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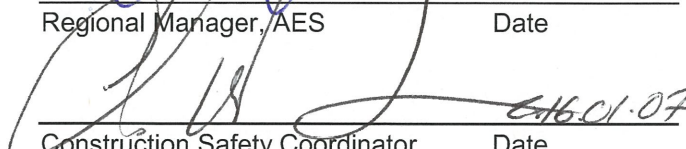
DRAWINGS AND SPECIFICATION
For

NEW FLOORING

Abbotsford, BC - Matsqui Institution - 96 Bed Living Unit
Mission, BC - Mission Institution - 96 Bed Living Unit

Project No.: R.044043.001
January 2016

APPROVED BY:

	<u> 2016-01-11 </u>
Regional Manager, AES	Date
	<u> 2016-01-07 </u>
Construction Safety Coordinator	Date

TENDER:

	<u> 2016-01-07 </u>
Project Manager	Date

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1 SUMMARY OF WORK

- .1 Work covered by Contract Documents:
 - .1 Work under this Contract comprises upgrading concrete floor with new MMA flooring and base including preparation of floor and wall base surfaces, and remedial work as indicated, for 96 Bed Living Units, at Matsqui Institution - 3344 King Road in Abbotsford, B. C and Mission Institution - 8251 Stave Lake road in Mission, B. C.
 - .2 Refer to Floor Plans for areas of new flooring.
 - .3 Institutional cell furniture attached to walls in cells and fixed furniture in Common areas can remain in place. (Cell bunks have a clearance of 350 mm under bunk beds).
 - .4 Disconnect and temporarily move one refrigerator, one clothes washer, two clothes dryers in each wing until flooring is complete in and move back to original location, reconnect and confirm units are operating.
 - .5 Complete new flooring at Matsqui Institution first followed by a two week delay to allow for moving occupants, before starting new flooring at Mission Institution.
- .2 Contractor's Use of Premises:
 - .1 Access is unrestricted in cells and common areas inside of the 96 bed living unit for work and storage areas as directed by the Departmental Representative.
 - .2 The administration area of building will be in use by CSC staff. Inmates will not be present inside the building.
 - .3 Do not encumber work areas with materials and coordinate work areas and storage space as directed by the Departmental Representative.
 - .4 Coordinate use of premises with Department Representative.
 - .5 Departmental Representative will provide Construction Escort personnel for access within institution, during work of this Contract. Notify Departmental Representative 48 hours in advance of work startup, for Construction Escort service, and update requirement on a week to week basis.
 - .6 Obtain and pay for use of additional storage areas needed for operations under this Contract.

2 WORK RESTRICTIONS

- .1 Notify, Departmental Representative of intended work schedule. Schedule work in phases as indicated. The institution will be in operation during work of this Contract. Each Living Unit will be vacant of inmates and staff during work of this contract.
 - .2 Vehicular access through the Sally Port will be restricted during the inmate "count" at breakfast, lunch and dinner hours. Confirm times with Departmental Representative. Delays may occur when entering and exiting the Institution with vehicles due to security situations and heavy traffic.
 - .3 Hours of work:
 - .1 Perform work during normal working hours of the Institution (0800 to 1600), Monday through Friday except holidays. Work may be performed after normal working hours of the Institution, Monday through Friday, on weekends and holidays, with the prior approval of the Departmental Representative. Provide schedule for prior approval of Departmental Representative.
 - .4 Security Requirements: refer to Section 01 14 10 - Security requirements.
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3 CONSTRUCTION WORK SCHEDULE

- .1 Commence work immediately upon official notification of acceptance of offer and complete the work within thirty (30) weeks from the date of such notification.
- .2 Ensure that it is understood that time of beginning, rate of progress, Substantial Certificate and Final Certificate as defined times of completion are of the essence of this contract.
- .3 Submittals:
 - .1 Submit to Departmental Representative a schedule for planning, monitoring and reporting of construction progress.
 - .2 Schedule of work:
 - .1 Complete new flooring at Matsqui Institution first before starting new flooring at Mission Institution.
 - .2 Allow for a two week delay to allow CSC to relocate occupants from Mission Institution living unit.
 - .3 Re-submit digital copy of finalized schedule to Departmental Representative within five (5) working days after return of reviewed preliminary copy.
- .4 Project Scheduling Reporting:
 - .1 Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.
 - .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- .5 Project Meetings:
 - .1 Discuss Project Schedule at regular site meetings during construction on site, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
 - .2 Security related delays with their remedial measures will be discussed and negotiated.

4 SUBMITTAL PROCEDURES

- .1 Administrative:
 - .1 Submit to Departmental Representative submittal listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .2 Work affected by submittal will not proceed until review is complete.
 - .3 Present product data and samples.
 - .4 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
 - .5 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittal.
 - .6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
 - .7 Keep one reviewed copy of each submission on site.
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- .2 Product Data:
 - .1 Submit manufacturer's standard catalogue sheets, illustrations and other standard descriptive data identifying product.
- .3 Samples:
 - .1 Submit samples in sizes and quantities specified.
 - .2 Where colour is criterion, submit full range of colours.
 - .3 Submit all samples as soon as possible, to facilitate production of complete colour scheme by the Departmental Representative.
- .4 Mock-ups:
 - .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.
 - .2 Construct in location as directed by Departmental Representative.
 - .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
 - .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .5 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.
- .5 Submission Requirements:
 - .1 Schedule submissions at least five days before dates reviewed submissions will be needed.
- .6 Coordination of Submissions:
 - .1 Coordinate each submittal with requirements of the work of all trades and contract documents.
 - .2 Responsibility for errors and omissions in submittal is not relieved by Departmental Representative's review of submittal.
 - .3 Responsibility for deviations in submittal from requirements of Contract documents is not relieved by Departmental Representative's review of submittal, unless Departmental Representative gives written acceptance of specified deviations.
 - .4 Notify Departmental Representative, in writing at time of submission, of deviations in submittal from requirements of Contract documents.
 - .5 Make any changes in submissions which Departmental Representative may require consistent with Contract Documents and re-submit as directed by Departmental Representative.
 - .6 After Departmental Representative's review, distribute copies.

