

PROJECT MANUAL

PARKS CANADA AGENCY WESTERN AND NORTHERN REGION

Motherwell Homestead National Historic Site

MOTHERWELL NATIONAL HISTORIC SITE

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END OF SECTION

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Scope of work includes renovation to existing building as indicated on Drawings and Specifications.

1.2 CONTRACT METHOD

- .1 Construct Work under single, stipulated price contract with unit pricing for various landscaping items as noted in specification sections.

1.3 CONSTRUCTION SCHEDULE

- .1 The contractor is required to provide and maintain a work schedule as described in section 01 32 16 and the final completion date must be met as a requirement of this contract.

1.4 WORK SEQUENCE

- .1 Commence Work immediately after award of contract.
- .2 Construction site shall be closed to general public.
- .3 Coordinate Progress Schedule during construction.
- .4 Maintain fire access/control.
- .5 No Work shall occur between May 15 to October 2.
- .6 Obtain Substantial Completion of the Work by February 28, 2017.
- .7 Obtain Final Completion of the Work by March 31, 2017.

1.5 SITE SUPERINTENDENT

- .1 Prior to commencing the Work, the Contractor shall designate a Site Superintendent as outlined in Contract.
- .2 Should the Site Superintendent be deemed not qualified to perform the required duties of a Site Superintendent, the Contractor will be responsible for providing a Site Superintendent who is acceptable to the Departmental Representative. Refer to Contract.

1.6 WORK SITE SAFETY - THIS CONTRACTOR IS "PRIME CONTRACTOR"

- .1 The Contractor shall, for the purposes of the Occupational Health and Safety Act (Saskatchewan), and for the duration of the Work of this Contract:
 - .1 be the "prime contractor" for the "work site", and do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the Act and its regulations, as required to ensure the health and safety of all persons at the "work site".

- .2 The Contractor shall direct all Subcontractors, Sub-subcontractors, Other Contractors, employers, workers and any other persons at the "work site" on safety related matters, to the extent required to fulfill its "prime contractor" responsibilities pursuant to the Act, regardless of:
 - .1 whether or not any contractual relationship exists between the Contractor and any of these entities, and
 - .2 whether or not such entities have been specifically identified in this Contract.

1.7 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site until Substantial Performance within boundaries indicated at start up meeting.
- .2 Maintain continued access to parking lot and public washroom facilities during construction.
- .3 Co-ordinate use of premises under direction of Departmental Representative.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.8 CONTRACTOR ACCOMMODATIONS

- .1 There is no work camp area located within the National Historic Site. Contractor must make private accommodation arrangements.
- .2 Contractor, subcontractors and their worker shall not set up their travel trailer, RV, motorhome, tent or any other type of mobile accommodation on or near the work site. Campgrounds may be available for fee as indicated at each campground.

1.9 DEPARTMENTAL REPRESENTATIVE FURNISHED ITEMS

- .1 Departmental Representative Responsibilities:
 - .1 Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
 - .2 Deliver supplier's bill of materials to Contractor
 - .3 Arrange and pay for delivery to site in accordance with Progress Schedule.
 - .4 Inspect deliveries jointly with Contractor.
 - .5 Submit claims for transportation damage.
 - .6 Arrange for replacement of damaged, defective or missing items.
 - .7 Arrange for manufacturer's field services; arrange for and deliver manufacturer's warranties and bonds to Contractor.
- .2 Contractor Responsibilities:
 - .1 Designate submittals and delivery date for each product in progress schedule.

- .2 Review shop drawings, product data, samples, and other submittals. Submit to Consultant notification of observed discrepancies or problems anticipated due to non-conformance with Contract Documents.
- .3 Receive and unload products at site as indicated in 1.9.3 below.
- .4 Inspect deliveries jointly with Departmental Representative; record shortages, and damaged or defective items.
- .5 Handle products at site, including uncrating and storage.
- .6 Protect products from damage, and from exposure to elements.
- .7 Assemble, install, connect, adjust, and finish products.
- .8 Provide installation inspections required by public authorities.
- .9 Repair or replace items damaged by Contractor or subcontractor on site (under his control).

1.10 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 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Permits
 - .12 Survey
 - .13 Other documents as specified.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 INTENT

- .1 The Work shall be designed, constructed, and commissioned in a manner which is compliant with the Authority Having Jurisdiction
- .2 Permits are required from the authority having jurisdiction.

1.2 ACCESS AND EGRESS

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

1.3 USE OF SITE AND FACILITIES

- .1 Site is limited by existing buildings and access.
- .2 Execute work with least possible interference or disturbance to normal use of area. Make arrangements with Departmental Representative to facilitate work as stated.
- .3 Security fencing is required to ensure public protection in accordance with OH & S guidelines. Security fencing is required around building being demolished to create a secure perimeter.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

1.4 HOURS OF WORK

- .1 Work is not allowed on weekends or statutory holidays or after daylight hours and as required by Authority Having Jurisdiction; from Monday to Friday, unless otherwise authorized by the Departmental Representative.

1.5 WORK BY OTHERS

- .1 Co-ordinate work with that of other Contractors.

1.6 EXISTING SERVICES

- .1 Notify Departmental Representative and private and public utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide for vehicular traffic control as needed.

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

1.7 BUILDING SMOKING ENVIRONMENT

- .1 Smoking is only allowed in designated areas.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under various sections.

1.2 APPOINTMENT AND PAYMENT

- .1 Departmental Representative will appoint and pay for services of testing laboratory except follows:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.3 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
- .2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work as requested by the Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to all parties.
- .4 Contractor to provide physical space and make arrangements for meetings in coordination with Departmental Representative.
- .5 Departmental Representative to preside at meetings.
- .6 Record the meeting minutes and include significant proceedings and decisions with identification of actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance.
- .8 Representative of Consultant, Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Departmental Representative, Consultants, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants and Reporting Relationships in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16 - Construction Progress Schedules.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

- .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .7 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .8 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
- .9 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .10 Monthly progress claims, administrative procedures, photographs, hold backs.
- .11 Appointment of inspection and testing agencies or firms by Contractor.
- .12 Insurances, transcript of policies.
- .13 Review of Health and Safety Plan and appointment of Health and Safety Co-ordinator.

1.3 PROGRESS MEETINGS

- .1 During course of Work and 2 weeks prior to project completion, schedule progress meetings every two weeks.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative and Owner are to be in attendance.
- .3 Notify parties minimum 7 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Review health and safety issues.
 - .13 Review environmental issues.
 - .14 Other business.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Consultant to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 15 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

1.4 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Shop Drawings, Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Excavation.
 - .6 Backfill.
 - .7 Siding and Roofing.
 - .8 Interior Architecture (Walls, Floors and Ceiling).
 - .9 Plumbing.
 - .10 Lighting.
 - .11 Electrical.
 - .12 Piping.
 - .13 Controls.
 - .14 Heating, Ventilating, and Air Conditioning.
 - .15 Millwork.
 - .16 Fire Systems.
 - .17 Testing and Commissioning.

1.5 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule every two weeks reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.6 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Submit list of submittals within two weeks of award of contract.
- .2 Submit to Departmental Representative 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.
- .3 Do not proceed with Work affected by submittal until review is complete.
- .4 Review submittals prior to submission to Departmental Representative. 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.
- .5 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .8 Keep one reviewed copy of each submission on site.

1.2 SAMPLES

- .1 Submit for review samples in duplicate or as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples to Departmental Representative at bi-weekly site meetings.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .4 Environmental protection plan include:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training program.
 - .5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
 - .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans

- include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.
 - .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
 - .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.
 - .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
 - .13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
 - .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
 - .15 Pesticide treatment plan: to be included and updated, as required.
 - .16 Include an equipment access plan.

1.3 FIRE PREVENTION AND CONTROL

- .1 Carry fire extinguisher for use on each machine and at locations as required in the event of fire. Basic fire fighting equipment recommended includes three shovels, two pulaskis, and two five gallon backpack pumps) shall be maintained at the construction site at a location known and easily accessible to Contractors' staff. Contractor's staff shall receive basic training in early response to wildfire events during the "environmental briefing".
- .2 Water can be obtained from the fire hydrants in the area.
- .3 Construction equipment shall be operated in a manner and with all original manufacturer's safety devices to prevent ignition of flammable materials in the area.
- .4 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented.
- .5 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The ESO and the Departmental

Representative shall be notified of any fire immediately. If not available, Fort Qu'Appelle Dispatch shall be contacted at (306) 332-5555 or 911.

- .6 Fires and burning of rubbish on site not permitted.

1.4 DISPOSAL OF WASTES

- .1 All garbage must be stored and handled in conformance with the National Historic Sites Garbage Regulations.
- .2 All surplus and waste materials shall be removed from the job site to approved sites. Disposal of all wastes shall be in compliance with the Environmental Contaminants Act and applicable provincial regulations while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.
- .3 The closest construction waste site for this project is the Fort Qu'Appelle Transfer Station. Contractor shall remove all demolition, construction, and trade waste from the site and dispose of materials at designated site on a regular basis or when directed by Departmental Representative. All users and vehicles must report to the transfer scales prior to the disposal of any material. Various rate schedules apply for unsorted waste, scrap metal, asphalt shingles, appliances, and painted wood.
- .4 No food, domestic garbage or hazardous wastes may be deposited in the trade waste site. Obtain bear proof garbage containers on-site for domestic garbage generated on-site by Contractor's personnel.
- .5 Dispose of all hazardous wastes in conformance with the Environmental Contaminants Act and applicable provincial regulations and Section 02 50 13 while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.
- .6 Maintain the site in a tidy condition, free from the accumulation of waste products, debris and litter.
- .7 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .8 No separate payment will be made for waste disposal. Costs of this work shall be considered incidental to the contract.
- .9 Do not burn or bury rubbish and waste materials on-site. Clean concrete shall be deposited in an area designated for this purpose, and in accordance with demolition drawings and specification sections 01 74 21 and 02 41 99.
- .10 Remove all demolition, construction, and trade waste from the site and dispose outside of Historic Site land to a provincial approved landfill. Other salvaged or dispose materials to location as directed herewithin this document.

1.5 CANADIAN ENVIRONMENTAL ASSESSMENT ACT

- .1 Execution of the work is subject to the provisions within the Canadian Environmental Assessment Act Guidelines Order of 2003 and subsequent amendments. This project and its components, has been subject to an environmental assessment as indicated in Section 00 30 00.
- .2 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problem.

1.6 WILDLIFE

- .1 Avoid or terminate activities on-site that attract, disturb or harass wildlife and vacate the area and stay away from the immediate location if sheep, bears, cougars display aggressive behaviour or persistent intrusion. Wildlife must be allowed to pass through the site freely.
- .2 Notify the Departmental Representative immediately of bear, snake or cougar activity, dens, nests, or wildlife encounters on or around the site. Other wildlife encounters should be reported within 24 hours.
- .3 During the Environmental Briefing all personnel shall be instructed on procedures to follow in the event of wildlife appearance near or within the work site and any other wildlife concerns.
- .4 Pets will not be permitted on site.

1.7 DRAINAGE

- .1 Prepare erosion and sediment management plan that identifies type and location of erosion and sediment controls to be provided. The desired end result is to allow no release into watercourses of sediments or deleterious substances. Similarly there is to be no sediment or deleterious substance release into areas of vegetation growth or sensitive areas that would adversely alter growing or hydraulic conditions. This plan shall be to the satisfaction of the Departmental Representative. The plan will include monitoring and reporting to assure that control measures are in compliance with erosion and sediment control plan, federal, provincial and municipal laws and regulations.
- .2 Storm Water Pollution Prevention Plan (SW PPP) to be substituted for erosion and sedimentations control plan.
- .3 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .4 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with Authority Having Jurisdiction requirements and in conformance with the Environmental Contaminants Act and

applicable provincial regulations while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.

1.8 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees on site and adjacent properties where indicated or as directed by the Departmental Representative. Any materials that inadvertently fall outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation in that location.
- .2 When working adjacent to existing trees the Contractor shall exercise all possible care to avoid injury to vegetation. Where roots or limbs over 25 mm in diameter and bark are damaged during operations, trim damaged portion. The Departmental Representative will inspect all trimmed areas and approve them.
- .3 Tree removal shall be limited to trees identified for removal by Departmental Representative.
- .4 Protect roots of trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .5 No stripping or vegetation removal shall occur outside the designated areas or as directed by Departmental Representative or ESO.
- .6 Restrict tree removal to areas indicated or designated by Departmental Representative.
- .7 Any contamination found during demolition will be tested, removed and disposed of in accordance with regulatory requirements including being hauled to a licensed landfill facility outside the site. Contaminated sites must be cleaned up to meet the standards established by the CCME Environmental Quality Guidelines for Soil and Water 2007 (with updates to 2012) and CCME Canada-Wide Standards for Petroleum Hydrocarbons in Soil 2008 for Residential/Parkland use.

1.9 CONTRACTOR'S EMPLOYEE BRIEFING

- .1 Conduct briefing sessions for all employees and subcontractor employees highlighting the requirements of this section, including operation of equipment strictly.
- .2 An initial site meeting with Contractor, and Departmental Representative will take place prior to construction commencing.
- .3 Departmental Representative will conduct approximately 40 minute briefing sessions for all employees and sub-contractor employees highlighting the requirements of this specification section, and other requirements of the area including operations of equipment strictly within confines of the site; harassment or attraction of wildlife; pollution and garbage management; vehicle access and parking; and care of the environment in the work area.

1.10 CONTRACTOR'S OPERATIONS

- .1 Confine all operations to the work limits as staked or designated by the Departmental Representative. No activities of any kind may be carried out beyond these work limits without Departmental Representative's written approval.
- .2 Do not store or stockpile construction materials in the trees bordering or being preserved on-site. Do not unreasonably encumber the site with products.
- .3 Storage areas shall be located within the project boundaries on disturbed or hardened areas. Storage locations to be approved by Departmental Representative.
- .4 Storage locations shall be completely cleaned up and returned to original condition prior to Contractor de-mobilization in the spring, in the fall and finishing the project.
- .5 Equipment maintenance shall only be carried out in designated areas or as approved by the Departmental Representative. The use of on-site areas for equipment oil changes and other servicing will not be permitted.
- .6 Obtain permit from Authority Having Jurisdiction for on-site storage of fuel or other inflammable liquids. Observe all restrictions and conditions imposed by the permit regarding special protection and berming to control spills and tank damage, fire protection considerations, provisions for the disposal of fouled material and used petroleum products.
- .7 Conduct operations at all times in such a manner as to preserve the natural features and vegetation in the area. Cut and fill slopes shall be blended with adjoining topography. Material from fill slopes will not be permitted to sluff or roll into surrounding tree cover or to bury any plant material designated to be retained.
- .8 When, in the opinion of the Departmental Representative, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the staked or designated work area, the Contractor shall be responsible, at his expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc., to the satisfaction of the Departmental Representative.
- .9 Failure to comply with or observe environmental protection measures as identified in these specifications and the environmental assessment report may result in work being suspended pending rectification of the problems and operators of equipment being charged.
- .10 All wash from equipment and tools from concrete pour operations such as tools, concrete pumper and delivery trucks to be contained in such a manner not to dispose debris, cement and fines onto a hard surface or other surfaces that would allowed it to eventually enter the storm system, sanitary system, body of water or water course.

- .11 Review construction access requirements with the Departmental Representative both at start-up and an ongoing bases.
- .12 The contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by worker's vehicles or machinery and shall instruct workers so that the 'footprint' of the project is kept within defined boundaries. Areas around buildings requiring excavator or equipment access in natural areas should confine access as close to the edge of the walls as possible. Access requirements, once approved, will be flagged by the Environmental Surveillance Officer.
- .13 Work On and Adjacent to Steep Slopes: avoid equipment operation on steep slopes (e.g. when placing angular rock in eroded area and work on elevator shaft); Provide barriers in place to prevent rolling of debris down slopes onto highway or into vegetated areas.

1.11 EQUIPMENT MAINTENANCE, FUELING, AND OPERATION

- .1 Provide, operate, and maintain equipment as indicated in Environmental Assessment Amendment of this Project Manual and as follows:
 - .2 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed (e.g. power washing) before delivery to the work site.
 - .3 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative. Except for chain saws, any fuelling closer than 100 metres to any streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
 - .4 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from any streams, wetlands, water bodies or watercourses. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain presence at and immediate attention to the fuelling operation.
 - .5 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times.
 - .6 Equipment used on the project shall be fuelled with E10, and low sulphur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of vehicles is avoided.
 - .7 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations approved by the ESO or the Departmental Representative. Waste lubrication products (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas, viewpoints, etc anywhere.

- .8 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.
- .9 Fuel containers and lubricant products shall be stored only in secure locations specified by the Departmental Representative. Fuel tanks or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight.

1.12 NOISE AND VIBRATION CONTROL

- .1 Low impact demolition equipment and methodologies shall be employed that do not generate significant noise or vibration levels in proximity to the sensitive wildlife habitat.
- .2 Demolition activities shall take place with the use of low noise and low ground vibration inducing equipment and techniques for the project site. For example, equipment could include but is not limited to a processor or pulverizer attached to an excavator.
- .3 High impact equipment known to cause higher noise levels and potential for higher ground vibrations shall be prohibited. Blasting, portable rock crushers and large jackhammers are not permitted.
- .4 Contractor to submit for review a written procedure for concrete demolition at least 2 weeks prior to commencement of site work. Written procedure shall include descriptions of equipment, methods, and tools.

1.13 WORK ADJACENT TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material without Departmental Representative's approval.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.

1.14 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.

- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for the Work. The Contractor shall prepare a dust management plan as part of their EPP to be approved by the Departmental Representative.
- .5 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 metres from any watercourse.
- .6 A Spill Response Plan will be prepared as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative and the ESO and in accordance with all applicable federal and provincial legislation. The EPP shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, sealer, grout, cement, concrete finishing agents, adhesives and sand blasting agents.
- .7 The containment, storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the use of any hazardous or toxic products shall be in accordance with all applicable federal and provincial legislation. Hazardous products shall be stored no closer than 100 metres from any watercourse.
- .8 An impervious berm shall be constructed around fuel tanks and any other potential spill area. The berms shall be capable of holding 110% of tank storage volumes and shall be to the satisfaction of the Departmental Representative and the ESO before start-up. Measures such as collection/drip trays and berms lined with occlusive material such as plastic and a layer of sand, and double-lined fuel tanks can prevent spills into the environment.
- .9 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for temporary roads and on-site work by methods that are approved by the Departmental Representative or ESO.
- .10 The Contractor shall provide spill kits at re-fuelling, lubrication, and repair locations that will be capable of dealing with 110% of the largest potential spill and shall be maintained in good working order on the construction site. The ESO and Departmental Representative prior to project start-up must approve these spill kits. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.
- .11 Timely and effective action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. The Departmental Representative and the ESO shall be notified immediately of any spill. If not available, Fort Qu'Appelle Fire Department will be contacted at (306) 332-5555 or 911. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.

- .12 In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .1 The costs involved in a spill incident (the control, clean up, disposal of contaminants and site remediation to pre-spill conditions), shall be the responsibility of the Contractor. The site will be inspected to ensure completion to the expected standard and to the satisfaction of the Departmental Representative and ESO.

1.15 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 INSPECTION

- .1 Allow Departmental Representative 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 Departmental Representative 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 Departmental Representative 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. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Contractor for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Contractor.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 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 Departmental Representative at no cost to Departmental Representative, pay costs for retesting and reinspection.

1.3 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.

1.4 REJECTED WORK

- .1 Refer to Departmental Representative/Contractor Contract.
- .2 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.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly to the satisfaction of the Departmental Representative.
- .4 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative 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 Departmental Representative.

1.5 REPORTS

- .1 Submit electronic copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to Trade Contractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.4 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.5 WATER SUPPLY

- .1 Provide continuous supply of potable water for construction use.

1.6 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be flameless type. Solid fuel salamanders are not permitted.
- .3 Contractor and Department Representative shall determine the level of propane in Department Representative's propane tank(s) prior to start construction. Contractor is fully responsible for the propane tank(s) and provide fuel at their cost. At the Contractor's discretion, the Contractor shall remove and dispose of the propane tanks as part of the Work.
- .4 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .5 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.

- .6 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.
- .7 Permanent heating system of building is not available for use.
- .8 Pay costs for maintaining temporary heat.
- .9 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.
- .10 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.7 TEMPORARY POWER AND LIGHT

- .1 The Contractor shall be responsible for all temporary power during construction for temporary lighting and operating of power tools.
- .2 Provide and maintain temporary lighting throughout project as required to maintain safe working conditions.

1.8 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary cell phone and data device lines necessary for own use.

1.9 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.
- .3 Motherwell Homestead National Historic Site do not provide or have any fire protection services.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .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-0121-08, Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Indicate use of supplemental or other staging area.
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use.

1.4 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, and platforms.

