

Royal Canadian Mounted Police Real Property Asset Management

PROJECT MANUAL

FOR

**Project No. 1005643
Brochet Mobile Home
Brochet, Manitoba**

Issued for Construction
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Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises supply and delivery of a mobile home to Brochet, Manitoba.

1.2 CONTRACT METHOD

- .1 Construct Work under single stipulated price contract.

1.3 LAWS, NOTICES, PERMITS AND FEES

- .1 The RCMP Representative shall obtain and pay for the building permit, permanent easements and rights of servitude. The Contractor shall be responsible for permits, licenses, and certificates necessary for the performance of the Work that were in force at the date of executing the Agreement.

1.4 GENERAL REQUIREMENTS

- .1 Provide a rigid construction mobile home, including delivery to and set-up at site.
 - .1 In order to ensure delivery via ice road, construct mobile home, ready for delivery, by mid-January, 2019.
 - .2 Mobile home must be delivered and set up by March 31, 2019.
- .2 Conform to the CAN/CSA-Z240 MH Series of Standards and build to be structurally complete, with the entire plumbing, electrical, and heating services installed.
- .3 Conform to Manitoba Buildings and Mobile Homes Act, including applicable Regulations.
- .4 Provide permanently mounted certification label issued by nationally recognized standards body indicating compliance with relevant construction codes or standards.
- .5 The following information shall be marked in English in a permanent and readily visible manner in the interior of the mobile home:
 - .1 Manufacturer's name and address,
 - .2 model,
 - .3 serial number,
 - .4 year of manufacture,
 - .5 gross vehicle weight rating (GVWR),
 - .6 ground snow load and roof design snow load,
 - .7 design wind pressures without anchorage,
 - .8 CSA Number.
- .6 Dimensions:
 - .1 Width: Maximum 4.9 m (16 feet).

- .2 Length: Minimum 15.2 m (50 feet), maximum 18.3 m (60 feet).
- .7 Rooms and approximate area requirements:
 - .1 Bedrooms: Two, at opposite ends of the unit, approximately 12 x 16 feet.
 - .2 Bathroom: One, approximately 8 x 7 feet.
 - .3 Kitchen: Approximately 12 x 8 feet.
 - .4 Laundry room: Approximately 6 x 5.5 feet.
 - .5 Living/dining area: L-shaped, open area adjacent to entrance and kitchen.
 - .6 Closets: One in each bedroom; one linen closet; and one at entry.
- .8 Site preparation:
 - .1 Site preparation, foundation, and anchorage of manufactured homes shall comply with the CSA-Z240.10.1 Standard and the National Building Code of Canada, specifically Section 9.12, Excavation, and Section 9.18, Crawl Spaces.
- .9 Clearance:
 - .1 Maintain vertical clearance of at least 600 mm (24 inches) between the top of the finished grade under the home and the bottom of the floor joists.
 - .2 Where the home is installed on a sloping site, the vertical clearance between the top of the finished grade and the bottom of the joists of the lowest section to be at least 300 mm (12 inches).
- .10 Foundation: Design block and pad foundation in accordance to requirements of CSA-Z240.10 and locate in accordance with manufacturer's instructions.
- .11 Anchorage: Provide ground anchorage constructed of materials resistant to corrosion and decay, and spaced not more than 12 m (40 feet) apart.
 - .1 Install ground anchors at sufficient depth to preclude movement due to frost action, and to develop the required pullout resistance.
- .12 Ventilation of Crawl Space:
 - .1 Provide year-round ventilation of the crawl space.
 - .2 Crawl space ventilation: screened louvres or grilles of at least 1 ft² of unobstructed venting for every 5 m² (50 ft²) of floor area of the home and must be uniformly spaced on opposite sides of the home.
 - .3 Appliances or clothes dryers may not be vented into the crawl space.
 - .4 Provide access panel of not less than 500 x 700 mm (20 x 28 inches) in the skirting, located close to sewer and water connections.
- .13 Smoke Alarms:
 - .1 Install sufficient smoke alarms so that each bedroom is protected by a smoke alarm either inside the bedroom or, if outside, within 5 m, measured following corridors and doorways, of the bedroom door.
 - .2 Install smoke alarms by permanent connections to an electrical circuit with no disconnect switch between the overcurrent device and the smoke alarm.

- .3 Wire smoke alarms so that the activation of one alarm will cause all alarms within the dwelling unit to sound.
- .14 Exit Doors:
 - .1 Provide two exterior doors located remotely from each other.
- .15 Plumbing:
 - .1 Plumbing system: complete, including potable water supply system and a drain, waste, and vent (DWV) system.
 - .2 Equip with kitchen sink, lavatory, water closet, a bathtub/shower unit, and a properly connected service water heater.
- .16 Electrical:
 - .1 Electrical system: 100 amp service, in accordance with Canadian Electrical Code.
- .17 Furnace: Certified for use in mobile homes, propane powered, complete with required ductwork.
- .18 Water Heaters: Certified for use in mobile homes, interior access installation.
- .19 Landing and stair: Provide one landing and stair set at the main entrance of the unit, for temporary use; construct with dimensional lumber and store inside unit for transport.
 - .1 Permanent landings and stairs will be responsibility of the Owner.

1.5 SPECIAL REQUIREMENTS

- .1 The site for the mobile home placement is accessible only by winter road. In consideration of this, provide design and construction sufficiently robust to withstand the transportation process.
- .2 Provide engineered truss roof system. Cathedral style ceilings are not permitted for this project.
- .3 Provide LED light fixtures throughout.
- .4 Provide standing seam sheet metal roofing system.
- .5 Exterior metal doors: Provide exterior mounted, out-swing heavy duty metal doors and door hardware.
- .6 Provide chassis with removable tow hitch.
- .7 Provide heat trace tape for as required pipes in crawl space. Install corresponding GFI outlet in hot water tank compartment.

1.6 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from RCMP Representative.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another

Contractor, report promptly to RCMP Representative, in writing, any defects which may interfere with proper execution of Work.

- .3 Work of Project which will be executed after completion of Work of this Contract, and which is specifically excluded from this Contract:
 - .1 Supply of concrete pad for mobile home.
 - .2 Plumbing hook-up.
 - .3 Electrical hook-up.
 - .4 LAN and security system installation.
 - .5 Skirting installation.

1.7 SUBMITTALS

- .1 Provide submittals listed for review to RCMP Representative.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Notify RCMP Representative at time of submission, in writing, identifying deviations from requirements of Contract Documents, stating reasons for deviations.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by RCMP Representative's review of submittals.
- .5 Allow 10 working days for RCMP Representative's review of each submission.
- .6 Adjustments made on shop drawings by RCMP Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to RCMP Representative prior to proceeding with Work.
- .7 Make changes in shop drawings as RCMP Representative may require, consistent with Contract Documents. When resubmitting, notify RCMP Representative in writing of revisions other than those requested.
- .8 Detail appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
- .9 Submit electronic copies of shop drawings for each requirement requested in specification Sections and as RCMP Representative may reasonably request.
- .10 The review of shop drawings by RCMP Representative is for sole purpose of ascertaining conformance with general concept.

- .1 This review shall not mean that RCMP Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.
- .11 Samples:
- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
 - .2 Deliver samples prepaid to RCMP Representative's business address.
 - .3 Notify RCMP Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
 - .4 Where colour, pattern, or texture is criterion, submit full range of samples.
 - .5 Adjustments made on samples by RCMP Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to RCMP Representative prior to proceeding with Work.
 - .6 Make changes in samples that RCMP Representative may require, consistent with Contract Documents.
 - .7 Reviewed and accepted samples will become standard of quality of work and material against which installed Work will be verified.
- .12 Operation and Maintenance Manual: Provide one printed copy and one electronic copy of O&M manual.
- .1 Binder Cover and Binder Edge:
 - .1 Include: project name, project number, date.
 - .2 Title Page
 - .1 O&M Manual for... Building name, date, manufacturer information.
 - .2 Table of contents.
 - .3 Signed Letter of Warranty, to include:
 - .1 Date.
 - .2 Project name.
 - .3 Project number.
 - .4 Warranty start date and end.
 - .5 Organization, names and phone numbers of persons to call for warranty services.
 - .4 Contact Information for manufacturer.
 - .5 As-Built Drawings:
 - .1 Include schematics for electrical, mechanical, and plumbing systems.

