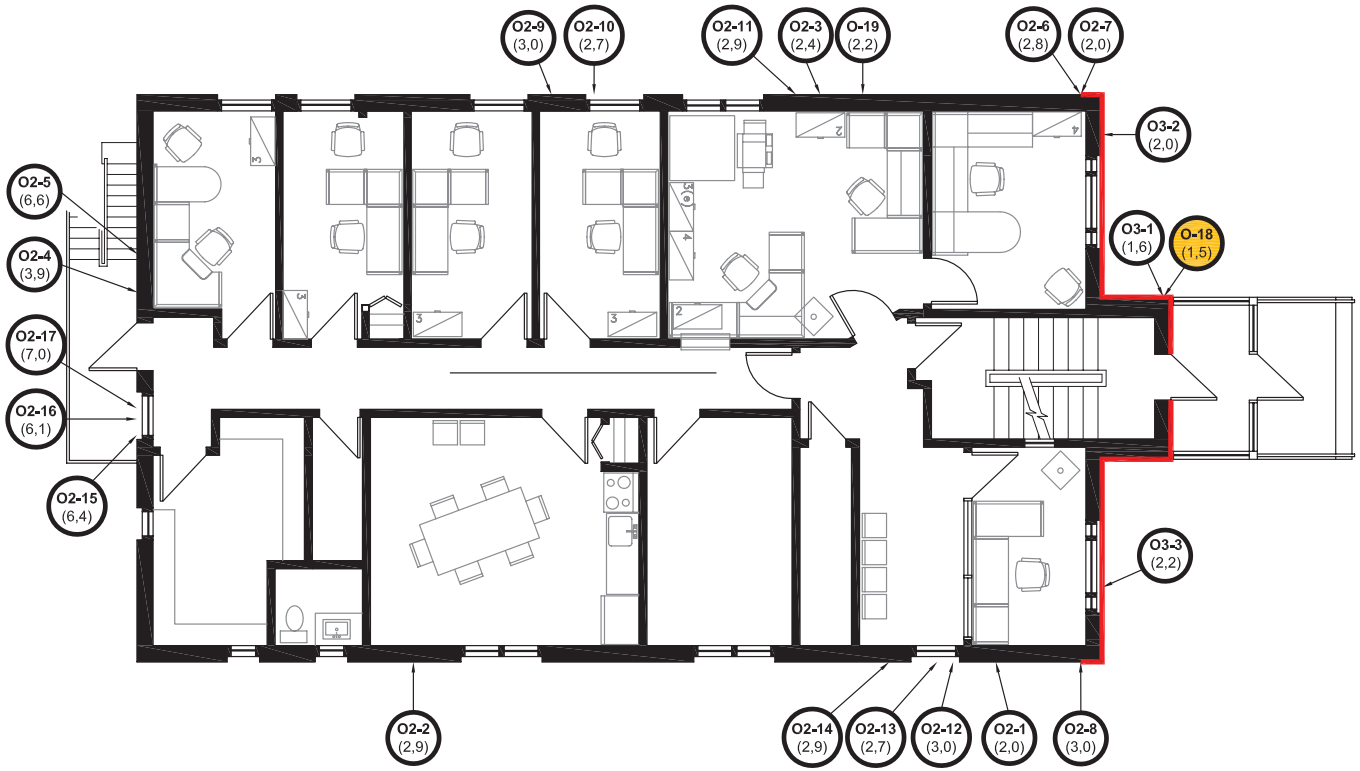
Details of the safety work specifications regarding high-risk works are available in Appendix 4. The designated zone for these works is presented in Appendix 1.

REFERENCES

- *Safety Code for the Construction Industry* (L.R.Q., c. S-2.1, r. 6)
- Guidelines used by the Québec *Commission de la santé et sécurité du travail* du regarding asbestos containing materials sampling (work-document, January 31th, 2006 versions):
  - *Sheet 18 – Bulk materials sampling and characterization*
  - *Sheet 21 – Surface covering sampling*
  - *Principal criteria for the evaluation of a sampling campaign, a characterization report and their conclusions*
- Hudon Desbiens St-Germain Environnement inc., **25 février 2013**. *Relevé des matériaux contenant de l'amiante*. Centre Correctionnel Communautaire Ogilvy. 435, rue Ogilvy, Montréal (Québec). Dossier HDS-7281-9. N° de projet TPSGC R.019563.107.