1.5 HOISTING

- .1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

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

1.7 CONSTRUCTION PARKING

- .1 Limited parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site for authorized personnel.
- .3 Follow vehicle parking limitations and permit requirements with Authority Having Jurisdiction.
- .4 Personal vehicles shall not be parked on any natural or undisturbed areas. Parking will be confined to parking lots and roads or as approved by the Departmental Representative.

1.8 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Locate office in coordination with Departmental Representative

1.9 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.

1.10 SANITARY FACILITIES

- .1 Provide portable sanitary facilities.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.11 CONSTRUCTION SIGNAGE

- .1 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .2 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.
- .3 Company signage is allowed on trailers or vehicles, not elsewhere on site.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .3 Protect travelling public from damage to person and property.
- .4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .6 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .7 Dust control: adequate to ensure safe operation at all times.
- .8 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .9 Snow Removal. Contractor is responsible for snow clearing within their work site including parking lots, sidewalks, etc as shown in the drawings 'Limit of Work'.

1.13 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.

1.14 FIRE PROTECTION FACILITIES

- .1 Provide fire extinguisher and other equipment on site and maintain emergency vehicle access at all times.

1.15 DISRUPTION

- .1 Provide dust protection and schedule noisy work accordingly, as not to affect general public, traffic, and adjacent facilities.
- .2 No excessive noise will be permitted. Demolition methods that contribute to excessive noise will not be permitted. Low vibration and noise demolition equipment shall be used throughout the project. Best management practices will be followed by the Contractor to reduce noise on site. Equipment and vehicles shall be in good working condition and fitted with proper noise suppressing devices. Combine noisy operations to occur in the same time period. The Contractor is to take care when dropping materials from a height, for example,

when dumping concrete material into the basement. Minimize drop heights at material transfer locations. Shut or throttle down equipment (e.g. backhoes, loaders, generators, bobcats) whenever they are not in actual use. If in the opinion of the Departmental Representative there is excessive noise, the Contractor will adjust the work schedule of the activity, reduce the sound levels (e.g. use of sound barriers), or implement alternative demolition processes or quieter equipment.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of Authority Having Jurisdiction.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA O121-08, Douglas Fir Plywood.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations and open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.4 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs where required to keep partially demolished materials within existing buildings, and not allowing wind-blown debris to depart and be dispersed in an un-authorized manner.

1.5 ACCESS TO SITE

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

1.6 FIRE ROUTES

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

1.7 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 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.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review project delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store products subject to damage from weather in weatherproof enclosures.
- .3 Store cementitious products clear of earth or concrete floors, and away from walls.
- .4 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.5 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by licensed or qualified 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.

1.6 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

1.7 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.8 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities including Owners utilities, with minimum of disturbance to Work, and/or building occupants. Make arrangements with Departmental Representative.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 EXISTING SERVICES

- .1 Before commencing work, arrange and pay to establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.2 SUBSURFACE CONDITIONS

- .1 Promptly notify Departmental Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Departmental Representative or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Departmental Representative or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 MATERIALS

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

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.

- .3 Remove and replace defective and non-conforming Work.
- .4 Remove samples of installed Work for testing.
- .5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .6 Restore work with new products in accordance with requirements of Contract Documents.
- .7 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

1.2 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Departmental Representative.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of outside of property. Do not burn waste materials on site.
- .3 Clear snow and ice from access to building including parking lot and sidewalks, bank/pile snow in designated areas only as directed by Departmental Representative.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .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.

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 including that was caused by Departmental Representative.
- .5 Remove waste materials from site at regularly scheduled times or dispose of outside of property. Do not burn waste materials on site.

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

.7 Sweep and wash clean paved areas.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss Waste Management Goals.
- .2 Waste Management Goal: as much as possible of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.

1.2 DEFINITIONS

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Inert Fill: inert waste - exclusively asphalt and concrete.
- .3 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .4 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .5 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .6 Separate Condition: refers to waste sorted into individual types.
- .7 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

1.3 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to recycled and salvaged are to be removed from site to recycling facility without storing on site. Materials to be recycled on site are to be placed in final location with minimum of rehandling. Stockpiles of concrete in areas other than final buried location will not be permitted.
- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Separate recyclable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility. Transport and deliver recyclable items to recycling facilities.
- .4 Protect surface drainage, mechanical and electrical from damage and blockage.
- .5 Separate and store materials produced during dismantling of structures in designated areas.

- .6 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.

1.4 LIST OF SALVAGE ITEMS

- .1 Plumbing fixtures:
 - .1 Toilets - Replace
 - .2 Urinals - Reuse
 - .3 Lavatories- Replace
 - .4 Staff kitchen sink- Replace
- .2 Staff Kitchen Millwork- Reuse cabinets (new counter top)
- .3 Bathroom Accessories:
 - .1 Toilet Paper Dispensers – Supplied by owner, installed by contractor.
 - .2 Hand Dryers- Reuse
 - .3 Soap Dispensers– Supplied and installed by owner
 - .4 Grab Bars- Reuse
 - .5 Baby Change Table- Reuse
 - .6 Mirrors- Reuse
 - .7 Paper Towel Dispenser - Reuse
- .4 Wayfinding washroom signs- Reuse and likely require new additional signage.
- .5 Door Leafs and hardware that will fit new door openings- Reuse
- .6 Track lights in gift shop to be relocated to new gift location. - Reuse

1.5 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, and paint thinner into waterways, storm, or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

1.6 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.

1.7 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 APPLICATION

- .1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.
- .4 Dispose of materials at licensed facilities.

3.3 DIVERSION OF MATERIALS

- .1 On-site sale of recyclable materials is not permitted.

3.4 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

- .1 Schedule G - Government Chief Responsibility for the Environment:

| Province | Address | General Inquires | Fax |
|--------------|--|------------------|--------------|
| Saskatchewan | Saskatchewan Environment and Resource Management 3211 Albert Street Regina SK S4S 5W6 | 306-787-2700 | 306-787-3941 |

END OF SECTION

1.1 General

1.2 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Departmental Representative Inspection.
- .2 Departmental Representative Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to 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, and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

1.3 CLEANING

- .1 In accordance with Section 01 74 11 - Cleaning.
- .2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative four final hard copies and two flash drives in pdf format of operating and maintenance manuals in English.
- .6 Furnish evidence, if requested, for type, source and quality of products provided.
- .7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .8 Pay costs of transportation.

1.2 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide marked up red-line drawings to the Consultant for them to update the drawings, 1:1 scaled CAD files in dwg format on CD.

1.3 CONTENTS - EACH VOLUME

- .1 Table of Contents: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.4 AS-BUILTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information in red on set of blue line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.6 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.7 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Approved: 20151110

1. General

1.1. SECTION INCLUDES

1. Methods and procedures for demolition of structures, parts of structures, basements and foundation walls.

1.2. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 35 43 - Environmental Procedures.
3. Section 01 56 00 - Temporary Barriers and Enclosures.
4. Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.3. REFERENCES

1. Canadian Standards Association (CSA International).
 1. CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

1.4. DEFINITIONS

1. Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.
2. Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as co-ordinating related, required submittal and reporting requirements.
3. Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill.

1.6. QUALITY ASSURANCE

1. Regulatory Requirements: Ensure Work is performed in compliance with CEPA, and applicable Provincial and Municipal regulations.

1.7. WASTE MANAGEMENT AND DISPOSAL

1. Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
2. Divert excess materials from landfill to site approved by Departmental Representative.

1.8. ENVIRONMENTAL PROTECTION

1. Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.
2. Ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

3. Fires and burning of waste or materials is not permitted on site.
4. Do not bury rubbish waste materials.
5. Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
 1. Ensure proper disposal procedures are maintained throughout project.
6. Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.
7. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.
8. Protect trees, plants and foliage on site and adjacent properties where indicated.
9. Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.
10. Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

1.9. EXISTING CONDITIONS

1. Should material resembling spray or trowel applied asbestos or other designated substance be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Do not proceed until written instructions have been received.
2. List items to be salvaged for reuse:
 1. All toilets fixtures in good repair.
 2. All lavatories in good repair.
 3. All washroom accessories in good repair.
 4. Light fixtures as indicated on the construction documents.
 5. All electrical and mechanical items which are necessary for the operation of the building.
 6. Millwork items as indicated on the construction documents.
 7. All gutters and downspouts in good repair.

2. Products

2.1. EQUIPMENT

1. Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.
2. Demonstrate that tools and machinery are being used in manner which allows for salvage of materials in best condition possible.

3. Execution

3.1. PROTECTION

1. Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades and parts of existing building to remain.

1. Provide bracing, and shoring as required.
2. Repair damage caused by demolition as directed by Departmental Representative.
2. Support affected structures and, if safety of structure being demolished or adjacent structures or services appears to be endangered, take preventative measures, stop work and immediately notify Departmental Representative.
3. Prevent debris from blocking surface drainage system, mechanical and electrical systems which must remain in operation.

3.2. PREPARATION

1. Disconnect and reroute electrical, communication and telephone service lines entering buildings to be demolished.
 1. Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.
3. Disconnect and cap mechanical services.
 1. Natural gas supply lines: remove in accordance with gas company requirements.
 2. Sewer and water lines: remove in accordance with authority having jurisdiction.
 3. Other underground services: remove and dispose of as directed by [Departmental Representative].

3.4. REMOVAL OF HAZARDOUS WASTES

1. Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner .

3.5. DEMOLITION

1. Remove parts of existing building to permit new construction. Refer to demolition drawings and specifications for items to be salvaged for reuse.
2. Remove items to be used, store as directed by Departmental Representative, and re-install under appropriate section of specification.
3. At end of each day's work, leave Work in safe and stable condition.
 1. Protect interiors of parts not to be demolished from exterior elements at all times.
10. Demolish to minimize dusting. Keep materials wetted as directed by Departmental Representative.
11. Contain fibrous materials (e.g. Insulation) to minimize release of airborne fibres while being transported within facility.
12. Coordinate removal of existing carpet with supplier of new carpet for disposal through carpet reclamation program.
17. Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.
18. Trim edges of partially demolished building elements to tolerances to suit new construction.

3.6. STOCKPILING

1. Label stockpiles, indicating material type and quantity.

2. Designate appropriate security resources/measures to prevent vandalism, damage and theft.
3. Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.
4. Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.
7. Stockpile on site, insulation batts, in good condition for reuse in new construction.

3.7. REMOVAL FROM SITE

1. Remove stockpiled material as directed by Departmental Representative, when it interferes with operations of project construction.
2. Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.
3. Transport material designated for alternate disposal using approved facilities in accordance with applicable regulations.
4. Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

3.7. SALVAGE SCHEDULE

1. Items to be salvaged for reuse:
 1. Plumbing Fixtures:
 1. All urinal fixtures in good repair.
 2. Restroom way-finding signage.
 3. Bathroom Accessories:
 1. Paper towel dispensers.
 2. Hand dryers.
 3. Baby Change table.
 4. Mirrors.
 4. Door leaf and hardware as required for door schedule.
 5. Electrical and Mechanical:
 1. Track lighting as indicated on the construction documents.
 2. All electrical and mechanical items which are necessary for the operation of the building.
 6. All gutters and downspouts in good repair.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
2. Section 09 21 16 - Gypsum Board Assemblies.

1.2. REFERENCES

1. American Society for Testing and Materials International (ASTM)
 1. ASTM C36/C36M03, Standard Specification for Gypsum Wallboard.
 2. ASTM C57805a, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 3. ASTM C128905a, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 4. ASTM D176188(2000), Standard Test Methods for Mechanical Fasteners in Wood.
 5. ASTM D505505, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood Joists.
 6. ASTM D545605a, Standard Specification for Evaluation of Structural Composite Lumber Products..
2. Canadian General Standards Board (CGSB)
 1. CAN/CGSB11.3M87, Hardboard.
 2. CAN/CGSB51.32M77, Sheathing, Membrane, Breather Type.
 3. CAN/CGSB51.34M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 4. CAN/CGSB71.26M88, Adhesive for FieldGluing Plywood to Lumber Framing for Floor Systems.
3. Canadian Standards Association (CSA International)
 1. CSA A123.203, Asphalt Coated Roofing Sheets.
 2. CAN/CSAA247M86, Insulating Fiberboard.
 3. CSA B1111974(R2003), Wire Nails, Spikes and Staples.
 4. CAN/CSAG164M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 5. CSA O112 SeriesM1977(R2006), CSA Standards for Wood Adhesives.
 6. CSA O121M1978(R2003), Douglas Fir Plywood.
 7. CSA O12206, Structural GluedLaminated Timber.
 8. CSA O14105, Softwood Lumber.
 9. CSA O15104, Canadian Softwood Plywood.
 10. CSA O153M1980(R2003), Poplar Plywood.
 11. CAN/CSAO325.092(R2003), Construction Sheathing.
 12. CSA O437 Series93(R2006), Standards on OSB and Waferboard.
4. National Lumber Grades Authority (NLGA)

1. Standard Grading Rules for Canadian Lumber 2005..
5. Truss Design and Procedures for Light Metal Connected Wood Trusses, Truss Plate Institute of Canada.
6. Western Red Cedar Lumber Association (WRCLA) - Grading Rules.
7. Underwriters' Laboratories of Canada (ULC)
 1. CAN/ULC-S706-97, Mineral Fibre Thermal Insulation for Buildings.

1.3. SUBMITTALS

1. Submit Submittal submissions: in accordance with Section 01 33 00 Submittal Procedures.

1.4. QUALITY ASSURANCE

1. Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2. Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

2. Products

2.1. FRAMING AND STRUCTURAL MATERIALS

1. Lumber: unless specified otherwise, No. 1/no. 2 SPF U/N, moisture content 19% (Sdry) or less in accordance with following standards:
 1. CSA O141.
 2. NLGA Standard Grading Rules for Canadian Lumber.
2. Interior Lumber Exposed to View: Western Red Cedar
 1. Grade: No. 2 and Better Clear.
 2. Surface Texture: Saw Textured.
 3. Moisture Content: Kiln-dried
 4. Size: As shown on the drawings
3. Framing and board lumber: in accordance with NBC, except as follows:
10. Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 1. Board sizes: "Standard" or better grade.
 2. Dimension sizes: "Standard" light framing or better grade.
 3. Post and timbers sizes: "Standard" or better grade.

2.3. PANEL MATERIALS

1. Plywood, OSB and wood based composite panels: to CAN/CSAO325.0.
3. Douglas fir plywood (DFP): to CSA O121, standard construction.
4. Canadian softwood plywood (CSP): to CSA O151, standard construction.
5. Poplar plywood (PP): to CSA O153, standard construction.
6. Interior matformed wood particleboard: to ANSI 208.1.

7. Matformed structural panelboards (OSB wafer): to CAN30437.0.
8. Insulating fiberboard sheathing: to CAN/CSAA247.
9. Glass fibre board sheathing: nonstructural, rigid, faced, fibreglass, insulating exterior sheathing board.
10. Expanded polystyrene sheathing: to ASTM C578.
11. Gypsum sheathing: to ASTM C36/C36M.

2.4. ACCESSORIES

1. Exterior wall sheathing paper: to CAN/CGSB51.32 single ply spunbonded olefin type coated impregnated as indicated.
2. Polyethylene film: to CAN/CGSB51.34, Type 1.
3. Roll roofing: to CSA A123.2, Type S.
4. Air seal: closed cell polyurethane or polyethylene.
5. Sealants: in accordance with Section 07 92 10 - Joint Sealing
6. Subflooring adhesive: to CGSB71.26, cartridge loaded.
7. General purpose adhesive: to CSA O112 Series.
8. Nails, spikes and staples: to CSA B111.
9. Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
10. Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, recommended for purpose by manufacturer.
11. Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.
12. Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, formed to prevent dishing. Bell or cup shapes not acceptable.
13. Roof sheathing HClips: formed "H" shape, thickness to suit panel material, extruded 6063T6 aluminum alloy type approved by Departmental Representative.

2.5. FASTENER FINISHES

1. Galvanizing: to CAN/CSAG164 ASTM A653, use galvanized fasteners for exterior work, interior, highly humid areas, and treated lumber.

3. Execution

3.1. PREPARATION

1. Store wood products.

3.2. INSTALLATION

1. Comply with requirements of NBC 2005 Part 9 supplemented by following paragraphs.
2. Install members true to line, levels and elevations, square and plumb.
3. Construct continuous members from pieces of longest practical length.
4. Install spanning members with "crownedge" up.

5. Select exposed framing for appearance. Install lumber and panel materials so that grademarks and other defacing marks are concealed or are removed by sanding where materials are left exposed.
6. Install sub flooring and combined subfloor and underlay with panel endjoints located on solid bearing, staggered at least 800mm.
7. Install wall sheathing in accordance with manufacturer's printed instructions.
8. Install roof sheathing in accordance with requirements of NBC.
9. Install furring and blocking as required to spaceout and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.
10. Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
 1. Align and plumb faces of furring and blocking to tolerance of 1:600.
11. Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
12. Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.
13. Install sleepers as indicated.
14. Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

3.3. ERECTION

1. Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
2. Countersink bolts where necessary to provide clearance for other work.
3. Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 61 00 - Common Product Requirements.
3. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
4. Section 06 10 00 - Rough Carpentry

1.2. REFERENCES

1. American National Standards Institute (ANSI)
 1. ANSI A208.1-99, Particleboard.
 2. ANSI A208.2-02, Medium Density Fibreboard (MDF).
 3. ANSI/HPVA HP-1-2004, Standard for Hardwood and Decorative Plywood.
2. American Society for Testing and Materials International (ASTM)
 1. ASTM E1333-96(2002), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emissions Rates from Wood Products Using a Large Chamber.
3. Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
 1. Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 2003.
4. Canadian General Standards Board (CGSB)
 1. CAN/CGSB11.3-M87, Hardboard.
5. Canadian Plywood Association (CanPly)
 1. The Plywood Handbook 2005.
6. Canadian Standards Association (CSA International)
 1. CSA B111-74(R2003), Wire Nails, Spikes and Staples.
 2. CAN/CSAG164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 3. CSA O121-M89(R2003), Douglas Fir Plywood.
 4. CAN/CSA O141-91(R1999), Softwood Lumber.
 5. CSA O151-04, Canadian Softwood Plywood.
 6. CSA O153-M1980(R2003), Poplar Plywood.
 7. CSA Z760-94, Life Cycle Assessment.
7. Western Red Cedar Lumber Association (WRCLA) - Grading Rules.
8. National Lumber Grades Authority (NLGA)
 1. Standard Grading Rules for Canadian Lumber 2005.

1.3. SUBMITTALS

1. Submit Submittal submissions: in accordance with Section 01 33 00 Submittal Procedures.
2. Shop Drawings Submittals: in accordance with Section 01 33 00 Submittal Procedures.
 1. Indicate details of construction, profiles, jointing, fastening and other related details.
 2. Indicate materials, thicknesses, finishes and hardware.

1.4. QUALITY ASSURANCE

1. Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2. Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

1.5. DELIVERY, STORAGE, AND HANDLING

1. Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
 1. Protect materials against dampness during and after delivery.
 2. Store materials in ventilated areas, protected from extreme changes of temperature or humidity.

2. Products

2.2. LUMBER MATERIAL

1. Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less in accordance with following standards:
 1. CAN/CSAO141.
 2. AWMAC custom grade, moisture content as specified.
2. Machine stressrated lumber is acceptable.
3. Interior Lumber Exposed to View: Western Red Cedar
 1. Grade: No. 2 and Better Clear.
 2. Surface Texture: Saw Textured.
 3. Moisture Content: Kiln-dried
 4. Size: As shown on the drawings
4. Hardwood lumber: moisture content accordance with following standards:
 1. AWMAC custom grade, moisture content as specified.

2.3. PANEL MATERIAL

1. Douglas fir plywood (DFP): to CSA O121, standard construction.
2. Canadian softwood plywood (CSP): to CSA O151, standard construction.
3. Hardwood plywood: to ANSI/HPVA HP-1.
4. Poplar plywood (PP): to CSA O153, standard construction.

5. Particleboard: to ANSI A208.1.
6. Hardboard: to CAN/CGSB11.3
7. Medium density fibreboard (MDF): to ANSI A208.2, density 640800 kg/m³.
8. Low density fibreboard: to CSA-A247M-.

2.4. ACCESSORIES

1. Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior work, interior humid areas and for treated lumber; plain finish elsewhere.
2. Wood screws: electroplated, type and size to suit application.
3. Splines: wood, plastic, metal.
4. Adhesive: recommended by manufacturer.

3. Execution

3.1. INSTALLATION

1. Do finish carpentry to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
2. Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate piping, columns, fixtures, outlets, or other projecting, intersecting or penetrating objects.
3. Form joints to conceal shrinkage.

3.2. CONSTRUCTION

1. Fastening:
 1. Position items of finished carpentry work accurately, level, plumb, true and fasten or anchor securely.
 2. Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
 3. Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round smooth cut hole and plug with wood plug to match material being secured.
 4. Replace items of finish carpentry with damage to wood surfaces including hammer and other bruises.
2. Standing and running trim:
 1. Butt and cope internal joints of baseboards to make snug, tight, joint. Cut right angle joints of casing and base with mitred joints.
 2. Fit backs of baseboards and casing snugly to wall surfaces to eliminate cracks at junction of base and casing with walls.
 3. Make joints in baseboard, where necessary using a 45 degrees scarf type joint.
 4. Install door and window trim in single lengths without splicing.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 61 00 - Common Product Requirements.
3. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
4. Section 01 74 11 - Cleaning.
5. Section 06 10 00 - Rough Carpentry.
6. Section 06 20 00 - Finish Carpentry.
7. Section 09 65 16 - Resilient Sheet Flooring - rubber base.

