Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 The Work to be done under the Contract shall generally include new ceiling finishes, electrical work, firestopping, and mechanical modifications to return Paint Booth No. 4 to service following an asbestos abatement project. The asbestos abatement project will be completed first under a separate Contract.

1.2 CONTRACT METHOD

.1 Construct Work under the City of Winnipeg General Conditions as identified in Section C of the Bid Opportunity.

1.3 REFERENCES AND CODES

.1 Perform Work in accordance with the National Building Code of Canada (NBC) including all amendments up to bid 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 contract documents, specifications, as specified standards, codes and referenced documents, latest editions.

1.4 WORK SEQUENCE

.1 Refer to Bid Opportunity for requirements related to asbestos abatement work taking place prior to commencement of the work under this contract.

1.5 CONTRACTOR USE OF PREMISES

.1 Unrestricted use of immediate construction area until Substantial Performance.

.2 Limit use of premises for Work, for storage, and for access, to allow:

.1 City of Winnipeg occupancy of adjacent areas.

.2 Occasional access to Paint Booth No. 4 as required for the City of Winnipeg to carry on operations.

.3 Co-ordinate use of premises under direction of Contract Administrator.

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

.5 Remove or alter existing work to prevent injury or damage to portions of existing Work which remain.

.6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Contract Administrator.

.7 At completion of operations condition of existing work: equal to or better than that which existed before new Work started.

1.6 CITY OF WINNIPEG OCCUPANCY

.1 City of Winnipeg will occupy premises during entire construction period for execution of normal operations.

.2 Co-operate with City of Winnipeg in scheduling operations to minimize conflict and to facilitate City of Winnipeg usage.

1.7 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute Work with least possible interference or disturbance to building operations, occupants, and normal use of premises. Arrange with Contract Administrator to facilitate execution of Work.

1.8 EXISTING SERVICES

.1 Notify City of Winnipeg and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves connecting to existing services, give City of Winnipeg minimum 48 hours notice for necessary interruption of mechanical or electrical service throughout course of Work. Minimize duration of interruptions.

.3 Where unknown services and/or embedded electrical conduit are encountered, immediately advise Contract Administrator and confirm findings in writing.

.4 Protect, relocate or maintain existing active services.

1.9 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 Change Orders.
- .6 Other Modifications to Contract.
- .7 Field Test Reports.
- .8 Copy of Approved Work Schedule.
- .9 Health and Safety Plan and Other Safety Related Documents including:
  - .1 Material data sheets (MSDS) on all products used in Project.
- .10 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 11 00 – Summary of Work.

1.2 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" Work areas, in accordance with relevant municipal, provincial and other regulations.

1.3 USE OF SITE AND FACILITIES

.1 Execute Work with least possible interference or disturbance to normal use of premises. Make arrangements with Contract Administrator to facilitate Work as stated.

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

.3 Where security is reduced by Work provide temporary means to maintain security.

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

.5 Keep within limits of Work and avenues of ingress and egress.

1.4 WORKING HOURS

.1 Working hours for noisy work will be restricted to between 2:30 p.m. and 7:00 a.m. (i.e. late afternoon to early morning is acceptable).

.2 Working hours for all other Work processes will not be restricted.

.3 The City of Winnipeg Noise Control By-Law No. 2480/79.

1.5 BUILDING SMOKING ENVIRONMENT

.1 Smoking is not allowed.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Contract Administrator submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

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

.5 Verify field measurements and affected adjacent Work are co-ordinated.

.6 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.

.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator review.

.8 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Manitoba, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow 5 working days for Contract Administrator's review of each submission.

.5 Adjustments made on shop drawings by Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Contract Administrator prior to proceeding with Work.

.6 Make changes in shop drawings as Contract Administrator may require, consistent with Contract Documents. When resubmitting, notify Contract Administrator in writing of revisions other than those requested.

.7 After Contract Administrator's review, distribute copies.

.8 Submit one hard or electronic copy of shop drawings for each requirement requested in specification Sections and as Contract Administrator may reasonably request.

.9 Submit hard or electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Contract Administrator where shop drawings will not be prepared due to standardized manufacture of product.

.10 Delete information not applicable to project.

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

.12 If upon review by Contract Administrator, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.3 MOCK-UPS

.1 Erect mock-ups in accordance with Section 01 45 00 - Quality Control.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Province of Manitoba

.1 The Workers Compensation Act RSM 1987 - Updated 2006.

.2 Manitoba Regulation 217/2006 – Workplace Safety and Health Regulation.

1.2 SUBMITTALS

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

.2 Submit copies of incident and accident reports.

.3 Submit WHMIS MSDS - Material Safety Data Sheets on all products used in conjunction with the Work.

.4 W.H.I.M.I.S. Training: Provide copies of valid certification/training for all employees (regular or temporary) including all subcontractors.

.1 All individuals involved in the application of any product shall meet all WHIMIS/provincial standards safety/protection requirements at all times.

1.3 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

.1 All employees (regular or temporary) of contractor and subcontractors shall wear PPE in accordance with Manitoba Regulation 217/2006.

.2 Fall Protection: Provide fall protection in accordance with Manitoba Regulation 217/2006.

1.5 WORK STOPPAGE

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 City of Winnipeg General Conditions as identified in Section C of the Bid Opportunity

1.2 INSPECTION

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

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

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

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

1.3 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged for purpose of inspecting and/or testing portions of Work. Cost of such services will be paid by the Contractor via the testing cash allowance.

.2 Allocated costs: to be paid for by City of Winnipeg.

.3 Provide equipment required for executing inspection and testing by appointed agencies.

.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Contract Administrator at no cost to City of Winnipeg. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work.

.2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

.1 Notify appropriate agency in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 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 Contract Administrator as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of the Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, City of Winnipeg will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Contract Administrator.

1.7 REPORTS

.1 Submit copies of inspection and test reports to City of Winnipeg and Contract Administrator.

.2 Provide copies to subcontractor of Work being inspected or tested [manufacturer or fabricator of material being inspected or tested].

.3 Provide copies of concrete test results to Concrete Supplier.

1.8 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

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

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Contract Administrator and as specified in specific Section.