- .2 Provide drawings in current CAD and PDF format.
- .6 Maintenance
 - .1 Copy of specific service and maintenance manuals.
 - .2 Preventative and corrective maintenance, with service procedures and schedules.
 - .3 Recommended frequency of performance for each preventive maintenance task, cleaning, inspection and scheduled overhauls or reconditioning.
 - .4 Cleaning: Instructions and schedules for all routine cleaning and inspection recommended, including recommended cleaners and lubricants.
 - .5 Inspection: Periodic inspection of equipment required for operation, cleaning or other reasons, with items to be inspected indicated and inspection criteria given for motors, controls, filters, and any other maintenance items.
 - .6 Instructions for minor repairs or adjustments required for preventive maintenance routines.
 - .7 Listing of any special tools required to service or maintain the equipment.

1.8 QUALITY CONTROL

- .1 Give timely notice requesting inspection if Work is designated for inspections or approvals, whether by RCMP Representative instructions, or by law of Place of Work.
- .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 RCMP Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Submit electronic copies of inspection and test reports to RCMP Representative.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
 - .2 ASTM A490-14a, Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength.
 - .3 ASTM F3125-15, Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.40-97, Anticorrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB 51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction and amendment.
- .3 Canadian Standards Association (CSA)
 - .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .2 CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .3 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .4 CSA O80-Series-08, Wood Preservation.
 - .5 CSA O86-14, Engineering Design in Wood.
 - .6 CSA O121-08 (R2013), Douglas Fir Plywood.
 - .7 CSA O141-05 (R2014), Softwood Lumber.
 - .8 CSA O151-09 (R2014), Canadian Softwood Plywood.
 - .9 CSA O325-07 (R2012), Construction Sheathing.
 - .10 CSA-S16-14, Design of Steel Structures.
 - .11 CSA S136-12, North American Specification for the Design of Cold-Formed Steel Structural Members.
 - .12 CAN/CSA-W59-13, Welded Steel Construction (Metal Arc Welding).
 - .13 CSA Z240 MH Series-16, Manufactured Homes.
- .4 National Lumber Grades Authority (NLGA)
 - .1 NLGA Standard Grading Rules for Canadian Lumber (2014 edition).
- .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC S102-07, Test for Surface Burning Characteristics of Building Materials and Assemblies.
 - .2 CAN/ULC S702-09, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

1.2 DESIGN PERFORMANCE REQUIREMENTS

- .1 Floors:
 - .1 Limit floor joist deflection due to live load to $L/240$ of span.
- .2 Provide minimum thermal resistance of RSI 5.99 (R34) for complete floor assembly.
- .3 Structural steel:
 - .1 Design details and connections to CSA S16 to resist forces, moments, shears and allow for movements.
 - .2 Design steel joists to carry design loads in accordance with CSA S16.

1.3 SUBMITTALS

- .1 Shop drawings:
 - .1 Submit shop drawings to indicate project layout, including details, sequence of erection, materials list.
 - .2 Submit drawings stamped and signed by qualified professional engineer registered or licensed in Province of Manitoba.
- .2 Quality Assurance Submittals:
 - .1 Test Reports: submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.

Part 2 Products

2.1 STRUCTURAL STEEL

- .1 Chassis:
 - .1 Structural steel: to CSA G40.20/G40.21, Grade 350W.
 - .2 Anchor bolts: to CSA G40.20/G40.21, Grade 300W or ASTM A36/A36M.
 - .3 Bolts, nuts and washers: to ASTM A307, ASTM F3125/F3125M, or ASTM A490/A490M.
 - .4 Welding materials: to CSA W59 and certified by Canadian Welding Bureau.
 - .5 Shop paint primer: to CAN/CGSB-1.40.
- .2 Fabrication:
 - .1 Fabricate structural steel in accordance with CSA S136.
 - .2 Clean, prepare surfaces and shop prime structural steel in accordance with CSA S16.
 - .3 Fabricate chassis with removable tow hitch.

2.2 FRAMING STRUCTURAL AND PANEL MATERIALS

- .1 Lumber: Softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
 - .1 CSA O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 Use S2S or S4S materials.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
- .3 Plywood, OSB and wood based composite panels: CSA O325.
- .4 Douglas fir plywood (DFP): CSA O121, standard construction.
- .5 Canadian softwood plywood (CSP): CSA O151, standard construction.
- .6 Treated wood products: To CSA O80 Series.
- .7 Fire retardant treated wood: To CAN/ULC S102.
 - .1 Flame spread: Maximum 25.
 - .2 Smoke developed: Maximum 25.

2.3 INSULATION

- .1 Batt insulation: To CAN/ULC S702, Type 1; semi-rigid mineral wool batt insulation.

Part 3 Execution

3.1 STRUCTURAL STEEL

- .1 Beams:
 - .1 Install steel structure, details and connections in accordance with requirements of CSA S16 and CSA S136 with CSA S136.1 to resist forces, moments and shears.
 - .2 Welds or bolted connections to be neat and compact.
- .2 Steel joists:
 - .1 Construct steel joists and bridging, details and connections in accordance with CSA S16.
 - .2 Welds or bolted connections to be neat and compact.
 - .3 Bridging to be straight with neat, compact connections.

3.2 WOOD FRAMING

- .1 Wood framing: 2 x 10 at 305 mm (12 inches) on center, complete with bridging.
- .2 Construct frame with double rim joist.

- .3 Set structural members level and plumb, in correct position.
- .4 Place horizontal members, crown side up.
- .5 Construct load bearing framing members full length without splices.
- .6 Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists. Frame rigidly into joists.
- .7 Place full width continuous sill gasket under framed walls.

3.3 SHEATHING

- .1 Secure floor sheathing with longer edge perpendicular to framing members and with ends staggered and sheet ends over bearing.
- .2 Secure subfloor sheathing with longer edge perpendicular to floor framing and with end joints staggered and sheet ends over bearing. Attach with subfloor glue and subfloor screws.
- .3 Install OSB to underbelly in crawlspace.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM C167-09, Standard Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations.
- .3 ASTM D523-08, Standard Test Method for Specular Gloss.
- .4 ASTM D822/D822M-13, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .5 ASTM D1970/D1970M-11, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .6 CSA O325-07 (R2012), Construction Sheathing.
- .7 CAN/ULC S114-05, Test for Determination of Non-Combustibility in Building Materials.
- .8 CAN/ULC S702-09, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
- .9 National Lumber Grades Authority (NLGA) Lumber Grading Rules.

1.2 DESIGN AND PERFORMANCE REQUIREMENTS

- .1 Provide standing-seam sheet metal roof system.
- .2 Performance: watertight roof system.
- .3 Provide minimum thermal resistance of RSI 10.57 (R60) for complete roof assembly, as installed on site.
 - .1 Reduction to minimum RSI 3.52 (R20) is permitted above adjacent exterior wall construction up to 1200 mm from the exterior of insulation with wall construction, to allow for roof slope and venting requirements.
- .4 Wind Loads: average net load of 0.37 kPa under exposure factors of 1 in 50.
- .5 Snow load: 1 in 50: 2.6 kPa.

1.3 SUBMITTALS

- .1 Submittals:
 - .1 Submit manufacturer's printed product literature, specifications, and datasheets; include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba.