APPENDIX 1

Location of collected Mortar Samples



MAP OF GROUND FLOOR
(OGILVY CCC)

7281-9 App.1 Ogilvy_comp

HDS ENVIRONNEMENT

APPENDIX 1

MORTAR SAMPLES LOCATION

Project number : HDS-7281-9

Client : PWGSC

Site : 435, Ogilvy Street, Montreal (Qc)

Drawn by : K. Chahboub

Verified by : B. Welfringer, eng., M.Sc.

Date : 06-02-2013

Source : CCC Ogilvy, september 2009

LEGEND

O-17 (2,2) Sample number (without asbestos) (heigh of sampling, in metre, from ground)

O-18 (1,5) Sample number (with asbestos) (heigh of sampling, in metre, from ground)

Asbestos-containing mortars location

0 2,5 5 m

Approximate Scale

APPENDIX 2

Photographic Document

Photo N° 1: View of South (front) and East walls of Ogilvy CCC, for which bricks mortars are different

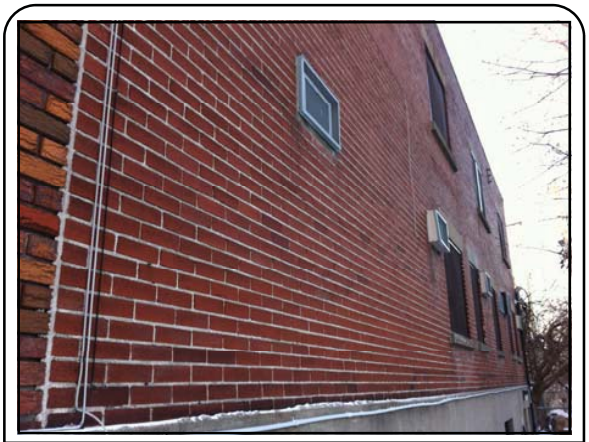


Photo N° 2: View of East wall of Ogilvy CCC

Photo N° 3: View of North wall (backyard) of Ogilvy CCC, where repairs are visible on the top floor next to a door

Photo N° 4: O2-1 sampling site (for example)

HDS project number: HDS-7281-9

PWGSC project number: R.019563.107

Client : PWGST

Date : 2013-02-11

ENVIRONNEMENT

PHOTOGRAPHIC DOCUMENT OGILVY CCC

Additional Characterization

APPENDIX 3

Analysis Certificate

PARACEL LABORATORIES LTD.

TRUSTED. RESPONSIVE. RELIABLE.

300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8

p: 1-800-749-1947
e: paracel@paracellabs.com

www.paracellabs.com

OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9
Attn: Bruno Welfringer

Phone: (514) 398-0553
Fax: (514)398-0554

Client PO: 7281-9-43
Project: 7281-9
Custody:

Report Date: 24-Jan-2013
Order Date: 23-Jan-2013
Order #: 1304133

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1304133-01	02-1
1304133-02	02-2
1304133-03	02-3
1304133-04	02-4
1304133-05	02-5

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client: HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9

Attn: Bruno Welfringer
Tel: (514) 398-0553
Fax: (514)398-0554

Project: 7281-9
Paracel Report No.: 1304133

Received Date: 23-Jan-13
Report Date: 24-Jan-13

Asbestos by PLM **MDL - 0.1%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1304133-01	22-Jan-13	Sample Homogenized	Beige	Mortar	No	Client ID: 02-1	
						Non-Fibers	100
1304133-02	22-Jan-13	Sample Homogenized	Beige	Mortar	No	Client ID: 02-2	
						Non-Fibers	100
1304133-03	22-Jan-13	Sample Homogenized	Beige	Mortar	No	Client ID: 02-3	
						Non-Fibers	100
1304133-04	22-Jan-13	Sample Homogenized	Beige	Mortar	No	Client ID: 02-4	
						Non-Fibers	100
1304133-05	22-Jan-13	Sample Homogenized	Beige	Mortar	No	Client ID: 02-5	
						Non-Fibers	100

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool
Analytes in bold indicate asbestos content which may include:
Actinolite, Amosite, Anthopyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos by PLM	by EPA 600/R-93/116	Mississauga	200863-0	24-Jan-13

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

PARACEL LABORATORIES LTD.

TRUSTED. RESPONSIVE. RELIABLE.