.3 Prepare mock-ups for Contract Administrator's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 Mock-ups may remain as part of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.2 WATER SUPPLY

.1 The City of Winnipeg will make available, for the extent that it is available, a supply of potable water for construction use at no charge to the Contractor.

.2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

.3 The Contractor shall provide all necessary hoses, lines, connections, and other ancillary hardware which may be required.

.4 The services are to be returned to their original condition at the temporary locations, or left in an altered condition only as approved by the City of Winnipeg.

1.3 TEMPORARY HEATING AND VENTILATION

.1 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of Work process to assure removal of harmful contaminants.

.2 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.3 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.4 TEMPORARY POWER AND LIGHT

.1 The City of Winnipeg will make available, for the extent that it is available, temporary power during construction for temporary lighting and operating of power tools to a maximum supply of 120 volts 30 amps.

.2 Connect to existing power supply via existing electrical outlets.

.3 Temporary power for equipment requiring in excess of that available on-site is responsibility of the Contractor.

.4 Provide and maintain temporary lighting as required throughout project.

1.5 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 City of Winnipeg General Conditions as identified in Section C of the Bid Opportunity.

.2 Canadian Standards Association (CSA International)

.1 CSA-A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA O121-08, Douglas Fir Plywood.

1.2 SITE STORAGE/LOADING

.1 Confine Work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.3 CONSTRUCTION PARKING

.1 Parking will be permitted on site provided it does not interfere with normal operations, access buy tenants or the public, or disrupt performance of Work.

1.4 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with Work activities.

1.5 SANITARY FACILITIES

.1 The Contractor may use on-site facilities for the duration of the project. The facilities must be maintained in a neat condition or use will be revoked.

1.6 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.2 HOARDING

.1 The Contractor must provide adequate notices around the paint booth to identify the booth as an active construction site. Signage shall be posted on all entrances to the paint booth to alert City of Winnipeg staff of the construction work taking place.

.2 Repair surface coatings and/or finishes which are damaged by temporary hoardings and barricades.

.3 Provide adequate signage, fencing, etc. to inform the building occupants of the Work being undertaken.

1.3 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure.

1.4 DUST TIGHT SCREENS

.1 Provide dust tight screens to localize dust generating activities, and for protection of workers, finished areas of Work and public.

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

1.5 FIRE ROUTES

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

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.7 PROTECTION OF BUILDING FINISHES

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

.2 Provide necessary screens, covers, and hoardings.

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 City of Winnipeg General Conditions as identified in Section C of the Bid Opportunity.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by City of Winnipeg or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times. Do not burn waste materials on site.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.4 Provide on-site containers for collection of waste materials and debris.

.5 Dispose of waste materials and debris off site.

.6 Clean interior areas prior to start of finishing Work, and maintain areas free of dust and other contaminants during finishing operations.

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

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

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

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

1.3 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

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

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris other than that caused by City of Winnipeg or other Contractors.

.5 Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Remove stains, spots, marks and dirt from existing surfaces, fixtures, and finishes within the Work area or affected by the affected by the Work.

.8 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.9 Remove dirt and other disfiguration from exterior surfaces.

.10 Sweep and power wash clean all Work areas.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 City of Winnipeg General Conditions as identified in Section C of the Bid Opportunity.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Contract Administrator in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Contract Administrator's inspection.

.2 Contract Administrator's Inspection:

.1 Contract Administrator and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Contract Administrator, and Contractor.

.2 When Work incomplete according to Contract Administrator, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Contract Administrator considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of City of Winnipeg's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Final Payment:

.1 When Contract Administrator considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.2 Refer to City of Winnipeg General Conditions as identified in Section C of the Bid Opportunity.

.8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.3 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 – Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1	Joint Sealing	Section 07 92 00
.2	Gypsum Board Assemblies	Section 09 21 16
.3	Painting For Minor Works	Section 09 91 99

1.2 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION

.1 Only tested firestop systems shall be used in specific locations as follows and also as indicated in the schedule of firestop locations, Item 3.4:

.1 Penetrations for the passage of duct, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.

.2 Safing slot gaps between edge of floor slabs and curtain walls.

.3 Openings between structurally separate sections of wall or floors.

.4 Gaps between the bottom of walls.

.5 Gaps between the top of walls and ceilings or roof assemblies, slip joint detail.

.6 Mechanical and electrical recessed boxes in walls and partitions.

.7 Expansion joints in walls and floors.

.8 Openings and service penetrations in fire-rated partitions or walls containing fire doors.

.9 Openings around structural members which penetrate floors or walls.

.2 All specific locations shall be identified with assembly identification penetration plate.

1.3 REFERENCES

.1 Standard Method of Fire Tests of Through Penetration Fire Stops, ULC-S115-M.95/ CAN4- S115-M.95 or ASTM E814 Test Requirements.

.2 Underwriters Laboratories of Canada (ULC) CAN4-S115-M.95 under their designation of ULC-S115-M.95 and publishes the results in FIRE RESISTANCE RATINGS DIRECTORY.

.3 Underwriters Laboratories (UL) ASTM E-814 under their designation of UL 1479, Fire-Tests of Through Penetration Firestops and publishes the results in FIRE RESISTANCE DIRECTORY. UL tests that meet the requirements of ULC-S115-M.95 are given a cUL listing and are published by UL in Products Certified for Canada (cUL) Directory.

.4 Tests for Fire Resistance of Building Joint Systems, UL 2079, Test Requirements.

.5 Standard Test for Resistive Joint Systems, ASTM EI966 under designation UL 2079.

.6 Cyclic movement and measuring the minimum and maximum joint widths of Architectural Joint Systems, ASTM E1399.

.7 Standard Test Method for Surface Burning Characteristics of Building Materials, CAN/ULC-S102-M or ASTM E84.

.8 Method for Fire tests of Building Construction and Materials CAN/ULC-S101 or ASTM E119.

.9 International Firestop Council Guidelines (IFC) for Evaluating Firestop Systems Engineering Judgements.

.10 International/Firestop Council (IFC) Inspection Guideline and ASTM E2174, Standard Practice for on Site Inspection of Installed Firestop Systems.