Part 2 Products

2.1 WOOD FRAMING AND SHEATHING

- .1 Wood Trusses:
 - .1 Lumber: softwood lumber of fabricators choice to suit grading rules and load requirements.
 - .2 Truss Bridging: type, size and spacing recommended by truss manufacturer.
 - .3 Accessories:
 - .1 Wood Blocking and Plate Members: softwood lumber, S/P/F species, construction grade.
 - .2 Fasteners and Anchors: galvanized steel.
 - .4 Fabrication:
 - .1 Fabricate trusses to achieve structural requirements.
 - .2 Provide chord extensions.
 - .3 Fabricate to achieve minimum end bearing on supports.
- .2 Roof Sheathing:
 - .1 Particleboard Sheathing: Oriented Strand Board to CSA O325.
- .3 Insulation: To CAN/ULC S702, Type 1, mineral wool insulation.
 - .1 Density: Minimum 32 kg/m³, to ASTM C167.
 - .2 Non-combustible to CAN/ULC S114.

2.2 SLOPED ROOF - SHEET METAL

- .1 Zinc coated steel sheet: To ASTM A653/A653M, commercial quality, with Z275 galvanized coating, smooth surface, prefinished.
 - .1 Pre-finish steel with factory applied silicone modified polyester.
 - .1 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.
 - .2 Coating thickness: Minimum 25 micrometres.
 - .3 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D822 as follows:
 - .1 Outdoor exposure period 1000 hours.
 - .2 Humidity resistance exposure period 1000 hours.
 - .4 Colour: As selected by RCMP Representative from manufacturer's standard range.
 - .2 Underlayment: Self-adhered membrane; modified bitumen laminated to polyethylene film.
 - .1 Puncture sealability: To ASTM D1970, pass.
 - .3 Accessories:
 - .1 Fasteners and clips: Electrolytically compatible.

- .2 Eave (Ice Dam) Protection: Modified bitumen bonded to sheet polyethylene.

Part 3 Execution

3.1 INSTALLATION - GENERAL

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

3.2 WOOD FRAMING AND SHEATHING

- .1 Erection - Trusses:
 - .1 Install trusses to manufacturer's instructions.
 - .2 Set members level and plumb, in correct position.
 - .3 Provide for erection loads with sufficient temporary bracing to maintain structure plumb and in true alignment.
 - .4 Place headers and supports to frame openings.
 - .5 Frame openings between trusses with lumber.
- .2 Erection - Sheathing:
 - .1 Install sheathing with long edge perpendicular to framing with end joints staggered. Secure sheet edges over firm bearing.
 - .2 Secure sheathing with ringed nails.
 - .3 Use sheathing clips between sheets between roof framing members.

3.3 INSULATION

- .1 Install insulation batts between rafters.
- .2 Install layered batts with bottom layer parallel to trusses and upper layer perpendicular to trusses.

3.4 SLOPED ROOF - SHEET METAL

- .1 Installation:
 - .1 Extend eave protection membrane upslope beyond interior face of exterior wall.
 - .2 Place underlayment over area not protected by eave protection.
 - .3 Finish standing seams perpendicular to roof surfaces.

3.5 FIELD QUALITY CONTROL

- .1 Inspect attic after transport and site installation of mobile home to confirm insulation installation is intact.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM C167-09, Standard Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations.
 - .2 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
 - .2 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .3 Canadian Standards Association (CSA)
 - .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .2 CSA O121-08 (R2013), Douglas Fir Plywood.
 - .3 CSA O141-05 (R2014), Softwood Lumber.
 - .4 CSA O151-09 (R2014), Canadian Softwood Plywood.
 - .5 CSA O325-07 (R2012), Construction Sheathing.
- .4 National Lumber Grades Authority (NLGA)
 - .1 NLGA Standard Grading Rules for Canadian Lumber (2014 edition).
- .5 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC S114-05, Test for Determination of Non-Combustibility in Building Materials.
 - .2 CAN/ULC S702-09, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

1.2 DESIGN PERFORMANCE REQUIREMENTS

- .1 Provide continuous, complementary and compatible air/vapour/thermal barriers throughout building elements.
- .2 Provide complete enclosure assembly, including exterior skin, inner air/vapour seal membrane, thermal insulation.
- .3 Exterior wall construction: 2 x 8 inch dimensional lumber framing, with OSB sheathing applied to interior and exterior sides, and cavity filled with mineral wool insulation.
- .4 Provide minimum thermal resistance of RSI 3.87 (R22) for complete wall assembly.
- .5 Design wall components and assemblies to resist air leakage caused by static air pressure across wall assembly, including connections to windows, glass, doors

and other interruptions to maximum air leakage rate of: 0.01 L/s/m² when subjected to a pressure differential of 75 Pa.

- .6 Design wall components and assemblies to resist air leakage caused by dynamic air pressure across wall assembly, including connections to windows, glass, doors and other interruptions to maximum air leakage rate of 0.01 L/s/m² when subjected to hourly wind design loads in accordance with NBC, using 1 in 10 year probability.
- .7 Provide continuity of air seal materials and assemblies.
- .8 Design wall to provide for thermal movement of component materials caused by ambient temperature range from -40 to 80°C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
- .9 Design members to withstand dead load and wind loads calculated in accordance with NBC and applicable local regulations, to maximum allowable deflection of 1/180 of span.
- .10 Ensure total absence of condensation on interior surfaces under the following minimum conditions:
 - .1 Interior: 22 degrees C, 30% RH, still air.
 - .2 Exterior: -30 degrees C, 60 km/hr wind.
- .11 Vapour seal building enclosure to withstand, without failure, design RH at design ambient temperature condition, maintained against interior atmospheric pressure of 250 Pa.
- .12 Preformed metal cladding:
 - .1 Provide preformed metal cladding around entire perimeter from ground floor level to roof level.
 - .2 Design system to accommodate specified erection tolerances of structure.
- .13 Sealants:
 - .1 Select sealant to suit particular conditions of job, with careful adherence to manufacturer's instructions for application.
 - .2 Do not use sealant to hide or make up for design or construction errors or faults.
 - .3 Provide sealant colour to match adjacent surfaces. Provide sealant resistant to ultra-violet degradation or fading.

1.3 SUBMITTALS

- .1 Product Data: submit manufacturer's printed product literature, specifications and datasheets.
 - .1 Provide detailed, technical information which describes products such as is published by manufacturer and/or supplier.
- .2 Shop Drawings:
 - .1 Submit shop drawings to indicate project layout, including details.

- .2 Submit exterior walls elevations for special grid patterns.
- .3 Preformed metal cladding and siding:
 - .1 Indicate: dimensions, wall openings, head, jamb, sill and mullion detail, materials and finish, anchor details, compliance with design criteria and requirements of related work.
- .3 Samples:
 - .1 Submit manufacturer samples of colours of siding for selection, by RCMP Representative, of available, optional forms, patterns, textures and colours from range offered by manufacturer/supplier.
- .4 Quality assurance submittals:
 - .1 Certificates: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.
- .5 Closeout Submittals: submit maintenance data for incorporation into manual.

Part 2 Products

2.1 MATERIALS

- .1 Rough Carpentry:
 - .1 Lumber: Softwood, S4S, moisture content 19% or less in accordance with CSA O141 and NLGA Standard Grading Rules.
 - .2 Glued end-jointed (finger-jointed) lumber is not acceptable.
 - .3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers: S2S. Board sizes: "Standard" or better grade. Dimension sizes: "Standard" light framing or better grade.
 - .4 Douglas fir plywood (DFP): to CSA O121, standard construction.
 - .5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
 - .6 Oriented Strand Board: To CSA O325, minimum thickness 11 mm (7/16 inch).
 - .7 Nails, spikes and staples: to CSA B111.
 - .8 Bolts: complete with nuts and washers.
 - .9 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .2 Air and Vapour Barriers:
 - .1 Wall components and assemblies to resist air leakage caused by static air pressure across exterior wall assembly, to maximum air leakage rate of 0.01 L/s.m² when subjected to pressure differential of 75 Pa as measured in accordance with ASTM E330.
 - .2 Wall components and assemblies to resist air leakage caused by dynamic air pressure across exterior wall assembly, to maximum air leakage rate of 0.01 L/s.m² when subjected to hourly wind design loads in accordance

with NBC, using 1 in 10 year probability, as measured in accordance with ASTM E330.