300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8

p: 1-800-749-1947
e: paracel@paracellabs.com

www.paracellabs.com

OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9
Attn: Bruno Welfringer

Phone: (514) 398-0553
Fax: (514)398-0554

Client PO: 7281-9-44
Project: 7281-9
Custody:

Report Date: 24-Jan-2013
Order Date: 23-Jan-2013
Order #: 1304134

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1304134-01	02-6
1304134-02	02-7
1304134-03	02-8

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client: HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9

Attn: Bruno Welfringer
Tel: (514) 398-0553
Fax: (514)398-0554

Project: 7281-9
Paracel Report No.: 1304134

Received Date: 23-Jan-13
Report Date: 24-Jan-13

Asbestos by PLM **MDL - 0.1%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1304134-01	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-6**	
						Non-Fibers	99
						Other fibers	1
1304134-02	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-7**	
						Non-Fibers	99
						Other fibers	1
1304134-03	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-8**	
						Non-Fibers	100

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool
Analytes in bold indicate asbestos content which may include:
Actinolite, Amosite, Anthopyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos by PLM	by EPA 600/R-93/116	Mississauga	200863-0	24-Jan-13

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

PARACEL LABORATORIES LTD.

TRUSTED. RESPONSIVE. RELIABLE.

300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8

p: 1-800-749-1947
e: paracel@paracellabs.com

www.paracellabs.com

OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9
Attn: Bruno Welfringer

Phone: (514) 398-0553
Fax: (514)398-0554

Client PO: 7281-9-45
Project: 7281-9
Custody:

Report Date: 24-Jan-2013
Order Date: 23-Jan-2013
Order #: 1304136

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1304136-01	02-9
1304136-02	02-10
1304136-03	02-11

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client:	HDS-Environnement 640 Rue St-Paul West, Office 100 Montreal, QC H3C 1L9	**Attn:**	Bruno Welfringer Tel: (514) 398-0553 Fax: (514)398-0554
Project:	7281-9	**Received Date:**	23-Jan-13
Paracel Report No.:	1304136	**Report Date:**	24-Jan-13

Asbestos by PLM **MDL - 0.1%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1304136-01	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-9**	
						Non-Fibers	100
1304136-02	22-Jan-13	Sample Homogenized	Beige	Mortar	No	**Client ID: 02-10**	
						Non-Fibers	100
1304136-03	22-Jan-13	Sample Homogenized	Beige	Mortar	No	**Client ID: 02-11**	
						Non-Fibers	100

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool

Analytes in bold indicate asbestos content which may include:

Actinolite, Amosite, Anthopyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos by PLM	by EPA 600/R-93/116	Mississauga	200863-0	24-Jan-13

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

PARACEL LABORATORIES LTD.

TRUSTED.
RESPONSIVE.
RELIABLE.

300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8

p: 1-800-749-1947
e: paracel@paracellabs.com

www.paracellabs.com

OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9
Attn: Bruno Welfringer

Phone: (514) 398-0553
Fax: (514)398-0554

Client PO: 7281-9-46
Project: 7281-9
Custody:

Report Date: 24-Jan-2013
Order Date: 23-Jan-2013
Order #: 1304138

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1304138-01	02-12
1304138-02	02-13
1304138-03	02-14

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client:	HDS-Environnement 640 Rue St-Paul West, Office 100 Montreal, QC H3C 1L9	**Attn:**	Bruno Welfringer Tel: (514) 398-0553 Fax: (514)398-0554
Project:	7281-9	**Received Date:**	23-Jan-13
Paracel Report No.:	1304138	**Report Date:**	24-Jan-13

Asbestos by PLM **MDL - 0.1%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1304138-01	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-12**	
						Non-Fibers	100
1304138-02	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-13**	
						Non-Fibers	100
1304138-03	22-Jan-13	Sample Homogenized	Brown	Mortar	No	**Client ID: 02-14**	
						Non-Fibers	100

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool

Analytes in bold indicate asbestos content which may include:

Actinolite, Amosite, Anthopyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos by PLM	by EPA 600/R-93/116	Mississauga	200863-0	24-Jan-13

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

PARACEL LABORATORIES LTD.

TRUSTED. RESPONSIVE. RELIABLE.