.11 M.O.P. Manual of Practice, (MOP) Guideline as set out by the Firestop Contractors International Association (FCIA).

.12 All major building codes: MBC, NBC, OBC, BCBC, and ABC.

.13 NFPA 101-Life Safety Code

.14 Canadian Electrical Code

1.4 QUALITY ASSURANCE

.1 Work is to be undertaken by experienced workers in their trade of material or system being used with a minimum of five (5) working years of experience.

.2 All workers shall be certified by the manufacturer of the products and systems proposed for the Installation of this product. Proof of this certification will be required 48-hours after award of the Project.

.3 Manufacturer shall ensure that their Fire Protection Engineers will oversee the project, and have a minimum five (5) years experience on the manufacturers design systems.

.4 A manufacturer's National and Local representative (not distributor or agent) to be on-site during initial mock-up installation of firestop systems to ensure the mock-ups have been installed, based on the approved design system listings and to train appropriate sub-contractor personnel in proper selection and installation procedures.

.5 Firestop Systems do not re-establish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.

.6 For those firestop applications that exist for which no ULC or cUL tested system is available through a manufacturer, a Manufacturer's Engineering Judgement derived from similar ULC or cUL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer Judgement drawings must follow requirements set forth by the International Firestop Council Guidelines (IFC).

1.5 DESCRIPTION

.1 This section specifies firestopping material and/or systems intended to act as a fire stop and smoke seal system to protect against the passage of fire, hot gases and toxic smoke within fire resistant wall and floor assemblies for any through-penetration item, membrane penetration poke-through termination device, blanks, gaps, voids or any un-penetrated joint or opening, to form a draft-tight barrier within or between construction assemblies and act to retard the passage of smoke and flame.

1.6 SAMPLES

.1 Submit material samples of each type of proposed product in un-opened containers including all anchors/fasteners and daming material.

.2 Submit sample mock-ups of each system no larger than 600 x 600mm, 1-week prior to on-site mock-ups.

.3 Submit a sample of the proposed assembly identification penetration plate.

1.7 DESIGN SYSTEM LISTINGS SHOP DRAWINGS

.1 Submit Design System Listings, product data and material safety data sheets (MSDS) in accordance with Section 01 33 00. Also provide the following product data on each proposed product:

.1 Technical data on out-gassing; off-gassing and age testing.

.2 Curing time.

.3 Chemical compatibility to other construction materials.

.2 Provide Certification by the Manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's) and are non-toxic to building occupants.

.3 Design System Listings shall show proposed material, including technical data, reinforcement, anchorage, fastenings and method of installation. Construction details shall accurately reflect actual job conditions.

.4 Manufacturer may submit product data for materials and prefabricated devices, provided that descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.

.5 Provide ULC, cUL or WH Design System Listings complete with product literature and MSDS sheets on each system for each application, for each area as indicated.

.6 Where there is no specific tested Design System Listings available for particular firestop configuration, the Firestopping Sub-Trade shall obtain from the Manufacturer an Engineer Judgement (EJ) for submittal.

.7 Submit shop drawings as follows:

.1 Each penetration shall be numbered corresponding to the exact same number of the plate penetration no. that is identified in Item No. 2.1.12.

.2 Provide copies of all fire and smoke stop system ULC, cUL or WH Design No. listings for each penetration type for all areas located.

.3 Provide product data, MSDS and all other technical data information required as indicated in Item No. 1.5.1 System Description.

1.8 DELIVERY, STORAGE, AND HANDLING

.1 Deliver materials undamaged in manufacturer's clearly labelled, unopened containers, identified with brand, type, and ULC, cUL or WH label, complete with batch number, manufacturing date and expiry date.

.2 Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.

.3 Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.

.4 Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.

.5 Do not use damaged or expired material.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 Do not install firestopping when ambient or substrate temperatures are outside limits permitted by Manufacturers or when substrates are wet, due to rain, frost, condensation, or other causes.

.2 Maintain this minimum temperature before, during and for three (3) days after installation of materials.

.3 Ventilate fire stopping per Manufacturers' instructions by natural means or, where this is inadequate, forced air circulation.

.4 During installation, provide masking and drop sheets to prevent fire stopping materials from contaminating any adjacent surfaces.

.5 Do not use materials that contain flammable solvents.

1.10 PRECONSTRUCTION MEETING

.1 After Design System Listings Shop Drawings are reviewed by the Contract Administrator and one week prior to the mock-up installation, the Contractor shall request a pre construction meeting be held.

.2 All Sub-Trades that are affected, such as the window, gypsum board/steel stud, mechanical (including their Sub-Trades) and electrical (including their Sub-Trades) shall be in attendance, along with Firestopping Sub-Trade, Contractor, Contract Administrator(s) and The CityRepresentative.

.3 Each Sub-Trade shall receive one copy of the Design System Listings Shop Drawings.

.4 Standard installation, scheduling, precautions, annular opening sizes, wall/floor preparations shall be reviewed to ensure that all Sub-Trades understand the full complexity of the firestop installation, based on the approved Design System Listings Shop Drawings.

1.11 MOCK-UPS

.1 After Design System Listings Shop Drawings are reviewed by the Contract Administrator and one-week prior to actual commencement of construction, provide field sample mock-up of each proposed ULC, CUL or WH system for this project for Contract Administrator review. This mock-up shall also include if required, work by other trades, to provide the required finish work.

.2 Reviewed mock-ups shall become the standards of workmanship and material against

which installed work will be checked. Reviewed and approved mock-ups may be used in final construction.

.3 Install identification penetration plate no. adjacent to each penetration.

.4 Local and National representation from the manufacturer shall be present during the Contract Administrator mock-up review.

.5 Upon completion of the review, the National and Local representative shall provide in writing to the Contract Administrator that their review finds the mock-ups acceptable by the manufacturer and meets or exceeds the ULC, cUL or WH design system listing requirements for each mock-up application.

.6 Retain and maintain mock-ups during construction in an undisturbed condition as a standard for judging completed unit of work. Accepted mock-ups in an undisturbed condition at time of Substantial Performance may become part of completed unit of work.