5 HEALTH AND SAFETY

- .1 Specified in Section 01 35 33.

6 REGULATORY REQUIREMENTS

- .1 References and Codes:
 - .1 Perform Work in accordance with National Building Code of Canada (NBCC2005) including all amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
-

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

7 QUALITY CONTROL

- .1 Inspection:
 - .1 Give timely notice requesting inspection if Work is designated for inspections or approvals by Departmental Representative instructions, or law of Place of Work.
 - .2 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.
 - .3 If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.
 - .4 If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.
- .2 Rejected Work:
 - .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
 - .2 Make good other Contractor's work damaged by such removals or replacements promptly.

8 TEMPORARY UTILITIES

- .1 Temporary Power and Light:
 - .1 Existing electrical power and lighting may be used for construction purposes at no extra cost, provided that electrical components used for temporary power are replaced when damaged.
- .2 Temporary Communication Facilities:
 - .1 Use of cellular telephones, necessary for work of this contract inside Institution, to conform to Section 01 14 10 Security Requirements.

9 CONSTRUCTION FACILITIES

- .1 Installation and Removal:
 - .1 Provide construction facilities in order to execute work expeditiously.
 - .2 Remove from site all such work after use.
 - .2 Site Storage/Loading:
 - .1 Confine work and operations of employees in accordance with Contract Documents. Do not unreasonably encumber premises with products.
 - .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.
 - .3 Construction Parking:
 - .1 Available outside double security fence on property.
 - .4 Equipment, Tools and Material Storage:
 - .1 Provide and maintain, in a clean and orderly condition, secure lockbox for storage of tools, equipment and materials.
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.2 Locate materials not required to be stored in lock boxes on site in a manner to cause least interference with work activities.

.3 Arrange with Departmental Representative for temporary storage of materials on site.

.5 Sanitary Facilities:

.1 Existing washroom facilities may be used on approval of Departmental Representative. Provide temporary toilet facilities when existing facilities are not available.

10 TEMPORARY BARRIERS AND ENCLOSURES

.1 Safety:

.1 Provide temporary barriers where required to define work areas and ensure safety of work site. Provide signs indicating ACM removal work areas are in progress.

.2 Protection of Building Finishes:

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Be responsible for damage incurred due to lack of or improper protection.

11 COMMON PRODUCT REQUIREMENTS

.1 Reference Standards:

.1 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.2 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

.3 Conform to latest date of issue of referenced standards in effect on date of submission of Bids, except where specific date or issue is specifically noted.

.2 Quality:

.1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular item throughout building.

.3 Storage, Handling and Protection:

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

- .3 Store products in work areas in lock boxes, in secure areas or off site until ready for installation.
- .4 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative .
- .4 Manufacturer's Instructions:
 - .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
 - .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
 - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.
- .5 Quality of Work:
 - .1 Ensure Quality of Work is to standard specified, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
 - .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
 - .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.
- .6 Co-ordination:
 - .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
 - .2 Be responsible for coordination and placement of materials.
- .7 Remedial Work:
 - .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
 - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- .8 Fastenings:
 - .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .9 Protection of Work in Progress:
 - .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

12 EXECUTION REQUIREMENTS

- .1 Preparation:
 - .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 - .2 After uncovering, inspect conditions affecting performance of Work.
 - .3 Beginning of cutting or patching means acceptance of existing conditions.
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.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.2 Execution:

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

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

.3 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.

13**CLEANING**

.1 Project Cleanliness:

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from work areas at each work shift or dispose of as directed by Departmental Representative.

.3 Provide on-site containers for collection of waste materials and debris in accordance with Clause 14.

.4 Provide and use clearly marked separate bins for recycling. Refer to Construction/Demolition Waste Management And Disposal clause.

.5 Clean interior areas and maintain areas free of dust and other contaminants during grinding and finishing operations.

.6 Store volatile waste in covered metal containers, and remove from premises at end of each work shift and as directed by Departmental Representative.

.7 Provide adequate exhaust fans and flexible ducts during use of volatile or noxious substances.

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

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

.2 Final Cleaning:

.1 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for use.

.2 Remove waste products.

.3 Remove stains, spots, marks and dirt from new work.

.4 Vacuum clean and dust work areas.

14**CONSTRUCTION/DEMOLITION WASTE MANAGEMENT AND DISPOSAL**

.1 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and/or recyclable materials.

.2 Separate non-salvageable materials from salvaged items. Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes. Transport and deliver non-salvageable items to licensed disposal facility.

.3 Provide containers to deposit reusable and/or recyclable materials. Locate containers in locations, to facilitate deposit of materials without hindering daily operations. Provide containers to deposit reusable and/or recyclable materials.

- .4 Collect, handle, store on-site and transport off-site, salvaged materials in separate condition. Transport to approved and authorized recycling facility and/or users of material for recycling.
- .5 Locate waste and salvage bins on site as directed by Departmental Representative.