300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8

p: 1-800-749-1947
e: paracel@paracellabs.com

www.paracellabs.com

OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9
Attn: Bruno Welfringer

Phone: (514) 398-0553
Fax: (514)398-0554

Client PO: 7281-9-47
Project: 7281-9
Custody:

Report Date: 24-Jan-2013
Order Date: 23-Jan-2013
Order #: 1304139

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1304139-01	02-15
1304139-02	02-16
1304139-03	02-17

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client: HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9

Attn: Bruno Welfringer
Tel: (514) 398-0553
Fax: (514)398-0554

Project: 7281-9
Paracel Report No.: 1304139

Received Date: 23-Jan-13
Report Date: 24-Jan-13

Asbestos by PLM **MDL - 0.1%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1304139-01	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-15**	
						Non-Fibers	100
1304139-02	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-16**	
						Non-Fibers	100
1304139-03	22-Jan-13	Sample Homogenized	Gray	Mortar	No	**Client ID: 02-17**	
						Non-Fibers	100

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool
Analytes in bold indicate asbestos content which may include:
Actinolite, Amosite, Anthopyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos by PLM	by EPA 600/R-93/116	Mississauga	200863-0	24-Jan-13

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

PARACEL LABORATORIES LTD.

TRUSTED. RESPONSIVE. RELIABLE.

300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8

p: 1-800-749-1947
e: paracel@paracellabs.com

www.paracellabs.com

OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

HDS-Environnement
640 Rue St-Paul West, Office 100
Montreal, QC H3C 1L9
Attn: Bruno Welfringer

Phone: (514) 398-0553
Fax: (514)398-0554

Client PO: 7281-9-48
Project: 7281-9
Custody:

Report Date: 1-Feb-2013
Order Date: 31-Jan-2013
Order #: 1305192

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1305192-01	03-1
1305192-02	03-2
1305192-03	03-3

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Client:	HDS-Environnement 640 Rue St-Paul West, Office 100 Montreal, QC H3C 1L9	**Attn:**	Bruno Welfringer Tel: (514) 398-0553 Fax: (514)398-0554
Project:	7281-9	**Received Date:**	31-Jan-13
Paracel Report No.:	1305192	**Report Date:**	01-Feb-13

Asbestos by PLM **MDL - 0.1%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1305192-01	30-Jan-13	Sample homogenized	Black	Powder	No	**Client ID: 03-1** [AS-PRE]	
						Cellulose	1
						Non-Fibers	99
1305192-02	30-Jan-13	Sample homogenized	Black	Powder	No	**Client ID: 03-2** [AS-PRE]	
						Non-Fibers	100
1305192-03	30-Jan-13	Sample homogenized	Gray	Powder	No	**Client ID: 03-3** [AS-PRE]	
						Cellulose	1
						Non-Fibers	99

MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool
Analytes in bold indicate asbestos content which may include:
Actinolite, Amosite, Anthopyllite, Chrysotile, Crocidolite and/or Tremolite.

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos by PLM	by EPA 600/R-93/116	Ottawa West Lab	200812-0	1-Feb-13

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

Report Notes

AS-PRE Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

APPENDIX 4

Safety Work Specifications
Removal of asbestos-containing Materials

Travaux publics et
Services gouvernementaux
Canada

SAFETY WORKS SPECIFICATIONS
REMOVAL OF ASBESTOS-CONTAINING MATERIALS

Ogilvy CCC, 435, Ogilvy Street, Montréal (Québec)

Ref.: HDS-7281-9

January, 30th 2013

Prepared by:

Hudon Desbiens St-Germain Environnement inc.
640 West Saint-Paul Street, Suite 100
Montréal (Québec) H3C 1H9
Tel.: (514) 398-0553
Fax: (514) 398-0554
Email: info@hdsenv.com
Website: www.hdsenv.com

TABLE OF CONTENT

PART 1. GENERAL INSTRUCTIONS

1.1 GENERALITIES

Unless otherwise specified, the various directives presented in the following technical specifications are applicable to renovation works for the exterior wall on the south side (front side) of the Ogilvy Community Correctional Center (CCC), located at 435, Ogilvy Street in Montréal (Québec). Following a characterization of asbestos containing materials (ACMs) completed by Hudon Desbiens St-Germain Environnement inc. (HDS Environnement), it was concluded that the mortar between the bricks of the front wall of Ogilvy CCC contains chrysotile asbestos fibers.

Federal laws and regulations apply to this establishment, not excluding application of other provincial or municipal laws and regulations covering among other things the undertaking of construction works and occupational health and safety.