- .3 Insulation: To CAN/ULC S702, Type 1, mineral wool insulation.
 - .1 Density: Minimum 32 kg/m³, to ASTM C167.
 - .2 Non-combustible to CAN/ULC S114.
- .4 Sealants:
 - .1 To meet expansion, cohesion, adhesion and weather requirements of joint.
 - .2 Primers: type recommended by sealant manufacturer.
 - .3 Joint fillers:
 - .1 General: compatible with primers and sealants, outsized 30 to 50%.
 - .4 Bond breaker: pressure sensitive plastic tape, which will not bond to sealants.
- .5 Preformed Metal Cladding:
 - .1 Aluminum panels: Sheet aluminum, 3105 alloy, 0.61 mm (0.024 inch) minimum thickness, factory finished; horizontal panels with interlocking edges, weep holes on butt edges, and nailing flanges.
 - .2 Exterior corners: Same profile, material and finish as adjacent siding material.
 - .3 Exposed joint (perpendicular to profile): Ends shop cut clean and square, backed with tight fitting filler lapping back of joint, exposed components colour matched to siding.
 - .4 Accessories: Cap flashings, drip flashings, internal corner flashings, copings and closures for head, jamb, sill and corners, of same material, thickness and finish as exterior siding, brake formed to shape.
- .6 Skirting: Provide system for installation on site by Others.
 - .1 Roll-formed aluminum panels, minimum thickness 0.5 mm (0.019 inch), with baked-on enamel paint finish.
 - .2 Top track: to retain skirting in place and conceal top edge of panel; complete with frost cap to accommodate expansion and contraction due to frost heave.
 - .3 Bottom track: Complete with 175 mm (7 inch) spikes to secure track to ground.
- .7 Metal Flashings and Trim:
 - .1 Prefinished metal flashings and eavestroughs to suit application, protect components being flashed, and prevent intrusion of water.
 - .2 Finish: factory applied coating, colour selected by RCMP Representative.
 - .3 Plastic cement: to CAN/CGSB-37.5.
 - .4 Underlay for flashing: to suit application.
 - .5 Thickness: same as sheet metal being secured.

- .6 Fasteners: of same material as sheet metal. Length and thickness suitable for application.
- .7 Washers: of same material as sheet metal.
- .8 Touch-up paint: as recommended by metal flashing manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and datasheet.

3.2 INSTALLATION

- .1 Wood stud framing:
 - .1 Erect wood framing in accordance with engineered shop drawings.
 - .2 Install continuous insulating strip under sills.
- .2 Insulation:
 - .1 Install insulation to maintain continuity of thermal protection to building elements and spaces.
 - .2 Place batts between studs ensuring friction fit, free of sags, folds, voids, or open joints.
 - .3 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
 - .4 Do not compress insulation excessively to fit voids.
- .3 Air Barriers:
 - .1 Provide continuity of air seal materials and assemblies; install materials in accordance with manufacturers' instructions to achieve performance criteria.
- .4 Preformed metal cladding:
 - .1 Accurately fit and rigidly frame together joints, corners and mitres.
 - .2 Match components carefully to produce perfect continuity of line and design.
 - .3 Make joints and connections toward exterior weathertight.
 - .4 Materials in contact to have hairline joints.
 - .5 Co-ordinate location of visible joints.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 AAMA/WDMA/CSA/101/I.S. 2/A440-11 – NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
- .2 AAMA/WDMA/CSA/101/I.S.2/A440S1-09 - Canadian Supplement to North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
- .3 CAN/CGSB 12.1-M90, Tempered or Laminated Safety Glass.
- .4 CAN/CGSB 12.20-M89, Structural Design of Glass for Buildings.
- .5 CAN/CGSB 79.1-M91 - Insect Screens.
- .6 CSA A440.2-14/A440.3-14 – Fenestration Energy Performance / User Guide to CSA A440.2-14, Energy Performance of Windows and Other Fenestration Systems.
- .7 CAN/CSA A440.4-07 - Window, Door, and Skylight Installation.

1.2 SYSTEM DESCRIPTION

- .1 Provide vinyl window assemblies consisting of but not limited to the following:
 - .1 Configurations:
 - .1 Sliding: Vertical single operating ('single hung').
 - .2 Fixed.
 - .2 Glazing: Triple glazing, argon gas filled, Low-E coating.
 - .3 Screens: On ventilating portion of windows.
 - .4 Hardware: Locks, spring loading.
 - .5 Security roll shutters.

1.3 PERFORMANCE REQUIREMENTS

- .1 Performance Grade: Minimum 70.
- .2 U-Value: Maximum 1.60 W/m².K.
- .3 Energy Rating: Minimum 25.
- .4 Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.
- .5 System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior, by a weep drainage network.
- .6 Thermal Movement: Design sections to permit movement caused by thermal expansion and contraction of plastic to suit glass, infill, and perimeter opening construction.

1.4 DESIGN REQUIREMENTS

- .1 Design, fabricate and install window assembly in accordance with CSA A440.
- .2 Design window assembly in accordance with following Climatic Design Data for Lynn Lake, contained in the National Building Code.
 - .1 Design Temperature Value (NBC): January 1% value, -42°C.
 - .2 Wind (Hourly Wind Pressures): 1 in 50, 0.37 kPa.
- .3 Design window system to accommodate following without detrimental effect.
 - .1 Cyclic 40 degrees C daily, thermal swing of components.
 - .2 Cyclic, dynamic loading and release of loads such as wind loads.
 - .3 13 mm vertical deflection in the supporting structure and movement of supporting structure due to live, dead load, and creep or deflection, sway displacement and similar items.
- .4 Select glass thickness to CAN/CGSB-12.20. Design units to accommodate live, dead, lateral, wind, seismic, handling, transportation, and erection loads.
- .5 Design and detail controlled drainage path to discharge water, which enters into, or forms within windows assembly, to exterior. Prevent accumulation or storage of water within window assembly.
- .6 Design and detail air/vapour retarder and rain screen products and assemblies into continuous and integrated window envelope. Optimize windows design to align envelope layers, to minimize thermal bridges, and to provide required air and vapour diffusion control throughout exterior envelope assembly.
- .7 Design anchorage inserts for installation. Design anchorage assemblies to accommodate construction and installation tolerances.
- .8 Roll shutters: Include externally mounted security roll shutters for windows in design.

1.5 SUBMITTALS

- .1 Shop drawings - Indicate:
 - .1 Plans, elevations, sections, and details.
 - .2 Glazing types.
 - .3 Finishes.
 - .4 Reinforcement, anchorage, assembly fixings.
 - .5 Anchorage inserts, system installation tolerances.
 - .6 Detailing, locations, and allowances for movement, expansion, contraction.
 - .7 Description of related components.
 - .8 Path of cavity drainage and air pressure equalization.
 - .9 Location of isolation coating.
 - .10 Sealants type, backing, joint space.
 - .11 Location of manufacturer's nameplates.

- .2 Provide full size details of materials and details for head, jamb and sill, profiles of components, interior and exterior trim, anchorage details.
- .3 Submit certification from window manufacturer that window system conforms to design requirements specified.