15 CLOSEOUT PROCEDURES

- .1 Inspection and Declaration:
 - .1 Contractor's Inspection: Conduct an inspection of Work with all subcontractors, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .2 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .3 Request Departmental Representative's Inspection.
- .2 Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Work is complete and ready for Final Inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

16 CLOSEOUT SUBMITTALS

- .1 Record Drawings:
 - .1 As work progresses, maintain accurate records to show all deviations from the Contract Drawings. Note on as-built drawings as changes occur. At completion supply:
 - .1 Four (3) sets of printed as-built drawings following review.
 - .2 Submit one copy of marked up as-built drawings to Departmental Representative for review. Resubmit final copies as per para. 16.1.1.1.
 - .3 Retain original logo and title block on the as-built drawings. Contractor may place on the upper right-hand title block area a small company logo, the text "AS-BUILT" and the date.
- .2 Maintenance manual:
 - .1 On completion of project submit to Departmental Representative four paper (in loose leaf type binder) of Operations and Maintenance Manual, made up as follows:
 - .1 Provide maintenance manual, with as-built drawings, in O&M manual, page size images and page size drawings. Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure etc.
 - .2 Organize manual into CSI Masterformat numbering system or other approved descriptive titles.
 - .3 Label binder "Operation and Maintenance Data", project name, date, names of Contractor, subcontractors, consultants and subconsultants.
 - .4 Include guarantees, diagrams and drawings.

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- .5 Organize contents into applicable sections of work to parallel project specification break-down. Mark each section by labeled tabs.
- .6 Drawings and manufacturer's literature must be legible.

END OF SECTION

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1 PURPOSE

- .1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

2 DEFINITIONS

- .1 "Contraband" means:
 - .1 an intoxicant, including alcoholic beverages, drugs and narcotics
 - .2 a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,
 - .3 an explosive or a bomb or a component thereof,
 - .4 currency over any applicable prescribed limit, \$25.00, and
 - .5 any item not described in paragraphs (.1 to .4) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.
- .2 "Unauthorized smoking and related Items" means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing tobacco, cigarette making machines, matches and lighters.
- .3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.
- .4 "CSC" means Correctional Service Canada.
- .5 "Director" means Director, Warden or Superintendent of the Institution as applicable.
- .6 "Construction employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.
- .7 "Departmental Representative" means the Public Works and Government Services Canada representative defined in General Conditions.
- .8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.
- .9 "Construction limits" means the area, as indicated in the contract documents, that the contractor will be allowed to work". This area may or may not be isolated from the security area of the institution. Limits to be confirmed at construction start-up meeting.

3 PRELIMINARY PROCEEDINGS

- .1 At construction start-up meeting:
 - .1 Discuss the nature and extent of all activities involved in the Project.
 - .2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.
- .2 The contractors's responsibilities:
 - .1 Ensure that all construction employees are aware of the security requirements.
 - .2 Ensure that a copy of the security requirements is always prominently on display at the job site.
 - .3 Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.

4 CONSTRUCTION EMPLOYEES

- .1 Submit to the Departmental Representative a list of the names with date of birth of all construction employees to be employed on the construction site and a security clearance form for each employee.

- .2 Allow 10 working days for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at this institution except as approved otherwise.
- .3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the institution or in an electronic database for identification purposes. The Director may require that these Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked up upon arrival at the Institution and be displayed prominently on the construction employees clothing at all times while employees are in the institution.
- .4 Entry to Institutional Property will be refused to any person ~~there~~ may be reason to believe may be a security risk.
- .5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:
 - .1 appear to be under the influence of alcohol, drugs or narcotics.
 - .2 behave in an unusual or disorderly manner.
 - .3 are in possession of contraband.

5 VEHICLES

- .1 All unattended vehicles on CSC property must have windows closed; fuel caps locked, doors and trunks locked and keys removed. The keys must be securely in the possession of the owner or an employee of the company that owns the vehicle.
- .2 The director may limit at any time the number and type of vehicles allowed within the Institution.
- .3 Drivers of delivery vehicles for material required by the project will require security clearances and must remain with their vehicle the entire time that the vehicle is in the Institution. The director may require that these vehicles be escorted by Institutional staff or PWGSC Construction Escorts while in the Institution.
- .4 If the Director permits trailers to be left inside the secure perimeter of the Institution, the trailer doors must be locked at all times. All windows must be securely locked bars when left unoccupied. Cover all windows with expanded metal mesh. When not in use lock all storage trailers located inside and outside the perimeter.

6 PARKING

- .1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.

7 SHIPMENTS

- .1 To avoid confusion with the institution's own shipments, address all shipments of project material, equipment and tools in the Contractor's name and have a representative on site to receive any deliveries or shipments. CSC or PWGSC staff will **NOT** accept receipt of deliveries or shipments of any material equipment or tools.

8 TELEPHONES

- .1 The installation of telephones, facsimile machines and computers with Internet connections is not permitted within the Institution perimeter unless prior approved by the Director.

- .2 The Director will ensure that approved telephones, facsimile machine and computers with Internet connections are located where they are not accessible to inmates. All computers will have an approved password protection that will stop an Internet connection to unauthorized personnel.
- .3 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, Blackberries, telephone used as 2-way radios are not permitted within the Institution unless approved by the Director. If wireless cellular telephones are permitted, the user will not permit their use by any inmate.
- .4 The Director may approve but limit the use of 2-way radios.

9 WORK HOURS

- .1 Conform to Division 1.
- .2 Work is not permitted during weekends and statutory holidays without the permission of the Director. A minimum of seven days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be waved by the Director.

10 OVERTIME WORK

- .1 Conform to Division 1.
- .2 Provide 48 hours advance notice to Director for all work to be performed after normal working hours of the Institution. Notify Director immediately if emergency work is required, such as to complete a concrete pour or make the construction site safe and secure.