1.2. REFERENCES

1. American National Standards Institute (ANSI)
 1. ANSI/NPA A208.1-1999, Particleboard.
 2. ANSI A208.2-02, Medium Density Fiberboard (MDF) for Interior Applications.
 3. ANSI/HPVA HP-1-04, Standard for Hardwood and Decorative Plywood.
2. American Society for Testing and Materials International (ASTM)
 1. ASTM E1333-96(2002), Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
 2. ASTM D2832-92(R2005), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 3. ASTM D5116-06, Standard Guide For SmallScale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
3. Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
 1. Architectural Woodwork Quality Standards Illustrated, 8th edition, Version 1.0 (2005).
4. Canadian General Standards Board (CGSB)
 1. CAN/CGSB71.20-M88, Adhesive, Contact, Brushable.
5. Canada Green Building Council (CaGBC)
 1. LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
6. Canadian Standards Association (CSA International)
 1. CSA B11174(R2003), Wire Nails, Spikes and Staples.
 2. CSA O112.4 SeriesM-1977(R2006), Standards for Wood Adhesives.
 3. CSA O112.5SeriesM-1977(R2006), Urea Resin Adhesives for Wood (Room and HighTemperature Curing).

4. CSA O112.7 Series M-1977(R2006), Resorcinol and Phenol Resorcinol Resin Adhesives for Wood (Room and Intermediate Temperature Curing).
5. CSA O121-M89(R2003), Douglas Fir Plywood.
6. CSA O141-05, Softwood Lumber.
7. CSA O151-04, Canadian Softwood Plywood.
8. CSA O153-M1980(R2003) Poplar Plywood.
7. International Organization for Standardization (ISO)
 1. ISO 14040-2006, Environmental Management Life Cycle Assessment Principles and Framework.
 2. ISO 14041-98, Environmental Management Life Cycle Assessment Goal and Scope Definition and Inventory Analysis.
8. National Electrical Manufacturers Association (NEMA)
 1. ANSI/NEMA LD3-05, High-Pressure Decorative Laminates.
9. National Hardwood Lumber Association (NHLA)
 1. Rules for the Measurement and Inspection of Hardwood and Cypress 1998.
10. National Lumber Grades Authority (NLGA)
 1. Standard Grading Rules for Canadian Lumber 2005.

1.3. SUBMITTALS

1. Provide Submittal submissions: in accordance with Section 01 33 00 Submittal Procedures.
2. Provide shop drawings in accordance with Section 01 33 00 Submittal Procedures.
 1. Indicate details of construction, profiles, jointing, fastening and other related details.
 1. Scales: profiles full size, details.
 2. Indicate materials, thicknesses, finishes and hardware.
 3. Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
3. Provide samples in accordance with Section 01 33 00 Submittal Procedures.
 1. Submit duplicate samples of hardwood sample size 300mm x 300mm.
 2. Submit duplicate samples of solid surface for selection.
4. Quality assurance submittals:
 1. Manufacturer's Instructions: manufacturer's installation instructions.

1.4. QUALITY ASSURANCE

1. Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2. Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.
4. Mockups:
 1. Construct mockups in accordance with Section 01 45 00 Quality Control.

1. Shop prepare one base cabinet unit, wall cabinet, counter top, shelving unit, complete with hardware and shop applied finishes, and install on project in designated location.
2. Allow 24 hours for inspection of mockup by Departmental Representative before proceeding with this work.
5. Delivery, Storage, and Handling:
 1. Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
 1. Protect millwork against dampness and damage during and after delivery.
 2. Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

2. Products

2.1. MATERIALS

1. Softwood lumber (Concealed locations): unless specified otherwise, S4S, moisture content 15 % or less in accordance with following standards:
 1. CSA O141.
 2. NLGA Standard Grading Rules for Canadian Lumber.
 3. AWMAC custom grade, moisture content as specified.
2. Hardwood lumber: moisture content 7% or less in accordance with following standards:
 1. National Hardwood Lumber Association (NHLA).
 2. AWMAC custom grade, moisture content as specified.
3. Baltic Birch Plywood: Manufactured in accordance with Russian Export GOST 3916.1-96 Standards:
 1. Type II Glue; Grade B where visible on the exterior of the cabinet, patch free clear faces, uniform.
 2. Grade BB at cabinet interior locations.
 3. Premium edge quality where to cut to expose, free of gaps and defects.
4. Birch plywood: to AWMAC Natural, standard construction
5. Canadian softwood plywood (CSP): to CSA O151, standard construction.
 1. Urea-formaldehyde free.
9. Hardwood plywood: to ANSI/HPVA HP-1.
 1. Urea-formaldehyde free.
13. Fibreboard must contain less than 10% roundwood by weight, using a weighted average over a three month period at manufacturing locations.
 2. Urea-formaldehyde free.
14. Hardboard:
 1. To CAN/CGSB11.3.
 3. Urea-formaldehyde free.

15. Thermofused Melamine: to NEMA LD3 Grade VGL.
 1. High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).
16. Nails and staples: to CSA B111.
17. Wood screws: stainless steel, type and size to suit application.
18. Splines: wood.
24. Sealant: in accordance with Section 07 92 00 - Joint Sealants
25. Solid surface material: shall be cast, non-porous, filled polymer, not coated, laminated, or of composite construction with through body colours meeting ANSI Z124.3 or ANSI Z124.6 having minimum physical properties specified. Thickness shall be 12.7mm, supported by wood or steel members or a manufacturer's approved full substrate. Colour: white.

2.3. MANUFACTURED UNITS

1. Casework:
 1. Fabricate caseworks to AWMAC custom quality grade.
 2. Exposed fasteners are not allowed in the finish Work on exposed and semi-exposed surfaces.
 3. Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
 1. Board sizes: "standard" or better grade.
 2. Dimension sizes: "standard" light framing or better grade.
 3. Framing Douglas Fir species, NLGA grade.
2. Visitor Information, Play area and Gift Shop Casework:
 1. Case bodies (ends, divisions, backs and bottoms) and Shelves:
 1. Baltic Birch plywood:
 1. Thickness: 19 mm.
 2. Number of plies: 11.
 3. G2S veneer: baltic birch species, rotary cut.
 4. Core: Veneer.
 5. Bond: Type II.
 6. Sanding: touch sanding.
 7. Edges: exposed veneer core, slight chamfer edge, sealed finish.
 8. Grain direction: vertical.
 2. Countertop: Solid Surface, adhesively jointed with no exposed seams.
3. Kitchen Casework:
 1. Case bodies (ends, divisions and bottoms):
 1. Hardwood plywood:
 1. Thickness: 19mm
 2. Number of plies: 5

3. Face veneer: white birch species, premium grade rotary cut matching requirement.
 4. Back veneer: white birch species, premium grade rotary cut matching requirement.
 5. Core softwood plys.
 6. Bond: Type II.
 7. Sanding: regular sanding.
 8. Grain direction: vertical.
 9. Edge banding: Plastic laminate in colours to match face of panels.
2. Backs:
 1. Hardboard, laminated with thermo-fused melamine.
 3. Shelving:
 1. Plywood, 19mm thick, laminated with plastic laminate
 2. Edge banding: Plastic laminate in colours to match face of panels
 4. Countertop: Solid Surface, adhesively jointed with inconspicuous seams.
 5. Counter Swing Door:
 1. Leaf: 19mm plywood core c/w 18 gauge stainless steel sides and end caps.
 2. Double Acting Hinge: heavy duty gravity pivot hinges w/ hardened steel cam plate & rollers.

2.4. FABRICATION

1. Set nails and countersink screws apply stained wood filler to indentations, sand smooth and leave ready to receive finish.
2. Shop install cabinet hardware for doors, shelves and drawers. Shelf support as noted on drawings:
 1. Shelf support: Metal shelf supports c/w pre-drilled 5mm holes @ 50mm o.c. vertical holes front and back (4 sets per shelf).
 2. 19mm Adjustable Pilaster Shelf Standard: 19ga. steel pilaster, zinc finish. Provide front and back each side of cabinet unit. Provide 4 pilaster shelf clips per shelf.
3. Shelving to cabinetwork to be adjustable unless otherwise noted.
4. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
5. Coordinate receptacles with electrical.
6. Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
7. Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
8. Solid surface countertop:

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins
2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 1. Reinforce with strip of solid polymer material, 2" wide.
3. Rout and finish component edges with clean, sharp returns.
 1. Smooth edges
 2. Repair or reject defective and inaccurate work
4. Thermoforming: Comply with manufacturer's data and instructions.
5. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data
6. Repair or replace damaged work which cannot be repaired to architect's satisfaction.
7. Finish and seal solid surface material to manufactures recommendations.

2.5. FINISHING

1. Provide Custom Grade Finish.
2. Casework and wood paneling: partitions, panels, shelving, millwork:
 1. Lacquer: Semi-gloss finish (over stain).
 2. Pigmented Lacquer: Semi-gloss finish.
 3. Clear Lacquer: Semi-gloss finish..

3. Execution

3.1. INSTALLATION

1. Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
2. Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.
3. Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
4. Use draw bolts in countertop joints.
5. Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
6. At junction of counter and adjacent wall finish, apply small bead of sealant.
7. Apply water resistant building paper over wood framing members in contact with masonry or cementitious construction.
8. Fit hardware accurately and securely in accordance with manufacturer's written instructions.

10. Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where approved. Slightly bevel arises.
11. For site application, offset joints in plastic laminate facing from joints in core.

3.2. CLEANING

1. Proceed in accordance with Section 01 74 11 - Cleaning.
2. Remove excess glue from surfaces.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
2. Section 06 10 00 - Rough Carpentry
3. Section 08 50 00 - Windows

1.2. REFERENCES

1. Canadian General Standards Board (CGSB)
 1. CAN/CGSB19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.
 2. CAN/CGSB19.24M-M90, MultiComponent, Chemical Curing Sealing Compound.
 3. CGSB 19GP14M-84, Sealing Compound, One Component, ButylPolyisobutylene Polymer Base, Solvent Curing.
2. Sealant and Waterproofer's Institute Sealant and Caulking Guide Specification.

1.3. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Product Data:
 1. Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
3. Quality Assurance Submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 1. Existing Substrate Condition: report deviations, as described in PART 3 - EXAMINATION in writing to Departmental Representative.
 2. Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 3. Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

1.4. QUALITY ASSURANCE

1. Qualifications:
 1. Applicator: company specializing in performing work of this section with minimum 5 years documented experience with installation of air/vapour barrier systems.

1.5. DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
2. Deliver, store and handle materials in accordance with manufacturer's written instructions.

1.6. WASTE MANAGEMENT AND DISPOSAL

1. Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
2. Place materials defined as hazardous or toxic waste in designated containers.
3. Ensure emptied containers are sealed and stored safely for disposal away from children.

1.7. AMBIENT CONDITIONS

1. Install solvent curing sealants and vapour release adhesive materials in open spaces with ventilation.
2. Ventilate enclosed spaces in accordance with Section 01 51 00 Temporary Utilities.
3. Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.8. SEQUENCING

1. Sequence work to permit installation of materials in conjunction with related materials and seals.

1.9. WARRANTY

1. For sealant and sheet materials the 12 months warranty period is extended to 24 months.
2. Warranty: include coverage of installed sealant and sheet materials which:
 1. Fail to achieve air tight and watertight seal.
 2. Exhibit loss of adhesion or cohesion.
 3. Do not cure.

2. Products

2.1. SHEET MEMBRANE AIR BARRIER (TYPE 1)

1. Sheet Seal: Self-adhesive bitumen laminated to highdensity polyethylene film, nominal total thickness of 1.0 mm.

1. Membrane Physical Properties

| | |
|------------------------------------|--|
| 1. Application | min 5°C |
| 2. Service Temperature | -40°C to 70° |
| 3. Elongation | min 200% |
| 4. Tensile strength | min 2.4 Mpa |
| 5. Puncture Resistance | min 178 N |
| 6. Water vapour transmission | 2.8mg/Pa.s.m ² (0.05 perms) |
| 7. Moisture Absorption | 0.1% |
| 8. Air Leakage at 75 Pa | 0.02L/Sm ² |
| 9. Air Leakage of the 3000 Pa test | No change |

2.2. LIQUID MEMBRANE AIR/VAPOUR BARRIER (TYPE 2)

1. Single component, liquid applied, water-based, polymer-modified air barrier providing a seamless, elastomeric membrane when cured, wet film thickness 1.53 mm, cured film thickness 1.15 mm.
 1. Liquid membrane Air/Vapour physical properties:
 1. Application Temperature: min. 4° C
 2. Service Temperature: -29° C to 49° C
 3. Elongation: 1500%
 4. Tensile Strength: 0.10 MPa
 5. Water Vapour Permeance: 0.03 perms
 6. Air Leakage at 75 Pa: < 0.02 L/s/m²

2.3. LIQUID MEMBRANE VAPOUR PERMEABLE AIR BARRIER (TYPE 3)

1. Water-based air-barrier providing a tough, seamless, elastomeric membrane when cured, allowing moisture vapour to pass through it, wet film thickness 2.3 mm, cured film thickness 1.15 mm.
 1. Liquid membrane vapour permeable air barrier physical properties:
 2. Application Temperature: min. 4° C
 3. Service Temperature: -29° C to 49° C
 4. Elongation: 1500%
 5. Water Vapour Permeance: 12 perms
 6. Air Leakage at 75 Pa: < 0.02 L/s/m²

2.4. SHEET MEMBRANE VAPOUR PERMEABLE AIR BARRIER (TYPE 4)

1. Self-adhering reinforced modified polyolefin tri-laminate water resistive, vapour permeable, air barrier membrane to the following properties:
 1. Weight: 160 g/m²
 2. Water Vapour Transmission: 202 g/m²
 3. Tensile Strength: 182N MD and 129N CD
 4. Water Vapour Permeance: 1658 ng/Pa.m2.s
 5. Air Leakage: <0.02 L/s/m²
 6. Average Dry Breaking Force: 565N MD and 405N CD

2.5. SEALANTS

1. Sealants in accordance with Section 07 92 10 - Joint Sealing.
2. Primer: recommended by sealant manufacturer.
3. Primer for type 4 Air Barrier: quick setting, synthetic rubber based adhesive aerosol.

2.4. SCHEDULE

1. Type 1 Air Barrier: for installation on any solid surface.
2. Type 2 Air Barrier: for installation on masonry or concrete surfaces.
3. Type 3 Air Barrier: for installation on wood/gypsum board surfaces.

4. Type 4 Air Barrier: for installation on any solid surface approved by manufacturer.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. GENERAL

1. Perform Work in accordance with Sealant and Waterproofer's Institute Sealant and Caulking Guide Specification requirements for materials and installation.
2. Perform Work in accordance with National Air Barrier Association Professional Contractor Quality Assurance Program and requirements for materials and installation.
3. Perform Work in accordance with Canadian Urethane Foam Contractor's Association Professional Contractor Quality Assurance Program and requirements for materials and installation.

3.3. EXAMINATION

1. Verify that surfaces and conditions are ready to accept work of this section.
2. Ensure surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.
3. Report unsatisfactory conditions to Departmental Representative in writing.
4. Do not start work until deficiencies have been corrected.
 1. Beginning of Work implies acceptance of conditions.

3.4. PREPARATION

1. Remove loose or foreign matter, which might impair adhesion of materials.
2. Ensure substrates are clean of oil or excess dust; masonry joints struck flush, and open joints filled; and concrete surfaces free of large voids, spalled areas or sharp protrusions.
3. Ensure substrates are free of surface moisture prior to application of selfadhesive membrane and primer.
4. Ensure metal closures are free of sharp edges and burrs.
5. Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

3.5. INSTALLATION

1. Install materials in accordance with manufacturer's instructions.
2. Apply sealant within recommended application temperature ranges.
 1. Consult manufacturer's when sealant cannot be applied within these temperature ranges.

3.7. CLEANING

1. Proceed in accordance with Section 01 74 11 - Cleaning.

2. On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.8. PROTECTION OF WORK

1. Protect finished work in accordance with Section 01 61 00 - Common Product Requirements.
2. Do not permit adjacent work to damage work of this section.
3. Ensure finished work is protected from climatic conditions.

END OF SECTION

Approved: 20151110

1. General

1.1. SECTION INCLUDES

1. Materials, removal and installation of asphalt shingles, underpayment and eave protection.
2. Damaged flashings, counterflashings and vents.
3. Removal, storage and reinstallation of eavestroughs, goosenecks, downspouts strainers and ridge vents.

1.2. RELATED SECTIONS

1. Section 01 33 00 Submittal Procedures.
2. Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
3. Section 02 81 01 Hazardous Materials.
4. Section 01 45 00 Quality Control.
5. Section 01 61 00 - Common Product Requirements.
6. Section 01 78 00 Closeout Submittals.
7. Section 07 27 00 - Air Barriers
8. Section 07 62 00 - Sheet Metal Flashing and Trim

1.3. REFERENCES

1. Canadian General Standards Board (CGSB).
 1. CAN/CGSB37.4-M89, Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing.
 2. CAN/CGSB37.5-M89, Cutback Asphalt Plastic Cement.
 3. CAN/CGSB51.32-M77, Sheathing, Membrane, Breather Type.
 4. CAN/CGSB51.34-M86, Vapour Barrier Polyethylene Sheet, for Use in Building Construction.
2. Canadian Roofing Contractors' Association (CRCA).
 1. CRCA Roofing Specification Manual 1997.
3. Canadian Standards Association (CSA International).
 1. CAN/CSAA123.1/A123.598, Asphalt Shingles Made From Organic Felt and Surfaced With Mineral Granules/Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules.
 2. CSA A123.2-M1979 (R2001), AsphaltCoated Roofing Sheets.
 3. CAN/CSAA123.398, Asphalt Saturated Organic Roofing Felt.
 4. CAN3A123.51-M85 (R2001), Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.
 5. CAN3A123.52-M85 (R2001), Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3.
 6. CSA B1111974 (R1998), Wire Nails, Spikes and Staples.

4. Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 1. Material Safety Data Sheets (MSDS).
5. National Research Council Canada (NRC)/Institute for Research in Construction (IRC) Canadian Construction Materials Centre (CCMC).
 1. CCMC-2002, Registry of Product Evaluations.

1.4. SUBMITTALS

1. Submit proof of manufacturer's CCMC Listing and listing number to Departmental Representative.
2. Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, and cleaning procedures.
3. Submit product data in accordance with Section 01 33 00 Submittal Procedures.
4. Submit WHMIS MSDS Material Safety Data Sheets in accordance with Section 02 81 01 Hazardous Materials. WHMIS acceptable to Health Canada for asphalt shingles.
5. Submit product data sheets for asphalt shingles. Include:
 1. Product characteristics.
 2. Performance criteria.
 3. Installation instructions.
 4. Limitations.
 5. Colour and finish.

1.5. SAMPLES

1. Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
2. Submit duplicate samples of full size specified shingles.

1.7. DELIVERY, STORAGE AND HANDLING

1. Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
2. Provide and maintain dry, offground weatherproof storage.
3. Remove only in quantities required for same day use.

1.8. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/ Demolition Waste Management And Disposal.
2. Remove from site and dispose of all packaging materials at appropriate recycling facilities.
3. Place materials defined as hazardous or toxic in designated containers.
5. Divert unused asphalt shingle materials from landfill to asphalt recycling facility approved by Departmental Representative.
6. Dispose of unused asphaltic cement type materials at official hazardous material collections site approved by Departmental Representative.
7. Fold up metal banding, flatten and place in designated area for recycling.

1.9. EXTRA MATERIALS

1. Provide maintenance materials in accordance with Section 01 78 00 Closeout Submittals.
2. All unused shingles remain property of owner.

2. Products

2.1. MATERIALS - SHINGLES

1. Asphalt shingles: to CSA A123.1/A123.1; UL Rating of C and Wind Resistance Label, organic felt base, mineral granule surfaced type; 25 year self sealing type; square tab; colour, dark grey.

2.2. MATERIALS - SHEETS

1. Eaves (Ice Dam) Protection: CGSB 37-GP-56M, Sheet barrier of rubberized asphalt bonded to sheet polyethylene, 1 mm total thickness, with strippable treated release paper.
2. Underlayment: Can/CGSB-51.32, Cellulose fibre building paper, water repellent breather type.

2.3. ACCESSORIES

7. Drip edge: galvanized steel, 0.5 mm core nominal thickness, Z275 zinc coating designation to ASTM A653/A653M, prefinished to match existing.
8. Nails: to CSA B111, Standard round hot dipped zinc coated steel type, of sufficient length to penetrate 19 mm into deck.
9. Asphaltic Cement:
 1. Plastic cement: AST D2822, asphalt type with mineral fibre components, free of toxic solvents, cable of setting within 24 hours at temperatures of 24 degrees C and 50 percent RH.
 2. Lap cement: Fibrated cutback asphalt type, recommended for use in application of underlayment, free of toxic solvents.