1.6 MAINTENANCE DATA

- .1 Provide operation and maintenance data for windows.

Part 2 Products

2.1 WINDOWS

- .1 Windows: Extruded tubular plastic sections, factory fabricated, vision glass, related flashings, anchorage and attachment devices.
- .2 Configurations:
 - .1 Single hung.
 - .2 Fixed.

2.2 MATERIALS

- .1 Materials to CSA A440/A440.1, supplemented as follows:
 - .1 Main frame and sash: Vinyl, thermally broken, hollow tubular sections of polyvinyl chloride (PVC), UV resistant.
 - .1 PVC minimum thickness: 2.0 mm.
 - .2 Colour: White.
 - .2 Glass: To CAN/CGSB 12.1, tempered, clear.

2.3 COMPONENTS

- .1 Sills: PVC, sloped for positive wash; fit under sash to project 12 mm (1/2 inch) beyond wall face; one piece full width of opening.
- .2 Stools: Wood, 19 mm (3/4 inch) nominal thickness; fit under sash to project 12 mm (1/2 inch) beyond interior wall face; one piece full width of opening.
- .3 Insect Screens: To CAN/CGSB 79.1, Type 1, Class C, Style 1; aluminum or glass fibre mesh.
 - .1 Insect Screen Frame: Aluminum frame of rectangular sections; nominal size similar to operable glazed unit; colour to match window frames.
 - .2 Screen mesh size: 14/18.
 - .3 Screen colour: Black or charcoal.
 - .4 Mount screen frames to lower sash, for interior replacement.
- .4 Operable Sash Weather Stripping: Nylon pile, permanently resilient, profiled to effect weather seal.
- .5 Flashing tape: Polypropylene film laminated to SBS rubberized asphalt, self-adhering.

- .6 Fasteners: Stainless steel.

2.4 GLASS AND GLAZING MATERIALS

- .1 Triple-glazed insulated glazing unit: Manufacturer's standard to attain specified performance, with Low-E coating on glass surface #2, and argon gas fill.
 - .1 Glass: Clear.
 - .2 Bathroom windows: Provide obscured glass for bottom pane.

2.5 ROLL SHUTTERS

- .1 Slats: Roll formed aluminum interlocking slats, polyurethane foam filled.
- .2 Bottom bar: Extruded aluminum, with felt weather-stripping seal; complete with keyed mortise cylinder lock. Key the locks for all roll shutters to be operable with one key.
- .3 Guide rails: Heavy gauge extruded 6063-T5 aluminum with brush inserts.
- .4 Counterbalance: Helical torsion spring assembly set in steel pipe.
- .5 Bracket plates: Die-cast aluminum, to support counterbalance assembly, curtain, and hood.
- .6 Operation: Manual push-up.

2.6 SEALANT MATERIALS

- .1 Sealant and Backing Materials:
 - .1 Perimeter Sealant: Elastomeric polyurethane type.
 - .2 Rough opening/window frame sealer/insulator: Low-expanding polyurethane foam.

2.7 HARDWARE

- .1 Sash lock: Cam lock, stainless steel or white bronze; lock action to tighten sashes against weather stripping.

2.8 FABRICATION

- .1 Fabricate framing, mullions and sash members with fusion welded corners and joints, in a rigid jig. Supplement frame sections with internal reinforcement where required for structural rigidity.
- .2 Fabricate units square and true with maximum tolerance of plus or minus 2 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 Fabricate sections free from defects impairing appearance, strength and durability.
- .4 Brace frames to maintain squareness and rigidity during shipment and installation.
- .5 Form snap-in glass stops, closure moulds, weather stops, and flashings of extruded PVC for tight fit into window frame section.

- .6 Form weather stop flange to perimeter of unit.
- .7 Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- .8 Arrange fasteners to be concealed from view.
- .9 Permit internal drainage weep holes and channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through weep holes.
- .10 Assemble insect screen frame, mitre and reinforced frame corners. Fit mesh taut into frame, and secure.
- .11 Weatherstrip operable units for weather-tightness.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install in accordance with CSA-A440.4 and manufacturer's installation instruction.
- .2 Install windows securely, in correct location, level, square, plumb, at proper elevations, free of warp or twist.
- .3 Fill voids between window framing and adjacent construction with insulation to provide air seal around window frame.

3.2 ROLL SHUTTERS

- .1 Install shutter unit assemblies in accordance with manufacturer's instructions.
- .2 Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- .3 Fit and align assembly including hardware; level and plumb to provide smooth operation.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM E330/E330M-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls and Doors by Uniform Static Air Pressure Difference.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 41-GP-19Ma-1984, Rigid Vinyl Extrusions for Windows and Doors.
- .3 Canadian Steel Door Manufacturers Association (CSDMA)
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

- .1 Product data: submit manufacturer's printed product literature, specifications and data sheets.
- .2 Shop drawings:
 - .1 Indicate type of door and frame, extrusion profiles, material, method of assembly, hardware arrangement, reinforcement and required clearances, locations of exposed fasteners, openings, operating mechanisms, finishes, and location of manufacturer's nameplates.
 - .2 Submit details for type of doors and frames illustrating profiles, dimensions and methods of assembly.
 - .3 Include schedule identifying units, with door marks and numbers relating to numbering on drawings and door schedule.
- .3 Hardware list: submit contract hardware list and indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .4 Quality assurance submittals:
 - .1 Certificates: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.
 - .2 Instructions: submit manufacturer's installation instructions.
- .5 Closeout Submittals: submit maintenance data for incorporation into O&M manual.
 - .1 Provide operation and maintenance data for locksets.

Part 2 Products**2.1 SYSTEM PERFORMANCE**

- .1 Doors:
 - .1 U-Value: Maximum 1.4.
 - .2 Energy Rating: Minimum 29.

2.2 MATERIALS: EXTERIOR SECURITY DOORS

- .1 Steel doors and frames:
 - .1 Description: steel, insulated, thermally broken, exterior doors, and frames complete with hardware and weather-stripping.
 - .2 Provide exterior mounted, outswing doors.
 - .3 Metal: hot dipped galvanized steel sheet to ASTM A653/A653M, minimum base steel thickness 16 gauge.
 - .4 Core: Polyisocyanurate or mineral wool insulation.
 - .5 Finishes:
 - .1 Prime painted.
 - .2 Finish paint: Exterior alkyd.
 - .6 Fabrication:
 - .1 Fabricate doors and frames in accordance with CSDMA specifications.
 - .2 Fabricate frames to profiles and maximum face sizes required.
 - .3 Blank, reinforce, drill and tap frames and doors for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
 - .4 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
 - .5 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
 - .6 Thermal break: Rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .2 Hardware:
 - .1 Mortise locks and latches: To BHMA A156.13, series 1000 mortise lock, Grade 1 and Security Grade 1. Meets impact requirements of ASTM F1577.
 - .1 Case: Wrought steel, zinc dichromate plated, 3 mm thick.
 - .2 Latchbolt: Stainless steel, minimum 19 mm throw.
 - .3 Strikes: To ANSI A115.1, curved lip.
 - .4 Lever: L-shaped, forged or cast.
 - .5 Rose: Round, heavy wrought.
 - .6 Function: ANSI F13 - Entry.

- .2 Hinges: To BHMA A156.1, five-knuckle, heavy weight, 0.180 gauge steel, non-removable pins.
- .3 Viewer: To ANSI A156.16, brass with bright chrome finish, UL 90 minute fire rating, heavy duty privacy cover, 190° viewing field.
- .4 Perimeter gasketing: To ANSI/BHMA A156.22 Category J, extruded tempered aluminum retainer, alloy 6063-T6; with black sponge silicone seal, heavy duty type; stainless steel fasteners.
- .5 Door sweeps: Aluminum retainer, with replaceable nylon brush insert.
- .6 Thresholds: sized to suit door opening.
- .7 Architectural door trim: To BHMA A156.6:
 - .1 Door protection plates: Kick plate type 1.27 mm thick stainless steel, No. 4 finish.