11 TOOLS AND EQUIPMENT

- .1 Maintain a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required by the Institution.
 - .2 Throughout the construction project maintain up-to-date the list of tools and equipment specified above.
 - .3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of jacking device.
 - .4 Store all tools and equipment in approved secure locations.
 - .5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor. Secure and lock scaffolding when not erected and when erected Secure in a manner agreed upon with the Institution designate.
 - .6 Report all missing or lost tools or equipment immediately to the Departmental Representative/Director.
 - .7 The Director will ensure that the security staff members carry out checks of the Contractor's tools and equipment against the list provided by the Contractor. These checks may be carried out at the following intervals:
 - .1 At the beginning and conclusion of every work day or shift upon entering and exiting the Institution.
 - .2 At any time when contractor is on Institution property.
 - .8 Certain tools/equipment such as cartridges and hacksaw blades are highly controlled items. The contractor will be given at the beginning of the day, a quantity that will permit one day's work. Used blades/cartridges will be returned to the Director's representative at the end of each day. Maintain up to date inventory of all used blades/cartridges.
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- .9 If propane or natural gas is used for heating the construction, the institution will require that the contractor supervise the construction site during non-working hours.

12 KEYS

- .1 Security Hardware Keys.
 - .1 Arrange with the security hardware supplier/installer to have the keys for the security hardware to be delivered directly to Institution, specifically the Security Maintenance Officer (SMO).
 - .2 The SMO will provide a receipt to the Contractor for security hardware keys.
 - .3 Provide a copy of the receipt to the Departmental Representative.
- .2 Other Keys
 - .1 Use standard construction cylinders for locks for his use during the construction period.
 - .2 Issue instructions to employees and sub-trades, as necessary, to ensure safe custody of the construction set of keys.
 - .3 Upon completion of each phase of the construction, the CSC representative will, in conjunction with the lock manufacturer:
 - .1 Prepare an operational keying schedule
 - .2 Accept the operational keys and cylinders directly from the lock manufacturer.
 - .3 Arrange for removal and return of the construction cores and install the operational core in all locks.
 - .4 Upon putting operational security keys into use, the PWGSC construction escort shall obtain these keys as they are required from the SMO and open doors as required by the Contractor. The Contractor shall issue instructions to his employees advising them that all security keys shall always remain with the PWGSC construction escort.

13 SECURITY HARDWARE

- .1 Turn over all removed security hardware to the Director of the Institution for disposal or for safekeeping until required for re-installation.

14 PRESCRIPTION DRUGS

- .1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.

15 SMOKING RESTRICTIONS

- .1 Smoking is not permitted inside correctional facilities or outdoors within the perimeter of a correctional facility and persons must not possess unauthorized smoking items within the perimeter of a correctional facility.
- .2 Persons in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist will be directed to leave the Institution.
- .3 Smoking is permitted outside the perimeter of a correctional facility in an area designated by the Director.

16 CONTRABAND

- .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.
 - .2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.
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- .3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction.
- .4 Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

17 SEARCHES

- .1 All vehicles and persons entering institutional property may be subject to search.
- .2 When the Director suspects, on reasonable grounds, that an employee of the Contractor is in possession of contraband, he may order that person to be searched.
- .3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

18 ACCESS TO AND REMOVAL FROM INSTITUTIONAL PROPERTY

- .1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

19 MOVEMENT OF VEHICLES

- .1 Escorted commercial vehicles may not be allowed to enter or leave the institution through the vehicle access gate during the regular "inmate count" occurring at breakfast, lunch and dinner hour as established by the Institution. Confirm "count" times with Director or Departmental Representative to reduce down times for deliveries to Institution and movement of contractors vehicles through Institution vehicle access gate.
 - .2 Construction vehicles will not be allowed to leave the Institution until an inmate count is completed.
 - .3 The contractor shall advise the Director twenty four (24) hours in advance to the arrival on the site of heavy equipment such as concrete trucks, cranes, etc.
 - .4 Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or PWGSC construction escorts working under the authority of the Director.
 - .5 Commercial vehicles will only be allowed access to institutional property when their contents are certified by the Contractor or his representative as being strictly necessary to the execution of the construction project.
 - .6 Vehicles shall be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the institution. Arrange with Director for parking of contractor's vehicles at minimum security Institutions.
 - .7 Private vehicles of construction employees will not be allowed within the security wall or fence of medium or maximum security institutions without the permission of the Director.
 - .8 With prior approval of the Director, a vehicle may be used in the morning and evening to transport a group of employees to the work site. This vehicle will not remain within the Institution the remainder of the day.
-

- .9 With the approval of the Director, certain equipment may be permitted to remain on the construction site overnight or over the weekend. This equipment must be securely locked, with the battery removed. The Director may require that the equipment be secured with a chain and padlock to another solid object.

20 MOVEMENT OF CONSTRUCTION EMPLOYEES ON INSTITUTIONAL PROPERTY

- .1 Subject to the requirements of good security, the Director will permit the Contractor and his employees as much freedom of action and movement as is possible.
- .2 However, notwithstanding paragraph above, the Director may:
 - .1 Prohibit or restrict access to any part of the institution.
 - .2 Require that in certain areas of the institution, either during the entire construction project or at certain intervals, construction employees only be allowed access when accompanied by a member of the CSC security staff.
- .3 During the lunch and coffee/health breaks, all employees will remain within the construction site. Employees are not permitted to eat in the officer's lounge and dining room.

21 SURVEILLANCE AND INSPECTION

- .1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.
- .2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.

22 STOPPAGE OF WORK

- .1 The director may request at any time that the contractor, his employees, sub-contractors and their employees not enter or leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor shall note the name of the staff member making the request and the time of the request and obey the order as quickly as possible.
- .2 The contractor shall advise the Departmental Representative within 24 hours of this delay to the progress of the work.

23 CONTACT WITH INMATES

- .1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any employee doing any of the above will be removed from the site and his security clearance revoked.
- .2 It is forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

END OF SECTION

1 REFERENCES

- .1 Government of Canada:
 - .1 Canada Labour Code - Part II.
 - .2 Canada Occupational Health and Safety Regulations.
- .2 HRSDC Fire Protection Engineering Section:
 - .1 FCC No. 301-1982, Standard for Construction Operations.
- .3 National Building Code of Canada (NBCC 2005):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites
- .4 Province of British Columbia Building Code (2006):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .5 Province of British Columbia:
 - .1 Workers Compensation Act Part 3 - Occupational Health & Safety.
 - .2 Occupational Health & Safety Regulations.