3. Execution

3.1. REMOVAL OF EXISTING ROOFING

1. Remove existing roofing, flashings and underlay.
2. Withdraw existing shingle and flashing nails, set those which break off. Leave surfaces free from dirt and loose material.
3. Departmental Representative to inspect roof sheathing.
4. Remove portion of sheathing affected by fungal or insect attack as directed on site by Departmental Representative.
5. Replace cut out portions of sheathing or lath with sheathing of equal sectional dimensions, and specified grade. Seat each end on rafter, with 25 mm bearing, and secure to rafter.

3.2. WORKMANSHIP

1. Do asphalt shingle work in accordance with CAN3A123.51 except where specified otherwise.
2. Install shingle roofing over surfaces which are dry, free of ridges, warps and voids.

3.3. ICE DAM PROTECTION INSTALLATION

1. Install ice dam protection underlayment: apply a layer of ice dam protection underlayment at entire perimeter of surface to receive shingles, including eaves, valleys, roof mounted components and projections, dormers and edges. Extend ice dam protection underlayment at edges of minimum of 610mm inside exterior wall line.

3.4. PROTECTION UNDERLAYMENT INSTALLATION

1. Install ice dam protection underlayment: apply a layer of ice dam protection underlayment at entire perimeter of surface to receive shingles, including eaves, valleys, roof mounted components and projections, dormers and edges. Extend ice dam protection underlayment at edges of minimum of 610mm inside exterior wall line.
2. Install protective underlayment installation: over entire area, place underlayment with ends and edges weather lapped minimum of 152mm. Stagger end joint of each consecutive layer. Nail protective underlayment sufficiently to hold in place.
 1. Omit underlayment at area of ice dam protection underlayment. Lap underlayment over ice dam protection underlayment as recommended by manufacturer but not less than 152mm.
 2. Install protective underlayment perpendicular to slope to roof.
 3. Weatherlap underlayment minimum 152mm over ice dam protection.
 4. Weatherlap and seal with plastic cement, items projecting through roof.

3.5. SHINGLE INSTALLATION

1. Starter course: Install a 457mm mineral surface starter strip parallel with the eaves. Overhand the starter strip 51mm at the gable end and 19mm at the eave.
2. First course: Apply over the starter course as per manufacturer's instructions.
3. Apply remaining courses as per manufacturer's instructions.
4. Nail as per manufacturer's instruction.
5. Cap all hips and ridges with a double course of individual shingles maintaining a minimum 127mm weather exposure. Place to avoid exposed nails.

3.6. FLASHING INSTALLATION

1. Weatherlap joints minimum 51mm and seal weathertight with plastic cement. Secure in place with nails at 152mm on centre. All fastenings to be concealed in complete installation of roofing.
2. Flash and seal with plastic cement, all times projecting through or mounted on roofing. Ensure weathertight installation.
3. Install drip edge along eaves, overhanging 12 mm, with minimum 50 mm flange extending onto roof decking. Nail to deck at 400 mm on centre.
4. Install bottom step flashing interleafed between shingles at vertical junctions along slope.

5. Place ridge flashing full length covering both sides of ridge a minimum of 100mm. Place ridge flashing prior to shingles and underlayment. Weather lap joints minimum 50mm and seal weathertight.
6. Valley's shall have 914mm wide layer of ice dam protection underpayment centred in the valley and secured with nails at the outer edges. This strip shall be laid over the previously installed underlayment.
 1. Install valley metal over underlayment and ice sam system. Extend metal 250mm minimum up each side of the valley.

END OF SECTION

Approved: 20151110

1. General

1.1. SECTION INCLUDES

1. Requirements for installation of hardboard siding and trim.

1.2. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
3. Section 06 10 00 - Rough Carpentry.
4. Section 07 62 00 - Sheet Metal Flashing and Trim.
5. Section 07 92 00 - Joint Sealing.

1.3. REFERENCES

1. American Society for Testing and Materials International, (ASTM).
 1. ASTM D5116-97, Standard Guide For SmallScale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
2. Canadian General Standards Board (CGSB).
 1. CAN/CGSB11.3M87, Hardboard.
 2. CAN/CGSB11.5M87, Hardboard, Precoated, Factory Finished, for Exterior Cladding.
 3. CAN/CGSB11.6M87, Installation of Exterior Hardboard Cladding.
 4. CAN/CGSB51.32M7, Sheathing, Membrane, Breather Type.
3. Canadian Standards Association (CSA International).
 1. CSA B1111974(R2003), Wire Nails, Spikes and Staples.
 2. CSA O121M1978(R1998), Douglas Fir Plywood.
 3. CSA O151M1978(R1998), Canadian Softwood Plywood.
 4. CAN/CSA-Z808-96 A Sustainable Forest Management System: Guidance Document.
4. National Lumber Grades Authority (NLGA).
 1. NLGA Standard Grading Rules for Canadian Lumber 2003.

1.4. SUBMITTALS

1. Product Data:
 1. Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 2. Submit two copies of WHMIS MSDS Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for caulking materials during application and curing.
2. Samples:
 1. Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

2. Submit duplicate 400 x 400 mm size profile specified.
3. Manufacturer's Instructions:
 1. Submit manufacturer's installation instructions.

1.5. QUALITY ASSURANCE

1. Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
2. Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6. DELIVERY, STORAGE AND HANDLING

1. Store products in manufacturer's unopened packaging with labels intact until ready for installation.
2. Store products in clean, dry area, under cover, and stacked on pallets. Do not store siding in heated building as it make it susceptible to drying and buckling.

1.7. PROJECT CONDITIONS

1. Weather Conditions: Do not install siding under environment conditions outside manufacturers absolute limits. Do not install siding over wet substrate.

1.8. WARRANTY

1. Manufacturer's Warranty: Provide manufacturers standard warranty document executed by authored company official preference and finish, including colour, fading and chalking.

2. Products

2.1. MATERIALS

1. Pre-finished Lap Siding: Hardboard siding, to CAN/CGSB11.5-M87.
 1. Factory Finished: Type 5, high density hardboard siding with deeply textured surface and baked-on finish coat; fastening-spline for interlocking system, self-aligning.
 1. Size and Exposure: 152 mm wide x 9mm thick x 3658mm or 4877mm long; exposure 119mm.
 2. Overlap: 29mm.
 3. Fastening system: hidden nail assembly.
 4. Texture: Cedar wood grain.
 5. Colour: dark grey type upon approval of departmental representative.
2. Accessories: Recommend by siding manufacturer to match siding
 1. Prefabricated continuous outside and inside corner trim.
 2. Prefabricated starter strips.
 3. Prefabricated joint mouldings.
 4. Thermoplastic caulk.
 5. Prefabricated drip cap.

6. Coloured nails.
7. J-molding
8. Touch-up paint.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

1. Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2. INSTALLATION

1. Install hardboard to CGSB 11GP6M and manufacturers' instructions.
2. Install one layer sheathing paper horizontally by stapling, lapping edges 100 mm.
3. Install sill flashings, starter strips, inside corner flashings, edgings and flashings over openings. Colour to match siding.
4. Fasten siding in straight, aligned lengths to sheathing. Stagger butt joints not less than 800 mm and distribute evenly over wall faces.
5. Protect installed products until completion of project.
6. Touch-up, repair or replace damaged products before substantial completion.

3.3. CLEANING

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

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
2. Section 07 27 00 - Air Barriers.
3. Section 07 31 13 - Asphalt Shingles.
4. Section 07 46 00 - Siding.
5. Section 08 50 00 - Windows.

1.2. REFERENCES

1. American Society for Testing and Materials International (ASTM)
 1. ASTM A16799(2004), Specification for Stainless and Heat Resisting Chromium Nickel Steel Plate, Sheet, and Strip.
 2. ASTM A240/A240M07e1 Standard Specification for Chromium and ChromiumNickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 3. ASTM A60604, Standard Specification for Steel, Sheet and Strip, HighStrength, LowAlloy, HotRolled and ColdRolled, with Improved Atmospheric Corrosion Resistance.
 4. ASTM A653/A653M07, Standard Specification for Steel Sheet, ZincCoated (Galvanized) or ZincIron AlloyCoated (Galvannealed) by the HotDip Process.
 5. ASTM A792/A792M06a, Standard Specification for Steel Sheet, 55% AluminumZinc AlloyCoated by the HotDip Process.
 6. ASTM B32-04, Standard Specification for Solder Metal.
 7. ASTM B370-03, Standard Specification for Copper Sheet and Strip for Building Construction.
 8. ASTM D523-89(1999), Standard Test Method for Specular Gloss.
 9. ASTM D822-01(2006), Standard Practice for Filtered OpenFlame CarbonArc Exposures of Paint and Related Coatings.
2. Canadian Roofing Contractors Association (CRCA)
 1. Roofing Specifications Manual 1997.
3. Canadian General Standards Board (CGSB)
 1. CAN/CGSB51.32-M77, Sheathing, Membrane, Breather Type.
4. Canadian Standards Association (CSA International)
 1. CSA A123.3-05, Asphalt Saturated Organic Roofing Felt.
 2. AAMA/WDMA/CSA 101/I.S.2/A440-2008 Standard/Specification for Windows, Doors, and Unit Skylights.
 3. CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
5. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 1. Material Safety Data Sheets (MSDS).

1.3. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Product Data:
 1. Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 2. Submit two copies WHMIS MSDS Material Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4. QUALITY ASSURANCE

1. PreInstallation Meetings: convene pre-installation meeting one week prior to beginning work of this Section, with Departmental Representative in accordance with Section 01 32 16 - Construction Schedule:
 1. Verify project requirements.
 2. Review installation and substrate conditions.
 3. Co-ordination with other building subtrades.
 4. Review manufacturer's installation instructions and warranty requirements.

1.5. DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements

2. Products

2.1. SHEET METAL MATERIALS

1. Zinc coated steel sheet: 0.7 mm thickness, commercial quality to ASTM A653/A653M, with Z275 designation zinc coating.
2. Prefinished metal: 07 mm thickness, colour as selected by Departmental Representative from available colour range.

2.4. ACCESSORIES

1. Isolation coating: alkali resistant bituminous paint.
2. Plastic cement: to CAN/CGSB 37.5.
3. Underlay for metal flashing: dry sheathing to CAN/CGSB51.32, and No. 15 perforated asphalt felt to CSA A123.3.
4. Sealants: As per Section 07 92 00 - Joint Sealants.
5. Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.
6. Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.
7. Washers: of same material as sheet metal, 1 mm thick with rubber packings.
8. Solder: to ASTM B32.
9. Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.

10. Touchup paint: as recommended by prefinished material manufacturer.

2.5. FABRICATION

1. Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details.
2. Form pieces in 2400 mm maximum lengths.
 1. Make allowance for expansion at joints.
3. Hem exposed edges on underside 12 mm.
 1. Mitre and seal corners with sealant.
4. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
5. Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.6. METAL FLASHINGS

1. Form flashings, copings and fascias to profiles indicated of:
 1. Zinc coated steel sheet for all hidden flashing.
 2. Prefinished metal flashing for all exposed flashing.

2.7. PANS

1. Form pans to receive roofing plastic from sheet metal with minimum 75 mm upstand above finished roof and 100 mm continuous flanges with no open corners.
 1. Solder joints.
 2. Make pans minimum 50 mm wider than member passing through roof membrane.

2.8. REGLETS AND CAP FLASHINGS

1. Form recessed reglets of sheet metal to be built in masonry for base flashings in accordance with CRCA FL series details.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. INSTALLATION

1. Install galvanized steel flashing and other sheet metal work in accordance with applicable CRCA 'FL' series details.
2. Install zinc sheet metal flashing in accordance with:
 1. SMACNA - Architectural Sheet Metal Manual, 5th Edition, Chapter 6.
3. Use concealed fastenings except where approved before installation.
4. Provide underlay under sheet metal.
 1. Secure in place and lap joints 100 mm.

5. Lock end joints and caulk with sealant.
6. Insert metal flashing under cap flashing to form weather tight junction.
8. Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.
9. Caulk flashing at cap flashing with sealant.
10. Install pans, where shown around items projecting through roof membrane.

3.6. CLEANING

1. Proceed in accordance with Section 01 74 11 - Cleaning.
2. On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
3. Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 74 11 - Cleaning.
2. Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
3. Section 07 92 00 - Joint Sealants.

1.2. REFERENCES

1. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 1. Material Safety Data Sheets (MSDS).
2. Underwriter's Laboratories of Canada (ULC)s
 1. ULCS115-1995, Fire Tests of Fire stop Systems.

1.3. DEFINITIONS

1. Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.
2. Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.
3. Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.
4. Tightly Fitted; (ref: NBC Part 3.1.9.1.1 and 9.10.9.6.1): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.
 1. Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.4. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Product Data:
 1. Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
5. Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 1. Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.
 1. Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.

2. Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
3. Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

1.5. QUALITY ASSURANCE

1. Qualifications:
 1. Installer: company specializing in fire stopping installations with 5 years documented experience.

1.6. DELIVERY, STORAGE AND HANDLING

1. Packing, shipping, handling and unloading:
 1. Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
 2. Deliver, store and handle materials in accordance with manufacturer's written instructions.
 3. Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer, and ULC markings.
2. Storage and Protection:
 1. Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 2. Replace defective or damaged materials with new.
3. Waste Management and Disposal:
 1. Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2. Products

2.1. MATERIALS

1. Fire stopping and smoke seal systems: in accordance with CAN-ULCS115.
 1. Asbestosfree materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULCS115 and not to exceed opening sizes for which they are intended and conforming to specified special requirements described in PART 3.
2. Service penetration assemblies: systems tested to CAN-ULCS115.
3. Service penetration fire stop components: certified by test laboratory to CAN-ULCS115.
4. Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
5. Fire stopping and smoke seals at openings intended for ease of reentry such as cables: elastomeric seal.
6. Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
7. Primers: to manufacturer's recommendation for specific material, substrate, and end use.
8. Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

9. Damming and backup 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: nonsagging.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. PREPARATION

1. Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.
 1. Ensure that substrates and surfaces are clean, dry and frost free.
2. Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
3. Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
4. Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3. INSTALLATION

1. Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.
2. Seal holes or voids made by through penetrations, pokethrough termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
3. Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
4. Tool or trowel exposed surfaces to neat finish.
5. Remove excess compound promptly as work progresses and upon completion.

3.5. SEQUENCES OF OPERATION

1. Proceed with installation only when submittals have been reviewed by Departmental Representative.
2. Install floor fire stopping before interior partition erections.
3. Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.
4. Mechanical pipe insulation: fire stop system component.
 1. Ensure pipe insulation installation precedes fire stopping.

3.6. FIELD QUALITY CONTROL

1. Inspections: notify Departmental Representative when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

3.7. CLEANING

1. Proceed in accordance with Section 01 74 11 - Cleaning.
2. On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
3. Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.8. SCHEDULE

1. Fire stop and smoke seal at:
 1. Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
 2. Edge of floor slabs at curtain wall and precast concrete panels.
 3. Top of fire-resistance rated masonry and gypsum board partitions.
 4. Intersection of fire-resistance rated masonry and gypsum board partitions.
 5. Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
 6. Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
 7. Openings and sleeves installed for future use through fire separations.
 8. Around mechanical and electrical assemblies penetrating fire separations.
 9. Rigid ducts: greater than 129 cm²: 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.

END OF SECTION

Approved: 20151110

1. General

1.1. SECTION INCLUDES

1. Materials, preparation and application for caulking and sealants.

1.2. RELATED SECTIONS

1. Section 01 33 00 Submittal Procedures.
2. Section 01 45 00 Quality Control.
3. Section 01 61 00 - Common Product Requirements.
4. Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.3. REFERENCES

1. American Society for Testing and Materials International, (ASTM)
 1. ASTM C919-02, Standard Practice for Use of Sealants in Acoustical Applications.
2. Canadian General Standards Board (CGSB)
 1. CGSB 19GP5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
 2. CAN/CGSB19.13-M87, Sealing Compound, Onecomponent, Elastomeric, Chemical Curing.
 3. CGSB 19GP14M-1984, Sealing Compound, One Component, ButylPolyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
 4. CAN/CGSB19.17-M90, OneComponent Acrylic Emulsion Base Sealing Compound.
 5. CAN/CGSB19.24-M90, Multicomponent, Chemical Curing Sealing Compound.
3. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 1. Material Safety Data Sheets (MSDS).

1.4. SUBMITTALS

1. Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
2. Manufacturer's product to describe.
 1. Caulking compound.
 2. Primers.
 3. Sealing compound, each type, including compatibility when different sealants are in contact with each other.
3. Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
4. Submit duplicate samples of each type of material and colour.
5. Cured samples of exposed sealants for each colour where required to match adjacent material.

6. Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
 1. Instructions to include installation instructions for each product used.

1.5. DELIVERY, STORAGE, AND HANDLING

1. Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
2. Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.6. WASTE MANAGEMENT AND DISPOSAL

1. Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
2. Remove from site and dispose of packaging materials at appropriate recycling facilities.
3. Place materials defined as hazardous or toxic in designated containers.
4. Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
5. Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
6. Divert unused joint sealing material from landfill to official hazardous material collections site.
7. Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.
8. Fold up metal banding, flatten, and place in designated area for recycling.

1.8. PROJECT CONDITIONS

1. Environmental Limitations:
 1. Do not proceed with installation of joint sealants under following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
 2. When joint substrates are wet.
2. Joint-Width Conditions:
 1. Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
3. Joint-Substrate Conditions:
 1. Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.9. ENVIRONMENTAL REQUIREMENTS

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 Labour Canada.

2. Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
3. Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans.

2. Products

2.1. SEALANT MATERIALS

1. Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
2. When low toxicity caulks are not possible, confine usage to areas which offgas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize offgas time.
3. Where sealants are qualified with primers use only these primers.

2.2. SEALANT MATERIAL DESIGNATIONS

1. Silicones One Part. Type 1
 1. To CAN/CGSB19.13.
 2. Class: Joint movement range of plus 100% to -50%
 3. Shore A hardness of 15-20
 4. Min. Elongation of 1200%
2. Silicones One Part. Type 2
 1. To CAN/CGSB19.13.
 2. Class 25
 3. Shore A hardness of 25-30
 4. Non-yellowing, mildew resistant
3. Acrylics One Part. Type 3
 1. To CGSB 19GP5M.
4. Acrylic Latex One Part. Type 4
 1. To CAN/CGSB19.17.
5. Acoustical Sealant. Type 5
 1. To ASTM C919.
17. Preformed Compressible and NonCompressible backup materials.
 1. Polyethylene, Urethane, Neoprene or Vinyl Foam.
 1. Extruded closed cell foam backer rod.
 2. Size: oversize 30 to 50 %.
 2. Bond Breaker Tape.
 1. Polyethylene bond breaker tape which will not bond to sealant.

2.3. SEALANT SELECTION

1. Flashing to wall: Sealant Type: 1

2. Control and expansion joints in exterior surfaces of unit masonry walls: Sealant Type: 1
3. Seal interior perimeters of exterior openings as detailed on drawings: Sealant Type: 4.
4. Perimeters of interior frames, as detailed and itemized: Sealant Type: 3.
5. Perimeter of plumbing fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities): Sealant Type: 2.
6. Exposed interior control joints in drywall: Sealant Type: 4.

2.4. JOINT CLEANER

1. Noncorrosive and nonstaining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
2. Primer: as recommended by manufacturer.

3. Execution

3.1. PROTECTION

1. Protect installed Work of other trades from staining or contamination.

3.2. SURFACE PREPARATION

1. Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
2. Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.
3. Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
4. Ensure joint surfaces are dry and frost free.
5. Prepare surfaces in accordance with manufacturer's directions.

3.3. PRIMING

1. Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
2. Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4. BACKUP MATERIAL

1. Apply bond breaker tape where required to manufacturer's instructions.
2. Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5. MIXING

1. Mix materials in strict accordance with sealant manufacturer's instructions.

3.6. APPLICATION

1. Sealant.

1. Apply sealant in accordance with manufacturer's written instructions.
 2. Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 3. Apply sealant in continuous beads.
 4. Apply sealant using gun with proper size nozzle.
 5. Use sufficient pressure to fill voids and joints solid.
 6. Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 7. Tool exposed surfaces before skinning begins to give slightly concave shape.
 8. Remove excess compound promptly as work progresses and upon completion.
2. Curing.
 1. Cure sealants in accordance with sealant manufacturer's instructions.
 2. Do not cover up sealants until proper curing has taken place.
 3. Cleanup.
 1. Clean adjacent surfaces immediately and leave Work neat and clean.
 2. Remove excess and droppings, using recommended cleaners as work progresses.
 3. Remove masking tape after initial set of sealant.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 74 19 - Waste Management and Disposal.
3. Section 01 78 00 - Closeout Submittals.
4. Section 02 41 16 - Selective Demolition.
5. Section 06 10 00 - Rough Carpentry.
6. Section 07 92 00 - Joint Sealants.
7. Section 08 71 00 - Door Hardware.
8. Section 08 80 50 - Glazing.
9. Section 09 91 00 - Painting.