1.12 DEFINITIONS

.1 Firestops: specially tested materials used to establish or re-establish the integrity of a fire rated wall, floor or other partition after the structure has been breached for the through-penetration of building utility items or to close off openings left due to construction methods.

.2 Through-penetration: pipes, conduits, ducts, cable trays, cable, wire or any other element passing completely through an opening in a fire rated barrier/assembly.

.3 Membrane penetration: any penetration of a fire rated barrier that breaches one side but does not pass completely through to the other side.

.4 System: the combination of specific materials and/or devices, including the penetrating item(s) required to complete the firestop, as tested by an independent third party test facility.

.5 Barrier/Assembly: a wall, floor or other partition with a fire-smoke rating of 1, 2, 3 or up to 4-hours.

.6 F-Rating: the time a firestop, penetrating item, building, material, firestop material, can withstand direct flame without a burn through as tested to CAN4-S115-M95/ULC-S115-M95 or ASTM E814/UL 1479.

.7 T-Rating: the amount of time a through-penetration firestop limits the temperature rise on the cold side-outside the test furnace – as tested to CAN4-S115-M95/ULC-S115-M95 or ASTM E814/UL 1479.

1.13 WARRANTY

.1 Manufacturer shall warrant work of this Section against defects and deficiencies in the product material for a period of five (5) years from date of Substantial Performance, in accordance with General Conditions of Contract. Promptly correct any defects or deficiencies, which become apparent within warranty period at no expense to The City.

.2 Fire and smoke stop system Contractor hereby warrants workmanship on material installation for period of five (5) years from date of Substantial Performance, in accordance with General Conditions of Contract. Promptly correct any defects or deficiencies, which become apparent within warranty period at no expense to The City.

1.14 MAINTENANCE DATA AND MATERIAL

.1 Provide operation and maintenance data and material for Fire and Smoke-Stop Systems to incorporate into a Manual.

Part 2 Products

2.1 MATERIALS

.1 Fire-stopping and smoke-seal systems: in accordance with CAN4-S115-M95 or ASTM E814.

.1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke, water and toxic gases in compliance with requirements of CAN4-S115-M95 or ASTM E814., and not to exceed opening sizes for which they are intended, in accordance with ULC, cUL or WH Design Numbers or other Design System Listings acceptable to local authority having jurisdiction.

.2 Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating item(s) without affecting the adhesion or integrity of the system.

.2 Fire-stop Methods:

.1 Method 1: non-combustible, semi-rigid, felt; minimum density 65 kg per cu. m.; depth 100 mm, length 1200 mm; width as required. Blanket type fire-stop to be listed, and labelled in accordance with file Guide 40-U19.13. Impale - clips; galvanized wire or 25 mm x 0.65 mm thick galvanized steel Z-clips with dimensions to match location of fire stop material and width of opening being sealed.

.2 Method 2: as per Method 1, without impale - clips.

.3 Method 3: Hose stream, fluid, gas and fire resistant elastomeric sealant, ULC, WH (Warnock Hersey), UL/cUL (Underwriters Laboratories USA) labelled.

.4 Method 4: Hose stream, fluid, gas and fire resistant elastomeric seal or non-shrink foam cement mortar proprietary certified assembly of a listed manufacturer.

.5 Methods 1 to 4: Methods used can be as per manufacturer's instructions, provided that their system employed meets or exceed the requirements of ULC/CAN4-S115-M95 or ASTM E814.

.3 Mechanical or Electrical service: penetration assemblies; certified in accordance with CAN4-S115-M95.

.4 Service - penetration fire-stop components: Certified in accordance with CAN4-S115-M95 or ASTM E814.

.5 Fire-stopping and smoke-seals at openings intended for re-entry such as cables; elastomeric seal or non-shrink foam cement mortar: do not use cementitious or rigid seal at such locations.

.6 Firestopping and smoke-seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal; do not use a cementitious or rigid seal at such locations.

.7 Primers: to manufacturer's recommendation for specific material, substrate, and end-use.

.8 Water (if applicable: portable, clean and free from injurious amounts of deleterious substrates.)

.9 Damming and back-up materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.10 Sealants for vertical joints: non-sagging.

2.2 PRODUCT SYSTEMS

.1 Single source responsibility: obtain firestop systems for each kind of penetration and construction condition indicated from a single manufacturer.

.1 Materials of different manufacturers shall not be intermixed on the project.

.2 Acceptable manufacturers.

.1 AD Fire Protection Systems Inc. as distributed by:

Anchor Construction Industrial Products Ltd.

108 Parklane Avenue, Winnipeg, Manitoba R2R 0K2

Phone: (204) 633-0064

.2 Hilti Fire Stop Systems as distributed by:

120 Bannister Road, Winnipeg, Manitoba R2R 0S3

Phone: (800) 363-4458

.3 3M Fire Protection Products as distributed by:

Brock White Canada Inc.

1325 Ellice Avenue, Winnipeg, Manitoba R3G 0G1

Phone: (204) 786-6426

.4 Tremco, Tremstop, Firestop Systems as distributed by:

Wearing Williams Limited

1140 St. James Street, Winnipeg, Manitoba R3H 0K7

Phone: (204) 786-8831

2.3 ACCEPTABLE FIRE STOP APPLICATORS

.1 National Firestop Ltd.

405 Gunn Road, Winnipeg, Manitoba R2C 2Z2

Phone: (204) 222-0920

.2 Total Fire Stop Systems Limited

Stony Mountain, Manitoba R0C 3A0

Phone: (204) 344-5696

.3 Western Industrial Services Ltd.

1475 Dugald Road, Winnipeg, Manitoba R2J 0H3

Phone: (204) 956-9475

.4 Groundstar Systems (1987) Ltd.

1556 Erin Street

Winnipeg, MB R3E 2T1

Phone: (204) 694-4899

Part 3 Execution

3.1 EXAMINATION

.1 Verify substrate conditions, previously installed are acceptable for product installation in accordance with manufacturer's instructions and approved design system listings for each condition.

.2 Verify that all joints, service penetrating elements and supporting devices have been properly installed. All temporary lines and markings have been removed to meet the approved Design System Listings for each condition has been identified.