2 RELATED SECTIONS

- .1 Section 01 01 50 - General Instructions for; Submittals procedures, Section Temporary utilities, Construction facilities and Temporary barriers and enclosures.
- .2 Section 09 67 23 - MMA Resinous Flooring.

3 WORKERS' COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

4 COMPLIANCE WITH REGULATIONS

- .1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

5 SUBMITTALS

- .1 Make submittals in accordance with Section 01 01 50 General Instructions for Submittals.
 - .2 Submit the following:
-

- .1 Health and Safety Plan.
 - .2 Copies of reports or directions issued by federal and provincial health and safety inspectors.
 - .3 Copies of incident and accident reports.
 - .4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .5 Emergency Procedures.
- .3 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative for review.
- .4 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.
- .5 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
- .1 Be construed to imply approval by the Departmental Representative.
 - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
 - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

6 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor for work under this contract and appoint a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the location in accordance with sections 118 and 119 of Part 3 of the Workers Compensation Act.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

7 GENERAL CONDITIONS

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
 - .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
-

.2 Secure site after working hours in accordance with Section 01 14 10 - Security Requirements.

8 PROJECT/SITE CONDITIONS

.1 Work at site will involve:

.1 Working in areas where inmates may be present who are under supervision by CSC staff. Conform to Security Requirements Section 01 41 10 Contact With Inmates clause and other security requirements pertaining to a CSC institution.

.2 Working in areas where silica dust may be present as a result of floor grinding. Reference Work Safe BC OHS requirements.

9 REGULATORY REQUIREMENTS

.1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.

.2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

10 FILING OF NOTICE

.1 Submit to WCB a Notice of Project at least 24 hours before start of work.

11 HEALTH AND SAFETY PLAN

.1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.

.2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:

.1 Primary requirements:

.1 Contractor's safety policy.

.2 Identification of applicable compliance obligations.

.3 Definition of responsibilities for project safety/organization chart for project.

.4 General safety rules for project.

.5 Job-specific safe work, procedures.

.6 Inspection policy and procedures.

.7 Incident reporting and investigation policy and procedures.

.8 Occupational Health and Safety Committee/Representative procedures.

.9 Occupational Health and Safety meetings.

.10 Occupational Health and Safety communications and recordkeeping procedures.

.2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.

- .3 List hazardous materials to be brought on site as required by work.
 - .4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
 - .5 Identify personal protective equipment (PPE) to be used by workers.
 - .6 Identify personnel and alternates responsible for site safety and health.
 - .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
 - .4 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
 - .5 Departmental Representative's review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) is for the sole purpose of ascertaining conformance with general Directive 073. PWGSC's review shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

12 EMERGENCY PROCEDURES

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to work and as per legislated regulations.
 - .3 Local emergency resources.
 - .4 Departmental Representative.
- .2 Include the following provisions in the emergency procedures:
 - .1 Notify workers of the nature and location of the emergency.
 - .2 Evacuate all workers safely.
 - .3 Check and confirm the safe evacuation of all workers.
 - .4 Notify the fire department or other emergency responders.
 - .5 Notify adjacent workplaces which may be affected if the risk extends beyond the workplace.
 - .6 Notify Departmental Representative.
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:
 - .1 Work with hazardous substances.

13 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
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- .2 Provide adequate means of ventilation in accordance with Section 01 01 50 General Instructions.

14 SILICA HAZARD

- .1 Grinding concrete surfaces and handling of waste material will be performed as indicated in Section 09 67 23 - MMA Resinous Flooring.
- .2 To avoid the inhalation of silica, it is essential to have the following control methods in place:
 - .1 Engineering controls.
 - .2 Work practices and hygiene practices.
 - .3 Respirators and personal protective equipment.
 - .4 Training.

15 OVERLOADING

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

16 FIRE SAFETY REQUIREMENTS

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

17 FIRE PROTECTION AND ALARM SYSTEM

- .1 Do not obstruct, shut-off or leave inactive at the end of a working day or shift, the fire protection and alarm systems.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the Institution, resulting from false alarms.

18 UNFORESEEN HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

19 POSTED DOCUMENTS

- .1 Post legible versions of the following documents on site:
 - .1 Health and Safety Plan.
 - .2 Sequence of work.

- .3 Emergency procedures.
 - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - .5 Notice of Project.
 - .6 Floor plan(s).
 - .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
 - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .9 Material Safety Data Sheets (MSDS).
 - .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.
- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

20 MEETINGS

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

21 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The Contractor will be responsible for any costs arising from such a "stop work order".

END OF SECTION

1 General

1.1 DESCRIPTION OF WORK

- .1 Provide seamless 100% reactive, Methyl-methacrylate Acrylic (MMA) based self-leveling flooring system with a Decorative Flake Broadcast, for floors and base in Cells and Common Areas, on two floors, at two living units as indicated and specified:
 - .1 MMA floor topping system: 3 mm Self-Leveling (color and texture selected by Departmental Representative), with appropriate primer and topcoat.
 - .2 MMA topping system: cured and available to normal traffic in no more than 60 minutes at 68° F. after application of last coat with maximum water absorption value of 0.04 weight percent in accordance with ASTM D570 and chemically resistant to a wide range of acids, alkalis, salts, fats, oils, and other chemicals.
 - .3 Finished MMA floor coating system to be uniform in color, texture, and appearance. All edges that terminate at walls, floor discontinuities, and other embedded items to be sharp, uniform, and cosmetically acceptable with no thick or ragged edge. Provide an acceptable masking technique to ensure the acceptable finish of all edges.
 - .4 Total MMA flooring system thickness upon completion: 6 mm.
 - .5 Alter existing stair warning strips and tread nosing to ensure warning strips and tread nosing conforms to NBCC2010 following completion of MMA flooring system.