1.2. REFERENCES

1. American Society for Testing and Materials International (ASTM)
 1. ASTM A653/A653M-06a, Specification for Steel Sheet, ZincCoated (Galvanized) or ZincIron AlloyCoated (Galvannealed) by the HotDip Process.
2. Canadian General Standards Board (CGSB)
 1. CAN/CGSB1.181-99, ReadyMixed Organic ZincRich Coating.
 2. CGSB 41GP19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.
3. Canadian Standards Association (CSA International)
 1. CSAG40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 2. CSA W59-03, Welded Steel Construction (Metal Arc Welding).
4. Canadian Steel Door Manufacturers' Association (CSDMA)
 1. CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
 2. CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.
5. National Fire Protection Association (NFPA)
 1. NFPA 80-99, Standard for Fire Doors and Fire Windows.
 2. NFPA 252-03, Standard Methods of Fire Tests of Door Assemblies.
6. Underwriters' Laboratories of Canada (ULC)
 1. CAN4S104-M80, Standard Method for Fire Tests of Door Assemblies.
 2. CAN4S105-M85, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4S104.

1.3. SYSTEM DESCRIPTION

1. Design Requirements:

1. Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 for ratings specified or indicated.
4. Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104 and listed by nationally recognized agency having factory inspection services.

1.4. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.
3. Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.
 1. Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, arrangement of hardware, fire rating and finishes.
 2. Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing, fire rating and finishes.
 3. Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.5. DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
2. Waste Management and Disposal:
 1. Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2. Products

2.1. DOOR CORE MATERIALS

1. Honeycomb construction:
 1. Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m³ minimum sanded to required thickness.
 1. Expanded polystyrene: CAN/ULCS701, density 16 to 32 kg/m³.
 2. Polyurethane: to CAN/ULCS704 rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m³.

2.3. ADHESIVES

1. Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
2. Lockseam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4. PRIMER

1. Touchup prime CAN/CGSB1.181.

2.5. PAINT

1. Field paint steel doors and frames in accordance with Section 09 91 00 - Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

2.6. ACCESSORIES

1. Door silencers: single stud rubber/neoprene type.
2. Caps: rigid polyvinylchloride extrusion conforming to CGSB 41GP19Ma.
3. Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with countersunk oval head sheet metal screws.
4. Door bottom seal: neoprene.
5. Metallic paste filler: to manufacturer's standard.
6. Fire labels: metal rivited.
8. Glazing: in accordance with Section 08 80 50 - Glazing.

2.7. FRAMES FABRICATION GENERAL

1. Fabricate frames in accordance with CSDMA specifications.
2. Fabricate frames to profiles and maximum face sizes as indicated.
3. Interior frames: 1.2mm welded type construction.
4. Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
6. Protect mortised cutouts with steel guard boxes.
7. Prepare frame for door silencers, 3 for single door, 2 at head for double door.
8. Manufacturer's nameplates on frames and screens are not permitted.
9. Conceal fastenings except where exposed fastenings are indicated.
10. Provide factoryapplied touch up primer at areas where zinc coating has been removed during fabrication.

2.8. FRAME ANCHORAGE

1. Provide appropriate anchorage to floor and wall construction.
2. Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
3. Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
4. Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

2.9. FRAMES: WELDED TYPE

1. Welding in accordance with CSA W59.
2. Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

3. Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
4. Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
5. Securely attach floor anchors to inside of each jamb profile.
6. Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

2.12. DOOR FABRICATION GENERAL

1. Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
2. Interior doors: honeycomb construction.
3. Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
4. Blank, reinforce, drill doors and tap for mortised, templated hardware.
5. Reinforce doors where required, for surface mounted hardware. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
6. Provide factory applied touchup primer at areas where zinc coating has been removed during fabrication.
7. Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN4S104 and list by nationally recognized agency having factory inspection service and construct as detailed in FollowUp Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.
10. Manufacturer's nameplates on doors are not permitted.

2.13. DOORS: HONEYCOMB CORE CONSTRUCTION

1. Form face sheets for interior doors from 1.2 mm sheet steel with honeycomb core laminated under pressure to face sheets.

2.14. HOLLOW STEEL CONSTRUCTION

1. Form face sheets for interior doors from 1.2 sheet steel.
2. Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.
3. Fill voids between stiffeners of interior doors with core.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. INSTALLATION GENERAL

1. Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
2. Install doors and frames to CSDMA Installation Guide.

3.3. FRAME INSTALLATION

1. Set frames plumb, square, level and at correct elevation.
2. Secure anchorages and connections to adjacent construction.
3. Brace frames rigidly in position while building in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built in.
4. Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
5. Caulk perimeter of frames between frame and adjacent material.
6. Maintain continuity of air barrier and vapour retarder.

3.4. DOOR INSTALLATION

1. Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.
2. Adjust operable parts for correct function.

3.5. FINISH REPAIRS

1. Touch up with primer finishes damaged during installation.
2. Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.6. GLAZING

1. Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
3. Section 01 78 00 - Closeout Submittals.
4. Section 06 10 00 - Rough Carpentry.
5. Section 07 27 00 - Air Barriers
6. Section 07 92 00 - Joint Sealing: caulking of joints between frames and other building components.
7. Section 08 80 50 - Glazing

1.2. REFERENCES

1. Aluminum Association (AA), Designation System for Aluminum Finishes (2000)
2. Canadian General Standards Board (CGSB)
 1. CAN/CGSB1.40-97, Anticorrosive Structural Steel Alkyd Primer.
 2. CAN/CGSB79.1-M91, Insect Screens.
3. Canadian Standards Association (CSA) International
 1. CSAA440-00/A440.1-00, A440-00, Windows / Special Publication A440.1-00, User Selection Guide to CSA Standard A440-00, Windows.
 2. CAN/CSAG164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
 3. CAN/CSAZ91-M90(R2000), Safety Code for Window Cleaning Operations.

1.3. SHOP DRAWINGS

1. Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
2. Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim, elevations of unit, anchorage details, description of related components and exposed finishes, fasteners, and caulking. Indicate location of manufacturer's nameplates.

1.4. SAMPLES

1. Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
2. Submit one representative model of each type window.
3. Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.
4. Include 150 mm long samples of head, jamb, sill, mullions to indicate profile.

1.5. TEST REPORTS

1. Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:

1. Windows.
2. anodized finish.
3. Insect screens.
4. Air tightness.
5. Water tightness.
6. Wind load resistance.
7. Condensation resistance.
8. Safety drop vertical sliding windows only.
9. Block operation sliding windows only.
10. Sash strength and stiffness , Operable Casement.
11. Ease of operation windows with operable lights.
12. Sash pulloff vinyl windows.
13. Forced entry resistance.
14. Mullion deflection combination and composite windows.

1.6. CLOSEOUT SUBMITTALS

1. Provide operation and maintenance data for windows for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.7. WASTE MANAGEMENT AND DISPOSAL

1. Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/ Demolition Waste Management And Disposal.
2. Remove from site and dispose of packaging materials at appropriate recycling facilities.
3. Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
4. Divert unused metal materials from landfill to metal recycling facility.
5. Divert unused caulking material from landfill to official hazardous material collections site.
6. Plastic caulking tubes are not recyclable and must not be diverted for recycling with other plastic materials.

2. Products

2.1. MATERIALS

1. Materials: to CSAA440/A440.1 supplemented as follows:
2. All windows by same manufacturer.
3. Sash: aluminum thermally broken.
4. Main frame: aluminum thermally broken.
6. Glass: double glazed, in accordance with Section 08 80 50 - Glazing.
8. Exterior: extruded aluminum of type and size to suit job conditions; minimum 3 mm thick, complete with anchoring devices.
9. Isolation coating: alkali resistant bituminous paint.
10. Colour: to match existing.

11. Sealants: refer to Section 07 92 00 - Joint Sealants

2.2. WINDOW TYPE AND CLASSIFICATION

1. Types:
 1. Sliding: horizontal with double glazing.
 2. Casement: with double glazing
 3. Fixed: with double glazing, insulating glass.
2. Classification rating: to CSAA440/A440.1.
 1. Primary designation:
 2. Performance categories: 40.
 3. Surface condensation control: compliant with standard CAN/CSA-A440.2/
A440.3/
 4. Ancillary properties (Energy rating).
 1. Overall coefficient of heat transfer (U-factor) 0.24 W/(m².K), winter.
 2. Solar heat gain coefficient (SHGC) 0.27.
 3. Visible transmittance (VT) 64%.
 4. Airspace: 13mm - mill finish, 90% Argon filled.
 5. Silicone: Black
 6. Exterior (Vis-Out) Reflectance: 12%
 7. Interior (Vis-In) Reflectance: 13%
 8. Shading Coefficient: 0.31
 9. Light to Solar Gain Ratio: 2.38

2.2. ALUMINUM FRAME (VINYL FILM) 4 TRACK VERTICAL SLIDING PANELS

1. 4 track vertical sliding window:
 1. Powder coated aluminum frame: 6063-T6 Aluminum, white.
 2. Glazing: flexible 10-mil vinyl film, clear.
 3. Removable panels.
 4. Stainless fasteners

2.3. FABRICATION

1. Fabricate in accordance with CSAA440/A440.1 supplemented as follows:
2. Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
3. Face dimensions detailed are maximum permissible sizes.
4. Brace frames to maintain squareness and rigidity during shipment and installation.
5. Finish steel clips and reinforcement with 380 g/m² zinc coating to CAN/CSAG164.

2.4. ALUMINUM FINISHES

1. Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.

1. Integral colour anodic finish: colour to match existing.

2.7. ISOLATION COATING

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

2.8. GLAZING

1. Glaze windows in accordance with CSAA440/A440.1.

2.9. HARDWARE

1. Hardware sash locks and handles to provide security and permit easy operation of units. Colour to match existing.
2. Locks: provide operating sash with spring loading locking device, to provide automatic locking in closed position.
3. Provide special keyed opening device for windows normally locked.
4. Where windows latching devices are located in excess of 1900 mm above floor level:
 1. Equip horizontal sliding units with hardware or design sash to permit pole opening.

2.10. AIR BARRIER AND VAPOUR RETARDER

1. Equip window frames with site installed air barrier and tie into existing vapour retarder material for sealing to building air barrier and vapour retarder as follows:
 1. Material: identical to, or compatible with, building air barrier and vapour retarder materials to provide required air tightness and vapour diffusion control throughout exterior envelope assembly.
 2. Material width: adequate to provide required air tightness and vapour diffusion control to building air barrier and vapour retarder from interior.

3. Execution

3.1. WINDOW INSTALLATION

1. Install in accordance with CSAA440/A440.1.
2. Arrange components to prevent abrupt variation in colour.

3.2. SILL INSTALLATION

1. Install metal sills with uniform wash to exterior, level in length, straight in alignment with plumb upstands and faces. Use one piece at each location.
2. Cut sills to fit window opening.
3. Secure sills in place with anchoring devices located at ends joints of continuous sills and evenly spaced 600 mm on centre in between.
4. Fasten expansion joint cover plates with self tapping stainless steel screws.

5. Maintain 6 to 9 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.

3.3. CAULKING

1. Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and windowframe. Caulk butt joints in continuous sills.
2. Apply sealant in accordance with Section 07 92 00 - Joint Sealing. Conceal sealant within window units except where exposed use is permitted by Departmental Representative.

END OF SECTION

Approved: 20040630

1. General

1.1. RELATED SECTIONS

1. Section 01 61 00 - Common Product Requirements.
2. Section 01 78 00 - Closeout Submittals.
3. Section 06 40 00 - Architectural Woodwork.
4. Section 08 11 00 - Metal Doors and Frames.

1.2. REFERENCES

1. Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).
 1. CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
2. Canadian General Standards Board (CGSB).
 1. CAN/CGSB69.17-M86(R1993), Bored and Preamsembled Locks and Latches.
 2. CAN/CGSB69.18-M90/ANSI/BHMA A156.1-1981, Butts and Hinges.
 3. CAN/CGSB69.20-M90/ANSI/BHMA A156.4-1986, Door Controls (Closers).
 4. CAN/CGSB69.29-93/ANSI/BHMA A156.13-1987, Mortise Locks and Latches.
 5. CAN/CGSB69.31-M89/ANSI/BHMA A156.15-1981, Closer/Holder Release Device.
 6. CAN/CGSB69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.

1.3. SUBMITTALS

1. Product Data:
 1. Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
2. Hardware List:
 1. Submit contract hardware list in accordance with Section 01 33 00 Submittal Procedures.
 2. Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
3. Manufacturer's Instructions:
 1. Submit manufacturer's installation instructions. Closeout Submittals.
4. Closeout Submittals
 1. Provide operation and maintenance data for door closers, locksets, door holders, electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 78 00 Closeout Submittals.

1.4. QUALITY ASSURANCE

1. Regulatory Requirements:
 1. Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
2. Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
3. Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5. DELIVERY, STORAGE, AND HANDLING

1. Packing, Shipping, Handling and Unloading:
 1. Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
 2. Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
2. Storage and Protection:
 1. Store finishing hardware in locked, clean and dry area.

1.7. MAINTENANCE

1. Extra Materials:
 1. Provide maintenance materials in accordance with Section 01 78 00 Closeout Submittals.
 2. Supply two sets of wrenches for door closers, locksets, and fire exit hardware.

2. Products

2.1. HARDWARE ITEMS

1. Use one manufacturer's products only for similar items.

2.2. DOOR HARDWARE

1. Locks and latches:
 1. Bored and preassembled locks and latches: to CAN/CGSB69.17, grade 1, designed for function and keyed as required.
 2. Interconnected locks and latches: to CAN/CGSB69.28, grade 1, designed for function and keyed as required.
 3. Mortise locks and latches: to CAN/CGSB69.29, grade 1, designed for function and keyed as required.
 4. Lever handles: plain design.
 5. Escutcheons: round.
 6. Normal strikes: box type, lip projection not beyond jamb.
 7. Cylinders: key into keying system as directed.
8. Finished to match existing.

1. Butts and hinges:
 1. Butts and hinges: to CAN/CGSB69.18, listed in Hardware Schedule.
 2. Selfclosing hinges and pivots: to CAN/CGSB69.33.
 3. Strap and tee hinges and hasps: to CAN/CGSB69.36.
2. Door Closers and Accessories:
 1. Door controls (closers): to CAN/CGSB69.20.
 2. Door controls overhead holders: to CAN/CGSB69.24.
 3. Closer/holder release devices: to CAN/CGSB69.31.
5. Door Operators:
 1. Poweroperated pedestrian doors: to CAN/CGSB69.26.
 2. Power assist and low energy power operated doors: to CAN/CGSB69.35.
6. Auxiliary locks and associated products: to CAN/CGSB69.21.
 1. Latch bolt.
 2. Cylinders: for installation in deadlocks provided with special doors as listed in Hardware Schedule. Key into keying system.
7. Architectural door trim: to CAN/CGSB69.22.
 1. Door protection plates: kick plate type, 1.27 mm thick aluminum
 2. Push plates: 1.27 mm thick aluminum..
8. Auxiliary hardware: to CAN/CGSB69.32.
 1. Electromagnetic, wall mounted.

2.3. MISCELLANEOUS HARDWARE

1. Padlocks.

2.4. FASTENINGS

1. Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.
2. Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
3. Exposed fastening devices to match finish of hardware.
4. Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
5. Use fasteners compatible with material through which they pass.

2.5. KEYING

1. Doors, padlocks and cabinet locks to match existing type, material and finish and be keyed into existing system.
2. Provide keys in duplicate for every lock in this contract.
3. Stamp keying code numbers on keys and cylinders.
4. Provide construction cores.

5. Provide all cores and keys to Departmental Representative.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

1. Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
2. Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
3. Furnish manufacturers' instructions for proper installation of each hardware component.

3.2. INSTALLATION

1. Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.
2. Where door stop contacts door pulls, mount stop to strike bottom of pull.
3. Install key control cabinet.
4. Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
5. Remove construction cores when directed by Departmental Representative; install permanent cores and check operation of locks.

3.3. ADJUSTING

1. Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
2. Lubricate hardware, operating equipment and other moving parts.
3. Adjust door hardware to provide tight fit at contact points with frames.

3.4. CLEANING

1. Perform cleaning after installation to remove construction and accumulated environmental dirt.
2. Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.
3. Remove protective material from hardware items where present.
4. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.5. SCHEDULE

1. All hardware to be commercial grade.
 1. Hardware group No. 1:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Storeroom Lock: LH8720 x LH11 - 630

3. 1 ea. Deadlock: FALD111P7 - 626
4. 1 ea. Door Closer: 8016-Reg - 689
5. 1 ea. Kickplate: GSH80A - 200 x D.W. - 630
6. 1 ea. Floor Stop: GSH209 - 626
2. Hardware group No. 2:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Storeroom Lock: LH8720 x LH11 - 630
 3. 1 ea. Deadlock: FALD111P7 - 626
 4. 1 ea. Kickplate: GSH80A - 200 x D.W. - 630
 5. 1 ea. Wall Stop: GSH 250B - 626
3. Hardware group No. 3:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Deadlock: FALD111P7 - 626
 3. 1 ea. Door Pulls: GSH 1180-2 - 630
 4. 1 ea. Push Plates: GSH 81A- 127 x 508 - 630
 5. 1 ea. Door Closers: 8016-Reg - 689
 6. 1 ea. Kickplate: GSH80A - 200 x D.W. - 630
 7. 1 ea. Wall Stop: GSH 250B - 626
4. Hardware group No. 4:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Privacy lock w/ occupancy indicator: ML2060 x M19VN
 3. 1 ea. Door Closers: 8016-Reg - 689
 4. 1 ea. Kickplate: GSH80A - 200 x D.W. - 630
 5. 1 ea. Wall Stop: GSH 250B - 626
5. Hardware group No. 5:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Storeroom Lock: LH8720 x LH11 - 630
 3. 1 ea. Door Closers: 8016-Reg - 689
 4. 1 set Perimeter Gasketing: DSS99S 1/1D.W. 2/D.W. - BRZ
 5. 1 ea. Wall Stop: GSH 250B - 626
6. Hardware group No. 6:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Storeroom Lock: LH8720 x LH11 - 630
 3. 1 ea. Door Closers: 8016-Reg - 689
 4. 1 ea. Electromagnetic Door Holder: LCN Type SEM Model 7850 - AL
 5. 1 set Perimeter Gasketing: DSS99S 1/1D.W. 2/D.W. - BRZ

6. 1 ea. Wall Stop: GSH 250B - 626
7. Hardware group No. 7:
 1. 3 ea. Hinges: LH1379CB 114 x 101mm - 652
 2. 1 ea. Lock Latch Barrel Bolt c/w padlock.

END OF SECTION

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1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.
3. Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
4. Section 01 78 00 - Closeout Submittals.
5. Section 06 10 00 - Rough Carpentry.
6. Section 08 11 00 - Metal Doors and Frames.
7. Section 08 50 00 - Windows.

1.2. REFERENCES

1. American Society for Testing and Materials International, (ASTM).
 1. ASTM C542-94(1999), Specification for LockStrip Gaskets.
 2. ASTM D790-02, Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 3. ASTM D1003-00, Test Method for Haze and Luminous Transmittance of Plastics.
 4. ASTM D1929-96(R2001)e1, Test Method for Determining Ignition Temperature of Plastics.
 5. ASTM D2240-02b, Test Method for Rubber Property Durometer Hardness.
 6. ASTM E84-01, Test Method for Surface Burning Characteristics of Building Materials.
 7. ASTM F1233-98, Test Method for Security Glazing Materials and Systems.
2. Canadian General Standards Board (CGSB).
 1. CAN/CGSB12.1-M90, Tempered or Laminated Safety Glass.
 2. CAN/CGSB12.2-M91, Flat, Clear Sheet Glass.
 3. CAN/CGSB12.8-97, Insulating Glass Units.
 4. CAN/CGSB12.10-M76, Glass, Light and Heat Reflecting.
 5. CAN/CGSB12.11-M90, Wired Safety Glass.
3. Canadian Standards Association (CSA International).
 1. CSA A440.2-98, Energy Performance Evaluation of Windows and Sliding Glass Doors.
 2. CSA Certification Program for Windows and Doors 2000..
4. Flat Glass Manufacturers Association (FGMA).
 1. FGMA Glazing Manual - 1997.
5. Laminators Safety Glass Association (LSGA).
 1. LSGA Laminated Glass Design Guide 2000.

1.3. SYSTEM DESCRIPTION

1. Performance Requirements:
 1. Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:
 1. Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
 2. Size glass to withstand wind loads, dead loads and positive and negative live loads as measured in accordance with ANSI/ASTM E330.
 3. Limit glass deflection to 1/200 with full recovery of glazing materials.