.3 Verify that the proposed Firestopping system is composed of components that are compatible with each other, the substrates forming the openings, and the items, if any, penetrating the firestopping under conditions of application and service, as demonstrated by firestopping manufacturer based on testing and field experience.

.4 Report in writing to the Contract Administrator any defective surfaces or conditions affecting the firestop system installation.

.5 Proceed only when defected surfaces or conditions have been corrected.

.6 Ensure temperature within the areas of installation meets or exceeds the minimum temperature range for the products that will be installed in those areas, as based on the manufacturer's recommendations.

.7 Beginning of installation means acceptance of site conditions.

3.2 PREPARATION

.1 Protect adjacent work areas and finish surfaces from damage during product installation.

.2 Provide drop sheets or other satisfactory coverings for protection of adjacent areas in accordance with safe and good work practices.

.3 Prime substrates where recommended by firestopping Manufacturer using manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

.4 Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain

exposed upon completion of work. Remove tape as soon as it is possible to do so without disturbing the firestopping seal with substrates.

.5 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost-free.

.6 Prepare surfaces in contact with firestopping materials and smoke-seals to manufacturer's instructions.

.7 Maintain insulation around pipes and ducts penetrating fire separation. Confirm that fire stop system has been tested with actual pipe or duct insulation penetrating fire separation that is indicated in the approved ULC, cUL or WH Design System Listing.

.8 Surfaces to which firestop materials are to be installed, shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.

.9 Ensure that multi-penetration openings have been framed and boarded out, all around the annular opening as indicated in the firestopping Detail Drawings (FS) prior to prepping the opening.

.10 Mask where necessary to avoid spillage and over-coating onto adjoining surfaces. Remove stain on adjacent surfaces immediately.

.11 Confirm that the temperature and humidity conditions during and after installation are being maintained as per manufacturers recommendations.

3.3 INSTALLATION

.1 Install fire-stopping and smoke-seal material and components in accordance with manufacturer's instructions and rated system as tested to ULC/CAN4-S115-M95, and ULC, cUL and WH Design System Listings.

.2 Coordinate with other Sub-Trades to assure that all pipes, conduit, cable, and other items, which penetrate fire-rated assemblies have been permenantly installed prior to installation of firestop assemblies.

.3 Schedule the work to assure that fire-rated assemblies and all other construction that conceals penetrations are not erected prior to the installation of firestop and smoke seals.

.4 Seal holes or voids made by through-penetrations, poke-through termination devices, and un-penetrated openings or joints to ensure that both continuity and integrity of fire-separation are maintained.

.5 Provide temporary forming as required. Remove forming material only after Firestop System have gained sufficient strength and after initial curing as per manufacturer's

instructions.

.6 Tool or trowel exposed surface to a neat finish.

.7 Remove excess compound promptly as work progresses and upon completion.

.8 Seal all voids between new fire rated wall assemblies and existing building walls to form a draft-tight barrier and act to retard the passage of smoke and flame.

.9 Install firestop material to obtain fire resistance rating not less than the fire resistance rating of surrounding floor and wall assembly.

3.4 SCHEDULE OF FIRESTOP LOCATIONS

.1 Fire stop and smoke-seal, but not limited to the following locations:

.1 Provide appropriate Firestop System when exposed to view, traffic, moisture, heat and physical damage.

.2 Penetrations through fire-resistance-rated new or existing masonry, concrete, and gypsum board partitions/walls, floors and roof assemblies.

.3 Intersection of fire-resistance-rated new or existing masonry, concrete and gypsum board partitions.

.4 Joints at top and bottom of fire resistance rated new or existing concrete masonry and gypsum board partitions. Joints to allow for independent movement.

.5 Control and sway joints in fire-resistance-rated new or existing masonry and gypsum board partitions and walls.

.6 Penetrations through fire-resistance-rated floor slabs/systems, ceilings and roof.

.7 Openings and sleeves installed for future use through fire separations and unused openings and sleeves constructed as part of work.

.8 Around mechanical and electrical assemblies/devices penetrating fire separations.

.9 Between edge of fire-resistant floor or roof assemblies and exterior wall assemblies.

.10 Between floors, walls, ceilings and roof assemblies at horizontal and vertical fire resistant ratings at floor expansion joints.

.11 Rigid ducts: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on

each side of fire separation.

.12 Mechanical and electrical recessed boxes in walls and partitions.

.13 Where indicated on working drawings and specification detail drawings.

3.5 INSTALLING FIRESTOP JOINT SYSTEMS

.1 Install joint fillers to provide support of firestop materials during application and at the position required to provide the cross-sectional shapes and depths of installed firestop material relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.

.2 Install systems by proven techniques that result in firestop materials as recommended by the manufacturer:

.1 directly containing and fully wetting joint substrates.

.2 completely filling recesses provided for each joint configuration,

.3 providing uniform, cross-sectional shapes and depths relative to joint width that optimize movement capability.

.3 Tool non-sag firestop materials immediately after their application and prior to the time skinning begins. Form smooth, uniform beads of configuration indicated or required to:

.1 produce fire-resistance rating

.2 to eliminate air pockets

.3 to ensure contact and adhesion with sides of joint.

3.6 INSTALLATION OF ASSEMBLY IDENTIFICATION PENETRATION PLATE

.1 Install adjacent to all through wall/floor service penetration firestop and at joint penetrations. Provide one assembly identification plate per penetration opening and one assembly identification plate at every 6000mm along wall/floor joints.

.2 Penetration plate shall be completely filled out and installed prior to requesting substantial performance.

.3 Clean substrate prior to applying penetration plate.

.4 Securely apply penetration plate to substrate, by mechanically fastening.

3.7 REPAIRS AND MODIFICATIONS

.1 Identify damaged or re-entered seals requiring repair or modification.

.2 Remove loose or damaged materials. If penetrating items are to be added, remove sufficient material to insert new elements. Cause no damage to the balance of the seal.

.3 Ensure that surfaces to be sealed are clean and dry. Install materials in accordance with specified installation requirements herein. Use only materials approved by manufacturer as suitable for repair of original seal. Do not mix different manufacturer's products.