1.2 RELATED SECTIONS

- .1 Section 01 01 50 - General Instructions.

1.3 REFERENCES

- .1 NACE No. 6/SSPC-SP 13 - Surface Preparation of Concrete.
- .2 ACI 308 – Standard Practice for Curing Concrete.
- .3 ACI 302.1R-80 - Guide for Concrete Floor and Slab Construction.
- .4 American Society for Testing and Materials (ASTM):
 - .1 ASTM C39-05, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - .2 ASTM C109 / C109M - 13e1, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).
 - .3 ASTM D570(2010)e1, Standard Test Method for Water Absorption of Plastics
 - .4 ASTM D638-14, Standard Test Method for Tensile Properties of Plastics.
 - .5 ASTM D696-08e1, Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer.
 - .6 ASTM D790-10, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - .7 ASTM F1869-11, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- .5 DIN 53122-1 2001, Determination of the water vapour transmission rate of plastic film, rubber sheeting, paper, board and other sheet materials by gravimetry.

1.4 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 01 50 - General Instructions for Submittal Procedures.
- .2 Submit samples and manufacturer's installation instructions to the Departmental Representative for review.
- .3 Submit copies of manufacturer's technical data, test reports, installation instructions and general recommendations as per paragraph 1.5.2.
- .4 Submit samples of flake broadcast flooring system for available colours and surface textures for review.
 - .1 Sample: minimum 300 x 300mm square representative sample of the specified flooring and flash cove wall base system prepared by the manufacturer's representative and submit to the Departmental Representative within 7 days of award of the contract.
- .5 Submit maintenance data for incorporation into maintenance manuals. Include manufacturer's printed data covering the care, cleaning and maintenance of resinous finishes.

1.5 QUALITY ASSURANCE

- .1 Manufacturer must show a minimum 10 year history of manufacturing MMA products for the specified application.
 - .2 Provide technical literature for each product giving the name, generic type, descriptive information, recommended dry film thickness (DFT), Material Safety Data Sheet (MSDS), and certified test reports showing results to equal performance criteria of products specified herein.
 - .3 Manufacturer's Technical Representative:
 - .1 To inspect the surfaces to ensure the coatings are applied to floor correctly. Confirm in writing to the Departmental Representative that the substrate is acceptable for the application of flooring.
 - .2 Carry out regular site inspections to ensure that the installation is in accordance with manufacturer's printed installation instructions and all deficiencies are corrected.
 - .3 Coordinate site inspections with the Departmental Representative.
 - .4 Submit written inspection reports to the Departmental Representative covering quality of installation and acceptance of completed work or corrections required.
 - .4 Applicator Qualifications:
 - .1 Submit to the Departmental Representative, within 7 days of award of contract a written verification from the manufacturer that the applicator is qualified to install the specified products.
 - .2 Applicator must be trained by the Manufacturer in all phases of surface preparation and application of the specified flooring system(s).
 - .3 Applicator must have five years experience of installing the specified flooring system or has completed five projects using specified flooring materials.
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- .5 Acceptance Sample:
 - .1 Submit a minimum 300 x300mm square representative sample of the specified flooring system shall be prepared by the Manufacturer's representative and submitted to the Departmental Representative within 7 day of award of the contract.
- .6 Bond Testing:
 - .1 Evaluate surface preparation by conducting Bond Tests at the site prior to application of the flooring system(s).
 - .2 Consult with Material Manufacturer for specific procedure.

1.6 PRE-INSTALLATION CONFERENCE

- .1 Prior to commencement of Work on site, convene a pre-installation conference to be attended by the Contractor, coating Subcontractor, manufacturer's technical representative, Departmental Representative to review:
 - .1 Technical representative's schedule for reviewing Work.
 - .2 Quality Control Procedures
 - .3 Product selections including colours, patterns, samples and mock-ups required, flooring accessories.
 - .4 Procedures and tests for verifying acceptability of substrate for application of products.
 - .5 Environmental requirements for installation.
 - .6 Installation procedures.
 - .7 Protection of finished Work.

1.7 PRODUCT DELIVERY, STORAGE, HANDLING

- .1 Deliver all materials undamaged in the original manufacturer's containers with all labels and seals intact.
- .2 Store material in a dry protected area, at a temperature of between 16°C to 32 °C.

1.8 PROJECT CONDITIONS

- .1 Ensure an ambient air temperature of not less than 18°C and a floor temperature of not less than 16°C for at least seven (7) days is present prior to installation and for at least 48 hours after completion of work. Ensure relative humidity is not greater than 40%.
 - .2 Take moisture readings to ensure that new substrates are within limits prescribed by the manufacturer.
 - .3 Comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding the use, handling, storage and disposal of hazardous material.
 - .4 Continuously ventilate area where coating is being applied during and for 24 hours after installation.
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1.9 WARRANTY

- .1 Provide Departmental Representative with a written ten year warranty, covering both material and workmanship commencing from date of installation, in accordance with General Conditions.

2 Products

2.1 MATERIALS

- .1 Seamless Methyl-Methacrylate Acrylic (MMA) flooring system meeting the performance requirements of the specification. All flooring components to cure within one hour of application.

2.2 FLOORING SYSTEM

- .1 Seamless 100% reactive methyl-methacrylate Acrylic (MMA) flooring system with all components from one manufacturer meeting the product performance criteria in the tables following:

- .1 Saturating Primer/sealer coat: methyl-methacrylate acrylic primer for use within the MMA flooring systems, solvent free, multi-component, 100% reactive, low viscosity penetrating primer for use in very dense or weak concrete surfaces to completely seal the concrete surface resulting in a uniform satin finish.