1.4. SUBMITTALS

1. Product Data:
 1. Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
2. Shop Drawings:
 1. Submit shop drawings in accordance with Section 01 33 00 Submittal Procedures.
3. Samples:
 1. Submit samples in accordance with Section 01 33 00 Submittal Procedures.
4. Manufacturer's Instructions:
 1. Submit manufacturer's installation instructions.
5. Closeout Submittals:
 1. Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5. QUALITY ASSURANCE

2. Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
3. Mock-ups:
 1. Construct mockups in accordance with Section 01 45 00 Quality Control.
 2. Construct mockup to including glazing, and perimeter air barrier and vapour retarder seal.
 3. Mock-up will be used:
 1. To judge workmanship, substrate preparation, operation of equipment and material application.
 2. Locate where directed.
 3. Allow 24 hours for inspection of mockup before proceeding with work.
 4. When accepted, mockup will demonstrate minimum standard of quality required for this work. Approved mockup may remain as part of finished work.
4. Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.6. DELVIERY, STORAGE AND HANDLING

1. Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.

1.7. SITE CONDITIONS

1. Environmental Requirements:
 1. Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
 2. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

2. Products

2.1. MATERIALS

1. Flat glass: to CAN/CGSB12.1, transparent, 6 mm thick.
 1. Type 2 - tempered
 2. Class B - Float
 3. Category 1
4. Insulation Glass Units: to CAN/CGSB12.8, double glazed unit, 22 mm overall thickness.
 1. Located at MPR and Basement.
 2. Glass: to CAN/CGSB12.3.
 3. Glass thickness: 6mm each light.
 4. Inter-cavity space thickness: 12mm
 5. Glass coating: Low-E on surface #2
 6. Inert gas fill: Argon
5. Wired glass: to CAN/CGSB12.11, 6 mm thick.
 1. Type 1 - Polished both sides (transparent).
 2. Wire mesh styles 3Square.

2.3. MATERIALS

1. Privacy Blackout Film:
 1. Texture: Random medium texture
 2. Colour: Matt black
 3. Film: PVC
 4. Adhesive: Pressure sensitive modified acrylic with very low initial tack but with a high final bond strength to a wide variety of surfaces providing reliability in all types of environmental conditions
 5. Liner: Recyclable poly-coated lay flat paper liner for easy film release and perfect cut edges

6. Shelf Life: 6 months from date of receipt by customer when stored in original packaging at 22 ± 4 °C and at maximum moisture of 60 % Sealant: in accordance with Section 07 92 00 - Joint Sealants

2.4. ACCESSORIES

1. Setting blocks: EPDM 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.
2. Spacer shims: Neoprene 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
3. Glazing tape:
 1. Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; black colour.
4. Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot, black colour.
5. Glazing clips: manufacturer's standard type.
6. Lockstrip gaskets: to ASTM C542.
7. Mirror attachment accessories: Stainless steel clips.

3. Executions

3.1. MANUFACTURER'S INSTRUCTIONS

1. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2. EXAMINATION

1. Verify that openings for glazing are correctly sized and within tolerance.
2. Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.3. PREPARATION

1. Clean contact surfaces with solvent and wipe dry.
2. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
3. Prime surfaces scheduled to receive sealant.

3.4. INSTALLATION: EXTERIOR DRY METHOD (PREFORMED GLAZING)

1. Perform work in accordance with GANA Laminated Glazing Reference Manual for glazing installation methods.
2. Cut glazing tape to length; install on glazing light. Seal corners by butting tape and sealing junctions with sealant.
3. Place setting blocks at 1/3 points, with edge block maximum 150mm from corners.

4. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
5. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.
6. Trim protruding tape edge.

3.7. INSTALLATION: INTERIOR DRY METHOD (TAPE AND TAPE)

1. Perform work in accordance with GANA Laminated Glazing Reference Manual for glazing installation methods.
2. Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.
3. Place setting blocks at 1/3 points, with edge block maximum 150 mm from corners.
4. Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.
5. Place glazing tape on free perimeter of glazing in same manner described.
6. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
7. Knife trim protruding tape.

3.10. INSTALLATION: MIRRORS

1. Reset mirrors with clips. Anchor rigidly to wall construction.
2. Set in frame.
3. Place plumb and level.

3.11. INSTALLATION: PLASTIC FILM

1. Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.
2. Place without air bubbles, creases or visible distortion.
3. Fit tight to glass perimeter with razor cut edge.

3.12. CLEANING

1. Perform cleaning after installation to remove construction and accumulated environmental dirt.
2. Remove traces of primer, caulking.
3. Remove glazing materials from finish surfaces.
4. Remove labels after work is complete.
5. Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacture's instructions.
6. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.13. PROTECTION OF FINISHED WORK

1. After installation, mark light with an "X" by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

3.14. SCHEDULE

1. As per window schedule.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
3. Section 06 10 00 - Rough Carpentry.
4. Section 07 92 00 - Joint Sealants.
5. Section 08 11 00 - Metal Doors and Frames.
6. Section 09 91 00 - Painting.

1.2. REFERENCES

1. Aluminum Association
 1. Designation for Aluminum Finishes 1997.
2. American Society for Testing and Materials International, (ASTM)
 1. ASTM C36/C36M-01, Specification for Gypsum Wallboard.
 2. ASTM C79/C79M-01, Standard Specification for Treated Core and Non-treated Core Gypsum Sheathing Board.
 3. ASTM C442/C442M-01, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
 4. ASTM C475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 5. ASTM C514-01, Specification for Nails for the Application of Gypsum Board.
 6. ASTM C557-99, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
 7. ASTM C630/C630M-01, Specification for Water Resistant Gypsum Backing Board.
 8. ASTM C840-01, Specification for Application and Finishing of Gypsum Board.
 9. ASTM C931/C931M-01, Specification for Exterior Gypsum Soffit Board.
 10. ASTM C954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
 11. ASTM C960/C960M-01, Specification for Pre-decorated Gypsum Board.
 12. ASTM C1002-01, Specification for Steel SelfPiercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 13. ASTM C1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 14. ASTM C1280-99, Specification for Application of Gypsum Sheathing Board.
 15. ASTM C1177-01, Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 16. ASTM C1178/C1178M-01, Specification for Glass Mat WaterResistant Gypsum Backing Board.

3. Association of the Wall and Ceilings Industries International (AWEI)
4. Canadian General Standards Board (CGSB)
 1. CAN/CGSB51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
 2. CAN/CGSB71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
5. Underwriters' Laboratories of Canada (ULC)
 1. CAN/ULCS102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.

1.3. DELIVERY, STORAGE AND HANDLING

1. Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.
2. Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
3. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.

1.4. SITE ENVIRONMENTAL REQUIREMENTS

1. Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.s
2. Apply board and joint treatment to dry, frost free surfaces.
3. Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

2. Products

2.1. MATERIALS

1. Standard board: to ASTM C36/C36M regular, 13 mm thick and Type X, 15.9 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges.
2. Waterresistant board: to ASTM C630/C630M regular, 13 mm thick and Type X, 15.9 mm thick, 1200 mm wide x maximum practical length.
3. Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
4. Resilient drywall furring: 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
12. Nails: to ASTM C514.
13. Steel drill screws: to ASTM C1002.
14. Stud adhesive: to CAN/CGSB71.25.
15. Laminating compound: as recommended by manufacturer, asbestosfree.
16. Casing beads, corner beads, control joints and edge trim: to ASTM C1047, ABS 0.5mm base thickness, perforated flanges, one piece length per location.

20. Sealants: in accordance with Section 07 92 00 - Joint Sealing.
21. Polyethylene: to CAN/CGSB51.34, Type 2.
22. Insulating strip: rubberized, moisture resistant, 3 mm thick cork strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.
23. Joint compound: to ASTM C475, asbestos-free.

2.2. FINISHES

1. Texture finish: asbestos-free standard white texture coating and primer-sealer, recommended by gypsum board manufacturer.
 1. Primer: VOC limit 50 g/l maximum to GS-11.

3. Execution

3.1. EXAMINATION

1. Verification of Condition: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for gypsum board assemblies installation in accordance with manufacturer's written instructions.
 1. Visually inspect substrate in presence of Departmental Representative.
 2. Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 3. Proceed with installation only after unacceptable conditions have been remedied and after recipe of written approval to proceed from Departmental Representative.

3.2. ERECTION

1. Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
2. Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C840 except where specified otherwise.
3. Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
4. Install work level to tolerance of 1:120.
5. Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, and grilles.
6. Install 19 x 64 mm furring channels parallel to, and at exact locations of steel stud partition header track.
7. Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
8. Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
9. Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
10. Furr openings and around builtin equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.

11. Furr duct shafts, beams, columns, pipes and exposed services where indicated.
12. Erect drywall resilient furring transversely across stud, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 38 mm common nail 25 mm drywall screw.
13. Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.
14. Patch and repair existing gypsum board finishes as required.

3.3. APPLICATION

1. Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
2. Apply single layer gypsum board to metal furring or wood framing using screw fasteners. Maximum spacing of screws 300 mm on centre.
 1. SingleLayer Application:
 1. Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
 2. Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
3. Apply single layer gypsum board to concrete surfaces, where indicated, using laminating adhesive.
 1. Comply with gypsum board manufacturer's recommendations.
 2. Brace or fasten gypsum board until fastening adhesive has set.
 3. Mechanically fasten gypsum board at top and bottom of each sheet.
4. Exterior Soffits and Ceilings: Install exterior gypsum board perpendicular to supports; stagger end joints over supports. Install with 6 mm gap where boards abut other work.
5. Apply waterresistant gypsum board to be applied adjacent to plumbing fixtures. Apply waterresistant sealant to edges, ends, cutouts which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.
6. Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cutouts around electrical boxes, and ducts in partitions where perimeter sealed with acoustic sealant.
7. Install ceiling boards in direction that will minimize number of endbutt joints. Stagger end joints at least 250 mm.
8. Install gypsum board on walls vertically to avoid endbutt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
9. Install gypsum board with face side out.
10. Do not install damaged or damp boards.
11. Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

3.3. INSTALLATION

1. Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.
2. Install casing beads around perimeter of suspended ceilings.
3. Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
4. Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior door frames, to provide thermal break.
5. Construct control joints of two backto back casing beads set in gypsum board facing and supported independently on both sides of joint.
6. Provide continuous polyethylene dust barrier behind and across control joints.
8. Locate control joints at changes in substrate construction at approximate 8m spacing at walls and approximate 16 m spacing on ceilings. Locate ceiling control joints at intersection of structural framing, and columns unless noted otherwise.
9. Install control joints straight and true.
10. Construct expansion joints as detailed, at building expansion and construction joints. Provide continuous dust barrier.
11. Install expansion joint straight and true.
12. Install cornice cap where gypsum board partitions do not extend to ceiling.
13. Fit cornice cap over partition, secure to partition track with two rows of sheet metal screws staggered at 300 mm on centre.
14. Splice corners and intersections together and secure to each member with 3 screws.
15. Install access doors to electrical and mechanical fixtures specified in respective sections.
 1. Rigidly secure frames to furring or framing systems.
16. Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
17. Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
 1. Levels of finish:
 1. Level 0: No tapping, finishing or accessories required.
 2. Level 1: Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.
 3. Level 2: Embed tape for joints and interior angles in joint compound and apply one separate coat of joint compound over joints, angles, fastener heads and accessories; surfaces free of excess joint compound; tool marks and ridges are acceptable.
 4. Level 3: Embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.

5. Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
6. Level 5: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.
18. Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
19. Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
20. Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
21. Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
22. Apply one coat of white primer sealer over surface to be textured. When dry apply textured finish in accordance with manufacturer's instructions.
23. Mix joint compound slightly thinner than for joint taping.
24. Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.
25. Allow skim coat to dry completely.
26. Remove ridges by light sanding or wiping with damp cloth.
27. Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.

3.4. PROTECTION

1. Protect installed products and components from damage during construction.
2. Repair damage to adjacent materials caused by gypsum board assemblies.

3.5. SCHEDULES

1. Construct fire rated assemblies where indicated.

END OF SECTION

Approved: 20151214

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.
3. Section 01 61 00 - Common Product Requirements.
4. Section 06 10 00 - Rough Carpentry.
5. Section 07 27 00 - Air Barriers.

1.2. REFERENCES

1. ASTM C150 - Standard Specification for Portland Cement.
2. ASTM C206 - Standard Specification for Finishing Hydrated Lime.
3. ASTM C897 - Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters.
4. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster.
5. PCA (Portland Cement Association) - Portland Cement Plaster (Stucco) Manual.

1.3. QUALITY ASSURANCE

1. Perform Work in accordance with ASTM C926.
2. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years documented experience. .

1.4. ENVIRONMENTAL REQUIREMENTS

1. Do not apply plaster when substrate or ambient air temperature is less than 10 degrees C nor more than 27 degrees C.
2. Maintain minimum ambient temperature of 10 degrees C during installation of plaster and until cured.

2. Products

2.1. PLASTER BASE MATERIALS

1. Cement: ASTM C150, Normal Portland type, gray color.
2. Lime: ASTM C206, Type S.
3. Aggregate: In accordance with ASTM C897.
4. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.

2.1. PLASTER FINISH MATERIALS

1. Cement: As specified for plaster base coat, colour.
2. Lime: As specified for plaster base coat, colour.

3. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.
4. Texture to be smooth.

2.1. FURRING AND LATHING

1. Metal Lath: ASTM C847; flat diamond self furring mesh 1.84 kg/sq m galvanized.
2. Casing Bead: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with square edges; galvanized.
3. Corner Bead: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges with bullnosed edge; galvanized.
4. Base Screed: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal flanges, with square edge; galvanized.
5. Corner Mesh: Formed sheet steel, minimum 0.5 mm thick, perforated expanded flanges shaped to permit complete embedding in plaster, minimum 50 mm size; galvanized.
6. Strip Mesh: Expanded metal lath, minimum 0.5 mm thick, 50 mm wide x 600 mm long; galvanized.
7. Control and Expansion Joint Accessories: Formed sheet steel, accordion W profile, 50 mm expanded metal flanges each side, galvanized.
8. Anchorage: Tie wire, nails, and other metal supports, of type and size to suit application; to rigidly secure materials in place, galvanized.

2.1. CEMENT PLASTER MIXES

1. Mix and proportion cement as indicated.
2. Foundation Parging Coat: One part cement, minimum 3-1/2 and maximum 4 parts aggregate, and minimum 15 percent and maximum 25 percent hydrated lime.
3. Mix only as much plaster as can be used prior to initial set.
4. Mix materials dry, to uniform colour and consistency, before adding water.
5. Protect mixtures from freezing, frost, contamination, and excessive evaporation.
6. Do not retemper mixes after initial set has occurred.

3. Execution

3.1. EXAMINATION

1. Verify that surfaces and site conditions are ready to receive work.
2. Beginning of installation means acceptance of existing conditions.
3. Mechanical and Electrical: Verify services within walls have been tested and approved.

3.2. INSTALLATION - LATHING MATERIALS

1. Ensure underlayment is in place prior to installing reinforcement..
2. Apply metal lath taut, with long dimension perpendicular to supports.
3. Lap ends minimum 25 mm. Secure end laps with tie wire where they occur between supports.

4. Lap sides of diamond mesh lath minimum 38 mm. Nest outside ribs of rib lath together.
5. Attach metal lath to supports at maximum 150 mm on center.

3.3. INSTALLATION - ACCESSORIES

1. Continuously reinforce internal angles with corner mesh, return metal lath 75 mm from corner to form the angle reinforcement; fasten at perimeter edges only.
2. Place corner bead at external wall corners; fasten at outer edges of lath only. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.
3. Place 100 mm wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.
4. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.

3.4. CONTROL AND EXPANSION JOINTS

1. Locate exterior control and expansion joints every 3 m 10 feet unless otherwise indicated on drawings.
2. Establish control and expansion joints with specified joint device.

3.5. PARGING

1. Apply parging in accordance with CSA A82.30M.
2. Apply to a nominal thickness of 10 mm 3/8" with a finish coat to a nominal thickness of 4 mm over surfaces.
3. Bring surface of base coat to a true even plane and floated to a uniform surface to accept finish coat.
4. Moist cure base coat for minimum 48 hours.
After curing, dampen base coat prior to applying finish coat.
5. Apply finish coat according to manufacturers instructions to a smooth textured finish as approved by the Contract Administrator.
6. Maintain minimum temperature of 10 degrees C during and 7 days after completion of cement plaster work.
7. Gas fired heaters shall be vented outside of hoarding.

3.6. ERECTION TOLERANCES

1. Maximum variation from True Flatness: 3 mm in 3m.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.
3. Section 01 78 00 - Closeout Submittals.

1.2. REFERENCES

1. American Society for Testing and Materials International (ASTM)
 1. ASTM F1303-04, Standard Specification for Sheet Vinyl Floor Covering with Backing.
2. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 1. Material Safety Data Sheets (MSDS).

1.3. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Provide product data in accordance with Section 01 33 00 - Submittal Procedures.
3. Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
 1. Submit duplicate 300 x 300 mm sample pieces of sheet material, 300 mm long base.
4. Closeout Submittals:
 1. Provide maintenance data for resilient flooring for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4. DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

1.5. AMBIENT CONDITIONS

1. Maintain air temperature and structural base temperature at flooring installation area above 20 degrees for 48 hours before, during and 48 hours after installation.

1.6. MAINTENANCE

1. Extra Materials:
 1. Provide extra materials of resilient sheet flooring and adhesives in accordance with Section 01 78 00 Closeout Submittals.
 2. Provide 10% of each colour, pattern and type flooring material required for project for maintenance use.
 3. Extra materials one piece and from same production run as installed materials.
 4. Identify each roll of sheet flooring and each container of adhesive.
 5. Deliver to Departmental Representative, upon completion of the work of this section.

6. Store where directed by Departmental Representative.

2. Products

2.1. MATERIALS

1. Sheet vinyl with backing : to ASTM F1303, commercial.
 1. Type: I PVC binder content 90%.
 2. Grade: 1.
 3. Backing: Class A.
 4. Pattern: smooth.
 5. Colour: selected by Departmental Representative.
 6. Thickness: 2 mm.
2. Vinyl Composite Tile:
 1. Type: ASTM F 1700, Class III, Type B
 2. Pattern: embossed surface
 3. Texture: simulated wood
 4. Colour: selected by Departmental Representative.
 5. Thickness: 2 mm
 6. Size: 152 mm x 914 mm (minimum)
3. Resilient base: continuous, top set, complete with premoulded end stops and external corners:
 1. Type: rubber.
 2. Style: cove.
 3. Height: 101.6 mm.
 4. Lengths: cut lengths minimum 2400mm.
 5. Colour: selected by Departmental Representative.
4. Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above, on or below grade.
 1. Rubber floor adhesives:
 1. Adhesive: maximum VOC limit 60 g/L to SCAQMD Rule 1168.
 2. Cove base adhesives:
 1. Adhesive: maximum VOC limit 50 g/L to SCAQMD Rule 1168.
13. Subfloor filler and leveller: white premix latex requiring water only to produce cementitious paste as recommended by flooring manufacturer for use with their product.
14. Metal edge strips:
 1. Aluminum extruded, smooth, stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
15. Edging to floor penetrations: stainless steel type recommended by flooring manufacturer.
16. Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. SITE VERIFICATION OF CONDITIONS

1. Ensure concrete floors are clean and dry by using test methods recommended by flooring manufacturer.

3.3. PREPARATION

1. Remove existing resilient flooring.
2. Remove or treat old adhesives to prevent residual, old flooring adhesives from bleeding through to new flooring and/or interfering with the bonding of new adhesives.
3. Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
4. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
5. Prime, seal plywood subfloor to resilient flooring manufacturer's printed instructions.

3.4. APPLICATION: FLOORING

1. Provide high ventilation rate, with maximum outside air, during installation, and for 48 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system.
2. Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place.
3. Resilient sheet flooring:
 1. Lay flooring with seams parallel to building lines to produce a minimum number of seams. Border widths minimum 1/3 width of full material.
 2. Run sheets in direction of traffic. Double cut sheet joints and continuously seal heat weld according to manufacturer's printed instructions.
 3. Follow pattern drawing supplied by Architect..
6. As installation progresses, and after installation roll flooring with 45 kg minimum roller to ensure full adhesion.
7. Cut flooring neatly around fixed objects.
8. Install feature strips and floor markings where indicated. Fit joints tightly.
9. Install flooring in pan type floor access covers. Maintain floor pattern.
10. Continue flooring over areas which will be under built-in furniture.
11. Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
12. Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.5. APPLICATION: BASE

1. Lay out base to keep number of joints at minimum.
2. Clean substrate and prime with one coat of adhesive.
3. Apply adhesive to back of base.
4. Set base against wall and floor surfaces tightly by using 3 kg hand roller.
5. Install straight and level to variation of 1:1000.
6. Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush door frames.
7. Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.
8. Use toeless type base where floor finish will be carpet, coved type elsewhere.
9. Install toeless type base before installation of carpet on floors.
10. Heat weld base in accordance with manufacturer's printed instructions.