2.3 STORM DOOR

- .1 Aluminum construction, glazed storm door, with operable sash, complete with screen and kickplate panel.
 - .1 Aluminum: 6063-T5 or 6063-T6 alloy extrusions.
 - .2 Glass: 3 mm (1/8 inch) tempered safety glass.
 - .3 Mounting: Interior mount and swing.
- .2 Hardware:
 - .1 Lever style handle, lockable.
 - .2 Heavy duty adjustable air-controlled closer, mounted at top of frame.

2.4 ACCESSORIES

- .1 Joint sealants:
 - .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and data sheet.

3.2 INSTALLATION

- .1 Steel doors and frames:
 - .1 Install doors and frames to CSDMA Installation Guide; install hardware using templates, and sealant to manufacturer's instructions.
 - .2 Set frames plumb, square, level and at correct elevation.
 - .3 Secure anchorages and connections to adjacent construction without restricting thermal movement.

- .4 Maintain continuity of vapour retarder, air barrier and insulation between door frames and building structure.
- .2 Sealant:
 - .1 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.
 - .2 Prepare surfaces in accordance with manufacturer's directions.
 - .3 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.
 - .4 Apply bond breaker tape where required to manufacturer's instructions.
 - .5 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.
 - .6 Caulk between door frames and adjacent building components, bedding of thresholds.
 - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - .8 Clean adjacent surfaces immediately and leave work neat and clean.
 - .9 Remove excess and droppings, using recommended cleaners as work progresses.
 - .10 Remove masking tape after initial set of sealant.
- .3 Adjust weatherstripping to form weathertight seal.
- .4 Adjust operable parts for correct function.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM C919-12, Sealants in Acoustical Applications.
- .2 ASTM C1396/C1396M-14, Gypsum Board.
- .3 CSA O132.2 Series-90, Wood Flush Doors.
- .4 CAN/ULC S102-10, Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.2 SYSTEM DESCRIPTION/PERFORMANCE REQUIREMENTS

- .1 Interior Fixed Partitions: Wood framing with vinyl-covered panel faces, with insulation in wall cavity.

1.3 SUBMITTALS

- .1 Product Data: submit manufacturer's printed product literature, specifications and data sheet.
- .2 Shop Drawings:
 - .1 Submit shop drawing to indicate elevations, materials, components, finishes, fastening to adjacent structure and assembly details.

Part 2 Products

2.1 MATERIALS

- .1 Interior Fixed Partitions:
 - .1 Wallboard Partitions:
 - .1 Vinyl-faced board: to ASTM C1396/C1396M, 12.7 mm (1/2 inch) thick; square edges.
 - .1 Fire performance to CAN/ULC S102:
 - .1 Flame spread: Maximum 25.
 - .2 Smoke developed: 50.
 - .2 Vinyl mouldings: for joint treatment of vinyl-faced board, as supplied by gypsum board manufacturer.
 - .3 Acoustic sealant: ASTM C919.
 - .2 Interior Doors: Hollow core: To CAN/CSA O132.2.
 - .1 Construction: Stile and rail, cellular core with lock blocks.
 - .2 Stiles and rails: Wood or MDF.
 - .3 Face Panels: Hardboard, painted.
 - .4 Edges: Square.
 - .5 Adhesive: Type II (water resistant) for interior doors.

- .6 Finish: Latex paint.
- .3 Door hardware, interior:
 - .1 Cylindrical lock with lever: Through-bolt style.
 - .1 Bolt: Minimum ½ inch throw; nickel plated.
 - .2 Strikes: Round corner, 2-1/4 inch.
 - .3 Function: To suit room to which door is mounted.
 - .4 Finish: satin chrome.
 - .2 Hinges: Five-knuckle, standard weight.
 - .3 Door stops: Spring style with rubber bumper, lower wall mounted.

Part 3 Execution

3.1 INSTALLATION

- .1 Install Interior Partitions and accessories in accordance with manufacturer's written instructions.
- .2 Accurately fit and fasten to abutting vertical surfaces.
- .3 Fasten runners to floor and ceiling 600 mm on center, using partition manufacturer's approved fixing devices. Submit sample for approval prior to starting construction.
- .4 Where partitions abut to exterior window mullions, install an end cap or intersection end full height.
- .5 Pack all voids in partition with insulation.
- .6 Prepare and install vinyl faced panels.
- .7 Accurately cut and fit all trim.
- .8 Fit doors, hung plumb and straight, balanced for smooth operation.
- .9 Install finishing hardware.

3.2 CLEANING

- .1 Clean installed products in accordance with manufacturer's recommendation.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 CSA O325-07, Construction Sheathing.

Part 2 Products

2.1 CEILING PANELS

- .1 Ceiling system: Tile applied to pre-installed substrate.
- .2 Substrate: OSB to CSA O325.
- .3 Mounting system: Track and clip system, aluminum or galvanised steel, attached to OSB and Joists.
- .4 Tiles: Wet-formed mineral fibre.
 - .1 Applied units, mechanically attached.
 - .2 Modular/standard panel sizes.
 - .3 Edges: Square.
 - .4 Joints: Batten style, with mouldings to retain tiles and conceal fasteners.
 - .5 Colour: white.
- .5 Integrity: Ceiling system must, when installed in environment established, be sound, rigid, durable and properly related to the building structure. It must maintain specified dimensional tolerances and be free of deformation delamination, and/or discolouration during service life.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

Comply with manufacturer's written requirements, recommendations, or specifications, including any available product technical bulletins, for handling, storage, installation, adjustment, protection, and cleaning instructions.

3.2 INSTALLATION

- .1 Relate installed ceiling system effectively to ensure compatibility with condition and nature of adjacent materials, elements/assemblies, junctions/joins/joints, control/movement joints, and anchorages/fastenings/adhesives.
- .2 Lay out modular unit ceiling system with border units not less than 50% of standard unit width.
- .3 Ensure that ceiling pattern is square with adjoining walls.
- .4 Have ceiling system relate to all movement joints which occur in building structure such as are required to respond to possible thermal and structural

movement. Design and construct joints to allow flexibility to extent necessary to match movement which may be experienced. Arrange Work so that appearance of joint creates an acceptably neat and properly aligned result.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 ASTM International
 - .1 ASTM D412-06ae2, Test Method for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
 - .2 ASTM D2047-11, Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
 - .3 ASTM D2240-05 (2010), Test Method for Rubber Property - Durometer Hardness.
 - .4 ASTM E648-10e1, Test Method for Critical Radiant Flux of Floor - Covering Systems Using a Radiant Heat Energy Source.
 - .5 ASTM E662-14, Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 - .6 ASTM F970-07 (2011), Test Method for Static Load Limit.
 - .7 ASTM F1303-04 (2014), Specification for Sheet Vinyl Floor Covering with Backing.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 19.22-M89, Mildew-Resistant Sealing Compound for Tubs and Tiles.
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102.2-10, Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

1.2 SUBMITTALS

- .1 Product Data: provide manufacturer's data on material characteristics and performance criteria.

Part 2 Products**2.1 PERFORMANCE REQUIREMENTS**

- .1 Sheet Vinyl Floor Covering with Backing: To ASTM F1303, PVC flooring with laminated open or closed PVC backing.
 - .1 Type I – 90% minimum wear layer binder content.
 - .2 Grade 3 – 0.25 mm (0.020 inch) minimum wear layer thickness.
 - .3 Backing: Class A fibrous or Class C foamed plastic.
 - .4 Wearing Surface: Urethane.
 - .5 Traffic: General.
 - .6 Flame spread rating: CAN/ULC-S102.2:
 - .1 Flame spread: Maximum 25.