1.2 DESCRIPTION OF WORKS

According to information obtained from Public Work and Governmental Services Canada (PWGSC), the activity consists in the dismantling of the south exterior brick wall of the Ogilvy CCC.

Taking into account the nature of the worksite and the presence of chrysotile asbestos, the removal of bricks and mortar is considered as « high-risk work » according to the *Safety Code for the Construction Industry.* A description of the main implications (security measures, air quality monitoring, etc.) of undertaking works under such conditions are presented in Section 2 of the current technical specifications.

Asbestos abatement works include, without being restricted to:

- the preparation of the work areas;
- the removal of bricks from the south exterior wall of the CCC;
- the monitoring of ambient air quality in work areas;
- the complete cleanup of works areas upon work completion;
- the transportation and disposal of waste materials.

1.3 APPLICABLE REQUIREMENTS

The Contractor must undertake his works to meet and exceeds the requirements from laws, regulations, standards, codes, contractual documents and other reference documents.

The Contractor must forward to the Commission de la santé et de la sécurité au travail (CSST) a written worksite opening notification at least ten (10) days before the start of the activities on this worksite in accordance to article 2.4.1 of the *Safety Code for the Construction Industry*. A worksite closure notification must be forwarded by the Contractor to the CSST at least ten (10) days before the end of the activities on this worksite. A copy of these notifications will be forwarded to the Project Manager.

A certification of the implementation of a training program, compliant to the requirements of article 3.23.7 of the *Safety Code for the Construction Industry,* will be included with the worksite opening notification.

PART 2. ASBESTOS ABATEMENT WORKS

2.1 DEFINITIONS

Asbestos Wastes Container: 6-mil minimal thickness bag or puncture-resistant and leak-proof barrel labelled as per the *Safety Code for the Construction Industry*.

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

High-Efficiency Filter: equipment filtering 0.3-µm particles with a 99.97%-efficiency.

High-Efficiency Filter Vacuum: vacuum equipment with connections, tools and necessary accessories; all air intake goes through the high-efficiency filter.

Protective Clothing: disposal work clothes (Tyvek or equivalent) or reusable work clothes resistant to the penetration of asbestos fibres, covering all the body with the exclusion of the face, hands and feet, closed to the neck, wrists and ankles.

Work Area: area where the removal of potential or known asbestos-containing materials is taken place.

2.2 GENERAL OBLIGATIONS

The Contractor must ensure that the undertaking of the works meets the approved schedule and the works are completed in compliance with standards, regulations and other requirements of the technical specifications. Works can be interrupted following an order of the Project Manager or the Consultant if these conditions are not met or if there is a risk of contamination to adjacent areas.

The Contractor must ensure that all person present within the work area where asbestos abatement works are on-going wear his personal protection equipment properly and has receive training meeting the requirements of the *Safety Code for the Construction Industry*.

Before the beginning of the works, the Contractor must produce a document which will be available on site and that contains the following information:

- equipments and tools required to complete the works and appropriate measures to be taken into account for their installation, use, maintenance, protection and mobilisation;

- health and safety risks and measures according to the works to be conducted;
- asbestos type (in this case chrysotile) and other possible contaminants which could be present during the works;
- personal and collective protective equipments that have to be used;
- emergency responses, which should include localization of emergency exits from the working area and from the worksite.

2.3 DOCUMENTS TO PROVIDE

A certification that the workers have received proper training with respect to risks, prevention methods and safe work, in compliance to the requirements of the *Safety Code for the Construction Industry*.

A register maintained by the Contractor of all persons entering the work area, including their name, date and type of personal protection they are wearing.

A copy of the waste material transportation manifest and a copy of the reception proof at the disposal site.

2.4 EMPLOYEE TRAINING

Employees having access to the worksite must have received a training meeting the requirements of the *Safety Code for the Construction Industry*. The training and information programme must contain at least:

- the employer's general obligations;
- the effects of asbestos on health;
- the standards applicable and the sampling to be carried out;
- the worker's rights and obligations;
- individual and common protective devices and equipment;
- the tasks to be carried out and the equipment and tools to be used;
- safe working methods and procedures;
- prevention and verification methods.

The information and training provided for in the first paragraph must have previously been established in writing.

The knowledge of the employees with respect to asbestos will be reviewed before the undertaking of the works. The particularities of the worksite and of the works to be performed will be explained to them.