PROPERTY	RESULTS	TEST METHOD
Percentage Reactive Resin	100 %	
Percentage Solids	100 %	
Water Absorption, (% /24 hours)	< 0.06	ASTM D570
Tensile Strength	3,550 psi	ASTM D638
Tensile Modulus	2.1 x 10 ⁵ psi	ASTM D638
Coefficient of Thermal Expansion in/in/°F	.000035	ASTM D696
Hardness (Shore D)	75	ASTM D2240
Viscosity	15 – 25 cps	ASTM D2393
Electrical Resistivity: Volume resistance, ohm-cm Surface resistance, ohm	10 ¹⁵ 10 ¹²	ASTM D257
Water Vapour Transmission g/cm-hr-mm, Hg x 10 ⁻⁹	1.4	DIN 53122

- .2 Self levelling Topping: methyl-methacrylate acrylic resin for use within the MMA flooring systems, solvent free, multi-component, 100% reactive transparent resin with decorative colour flake broadcast. Coving with filler.

PROPERTY	RESULTS	TEST METHOD
Percentage Reactive Resin	100 %	
Percentage Solids	100 %	
Water Absorption, (Wt % /24 hours)	0.04	ASTM D570
Compressive Strength psi	6,000 - 8,000 6,000	ASTM C109 ASTM D695
Tensile Strength psi	1,050	ASTM D638
Tensile Modulus psi	720,000	ASTM D638
Flexural Strength psi	3,500	ASTM D790
Coefficient of Thermal Expansion in/in/°F	.000019	ASTM D696
Electrical Resistivity Volume Resistance:	10 ¹⁴ ohm-cm	ASTM D257

.3 Topcoat: Methyl-methacrylate acrylic, clear topcoat resin, solvent free, 2-component, 100% reactive resin transparent topcoat in flooring systems with a coloured flake broadcast, UV resistance. Coving with filler.

PROPERTY	RESULTS	TEST METHOD
Percentage Reactive Resin	100 %	
Percentage Solids	100 %	
Water Absorption, (Wt % /24 hours)	0.04	ASTM D570
Tensile Strength psi	3,555	ASTM D638
Tensile Modulus psi	210,000	ASTM D638
Coefficient of Thermal Expansion in/in/°F	.000035	ASTM D696
Electrical Resistivity: Volume resistance, ohm-cm Surface resistance, ohm	10 ¹⁵ 10 ¹²	ASTM D257
Water Vapour Transmission g/cm-hr-mm, Hg x 10 ⁻⁹	1.43	DIN 53122

.4 Polymer Concrete: a fast-curing, high strength material of two components: a liquid methacrylate based resin and powder component consisting of sand, inert fillers, polymers, pigments and powder hardener.

PROPERTY	RESULTS	TEST METHOD
Percentage of Reactive Resin	100 %	
Water Absorption, (wt. % /24 hours)	0.02	ASTM D570
Tensile Strength psi x 10 to the	1,200	ASTM D638

Tensile Modulus psi	210,000	ASTM D638
Coefficient of Thermal Expansion in/in/°F x 10 ⁻⁶	18	ASTM C531
compressive Strength	7,000 9,200	ASTM C39 ASTM C109

- .2 Provide medium texture non-slip finish. See Submittal clause 1.4.4.1.
- .3 Colored flake for broadcasting: coloured flake blend broadcast.
- .4 Colours as selected by Departmental Representative.
- .5 Top Coat. Apply two coats flat topcoat, minimum 1.5 mils thickness each.

3 Execution

3.1 PREPARATION

- .1 Cure new polymer concrete patch areas to period recommended by the flooring manufacturer.
- .2 Clean and dry surface and ensure surface is physically sound and free of contamination. Repair holes, voids and cracks, correct abrupt changes in surface and remove projections.
- .3 Existing Floor Wall Base Preparation:
 - .1 Prepare existing stained concrete finish and painted CMU wall to flooring manufacturer's requirements to accept new MMA flooring and 190 mm high base.
 - .2 Remove loose particles; droppings, grease, solvent, paint, and other foreign matter, that would affect the new flooring and base material.
 - .3 Thoroughly clean substrates, to remove all deleterious material that would affect the proper bonding and performance of the floor base/coating.
- .4 Evaluate all surface preparation by conducting bond tests at strategic locations.
- .5 Clean surfaces that are heavily contaminated with the appropriate degreaser, detergent, or other appropriate cleaner/surfactant followed by thoroughly rinsing with fresh water to remove the accumulation prior to mechanical cleaning efforts.
- .6 Remove clothes washing machines, clothes dryers and refrigerators as required to facilitate the new flooring application.
 - .1 Store these items in a safe place and replace, in undamaged, clean condition upon completion of Work and after flooring has cured. Reconnect to power and drainage.
- .7 Permanent equipment and steel furniture fastened to building structure may be left in place during the flooring installation work.
- .8 Mask off and protect adjacent surfaces and material from Work of this section.

- .9 Ensure floor drains and clean-out plates are adjusted to proper elevation to provide flush finish with new floor coating.

3.2 PREWORK INSPECTION

- .1 Examine all surfaces to be coated with MMA material systems and report any conditions that will adversely affect the appearance or performance of these coating systems and that cannot be put into acceptable condition.
 - .1 Verify that moisture content is within range acceptable to flooring manufacturer, using calcium chloride test kit in accordance with ASTM F-1869.
 - .1 Concrete to have a moisture emission rate of no more than 2.27kg. per 93sq m (5lbs /100sf) per 24 hour period as determined by proper Calcium Chloride Testing.
 - .2 Ensure surfaces are sound, satisfactory and meet the approval of the manufacturer's technical representative.
 - .3 Notify the Departmental Representative in writing of any defects which would affect the proper application and performance of the coating.
 - .2 Proceed with application once the surface has been repaired to an acceptable condition or authorization to proceed is given by the Departmental Representative.