3.8 MANUFACTURER'S FIELD QUALITY

.1 Representative from Manufacturer shall perform periodic observations of firestopping systems:

.1 Examine firestop penetration seals for proper installation, labelling, adhesion and curing as may be appropriate for the respective seal material.

.2 Keep areas of work accessible and notify Contract Administrator, code authorities and/or designated inspectors of work completion released for Contract Administrator review.

.3 Document completion and observation as required.

3.9 CONTRACT ADMINISTRATOR REVIEW

.1 Upon completion of construction and prior to requesting Substantial Performance Review, Firestopping Sub-Trade and Manufacturer's Representative shall inspect all firestopping work, prepare a deficiency list, submit this list to the Contract Administrator and then the Firestop Sub-Trade shall repair any deficiencies and re-inspect work to ensure that all deficiencies have been completed.

.2 Firestop Sub-Trade shall request Substantial Performance review of work once all work is completed, inspected and identified with assembly identification penetration plates.

.3 During Substantial Performance Review, the sub-contractor shall be present along with the local manufacturer representative with the Contract Administrator

.4 The Firestopping Sub-Trade shall do all cutting and removal of the systems for visual review by the Contract Administrator and local manufacturer's Representative. Once the review is completed and accepted, the Firestopping Sub-Trade shall replace the firestop system with new.

3.10 CLEAN-UP

.1 Remove equipment, excess materials and debris and clean adjacent surfaces immediately after application. Use methods and cleaning materials approved by Manufacturer.

.2 Protect firestopping during and after curing period from contact with contaminating substances. If damage caused by others, Contractor, the Contractor shall instruct the Firestop Sub-Trade to make appropriate repairs and charge to appropriate trades.

.3 Remove temporary dams after initial set of fire stop and smoke seal materials.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

1	Fire Stopping	Section 07 84 00
2	Gypsum Board Assemblies	Section 09 21 16
3	Painting For Minor Works	Section 09 91 99

1.2 INSTALLER QUALIFICATIONS

.1 Sealant installer shall be a specialized applicator, having skilled mechanics, trained and competent in all phases of caulking work, with a minimum of five years experience.

1.3 ENVIRONMENTAL CONDITIONS

.1 Sealant and substrata materials to be minimum 5°C.

.2 Should it become necessary to apply sealants below 5°C, consult sealant manufacturer and follow their recommendations.

1.4 EXTENDED WARRANTY

.1 Contractor hereby warrants that caulking work will not leak, in accordance with GC 12.3, but for five years.

.2 Manufacturer hereby warrants that caulking will not crack, crumble, melt, shrink, run, lose adhesion or stain adjacent surface in accordance with GC 12.3, but for five years.

Part 2 Products

2.1 MATERIALS

.1 **Primers:** type recommended by sealant manufacturer.

.2 **Joint fillers:**

.1 General: compatible with primers and sealants, outsized 30 to 50%.

.2 Polyethylene, urethane, neoprene or vinyl: extruded closed cell foam, Shore A hardness 20, tensile strength 140 to 200 kPa.

.3 **Bond breaker:** pressure sensitive plastic tape, which will not bond to sealants.

.4 **Material Designations:**

.1 Polysulfide Two part

.1 Non-Sag to CAN/CGSB-19-24, Type 2, Class B, colour white

.2 Silicones One Part

.1 To CAN/CGSB-19.13

.2 To CAN/CGSB-19.22 (Mildew resistant).

.3 Acrylics One Part

.1 To CGSB 19-GP-5M

.4 Acrylic Latex One part

.1 To CAN/CGSB-19.17.

.5 Acoustical Sealant

.1 To CAN/CGSB-19.21

.5 **Acceptable Distributors:**

.1 PRC as distributed by:

.1 Brock White Canada Inc.

1325 Ellice Avenue, Winnipeg, Manitoba R3G 0G1

Phone: (204) 786-6426

.2 Mameco, Vulkem as distributed by:

.1 G.D. Johnson Ltd.

542 Plinquet Street, Winnipeg, Manitoba R2J 2W6

Phone: (204) 233-4107

.3 Sonnoborne as distributed by:

.1 G.D. Johnson Ltd.

542 Plinquet Street, Winnipeg, Manitoba R2J 2W6

Phone: (204) 233-4107

.2 Chemrex Inc.

59 Keats Way, Winnipeg, Manitoba R3K 0S2

(204) 895-7552

.4 Dow Corning as distributed by:

.1 G.D. Johnson Ltd.

542 Plinquet Street, Winnipeg, Manitoba R2J 2W6

Phone: (204) 233-4107

.5 Sikaflex, GE as distributed by:

.1 Brock White Canada Inc.

1325 Ellice Avenue, Winnipeg, Manitoba R3G 0G1

Phone: (204) 786-6426

.6 Tremco as distributed by:

.1 Wearing Williams Ltd.

1140 St. James Street, Winnipeg, Manitoba R3G 0G1

Phone: (204) 786-8881

.7 Morton Thiokol and

.8 Bostik as distributed by:

.1 Specialty Construction Products Ltd.

77 Paquin Road, Winnipeg, Manitoba R3V 3V9

Phone: (204) 661-6732

.5 **Colour of sealants:** selected by Contract Administrator based on a custom colour range.

.6 **Joint cleaner:** xylol, methylethylketone or non-corrosive type recommended by sealant

manufacturer and compatible with joint forming materials.

Part 3 Execution

3.1 PREPARATION

.1 Remove dust, paint, loose mortar and other foreign matter. Dry joint surfaces.

.2 Remove rust, mill scale and coatings from ferrous metals by wire brush, grinding or sandblasting.

.3 Remove oil, grease and other coatings from non-ferrous metals with joint cleaner.

.4 Prepare concrete, masonry, glazed and vitreous surfaces to sealant manufacturer's instructions.

.5 Examine joint sizes and correct to achieve depth ratio 1/2 of joint width with minimum width and depth of 6mm, maximum width 25mm.

.6 Install joint filler to achieve correct joint depth.

.7 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

.8 Apply bond breaker tape where required to manufacturer's instructions.