2.5 POSTING

The contractor shall post a sign at the entrance to each work area. That sign shall be yellow, 500 millimetres high by 350 millimetres wide and shall indicate in black letters of the size specified below the following information in the following order:

Information	Size of letters
ASBESTOS	50 mm
DANGER	40 mm
Do not breathe dust	15 mm
Protective equipment must be worn	15 mm
No admittance	15 mm
Inhaling asbestos dust may be harmful to your health	10 mm

2.6 PERSONAL PROTECTION EQUIPMENT

2.6.1 Respiratory Protection Apparatus

Wearing a full-face mask with assisted ventilation and high-efficiency filter is compulsory during removal works of containing asbestos materials when they are deeply wet. This respiratory protection equipment must be equipped with a high-efficiency filter (HEPA filter).

For asbestos containing friable material not deeply wet, respiratory protection equipment with breathable air adduction, continuous flow or adjusted to the demand and with positive pressure must be used as required by the *Safety Code for the Construction Industry*.

Respiratory masks must be officially certified by the National Institute for Occupational Safety and Health (NIOSH) or compliant to the "*Guide des appareils de protection respiratoire utilisés au Québec"*, published by the "Institut de recherche Robert-Sauvé en santé et en sécurité du travail". Filters in sufficient quantities must be available in a clean area outside the work areas. The equipment must be choose, adjusted, utilized and maintained according to the CSA Z94.4-93 Standard.

2.6.2 Protective Clothing

Any person entering designated asbestos-containing areas must wear protective clothing. Disposable clothing must be disposed as asbestos wastes. Reusable protective clothing must be washed before reuse. The Contractor must provide clean protective clothing to each employee, for each work shift.

The protective clothing must cover all the body, including the head, and must be fitted tight to the wrists and ankles. It must be replaced when torn. The safety boots must be equipped with anti-slipping sole on wet ground in compliance with the *Safety Code for the Construction Industry*.

2.7 ADDITIONAL PERSONAL PROTECTION EQUIPMENT

In addition to the protection equipment for his employees, the Contractor should provide respiratory masks and protective clothing, as required under the previous article, to designated Project Manager's representatives or visitors.

The additional protection equipment will be maintained clean, in good condition and available at all time at the worksite.

The Contractor must ensure that any person entering the worksite will be properly informed as to the use of protection equipment and applicable entry and exit procedures from work areas.

2.8 REMOVAL PROCEDURES

The Contractor shall follow the procedures described in the *Safety Code for the Construction Industry* for high risk work.

- Friable materials that contain asbestos and that are likely to be spread shall be kept thoroughly wetted for the duration of the work, except where the procedure may create a danger to the health, safety and physical integrity of the worker and where the danger cannot be eliminated by another means. All friable materials that contain asbestos and that are spread in the work area shall be removed in accordance after having wet those materials thoroughly or with a vacuum cleaner equipped with a high-efficiency filter.
- As the removal works are performed outside, the Contractor shall isolate the working area with a membrane in order to prevent dispersion of asbestos containing materials.
- As the removal works are performed outside, a sealed enclosure is required only for the work clothes changing room. In this case, the path

between the working area and the work clothes changing room must be delineated with emergency signals. The sealed enclosure for work clothes changing room shall be ventilated by an exhaust ventilation system. This ventilation system must:

- be equipped with a high-efficiency filter;
- produce at least four (4) changes of air per hour;
- ensure negative pressure of between 1 and 4 pascals (Pa).

- At the beginning and end of each shift, the employer shall ensure that the airtight enclosure is in good condition. If the enclosure is punctured or becomes defective, the work shall cease until the enclosure is repaired.
- During work, debris of materials containing asbestos shall be placed in airtight containers appropriate to the type of debris, regularly during the work shift and at the end of the work shift. Debris shall be removed by means of a vacuum cleaner equipped with a high-efficiency filter or by wetting the debris before it is removed. The containers shall be placed in such a way as to cause no inconvenience.
- Upon completion of work where airtight drop sheets were used to protect the work area, drop sheets intended for re-use must be cleaned with a vacuum cleaner equipped with a high-efficiency filter. Drop sheets intended for disposal must first be wetted and then folded so that they hold all the dust that they have collected and, finally, placed in an airtight container.
- Upon completion of work, the work area and the area around it must be cleaned with a vacuum cleaner equipped with a high-efficiency filter or by damp wiping the surfaces and then cleaning them.