3.3 BOND TESTING

- .1 Evaluate all surface preparation by conducting bond tests at strategic locations.
- .2 Mix six 170 grams of the primer to be used in the application with #10412 mesh, dry quartz sand until an easily trowel on mixture is obtained. Add 10% by volume Powder Hardener and mix well. Apply palm-sized patties 3mm to 6mm thick.
- .3 After one (1) hour at (20° C.), patties must be cured tack-free and cooled to ambient temperature of concrete. Remove patties with hammer and chisel and examine fracture/delamination plane. Concrete with fractured aggregate must be attached to the entire underside of the patty.
- .4 If only laitance or a small amount of concrete is attached or if interface between patty and substrate is tacky, further substrate preparation is required.
- .5 If further surface preparation is required, conduct bond tests again when this has been completed.
- .6 If no amount or kind of surface preparation produces satisfactory bond tests, submit report to the Departmental Representative.

3.4 MECHANICAL SURFACE PREPARATION AND CLEANING

- .1 Provide a CSP 4-5 in accordance with ICRI CSP Surface Preparation Standards. Mechanically blast clean all accessible concrete floor surfaces using a mobile steelshot, dust recycling machine such as BLASTRAC, as manufactured by Wheelabrator Corp., or approved equivalent.
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- .1 Completely remove all surface and embedded accumulations of paint, toppings, hardened concrete layers, laitance, power trowel finishes, and other similar surface characteristics to leave a bare concrete surface having a profile similar to 40 grit sandpaper and exposing the upper fascia of concrete aggregate.
- .2 Mechanically abrade floor areas, inaccessible to the mobile blast cleaning machines, to the same degree of cleanliness, soundness, and profile using vertical disc scarifiers, starwheel scarifiers, needle guns, scabblers, or other suitably effective equipment.
- .3 After blasting, remove traces or accumulations of spent abrasive, laitance, removed toppings, and other debris with brush and vacuum.
- .4 Conduct Bond Tests to check adequacy of surface preparation in accordance with clause 3.3.

3.5 INSTALLATION

- .1 Apply flooring over prepared surfaces and 190 mm high coved base over prepared wall substrates in accordance with manufacturer's printed instructions.
 - .1 Application of Seamless Methyl Methacrylate Acrylic (MMA) flooring decorative flake broadcast system consists of:
 - .1 applying the primer/sealer
 - .2 applying coving and base
 - .3 performing patching and sloping with specified material (if required),
 - .4 re-priming patch areas,
 - .5 applying the topping and broadcasting the coloured flake,
 - .6 applying a non slip texture with topcoat finish
 - .7 Applying additional top coat,
 - .8 Time for curing: allow (45 - 60 minutes) between each coat.
 - .2 Prime Coat:
 - .1 Measure, add, and mix the components, and initiator (Powder Hardener) into the respective resin components in the proportions recommended by the Material Manufacturer.
 - .2 Pour the mixture batches onto the floor surface and use a 230 mm or 460 mm wide, 13 mm - 19 mm thick-napped, solvent-resistant paint roller to roll out the material at a rate of 100 sq. ft./ gal. to form a uniform, continuous film, ensuring that all crevices, cracks, other surface discontinuities have been saturated and coated. Use a paint brush to reach areas inaccessible to the roller. Work quickly and deliberately; the pot life is short (10 -15 minutes). Do not leave any puddles'; roll out any such accumulations.
 - .3 Allow primer/sealer to cure.
 - .4 If any of the concrete has absorbed all of the primer or if the concrete still has a dry look, re-prime these areas before applying wear layer coat.
- .3 Coving
 - .1 Surface Preparation
 - .1 Install cove base according to manufacturers recommendations and ensure:
 - .2 CB Filler Cove Base consisting of "spooned in" radius and brush on body coat OR

- .1 Runs, sags, hiding or shadowing by inefficient application methods.
- .2 Evidence of poor coverage at corners and re-entrant angles.
- .3 Damage due to touching before coating is sufficiently dry, contamination of paint due to airborne particles or any other contributory cause.

3.6 COATING SCHEDULE

- .1 Primer application rate: approx. 2 m² per liter (approx. 12 mils).
- .2 Coving with appropriate filler installed per manufacturers recommendations.
- .3 Wear Layer coat: applied with a gauge rake set at 3 mm for a rate of 3.7 m² per batch. Broadcast coloured flake into the uncured topping at the rate of 340 gm per m².
- .4 Clear topcoat: apply at the rate of 1.8 - 2 m² per liter for the first coat and 2 - 2.5 m² , per liter for the second application.

3.7 FIELD QUALITY CONTROL/INSPECTION

- .1 Arrange for the manufacturer's technical representative to review the Work and report on the work as follows:
 - .1 Review and acceptance of surface preparation.
 - .2 Review and acceptance of the prime seal coat.
 - .3 Review and acceptance of the:
 - .1 Broadcast flake installation
 - .2 First and Second Top Coat
 - .3 Slip resistance.
 - .4 Identify Work not acceptable and procedures for correction, schedule and acceptance.
 - .5 Inspection is included in the contract.

3.8 PROTECTION

- .1 At completion of work close off areas to all traffic for a minimum of 24 hours.
- .2 Ensure that temperature and humidity in areas where flooring is installed is regularly monitored to ensure that conditions are within prescribed limits.

3.9 CLEANING

- .1 Clean adjacent material and surfaces of excess flooring material, using products recommended by the flooring manufacturer that would not damage permanent finishes.
- .2 Confirm compatibility of solvent with other surfaces and material before using.
- .3 Clean flooring at completion. Remove tools, equipment and surplus material from Site.

END OF SECTION