.9 Prime sides of joints to sealant manufacturer's instructions immediately prior to caulking.

3.2 APPLICATION

.1 Apply sealants, primers, joint fillers, bond breakers to manufacturer's instructions. Apply sealant, using gun with proper size nozzle. Use sufficient pressure to fill voids and joints solid. Superficial pointing with skin bead is not acceptable.

.2 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities. Neatly tool surface to a slight concave joint.

.3 Apply sealant to joints between window or door frames to adjacent building components around perimeter of every external window or door opening, to control joints in masonry walls, concrete slabs, and where indicated.

.4 Clean adjacent surfaces immediately and leave work neat and clean. Remove excess sealant and droppings using recommended cleaners as work progresses. Remove masking after tooling of joints.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Gypsum board and joint treatment.

.2 Light gauge metal framing and suspension systems.

1.2 REFERENCES

.1 ASTM C475/C475M-02 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

.2 ASTM C645-04 - Specifications for Non-Structural Steel Framing Members.

.3 ASTM C754-00 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board.

.4 ASTM C840-04a - Standard Specification for Application and Finishing of Gypsum Board.

.5 ASTM C1002-01 - Steel Self-Piercing, Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.6 ASTM C1396/C1396M-04 - Standard Specification for Gypsum Board.

.7 GA-201 (Gypsum Association) - Gypsum Board for Walls and Ceilings.

.8 GA-214 (Gypsum Association) - Recommended Specification: Levels of Gypsum Board Finish.

.9 GA-216 (Gypsum Association) - Application and Finishing of Gypsum Board.

.10 GA-600 (Gypsum Association) - Fire Resistance Design Manual.

.11 GA-801 (Gypsum Association) - Handling Gypsum Board.

.12 ULC - Fire Resistance.

1.3 QUALITY ASSURANCE

.1 Perform Work in accordance with ASTM C840. GA-201, GA-214, GA-216 GA-254 and GA-600.

.2 Applicator Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

.3 Handling Gypsum Board: Comply with GA-801.

Part 2 Products

2.1 FRAMING MATERIALS

.1 Studs and Tracks: ASTM C645; GA-216 and GA-600; galvanized sheet steel, 0.45 mm thick, C shape, with knurled faces.

.2 Furring, Framing, and Accessories: ASTM C645. GA-216 and GA-600.

.3 Furring Channels: Formed steel, minimum 0.5 mm thick, 10 mm deep x 22 19 mm high, splicing permitted; galvanized. rust inhibitive primer.

.4 Main Ceiling Channels: Formed steel, asphalt coated, minimum 1.2 mm thick, 19 mm deep x 38 mm high, single piece, no splicing; galvanized. rust inhibitive primer.

.5 Hangers: Galvanized Unfinished rolled steel sections, of size and type to suit application, to rigidly support ceiling components in place to deflection limits as indicated; galvanized. rust inhibitive primer.

.6 Lateral Bracing: Formed steel, minimum 1.5 mm thick, size and length as required; galvanized.

.7 Control and Expansion Joint Accessories: Formed sheet steel zinc PVC, accordion profile, 50 mm expanded metal solid flanges each side, galvanized rust inhibitive primer.

.8 Fasteners: ASTM C514. ASTM C1002. GA-216.

.9 Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

.10 Adhesive: ASTM C557. GA-216.

2.2 GYPSUM BOARD MATERIALS

.1 Standard Gypsum Board: ASTM C1396/C1396M, 13 and 16 mm thick, maximum available length in place; ends square cut, tapered edges.

.2 Fire Rated Gypsum Board: ASTM C1396/C1396M, fire resistive type, UL, ULC, or ITS rated; 13 and 16 mm thick, maximum available length in place; ends square cut, tapered edges.

2.3 ACCESSORIES

.1 Anchorage: Tie wire, nails, and other metal supports, of type and size to suit application; to rigidly secure materials in place, galvanized, unfinished.

.2 Fasteners: ASTM C1002, self-drilling, self-tapping screws.

.3 Polyethylene Sheet: Clear, 0.15 mm thick.

.4 Tie Wire: Annealed galvanized steel.

.5 Corner Beads: GA-216, Metal corner bead.

.6 Edge Trim: GA-216; Type U casing bead

.7 Joint Materials: ASTM C475; GA-201 and GA-216; reinforcing tape, joint compound, adhesive, and water.

.8 Gypsum Board and Sheathing Fasteners: ASTM C1002, Type S12.

Part 3 Execution

3.1 EXAMINATION

.1 Section 01 70 00: Verify existing conditions before starting work.

.2 Verify that surfaces conditions are ready to receive work.

3.2 METAL STUD INSTALLATION

.1 Install studs in accordance with ASTM C754. GA-201, GA-216 and GA-600.

.2 Metal Stud Spacing: 400 mm on centre.

3.3 FURRING FOR FIRE RATINGS

.1 Install furring as required for fire resistance ratings indicated and to GA-600 requirements.

3.4 GYPSUM BOARD INSTALLATION

.1 Install gypsum board in accordance with GA-201, GA-216 and GA-600.

.2 Erect single layer standard gypsum board in most economical direction, with ends and edges occurring over firm bearing.

.3 Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.

.4 Use screws when fastening gypsum board to metal furring or framing.

.5 Double Layer Applications: Use gypsum backing board for first layer, placed perpendicular parallel to framing or furring members. Use fire rated gypsum backing board for fire rated partitions and ceilings.

.6 Place second layer perpendicular parallel to first layer. Offset joints of second layer from joints of first layer.

.7 Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

3.5 CEILING AND SOFFIT FRAMING

.1 Install furring. Erect after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.

.2 Install furring independent of walls, columns, and above ceiling work.

.3 Securely anchor hangers to structural members or embed in structural slab. Space hangers to achieve deflection limits indicated.

.4 Space main carrying channels at maximum 1200 mm centres; not more than 150 mm from wall surfaces. Lap splice securely. Provide additional carrying channels and support hangers at locations identified to receive additional ceiling loads.

.5 Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.

.6 Place furring channels perpendicular to carrying channels, not more than 50 mm from perimeter walls, and rigidly secure. Lap splice securely.