- .2 Smoke developed: Maximum 50.
- .7 Slip Resistance: > 0.5 to ASTM D2047.
- .8 Smoke Developed: Maximum 450 to ASTM E662.
- .9 Critical Radiant Flux: 0.45 w/cm² or greater, to ASTM E648.
- .2 Sealant: Mildew resistant sanitary sealant to CAN/CGSB 19.22, for use around toilets, tub/shower units.
- .3 Adhesive: As recommended by sheet flooring manufacturer for substrate.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install adhesives and flooring materials in accordance with manufacturer's instructions.
- .2 Apply sealers within recommended application temperature ranges.

3.2 CLEANING

- .1 Remove excess adhesive from floor without damage.
- .2 Clean, seal and wax floor to flooring manufacturers' instructions.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 CSA 4.1-2014, Gas Water Heaters.
- .2 CAN/CSA B45 Series-02 (R2013), Plumbing Fixtures.
- .3 CAN/CSA B125-01, Plumbing Fittings.
- .4 CSA Z240.4.1-16, Installation Requirements for Oil- and Gas-Fired Appliances in Manufactured Homes.

1.2 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications, and datasheets for fixtures and equipment.
- .2 Closeout submittals: Submit maintenance and engineering data for incorporation into O&M manual.

1.3 QUALITY ASSURANCE

- .1 Fixtures and Fittings: CSA approved, similar product type from same manufacturer, preferably Canadian made.

Part 2 Products

2.1 MATERIALS

- .1 Fixtures: Free from flaws and blemishes, clear, smooth, and bright surface finish.
- .2 Exposed Brass: high quality institutional grade, chrome plated.

2.2 WATER HEATER

- .1 To CSA 4.1, propane-fired.
 - .1 Capacity: 151 litres (33 imperial gallons, 40 US gal).
 - .2 Input: 30,000 BTUH.

2.3 SINKS

- .1 Kitchen Sink:
 - .1 Bowl: Stainless steel, self-rimmed, equal sized double basin configuration, 90 mm drain strainer/plugs, holes pre-drilled in ledge back to accommodate plumbing fixture installation.
 - .2 Size: Approximately 800 x 530 mm (32 x 21 inches).
 - .3 Faucet: chrome plated metal supply with swing spout, aerator.
- .2 Lavatory Sinks:

- .1 Configuration: Countertop 'drop-in' style, self-rimmed, soap depressions, with overflow port, oval shape.
- .2 Material: Vitreous china or enameled steel.
 - .1 Colour: White.
- .3 Size: Approximately 530 x 430 mm (21 x 17 inches).
- .4 Faucet:
 - .1 Supply: Aerated water supply, maximum flow rate 5.7 L/min.
 - .2 Manual Faucet: chrome plated, single handle.
 - .3 Waste: washer-less, pop-up.

2.4 COMBINATION BATHTUB/SHOWER UNIT

- .1 Tub shower: Acrylic or fibreglass, moulded with integral shelves, slip-resistant floor, and arm rest.
 - .1 Colour: White.
- .2 Supply: Combination shower and over-rim bath fittings, mixing valve, telephone showerhead with flexible hose, mounting hardware and escutcheons. Limit spout flow rate to 68 L/min.
 - .1 Manual Taps: stainless steel.
 - .2 Shower Head: non-clogging, adjustable spray pattern, ball joint with integral wall bracket and escutcheon, maximum 12 L/min flow rate.
 - .3 Waste: Concealed pop-up waste and overflow fitting, lever operated stop.
- .3 Accessories: Chrome plated metal shower curtain rail and hooks.

2.5 TOILET

- .1 Vitreous china, dual-flush, bowl-and-tank-type.
 - .1 Colour: White.
- .2 Bowl: Floor-mounted, syphon jet, elongated rim, close-coupled, bolt caps.
- .3 Tank: Vitreous china with tank liner, flapper type adjustable flush valve assembly.
- .4 Seat: Moulded solid plastic, with cover.

2.6 FIXTURE PIPING

- .1 Supply: Flexible, non-metallic, individual shut-off valves, escutcheon at wall in exposed areas.
- .2 Waste: Metallic, chrome plated, with P trap and cleanout for fixtures with no integral trap.

2.7 EXTERIOR FAUCET

- .1 Provide frost-free exterior mounted faucet.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 INSTALLATION

- .1 Install water heater to CSA Z240.4.1.
- .2 Locate plumbing fixtures at locations and in numbers required.
- .3 Seal sinks to prevent water leaks.
- .4 Provide shut-offs at plumbing fixture installations.
- .5 Provide chrome plated rigid or flexible supplies to fixtures with screwdriver stops, reducers, and escutcheons.
- .6 Wall Mounted Fixtures: use approved floor supported carriers to suit application.
- .7 Floor Mounted Fixtures: Solidly attach water closets to floor with lag screws and bolt cap. Do not use lead flashing to hold closet in place.
- .8 Install hose and faucets and hose connections with vacuum breakers.
- .9 Supply tempered water to shower heads through a centrally located thermostatic mixing valve.
- .10 Clean exposed fixtures after installation is complete.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 CSA 2.3-2016 - Gas-Fired Central Furnaces.
- .2 CSA C22.1-15 – Canadian Electrical Code.
- .3 CAN/CSA Z240.4.1-16 – Installation Requirements for Oil- and Gas-Fired Appliances in Manufactured Homes.

1.2 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications, and datasheets for fixtures and equipment.
 - .2 Provide rated capacities, weights, accessories, nameplate data, and wiring diagrams.
- .2 Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.
- .3 Extra materials:
 - .1 Provide 1 extra pilot thermocouple.
 - .2 Provide 5 extra furnace filters.

Part 2 Products**2.1 PIPE TRACING HEATING CABLES**

- .1 Self-limiting heating cable with copper ground wire, thermoplastic rubber primary and overall jackets. For use with 120 V power supply.
 - .1 GFI outlet: Install corresponding GFI outlet in hot water tank compartment.

2.2 GAS FIRED FURNACES

- .1 Units: To CSA 2.3 and CSA C22.1, self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating element, controls, air filter, and accessories; wired for single power connection with control transformer.
 - .1 Heating: Propane gas fired.
- .2 Cabinet: Steel with baked enamel finish, easily removed and secured access doors.
- .3 Supply Fan: Centrifugal type rubber mounted with direct or belt drive, multi-speed.

- .1 Blower performance: 1300 CFM.
- .4 Gas Burner:
 - .1 Electronic pilot ignition, with electric spark or hot surface igniter.
 - .2 Non-corrosive combustion air blower with permanently lubricated motor.
- .5 Gas Burner Safety Controls:
 - .1 Thermocouple sensor: Prevents opening of gas valve until pilot flame is proven and stops gas flow on ignition failure.
 - .2 Limit Control: Fixed stop at maximum permissible setting, de-energizes burner on excessive bonnet temperature, automatic resets.
- .6 Operating Controls:
 - .1 Room Thermostat: Cycles burner to maintain room temperature setting.
- .7 Air Filters: Arranged for easy replacement.
- .8 Performance:
 - .1 Heating Capacity:
 - .1 Heating output: 62,000 BTUH.
 - .2 Heating input: 77,000 BTUH.
 - .3 Annual fuel utilization efficiency (AFUE): 80 percent.
 - .4 Gas heating capacities are sea level ratings.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 INSTALLATION

- .1 Install pipe tracing heat cables in accordance with manufacturer's instructions.
 - .1 Distribute and fasten cable evenly on pipe using pipe strap or tape.
 - .2 Ensure that heating cables do not touch or cross each other at any point.
 - .3 Coordinate cable installation with insulation application. Loop additional cable at fittings, valves, and flanges.
- .2 Install gas fired furnaces to CAN/CSA Z240.4.1.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 CSA C22.1-15 - Canadian Electrical Code, Safety Standard for Electrical Installations.
- .2 CSA C22.2 No. 9.0 - General Requirements for Luminaires.