3.7. FIELD QUALITY CONTROL

1. Manufacturer's Field Services:
 1. Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.8. CLEANING

1. Proceed in accordance with Section 01 74 11 - Cleaning.
2. Remove excess adhesive from floor, base and wall surfaces without damage.
3. Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

3.9. PROTECTION

1. Protect new floors in accordance with manufacturer's instructions.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 35 29.06 - Health and Safety Requirements.
3. Section 01 45 00 - Quality Control.
4. Section 01 61 00 - Common Product Requirements.
5. Section 01 78 00 - Closeout Submittals.
6. Section 06 20 00 - Finish Carpentry.
7. Section 06 40 00 - Architectural Woodwork.
8. Section 08 11 00 - Metal Doors and Frames.
9. Section 09 21 16 - Gypsum Board Assemblies..

1.2. 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, 2004.
3. National Fire Code of Canada - 1995.
4. Society for Protective Coatings (SSPC)
 1. SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
5. Transport Canada (TC)
 1. Transportation of Dangerous Goods Act (TDGA), 1992, c. 34 .

1.3. QUALITY ASSURANCE

1. Qualifications:
 1. Contractor: minimum of five years proven satisfactory experience. Provide list of last three comparable jobs including, job name and location, specifying authority, and project manager.
 2. Journeymen: qualified journeymen who have "Tradesman Qualification Certificate of Proficiency" engaged in painting work.
 3. Apprentices: working under direct supervision of qualified trades person in accordance with trade regulations.
2. Conform to latest MPI requirements for exterior and interior repeating work including cleaning, preparation and priming.
3. Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, and solvents) to be in accordance with the latest edition of the MPI Approved Product List and to be from a single manufacturer for each system used.

4. Paint materials such as linseed oil, shellac, and turpentine, to be the highest quality product of an approved manufacturer listed in MPI Maintenance Repainting Manual and shall be compatible with other coating materials as required.
5. Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.
6. Mock-Ups:
 1. Construct mockups in accordance with Section 01 45 00 Quality Control.
 1. Provide 1000mm x 1000mm mockup. Prepare and paint designated surface, area, room or item (in each colour scheme) to specified requirements, with specified paint or coating showing selected colours, gloss/sheen, textures.
 2. Mock-up will be used:
 1. To judge workmanship, substrate preparation, operation of equipment and material application and workmanship to MPI Architectural Painting Specification Manual standards.
 3. Locate where directed by departmental representative.
 4. Allow 24 hours for inspection of mockup before proceeding with work.
 5. When accepted, mockup will demonstrate minimum standard of quality required for this work. Approved mockup may remain as part of finished work.
7. Health and Safety:
 1. Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4. SCHEDULING

1. Submit work schedule for various stages of painting to Departmental Representative for review. Submit schedule minimum of 48 hours in advance of proposed operations.
2. Obtain written authorization from Departmental Representative for changes in work schedule.
3. Schedule painting operations to prevent disruption of occupants.

1.5. 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.
3. Samples:
 1. Submit full range colour sample chips to indicate where colour availability is restricted.
 2. Submit 200 x 300 mm sample panels of each paint with specified paint or coating in colours, gloss/sheen and textures required to MPI Architectural Painting Specification Manual standards submitted on following substrate materials:

1. 13 mm birch plywood for finishes over wood surfaces.
2. 50 mm concrete block for finishes over concrete or concrete masonry surfaces.
3. 13 mm gypsum board for finishes over gypsum board and other smooth surfaces.
4. 10 mm cedar for finishes over exterior veranda wood surfaces.
3. Retain reviewed samples on-site to demonstrate acceptable standard of quality for appropriate on-site surface.
4. Test reports: submit certified test reports for paint from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
 1. Lead, cadmium and chromium: presence of and amounts.
 2. Mercury: presence of and amounts.
 3. Organochlorines and PCBs: presence of and amounts.
5. Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
6. Manufacturer's Instructions:
 1. Submit manufacturer's installation and application instructions.
7. Closeout Submittals: submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals include following:
 1. Product name, type and use.
 2. Manufacturer's product number.
 3. Colour numbers.
 4. MPI Environmentally Friendly classification system rating.

1.6. MAINTENANCE

1. Extra Materials:
 1. Deliver to extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 78 00 - Closeout Submittals.
 2. Quantity: provide one - four litre can of each type and colour finish coating. Identify colour and paint type in relation to established colour schedule and finish system.
 3. Delivery, storage and protection: comply with Departmental Representative requirements for delivery and storage of extra materials.

1.7. DELIVERY, STORAGE AND HANDLING

1. Packing, Shipping, Handling and Unloading:
 1. Pack, ship, handle and unload materials in accordance with Section 01 61 00 Common Product Requirements and manufacturer's written instructions.
2. Acceptance at Site:
 1. Identify products and materials with labels indicating:
 1. Manufacturer's name and address.
 2. Type of paint or coating.
 3. Compliance with applicable standard.
 4. Colour number in accordance with established colour schedule.

3. Remove damaged, opened and rejected materials from site.
4. 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 with temperature range as recommended by manufacturer.
5. Store temperature sensitive products above minimum temperature as recommended by manufacturer.
6. Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.
7. Remove paint materials from storage only in quantities required for same day use.
8. Fire Safety Requirements:
 1. Provide one 9 kg 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.
9. Waste Management and Disposal:
 1. Paint, stain and wood preservative finishes and related materials are hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Territorial Ministries of Environment and Regional levels of Government.
 2. Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.
 3. Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
 4. To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:
 1. Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
 2. Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 3. Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 4. Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
 5. Empty paint cans are to be dry prior to disposal or recycling (where available).
 6. Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

1.8. SITE CONDITIONS

1. Heating, Ventilation and Lighting:
 1. Provide heating facilities to maintain ambient air and substrate temperatures above 10 degrees C for 24 hours before, during and after paint application until paint has cured sufficiently.
 2. Provide continuous ventilation for seven days after completion of application of paint.
 3. Coordinate use of existing ventilation system with Departmental Representative and ensure its operation during and after application of paint as required.
 4. Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.
 5. Provide minimum lighting level of 323 Lux on surfaces to be painted.
2. Temperature, Humidity and Substrate Moisture Content Levels:
 1. Unless pre-approved written approval by product manufacturer, perform no painting when:
 1. Ambient air and substrate temperatures are below 10 degrees C.
 2. Substrate temperature is above 32 degrees C unless paint is specifically formulated for application at high temperatures.
 3. Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.
 4. The relative humidity is under 85% or when the dew point is more than 3 degrees C variance between the air/surface temperature. Paint should not be applied if the dew point is less than 3 degrees C below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
 5. Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
 6. Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.
 2. Perform painting work when maximum moisture content of the substrate is below:
 1. Allow new concrete and masonry to cure minimum of 28 days.
 2. 15% for wood.
 3. 12% for plaster and gypsum board.
 3. Test for moisture using calibrated electronic Moisture Meter. Test concrete floors for moisture using "cover patch test".
 4. Test concrete, masonry and plaster surfaces for alkalinity as required.
3. Surface and Environmental Conditions:
 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 to adequately prepared surfaces and to surfaces within moisture limits.
 3. Apply paint when previous coat of paint is dry or adequately cured.

4. Additional interior application requirements:
 1. Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.
 2. Apply paint in occupied facilities during silent hours only. Schedule operations to approval of Departmental Representative such that painted surfaces will have dried and cured sufficiently before occupants are affected.

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. Conform to latest MPI requirements for interior painting work including preparation and priming.
4. Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI Architectural Painting Specification Manual "Approved Product" listing.
 1. Use MPI listed materials having E2 rating where indoor air quality requirements exist.
 2. Primer: VOC limit 100 g/l maximum to SCAQMD rule 1113.
 3. Paint: VOC limit 100 g/l maximum to GS-11.
5. Linseed oil, shellac, and turpentine: highest quality product from approved manufacturer listed in MPI Architectural Painting Specification Manual, compatible with other coating materials as required.
6. Waterborne paints and stains, recycled waterborne surface coatings and water borne varnishes to meet minimum "Environmentally Friendly" E2 rating.
7. Paints and coatings must be formulated or manufactured with formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, or their compounds.

2.2. COLOURS

1. Submit proposed Colour Schedule to Departmental Representative for review.
2. Exterior:
 1. Colour schedule will be based upon selection of no more than one base colour and one accent colour.
 2. Refer to finish schedule for colours.
3. Interior:
 1. Colour schedule will be based upon selection of no more than two base colours and three accent colours.
 2. Refer to finish schedule for colours.
4. Selection of colours from manufacturers full range of colours.
5. Where specific products are available in restricted range of colours, selection based on limited range.

6. Second coat in three coat system to be tinted slightly lighter colour than top coat to show visible difference between coats.

2.3. MIXING AND TINTING

1. Perform colour tinting operations prior to delivery of paint to site. Obtain written approval from Departmental Representative for tinting of painting materials.
2. Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.
3. Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin waterbased paints.
4. Thin paint for spraying in accordance with paint manufacturer's instructions.
5. Remix paint in containers prior to and during application to ensure breakup 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 - VelvetLike Finish | Max.10 | 10 to 35 |
| Gloss Level 3 - Eggshell Finish | 10 to 25 | 10 to 35 |
| Gloss Level 4 - SatinLike Finish | 20 to 35 | min. 35 |
| Gloss Level 5 - Traditional SemiGloss 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.

2.5. EXTERIOR PAINTING SYSTEMS:

1. Concrete Vertical Surfaces: outside face of foundation walls.
 1. EXT 3.1G - Water repellent (non-paintable) finish.
2. Galvanized Metal: high contact/high traffic areas (doors, frames, pipes, railings and handrails, etc.).
 1. EXT 5.3B - Alkyd G5 gloss level finish.
3. Veranda and Canopy Re-finish:
 1. Prime Coat - Latex Wood Primer
 2. Two Coats: Solo Acrylic Semi-Gloss finish, colour to match new siding.

2.6. INTERIOR PAINTING SYSTEMS

1. Concrete vertical surfaces:
 1. INT 3. 1A - Latex G5 finish (over sealer).
2. Dressed lumber: including doors, door and window frames, casings, wood slats etc.:
 1. INT 6.3S - Polyurethane varnish, Clear fire retardant finish (ULC rated) as wood slats.
 2. INT 6.3X - Clear moisture cured polyurethane flat finish.
3. Plaster and gypsum board: gypsum wallboard, drywall, "sheet rock type material", and textured finishes:
 1. INT 9.2A - Latex G5 gloss level finish (over latex sealer).
 2. INT 9.2B - High performance architectural latex G5 finish.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. GENERAL

1. Perform preparation and operations for interior painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.
2. Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3. EXAMINATION

1. Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Departmental Representative 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. Maximum moisture content as follows:
 1. Stucco, plaster and gypsum board: 12%.
 2. Concrete: 12%.
 3. Wood: 15%.

3.4. PREPARATION

1. Protection:
 1. Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable nonstaining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
 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 to approval of Departmental Representative.
3. Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements and coating manufacturer's recommendations.
4. Clean following surfaces with high pressure water washing: Existing Veranda.
5. Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
6. Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 1. Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 2. Apply wood filler to nail holes and cracks.
 3. Tint filler to match stains for stained woodwork.
7. Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
8. Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.
9. Touch up of shop primers with primer as specified.
10. Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

3.5. APPLICATION

1. Apply paint by method that is best suited for substrate being repainted. Conform to manufacturer's application instructions unless specified otherwise. In each case method of application to be as pre-approved by Departmental Representative before commencing work.
2. Brush and Roller Application:
 1. Apply paint in uniform layer using brush and/or roller type suitable for application.
 2. Work paint into cracks, crevices and corners.
 3. Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
 4. Brush and/or roll out runs and sags, and overlap marks. Rolled surfaces free of roller tracking and heavy stipple.
 5. Remove runs, sags and brush marks from finished work and repaint.

3. Spray application:
 1. Provide and maintain equipment that is suitable for intended purpose, capable of atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
 2. Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
 3. Apply paint in uniform layer, with overlapping at edges of spray pattern. Back roll first coat application.
 4. Brush out immediately all runs and sags.
 5. Use brushes and rollers to work paint into cracks, crevices and places which are not adequately painted by spray.
4. Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access.
5. Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
6. Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
7. Sand and dust between coats to remove visible defects.
8. Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
9. Finish inside of cupboards and cabinets as specified for outside surfaces.
10. Finish closets and alcoves as specified for adjoining rooms.
11. Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

3.6. MECHANICAL/ELECTRICAL EQUIPMENT

1. Paint finished area exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and finish to match adjacent surfaces, except as indicated.
2. Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
3. Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
4. Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
5. Do not paint over nameplates.
6. Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
7. Paint disconnect switches for fire alarm system and exit light systems in red enamel.
8. Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touchup as required, and paint conduits, mounting accessories and other unfinished items.
9. Do not paint interior transformers and substation equipment.

3.7. FIELD QUALITY CONTROL

1. Interior painting and decorating work shall be inspected by a Paint Inspection Agency (inspector) acceptable to the specifying authority and local Painting Contractor's Association. Painting contractor shall notify Paint Inspection Agency a minimum of one week prior to commencement of work and provide a copy of project painting specification, plans and elevation drawings (including pertinent details) as well as a Finish Schedule.
2. Interior surfaces requiring painting shall be inspected by Paint Inspection Agency who shall notify Departmental Representative and General Contractor in writing of defects or problems, prior to commencing painting work, or after prime coat shows defects in substrate.
3. Where "special" painting, coating or decorating system applications (i.e. elastomeric coatings) or nonMPI listed products or systems are to be used, paint or coating manufacturer shall provide as part of this work, certification of surfaces and conditions for specific paint or coating system application as well as on site supervision, inspection and approval of their paint or coating system application as required at no additional cost to Departmental Representative.
4. Standard of Acceptance:
 1. Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
 2. Ceilings: no defects visible from floor at 45 degrees degrees to surface when viewed using final lighting source.
 3. Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.
5. Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Departmental Representative.

3.8. RESTORATION

1. Clean and reinstall hardware items removed before undertaken painting operations.
2. Remove protective coverings and warning signs as soon as practical after operations cease.
3. Remove paint splashing on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
4. Protect freshly completed surfaces from paint droppings and dust to approval of Departmental Representative. Avoid scuffing newly applied paint.

3.9. CLEANING

1. Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
2. Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
3. Place paint defined as hazardous or toxic waste, including tubes and containers, in containers or areas designated for hazardous waste.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.

1.2. REFERENCES

1. American National Standards Institute (ANSI): ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
2. Architectural and Transportation Barriers Compliance Board (ATBCB): Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.3. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Samples: Sign panels and frames, with letter and symbols, each type.
3. Shop Drawings: Submit shop drawings for each sign type to be used, including:
 1. Show layout, profiles, and product components, including edge conditions, accessories, finish colors, and textures.
 2. Show sign mounting types, heights, anchorage methods, and attachment devices.
4. Manufacturer's Literature:
 1. Showing the methods and procedures proposed for the concealed anchorage of the signage system to each surface type.
 2. Manufacturer's printed specifications, anchorage details, installation and maintenance instructions.

1.4. DELIVERY AND STORAGE

1. Store products in accordance with manufacturer's requirements.
2. Store products in manufacturer's unopened packaging with labels intact until ready for installation.
3. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

2. Products

2.1. MATERIALS

1. Match existing signage.
 1. Restroom:
 1. 203 mm by 203 mm Braille sign; wording: RESTROOM (with symbol of access and unisex graphic).

2.2. SIGN SALVAGE

1. Remove existing signs affected by project work and store for reuse.
2. Install existing signs as directed by Departmental Representative.

3. Execution

3.1. INSTALLATION

1. Install in accordance with manufacturer's instructions, unless noted otherwise.
2. Ensure all signage is level and, where applicable, centred on door or wall panel, unless directed otherwise.
3. Mount all signage to wall using appropriate fastener/adhesive.
4. Locate signs as indicated on drawings or as directed by Departmental Representative

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.

1.2. REFERENCES

1. ASTM International (ASTM):
 1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 2. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 3. ASTM A 743/A 743M - Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
 4. ASTM B 86 - Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings.
 5. ASTM B 221 - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 6. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
2. International Code Council (ICC)/American National Standards Institute (ANSI):
 1. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities, as applicable to toilet compartments designated as accessible.

1.3. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Product Data:
 1. Submit manufacturer's printed product literature for components and urinal screens, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 2. Submit two copies WHMIS MSDS Material Safety Data Sheets in accordance with Section 02 81 01 Hazardous Materials.
3. Shop Drawings:
 1. Submit drawings stamped and signed by professional engineer registered or licensed in Province of Saskatchewan, Canada.
 2. Indicate partition panel modules and types, materials, gauges, finishes, door and other openings, hardware, fastening methods to adjacent structure, ceiling details, and assembly methods.
4. Samples:
 1. Submit duplicate 300 x 300 mm samples of each type partition and colour and finish on actual base metal.
 2. Sample to show basic construction, door construction, hardware, and finishes.

3. Erect trial assembly of at least two modules of each type partition, on site where directed by Departmental Representative.
5. Quality control submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 1. Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

2. Products

2.1. MATERIALS

1. Metallic Coated Steel Sheet: ASTM A 653/A 653M, galvanized commercial steel sheet suitable for exposed applications. Provide with mill phosphatized surface. Provide smooth material, without creases or ripples.
2. Zinc Aluminum Magnesium and Copper Alloy (Zamac): ASTM B 86.
3. Stainless Steel Sheet: ASTM A 240 or A 666, 300 series.
4. Stainless Steel Castings: ASTM A 743/A 743M.
5. Aluminum: ASTM B 221.

2.2. STEEL TOILET COMPARTMENTS

1. Toilet Compartment Type:
 1. Floor anchored type.
2. Door, Panel, and Pilaster Construction, General: Form edges with interlock to provide watertight fit without crowning. Braze corners and finish smooth.
 1. Provide exposed surfaces free of pitting, visible seams and fabrication marks, stains, telegraphing of core material, or other imperfections.
 2. Core Material: Manufacturer's standard sound-deadening, water resistant honeycomb in thickness required to provide finished thickness for doors, panels and pilasters.
3. Door Construction: 25 mm thick, constructed from 0.794 mm/22 ga galvanized steel.
 1. Provide each door with internal 1.59 mm/16 ga and 1.98 mm/14 ga welded reinforcements at top and bottom hinge locations, with factory installed concealed true gravity cam hinges.
4. Panel Construction: 25 mm thick, constructed from 0.794 mm/22 ga galvanized steel.
 1. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units.
5. Pilaster Construction: 32 mm thick, constructed from 0.953 mm/20 gauge 1.219 mm/18 gauge galvanized steel.
 1. Provide pilaster with internally welded bracket suitable to accept minimum 76 mm long, 7.9 mm stainless steel hex bolt for leveling.
6. Headrail: Extruded anodized aluminum headrail with anti-grip profile. Provide fasteners for attachment to pilaster and stainless steel brackets to secure to wall.
7. Shoes: 102 mm high minimum, Type 304 stainless steel with No. 4 satin brushed finish. Secured to the floor with tamper-resistant screws.

8. Brackets (Fittings):
 1. Stirrup Type: Ear or U-brackets; stainless steel.
 2. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.
9. Steel Sheet Finish: Manufacturer's standard powder coat finish, with one colour in each room.
 1. Colour: As selected by Departmental Representative from manufacturer's full range.

2.3. STEEL URINAL SCREENS

1. Urinal screens shall be manufactured to match toilet compartments materials and construction, and shall be furnished complete with all fittings, fastenings, and anchorage devices as required for a complete installation.
 1. Flush panel, wall-mounted with brackets.
 2. Width: 457.2 mm in width for wall-mounted screens.

2.4. HARDWARE

1. Hardware, Standard Duty: Manufacturer's standard chrome-plated zamac castings, including corrosion-resistant, tamper-resistant fasteners:
 1. Hinges: Self-closing wrap-around gravity-type adjustable to hold doors open at any angle up to 90 degrees, with emergency access by lifting door.
 2. Latch and Keeper: Concealed slide latch with wrap-around rubber-faced combination door strike and keeper, with provision for emergency access, meeting requirements for accessibility at accessible compartments.
 3. Coat Hook: Combination hook and rubber-tipped stop, sized to prevent door from hitting compartment-mounted accessories. Provide wall bumper where door abuts wall. Provide formed L-shaped hook without stop at outswing doors.
 4. Door Pull: Standard unit on outside of inswing doors. Provide pulls on both sides of outswing doors.

2.4. FABRICATION

1. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
2. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
3. Floor-and-Ceiling-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.
4. Door Size and Swings: Unless otherwise indicated, provide 660-mm wide, in-swinging doors for standard toilet compartments and 14-mm wide, out-swinging doors with a minimum 813-mm wide clear opening for compartments designated as accessible.

3. Execution

3.1. MANUFACTURER'S INSTRUCTIONS

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

3.2. EXAMINATION

1. Examine work area to verify that measurements, substrates, supports, and environmental conditions are in accordance with manufacturer's requirements to allow installation.
 1. Proceed with installation once conditions meet manufacturer's requirements.

3.3. INSTALLATION

1. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
2. Install toilet partitions and screens in spaces with operating, temperature controlled HVAC systems. Shield partitions and screens from direct sunlight.
3. Clearances: Install with clearances indicated on Drawings. Where clearances are not indicated, allow maximum 13 mm between pilasters and panels, and 25 mm between panels and walls.
4. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than two brackets attached three brackets attached at midpoint and near top and bottom of panel. Locate wall brackets so holes for wall anchors occur in masonry or tile joints. Align brackets at pilasters with brackets at walls.