.7 Reinforce openings in suspension system which interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 600 mm past each opening.

.8 Laterally brace suspension system.

.9 Erect resilient channels at maximum 400 mm on centre. Rigidly secure in place.

3.6 ACCESS PANELS

.1 Install existing metal access panels and rigidly secure in place.

.2 Install frames plumb and level in opening. Secure rigidly in place.

.3 Position to provide convenient access to concealed work requiring access

3.7 JOINT TREATMENT

.1 Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

.2 Feather coats on to adjoining surfaces so that camber is maximum 0.8 mm.

.3 Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile.

3.8 TOLERANCES

.1 Section 01 73 00: Tolerances.

.2 Maximum Variation from True Lines and Levels: 3 mm in 3 m.

.3 Maximum Variation from True Position: 3 mm.

.4 Maximum Variation of Finished Gypsum Board Surface from True Flatness: 3 mm in 3 m in any direction.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.2 Master Painters Institute (MPI)

.1 MPI Architectural Painting Specifications Manual, latest version.

.2 MPI - Maintenance Repainting Manual, latest version.

1.2 SUBMITTALS

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

.2 Product Data:

.1 Submit product data and instructions for each paint and coating product to be used.

.2 Submit product data for the use and application of paint thinner.

.3 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOCs during application and curing.

.4 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.5 Submit manufacturer's installation and application instructions.

1.3 STORAGE AND HANDLING

.1 Storage and Protection:

.1 Provide and maintain dry, temperature controlled, secure storage.

.2 Store materials and supplies away from heat generating devices.

.3 Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.

.2 Fire Safety Requirements:

.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with National Fire Code of Canada requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

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

.3 Place materials defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.

.4 Paint, stain and wood preservative finishes and related materials (thinners, and solvents) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

1.5 SITE CONDITIONS

.1 Heating, Ventilation and Lighting:

.1 Co-ordinate use of existing ventilation system with Contract Administrator and ensure its operation during and after application of paint as required.

.2 Provide minimum lighting level of 323 Lux on surfaces to be painted.

.2 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.

.2 Test concrete, masonry and plaster surfaces for alkalinity as required.

.3 Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.

.3 Additional application requirements:

.1 Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Contract Administrator, such that painted surfaces will have dried and cured sufficiently before occupants are affected.

Part 2 Products

2.1 MATERIALS

.1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.2 Provide paint materials for paint systems from single manufacturer.

.3 Only qualified products with E2 "Environmentally Friendly" rating are acceptable for use on this project.

.4 Conform to latest MPI requirements for all painting work including preparation and priming.

.5 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual "Approved Product" listing.

.6 Provide paint products meeting MPI "Environmentally Friendly" E2 ratings based on VOC (EPA Method 24) content levels.

.7 Use MPI listed materials having minimum E2 rating where indoor air quality (odour) requirements exist.

2.2 COLOURS

.1 Submit proposed Colour Schedule to Contract Administrator for review.

.2 Colour schedule will be based upon selection of five base colours and three accent colours.

2.3 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written instructions. Obtain written approval from Contract Administrator for tinting of painting materials.

.2 Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.

.3 Thin paint for spraying, in accordance with paint manufacturer's instructions.

.4 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.4 GLOSS/SHEEN RATINGS

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

	Gloss @ 60 degrees	Sheen @ 85 degrees
Gloss Level 1 - Matte Finish (flat)	Max. 5	Max. 10
Gloss Level 2 - Velvet-Like Finish	Max.10	10 to 35
Gloss Level 3 - Eggshell Finish	10 to 25	10 to 35
Gloss Level 4 - Satin-Like Finish	20 to 35	min. 35
Gloss Level 5 - Traditional Semi-Gloss Finish	35 to 70	
Gloss Level 6 - Traditional Gloss	70 to 85	
Gloss Level 7 - High Gloss Finish	More than 85	

.2 Gloss level ratings of painted surfaces as indicated and as noted on Finish Schedule.

2.5 INTERIOR PAINTING

.1 Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock" type material, etc.

.1 INT 9.2C - Alkyd G3 gloss level finish (over latex sealer).

2.6 INTERIOR RE-PAINTING

.1 Structural Steel and Metal Fabrications: columns, beams, joists and miscellaneous metal.

.1 RIN 5.1E - Alkyd G5 gloss level.

.2 Galvanized Metal: high contact/high traffic areas (doors, frames, railings and handrails, etc.).

.1 RIN 5.3C - Alkyd G5 gloss level.

.3 Plaster and Gypsum Board: gypsum wallboard, drywall, "sheet rock" type material, etc.

.1 RIN 9.2C - Alkyd G3 gloss level finish.

Part 3 Execution

3.1 GENERAL

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

.2 Perform preparation and operations for interior painting in accordance with MPI - Architectural Painting Specifications Manual and MPI - Maintenance Repainting Manual except where specified otherwise.

3.2 EXAMINATION

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Contract Administrator any damages, defects, unsatisfactory or unfavourable conditions, before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

3.3 PREPARATION

.1 Protection:

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Contract Administrator.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.2 Surface Preparation:

.1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.

.2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs will be to approval of Contract Administrator.

.3 Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.

.4 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications

of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.5 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.

.1 Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.6 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

.7 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.

.8 Touch up of shop primers with primer as specified.

.9 Do not apply paint until prepared surfaces have been accepted by Contract Administrator.

3.4 APPLICATION

.1 Method of application to be as approved by Contract Administrator. Conform to manufacturer's application instructions unless specified otherwise.

.2 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.3 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.4 Sand and dust between coats to remove visible defects.

.5 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.

.6 Finish inside of cupboards and cabinets as specified for outside surfaces.

.7 Finish closets and alcoves as specified for adjoining rooms.

.8 Finish top, bottom, edges and cut outs of doors after fitting as specified for door surfaces.

3.5 MECHANICAL/ELECTRICAL EQUIPMENT

.1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.

.2 Do not paint over nameplates.

.3 Keep sprinkler heads free of paint.

.4 Paint fire protection piping red.

.5 Paint disconnect switches for fire alarm system and exit light systems in red enamel.

.6 Paint natural gas piping yellow.

.7 Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

END OF SECTION