2.9 AIR QUALITY MONITORING

The Contractor shall take a sample of the concentration of airborne breathable asbestos fibres in the work area, in accordance with section 44 of the *Regulation Respecting Occupational Health and Safety*, at least once per shift during the work, send it immediately to a laboratory for analysis and take reasonable measures to obtain the results of those analyses within 24 hours; the results shall be recorded in a register that is available on the work premises during all the work.

Upon completion of the work, it shall be prohibited to dismantle the airtight enclosure or to remove the airtight drop sheets before the concentration of airborne breathable asbestos fibres in these areas drops to less than 0,01 fibers/cm^3. That reading shall be taken in accordance with section 44 of the *Regulation Respecting Occupational Health and Safety*.

2.10 DECONTAMINATION PROCEDURES

The Contractor shall make available to each worker working in the work area a street clothes changing room and a work clothes changing room, between which a shower room is set up so that workers may shower before putting on their street clothes; those facilities shall be set up in the following manner:

- they shall be near the work area;
- the changing rooms and shower room shall be located in separate, communicating rooms used exclusively for that purpose;
- the street clothes changing room shall contain at least one locker per worker present in the work area;
- there shall be at least 0,14 cubic metres of storage space in each locker and at least 600 mm of space in front of each row of lockers;
- the Contractor shall ensure that any worker leaving the work area follows the decontamination procedure described below:

    1. workers shall remove their disposable protective clothing in the work clothes changing room and treat them as waste or shall remove their reusable protective clothing and put it immediately in a receptacle filled with water or, where clothes are washed in the work clothes changing room, in the tub of a washer filled with water;
    2. workers shall remove their work clothes and protective footwear in the work clothes changing room and those articles, before being put away, shall be washed or cleaned by means of a vacuum cleaner equipped with a high-efficiency filter;
    3. workers shall wash and remove their safety helmets and respirators under the shower; disposable cartridges shall be thrown into a garbage can and the other parts of the respirator shall be washed under the shower and then hung to dry in a clean area free of dust;

4. workers shall shower immediately before entering the street clothes changing room;
5. work clothes and protective footwear shall be washed before being transported outside the work premises referred to in this section; where the work clothes are winter clothes, they shall be cleaned by means of a vacuum cleaner equipped with a high-efficiency filter and placed in an airtight bag and the employer shall cause them to be dry cleaned and water-proofed.

2.11 PROHIBITION

The use of compressed air is prohibited in a work area covered by this subdivision, except compressed air necessary to operate a respirator.

Smoking, eating, drinking or chewing any substance in a work area covered by this subdivision is prohibited.

2.12 ASBESTOS-CONTAINING MATERIALS MANAGEMENT

The Contractor will package, transport and dispose all waste materials produced by his works. Asbestos-containing materials are not consider as “residual hazardous materials” under *Regulation Respecting Hazardous Materials* and can be disposed in authorized landfill sites in Quebec. The waste materials must be covered by a layer of soil upon their arrival at the landfill site, taking care of not breaking the containers and disperse asbestos fibres in the ambient air.

The waste material containers will be identified according to the *Safety Code for the Construction Industry* as followed:

Material containing asbestos
Toxic by inhalation
Keep container tightly closed
Do not breathe the dust

Transportation of waste materials will be undertaken:

- in compliance with the *Transportation of Dangerous Goods Regulation*, these materials being included in class 9.1 (miscellaneous dangerous goods);
- along the exits and routes pre-determined with the Project Manager;
- within the time periods pre-determined with the Project Manager;

- by anticipating all required personal protection equipment and tools required to recover properly asbestos debris which could fall from an asbestos container in case of a breakage or tear on the latter.

Waste materials containers will be:

- handled within pre-determined periods without interrupting normal operations;
- stored in areas determined with the Project Manager and kept clean at all time;
- covered and closed as long as they are in the vicinity of the building.

At the request of the Project Manager, the Contractor will clean the waste materials unloading areas and the paths used for the transportation of waste materials. The cleaning will be done using appropriate procedures, such as those described for the works covered in this section.

The Contractor will provide to the Consultant a copy of the transportation manifest and of a proof of disposal of the waste materials to the landfill site with the information described on the *Transportation of Dangerous Goods Regulation* for each shipment of waste materials from the worksite.