3.4. ADJUSTING

1. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 15 degrees from closed position when unlatched. Set hinges on out-swinging doors and doors in privacy screens to return doors to fully closed position.

3.4. CLEANING

1. Proceed in accordance with Section 01 74 11 - Cleaning.
2. On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.

1.2. REFERENCES

1. ASTM International:
 1. ASTM A123/A123M-13, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 2. ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 3. ASTM B456-11e1, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
 4. ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 5. ASTM A924/A924M-13, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
2. Canadian General Standards Board (CGSB)
 1. CGSB 31-GP-107MA-90, Non-inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.
3. CSA International
 1. CSA B651-12, Accessible Design for the Built Environment.

1.3. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Product Data:
 1. Provide manufacturer's printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.
3. Shop Drawings:
 1. Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.
4. Samples:
 1. Submit 1 sample for each accessory specified.
 2. Samples will be returned for inclusion into work.

1.4. DELIVERY AND STORAGE

1. Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

2. Storage and Handling Requirements:
 1. Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 2. Store and protect toilet and bathroom accessories from nicks, scratches, and blemishes.
 3. Replace defective or damaged materials with new

2. Products

2.1. MATERIALS

1. Sheet steel: to ASTM A653/A653M with ZF001 designation zinc coating, minimum 30% recycled content.
2. Stainless steel sheet metal: to ASTM A167, Type 304, with satin finish, minimum 75% recycled content.
3. Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness, minimum 75% recycled content.
4. Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use

2.2. COMPONENTS

1. Salvage and reuse components as per Section 02 41 16 Selective Demolition.
2. Feminine napkin disposal bin: stainless steel, surface mounted unit, continuous hinged door, self closing, embossed with universally accepted symbol, removable stainless steel receptacles fitted with spring clip for deodorizer block.
3. Robe hook: stainless steel with 75 mm projection.
4. Straight Grab Bars: Standard duty 32 mm \emptyset satin finished type 304 stainless steel tube having nominal 1.2 mm wall thickness and slip resistant grip, concealed mounting plate and anchors with stainless steel cap secured using vandal resistant set screws. Grab bar material and anchorage to withstand downward pull of 2.2 kN. Lengths as follows:
 1. GB1: 600 mm.
 2. GB2: 900 mm.

2.4. FABRICATION

1. Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
2. Wherever possible form exposed surfaces from one sheet of stock, free of joints.
3. Brake form sheet metal work with 1.5 mm radius bends.
4. Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
5. Back paint components where contact is made with building finishes to prevent electrolysis.
6. Hot dip galvanize concealed ferrous metal anchors and fastening devices to ASTM A123/A123M.

7. Shop assemble components and package complete with anchors and fittings.
8. Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
9. Provide steel anchor plates and components for installation on studding and building framing.

3. Execution

3.1. EXAMINATION

1. Verification of Conditions: verify that conditions of substrates and surfaces to receive toilet and bathroom accessories previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to toilet and bathroom accessories installation.
2. Inform Departmental Representative of unacceptable conditions immediately upon discovery.
3. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval from Departmental Representative.

3.2. INSTALLATION

1. Install and secure accessories rigidly in place as follows:
 1. Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
 2. Toilet and shower compartments: use male to female through bolts.
2. Install grab bars on built-in anchors provided by bar manufacturer to OBC and CSA B651.
3. Use tamper proof screws/bolts for fasteners.

3.3. ADJUSTING

1. Adjust toilet and bathroom accessories components and systems for correct function and operation in accordance with manufacturer's written instructions.
2. Lubricate moving parts to operate smoothly and fit accurately.

3.4. PROTECTION

1. Protect installed products and components from damage during construction.
2. Repair damage to adjacent materials caused by toilet and bathroom accessories installation.

3.4. SCHEDULE

1. Locate accessories where indicated on Drawings. Exact locations determined by Departmental Representative.

END OF SECTION

Approved: 20151110

1. General

1.1. RELATED SECTIONS

1. Section 01 33 00 - Submittal Procedures.
2. Section 01 45 00 - Quality Control.
3. Section 06 40 00 - Architectural Woodwork.

1.2. REFERENCES

1. American National Standards Institute/Canadian Gas Assoc. (ANSI/CGA): Z83.11-09 Gas Food Service Equipment.
2. ASME International (ASME): BPVC-11 Boiler and Pressure Vessel Code.
3. NSF International/American National Standards Institute (NSF/ANSI): 4E-09 Commercial Cooking, Rethermalization, and Powered Hot Food Holding and Trans Equipment.
4. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): Publication 1767 Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines, 2001.
5. Underwriters Laboratories Inc. (UL): 197-10 Commercial Electric Cooking Appliances UL Heating, Cooling, Ventilating and Cooking Equipment Directory.

1.3. QUALITY ASSURANCE

1. Installer Qualifications: Experienced in food service equipment installation or supervised by an experienced food service equipment installer:
 1. Where required to complete equipment installation, electrician and plumber shall be licensed in jurisdiction where project is located.
2. NSF Compliance: Equipment bears NSF Certification Mark or UL Classification Mark indicating compliance with NSF/ANSI 4E.
3. UL Listing: Equipment is listed in UL "Heating, Cooling, Ventilating and Cooking Equipment Directory" and is labeled for intended use.
4. Electric Cooking Equipment: Evaluated according to UL 197.
5. Gas-Burning Cooking Equipment: Evaluated according to ANSI Z83.11/CGA 1.8-M96 and its addendum.
6. Steam-Generating Equipment: Fabricated and labeled to comply with ASME BPVC.

1.4. SUBMITTALS

1. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
2. Product Data: Submit manufacturer's printed product literature including catalog or model numbers and illustrations, descriptions of cooking equipment and operating instructions.
3. Shop drawings: Show dimensions, details of installation, coordination with plumbing and electrical work, and other work required or complete installation.

1.5. WARRANTY

1. Provide a written warranty for a period of one year from the date of Substantial Completion, including extended four year replacement warranty on compressor bodies.
2. Components of equipment subject to replacement prior to one-year's use (such as steam cooker door gaskets) and those items which may fail due to improper or inadequate maintenance by the Owner/Operator (such as an uncleaned refrigeration system condenser) are not intended to be included within the scope of the Warranty.

2. Products

2.1. MATERIAL AND COMPONENTS

1. Stainless steel sheets and/or shapes: 18-8, Type 304, polished to 180 grit No. 3 finish.
 1. Stainless steel joints and seams: heli-arc welded, free of pits and flaws, ground smooth and polished to No. 4 finish.
 2. The "grain" direction of horizontal stainless steel surfaces: longitudinal, including the back splash. The polishing procedure at right angle corners of fixtures shall provide a mitered appearance.
2. Stainless steel tubing and pipe shall be Type 304, 18-8, having a No. 4 finish, and shall conform to either ASTM A213 if seamless or ASTM A249 if welded.
3. Stainless steel wall protection: 16 gauge, Type 304, stainless steel sheet. Fabricated from one-piece, formed or extruded metal that covers wall with formed edges.
 1. Finish: Directional satin, No. 4.
 2. Mounting: flat-head countersunk screws through factory-drilled mounting holes.
4. Rolled shapes shall be of the cold-rolled type conforming to ASTM A36.
5. Galvanized sheet steel shall conform to ASTM A526; where extensive forming to take place, conform to ASTM A527; conform to ASTM A525, coating designation G115, chemical treatment.
6. Galvanized steel sheets shall be cold-rolled, stretcher leveled, bonderized, and rerolled to ensure a smooth surface.
7. Castings shall be corrosion-resisting metal containing not less than 30% nickel. Castings shall be rough ground, polished, and buffed to bright luster and free from pit marks, runs, checks, burrs, and other imperfections. In lieu of corrosion-resisting metal castings, die-stamped or cast 18-8 stainless steel will be acceptable.
8. Sound Deadening: butyl sealant 13mm wide rope positioned continuously between all frame members and underside of stainless steel tabletops, overshelves and undershelves. Tighten stud bolts for maximum compression of sealant.
9. Plastic Laminates/Solid surface: Plastic laminates and adhesives must be approved by N.S.F. (Standard No. 35).
10. Identification Plates, Labels, Tags:
 1. Prohibited Information: Names of suppliers, fabricators and contractors.
 2. Required Information: function or purpose of such things as display light switches, food warmer controls, etc.
11. Plate Construction: engraved phenolic plastic, secure to equipment with epoxy cement or stainless steel screws. Furnish samples.

2.2. PLUMBING REQUIREMENTS

1. Plumbing fittings and components: furnished under this Section as follows. Components are provided loose under this Section for field installation and connection by Division 22, as follows:
 1. Control valves, water pressure regulators, vacuum breakers and chrome plated 90o elbows and nipples (no copper piping above splash) wherever required on Foodservice Equipment.
 2. Faucets and drain fittings with connected overflows for all sinks.
 3. Specialty Foodservice water fill faucets or hose assemblies indicated in specifications.
2. All drainlines furnished with equipment: 25mm thick insulation.
3. Piping brackets and/or supports beneath/within fabricated equipment.
4. Final Plumbing Connections Provisions:
 1. Fabricated equipment containing components, fittings and/or devices to be connected to the building systems shall have each component, fitting or group thereof prepiped to a utility compartment for final connection by Division 22.
 2. Division 22 to supply all required piping/nipples, etc. to make complete installation. All gas lines connected to equipment with flexible hoses with quick connection action. Installed by Division 22.
 3. Field assembled equipment shall have plumbing components completely interconnected under this Section for final connection by Division 22.
 4. Back flow preventers, when required by local code, to be provided by Division 22 .

2.3. ELECTRICAL REQUIREMENTS

1. Electrical fittings and components: furnished under this Section as follows. Coordinate foodservice equipment voltage and phase with building system.
2. Cord and caps:
 1. Coordinate all Foodservice Equipment cord/caps with related receptacles.
 2. All 120 volts "plug in" equipment shall have Type SO or SJO cord and plug with ground wire fastened to frame/body of item.
 3. Cord lengths for fixed equipment: adjusted to eliminate loose-hanging excess.
 4. All non-fixed plug in "buy-out" equipment shall have Hubbell configuration, ratings as required.
3. Switches and Controls:
 1. Each motor driven appliance or electrically heated unit: equipped with control switch or starter as per Underwriters' Laboratories, Inc. with low voltage and overload protection.
4. Motors:
 1. 120-volt motors; manual tumbler type starter with thermal overload protection and interchangeable heating elements.
 2. 208 volt and 480 volt motors; magnetic starter with low voltage protection and one interchangeable overload relay per phase.

5. Receptacles and Switches:
 1. Receptacles installed in/on-fabricated equipment: Hubbell, Inc. assemblies mounted in a metal box with stainless steel cover plate.
 2. Load centers installed in/on fabricated equipment to have all fixture components pre-wired to load center with balanced phase loading. Load center ready for final connection by Division 26.
6. Final Electrical Connection Provisions:
 1. Fabricated equipment containing electrically operated components and/or fittings to be direct connected, shall have each component, fitting or group thereof pre-wired to a junction box for final connection by Division 26.
 2. Fabricated equipment containing electrically operated components and/or devices indicated to have a circuit breaker load center shall have each component or device pre-wired to a separate circuit breaker for balanced phase loading and single final connection by Division 26.

3. Execution

3.1. INSTALLATION

1. Install cooking equipment level and plumb; arranged for safe and convenient operation; with access clearances required for maintenance and cleaning; and according to manufacturer's written instructions.
2. Equipment to be fabricated in sizes to fit through existing building openings.
3. Interconnect cooking equipment to service utilities.

3.2. CLEAN-UP

1. At completion of the installation, clean and adjust cooking equipment as required to produce ready-for-use condition.
2. Where stainless-steel surfaces are damaged during installation procedures, repair finishes to match adjoining undamaged surfaces.

3.3. INSTRUCTION

1. Instruct personnel and transmit operating instructions in accordance with requirements in Section 01 00 00 - General Requirements.

3.4. EQUIPMENT SCHEDULE

1. Gas restaurant range: Garland Canada; Model No. U60-4G36RR.
 1. U Series Restaurant Range, gas, (4) 32,000 BTU open burners, 914 x 584 x 16 thick smooth steel griddle plate, (2) standard ovens with 3 position rack guides with oven rack, stainless steel front, sides, plate rail, 2-piece back guard and shelf, 152 stainless steel legs with adjustable feet, 258,000 BTU, NSF, CSA.
 2. Dimensions 1448(h) x 1500(w) x 876(d).
 3. Natural gas, specify elevation if over 2,000 ft.
 4. Thermostatically controlled griddle, add per thermostat, for each 305mm section.
 5. Adjustable height swivel casters, set of 4 with front locks.

6. Weight: 826 lbs total.
2. Gas deep fryer: Garland Canada; Model No. GF14.
 1. Fryer, gas, floor model, 40-lb oil capacity, open-pot design, millivolt controls, master jet burner, temperature probe, 32mm IPS ball type drain valve, includes: rack- type basket support, basket hanger, flue deflector & twin baskets, stainless steel frypot, door & cabinet, 152 adjustable steel legs, 100,000 BTU, NSF, CSA.
 2. Dimensions 1045(h) x 397(w) x 784(d).
 3. Gas fryers cannot be curb mounted Natural gas (specify elevation if over 2,000 ft.).
 4. Legs, nickel plated legs, standard.
 5. Weight: 152 lbs total.
3. Sandwich/salad preparation refrigerator: Beverage Air ; Model No. SPE72-12.
 1. Elite Series™ Sandwich Top Refrigerated Counter, three-section, 1829mm(w), 0.61 cu. m., (3) doors, stainless steel top with openings for (12) 1/6 size pans, 254mm cutting board & available counter space, stainless steel exterior, aluminum interior, rear-mounted self-contained refrigeration, (pans furnished are 102mm deep, tops will accommodate 152 deep pans) 1/3 HP, UL, cUL, UL-EPH.
 2. Dimensions 1059(h) x 1829(w) x 743(d).
 3. 3 years parts & labor warranty (excludes maintenance items).
 4. Additional 2 yr compressor warranty, standard.
 5. 115v/60/1-ph, 9.6 amps, standard.
 6. Left door hinged left, center and right door hinged right, standard 1ea 152mm Heavy duty casters, standard.
 7. Weight: 406 lbs total.
4. Refrigerated work top: Beverage Air; Model No. WTR60AR.
 1. Worktop Refrigerator, two-section, 1524mm(w), 0.48 cu. m., (2) solid doors, designed for remote refrigeration, (2) solid doors, stainless steel front, 13mm thick top and sides, aluminum interior, 102mm removable backsplash, 152mm casters, UL, cUL, UL-EPH.
 2. Dimensions 1003(h) x 1524(w) x 743(d).
 3. 3 years parts & labor warranty (excludes maintenance items).
 4. Contact factory for remote voltage information.
 5. 152mm Heavy duty casters, standard.
 6. Weight: 265 lbs total.
5. Refrigerated merchandiser: Kelvinator Commercial Canada; Model No. KCGM180RQY.
 1. Reach-In Refrigerator, one-section, 0.51 cu. m. capacity, gray cabinet, right hinged glass door, interior lighting, (4) heavy-duty steel shelves, heavy-duty locking casters, built-in temperature gauge, dynamic condenser, 120v/60/1-ph, 5.0 amps, 1/4 hp, NEMA 5-15P, NSF, CSA, ENERGY STAR®.
 2. Dimensions 1905(h) x 813(w) x 791(d).

3. 3 year limited warranty, standard.
4. 5 year compressor warranty.

5. Weight: 275 lbs total.
6. Reach-in Freezer: Kelvinator Commercial Canada; Model No. KCBM180FQY.
 1. Reach-In Freezer, one-section, 0.51 cu. m. capacity, gray cabinet, right hinged stainless steel reversible door with lock & stainless steel handle, interior lighting, (4) vinyl coated steel shelves, heavy-duty locking casters, built-in temperature gauge, dynamic condenser, textured painted steel exterior, smooth painted steel interior, mechanical controls, temperature range -23° to -12°C, 120v/60/1-ph, 5.0 amps, 1/2 hp, NEMA 5-15P, NSF, CSA, ENERGY STAR®.
 2. Dimensions 1905(h) x 813(w) x 791(d).
 3. 3 year limited warranty, standard.
 4. 5 year compressor warranty.
 5. Weight: 275 lbs total.
7. Work Table: Advance Tabco; Model No. AG-306.
 1. Work Table, 762mm wide 16 gauge 430 series stainless steel top, without splash, 1829mm long, galvanized adjustable undershelf, gussets, legs with adjustable bullet feet, NSF.
 2. Dimensions 902(h) x 1829(w) x 762(d)
 3. Weight: 125 lbs total.
8. Dump station and Front Line Work Tables:
 1. (2) Work Tables, 762mm wide 16 gauge 430 series stainless steel top, without splash, 356mm long, galvanized adjustable undershelf, gussets, legs with adjustable bullet feet, NSF.
 2. Dimensions 902(h) x 356(w) x 762(d).
9. Double overshelf (2):
 1. 2134mm long, adjustable, 18 gauge 430 stainless steel shelves. 25mm stainless steel tubular base legs.
 2. Dimensions 813(h) x 2134(w) x 305(d).
 3. Mounted to sandwich unit and front line work table below.
10. Wall mounted shelving: Advance Tabco; Model No. WS-12-60.
 1. 1524mm x 305mm wall mounted shelf, 41mm bullnose front edge, 38mm rear up-turn, 18 gauge 430 stainless steel, satin finish, NSF.
 2. Dimensions 267(h) x 1524(w) x 305(d).
11. Wire shelving unit: Advance Tabco; Model No. EGG-1848.
 1. Shelving unit, wire, (4) adjustable wire shelves, (4) posts, green epoxy finish, ship unassembled, unit assembles using tapered split sleeves, adjustable metal bullet foot, NSF.
 2. Dimensions 1880(h) x 1219(w) x 457(d).
12. Wire shelving unit: Advance Tabco; Model No. EGG-1472.

1. Shelving unit, wire, (4) adjustable wire shelves, (4) posts, green epoxy finish, ship unassembled, unit assembles using tapered split sleeves, adjustable metal bullet foot, NSF.
 2. Dimensions 1880(h) x 1829(w) x 356(d).
13. Heat Lamp: Canada - Vollrath; Model No. 72718-01-9
1. Cayenne Heat Strip, 1219mm hard wired, high wattage, one-year parts & labor warranty, additional one-year parts warranty on cal-rod element, cULus, NSF.
 2. Single (element wattage 1435), standard.
 3. 120V - #01.
 4. Front mount wiring box, onboard toggle.
 5. 25mm Top Surface Mounting: Bracket Vollrath; Model No. 44545.
14. Microwave oven: ACP Canada; Model No. RCS10DSE.
1. Microwave Oven, 1000 watts, 0.034 cu. m. capacity, medium volume, 10 min. dial timer, 4 power level, non-removable air filter, side hinged door with tempered glass, accommodates 356mm plate, stainless steel exterior & interior.
 2. 3-year limited warranty (Year 1: parts, labor and travel are covered; Year 2 and 3: Magnetron tube (part only) are covered).
 3. 20v/60/1-ph, 15.0 amps, 1524 cord & NEMA 5-15P, cETLus.
 4. Dimensions 353(h) x 559(w) x 483(d).
 5. Weight: 47 lbs total.
15. Drop-in sink: Advance Tabco Model No. DI-1-1515-X
1. One piece seamless stainless steel drop-in Sink, self rimming design, sound deadened bowl, 1-compartment, 311mm wide x 260mm front-to-back x 140mm deep bowl, 20 gauge 304 series stainless steel, with deck mounted gooseneck faucet, fixed drain with strainer plate.
 2. Dimensions 152(h) x 381(w) x 381(d)
 3. Weight: 11 lbs total
 4. Deck Mounted 89mm Gooseneck, 102mm o.c.: Advance Tabco Model No. K-52.
16. Three compartment sink: Advance Tabco Model No. FC-3-1515-L
1. Fabricated NSF Sink, 3-compartment, 381mm right drainboard, bowl size 381mm x 381mm x 356mm deep, 16 gauge 304 series stainless steel, tile edge splash, rolled edge, faucet holes on 203 centers, stainless steel legs, 25 adjustable stainless steel bullet feet, NSF
 2. Dimensions 1092(h) x 1588(w) x 521(d)
 3. 305mm swing spout: K-1 Faucet, splash-mounted, 203mm o.c..
17. Undercouter dishwasher: Advance Tabco Model No. FC-3-1515-L
1. Garland Canada Model No. AVENGER HT-E
 2. Avenger® Dishwasher, undercounter, 614mm wide, high temperature sanitizing with built in 70° rise booster heater, approximately (26) racks/hour capacity, (0.73) gals of water per rack, digital & electromechanical components, built in

chemical pumps, auto fill, stainless steel wash pump, cabinet finished in stainless steel, 3/4 HP, ENERGY STAR®

3. Dimensions 846(h) x 633(w) x 664(d)

END OF SECTION