1.2 SUBMITTALS

- .1 Product Data: Provide dimensions, ratings, and performance data.

Part 2 Products**2.1 ELECTRICAL PANEL**

- .1 Provide 100 amp service panel, 120/240VAC, with minimum 24 breakers.
- .2 Label breakers with associated receptacles, switches, and appliances.

2.2 SWITCHES

- .1 20A, 120V AC, commercial specification grade, single pole or three-way, toggle type, complete with the following features:
 - .1 Terminal holes approved for #10 AWG wiring.
 - .2 Silver alloy contacts.
 - .3 Urea molding.
 - .4 Suitable for side and back wiring.
 - .5 Fully rated for installed luminaires, and up to 80% of rated capacity for motor loads.
 - .6 Colour: white.
- .2 Provide switches from one manufacturer throughout the project.

2.3 RECEPTACLES

- .1 Duplex receptacles, 15A (NEMA #5-15R) or 20A (NEMA #5-20R), 125 VAC, U ground commercial specification grade, with the following features:
 - .1 Suitable for #10 AWG back and side wiring.
 - .2 Break-off links for use as split receptacles.
 - .3 Double wipe contacts and non-riveted grounding contacts.
 - .4 Decora style.
- .2 Ground fault circuit interrupter receptacle: Provide in bathroom, in kitchen, and at exterior locations.
 - .1 Class A rated, NEMA #5-15R, 125V, 20A feed through rated to CSA-C22.2 No. 144 with the following features:

- .1 Nylon moulded housing.
- .2 Decora style.
- .3 Provide weatherproof cover for exterior locations.
- .4 Suitable for No. 10 AWG for side and back wiring.
- .5 Solid state ground sensing device.
- .6 Testing and reset buttons.
- .7 Indicator light to show status of GFCI protection operation.
- .8 Malfunction protection. Device cannot be reset if GFCI is nonoperational or unit is wired incorrectly.
- .9 5mA trip level.

2.4 PHONE JACK

- .1 Provide one phone jack in the central living space.

Part 3 Execution

3.1 INSTALLATION

- .1 Perform installation to Canadian Electrical Code.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 CSA C22.1-15 - Canadian Electrical Code, Safety Standard for Electrical Installations.
- .2 CSA C22.2 No. 9.0 - General Requirements for Luminaires.

1.2 SUBMITTALS

- .1 Product Data: Provide dimensions, ratings, and performance data.

Part 2 Products**2.1 LIGHTING**

- .1 Provide LED light fixtures throughout the mobile home unit.
- .2 Kitchen: Five-bulb track light system with adjustable heads.
- .3 Bath: Wall sconce, bar type, minimum 4 bulbs, installed over mirror.
- .4 Bedrooms: Combination fan/light with dome style light fixture.
- .5 Living room: Combination fan/light with dome style light fixture.
- .6 Dining area: Combination fan/light with dome style light fixture.
- .7 Entrance foyer: Surface mounted dome style, with minimum 2 bulbs.
- .8 Laundry room: Surface mounted dome style, with minimum 2 bulbs.
- .9 Doors at exterior: Single bulb luminaire complete with frosted glass.

2.2 EXHAUST FANS

- .1 Exhaust fans: CSA approved and labelled, minimum 80 CFM rating, complete with backdraft damper, and roof cap for duct.
- .2 Provide exhaust fans in:
 - .1 Bathroom.
 - .2 Laundry room.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install surface mounted luminaires plumb, and adjust to align with building lines and with each other. Secure rigidly.
- .2 Install exhaust fans in accordance with manufacturer's instructions. Vent through roof to exterior.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Product Data:
 - .1 Provide manufacturer's printed product literature and, datasheets for appliances; include product characteristics, performance criteria, physical size, finishes.
 - .2 Submit maintenance data for incorporation into manual.
 - .1 Include cleaning, adjustment, operating instructions.
 - .2 Include tools for disassembly and adjustment.

Part 2 Products

- .1 All appliances:
 - .1 Stainless steel finish.
 - .2 CSA labelled.
- .2 Refrigerator:
 - .1 Upright type.
 - .2 Size: 762 mm (30 inches) wide.
 - .3 depth to suit counter depth.
 - .4 110/120 volt, single phase.
 - .5 self-defrosting.
 - .6 meat keeper.
 - .7 vegetable crisper.
 - .8 single door.
 - .9 freezer over.
 - .10 with door mounted shelves or pockets.
- .3 Washer:
 - .1 Free standing, high efficiency, top loading type.
 - .2 5 cu ft capacity.
 - .3 variable water level control.
 - .4 dispenser for liquid softener.
- .4 Dryer:
 - .1 Electric.
 - .2 free standing type.
 - .3 7 cu ft capacity.
 - .4 interior light.
 - .5 removable lint screen.

- .5 Range:
 - .1 Electric.
 - .2 free standing type.
 - .3 nominal width 762 mm (30 inches).
 - .4 four top burners.
 - .5 oven below with top and bottom elements.
 - .6 two chromed steel racks.
 - .7 vision panel.
 - .8 convenience outlet.
 - .9 interior oven light.
- .6 Range hood:
 - .1 two lights.
 - .2 dual speed.
 - .3 vented to exterior through roof.
 - .4 160 cfm capacity.
 - .5 damper.
- .7 Microwave Oven:
 - .1 interior space: 1.7 cu ft.
 - .2 electronic timed cook.
 - .3 rotating glass platform.
 - .4 interior light.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install appliances to manufacturer's instructions and CSA requirements.
- .2 Set and adjust units level and plumb.
- .3 Activate units to confirm correct operation.

3.2 CLEANING

- .1 Clean and adjust installed products in accordance to manufacturer's recommendation.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI A208.1-09, Particleboard.
 - .2 ANSI A208.2-09, Medium Density Fiberboard (MDF) for Interior Applications.
- .2 Canadian Standards Association (CSA)
 - .1 CSA B111-74 (R2003), Wire Nails, Spikes and Staples.
 - .2 CSA O112.10-08 (R2013), Evaluation of Adhesives for Structural Wood Products (Limited Moisture Exposure).
 - .3 CSA O141-05 (R2014), Softwood Lumber.
- .3 National Hardwood Lumber Association (NHLA)
 - .1 Rules for the Measurement and Inspection of Hardwood and Cypress, 2011.
- .4 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber, 2014.

1.2 SUBMITTALS

- .1 Product Data:
 - .1 Provide manufacturer's printed product literature and datasheets for products; include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Shop Drawings:
 - .1 Fixed casework.
- .3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.

1.3 EXTRA MATERIALS

- .1 Maintenance Data: submit maintenance data for incorporation into manual.

Part 2 Products

2.1 MATERIALS

- .1 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less in accordance with following standards:
 - .1 CSA O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.

- .2 Hardwood lumber: in accordance with following standards:
 - .1 National Hardwood Lumber Association (NHLA).
- .3 Particleboard core: To NPA A208.1, Grade M2 or better.
 - .1 Thickness swelling: Maximum 5.5%.
 - .2 Modulus of rupture: Minimum 13.0 N/mm² (1885 psi).
- .4 MDF (medium density fibreboard) core: To NPA A208.2, Grade 130 or better.
 - .1 Modulus of rupture: Minimum 21.6 N/mm² (3130 psi).
 - .2 MDF resin to contain no added urea-formaldehyde.
- .5 Moisture-resistant MDF: To ANSI/NPA A208.2, Grade 155 MR50.
- .6 High pressure decorative laminate (HPDL) for horizontal surfaces: To NEMA LD3, Horizontal Grade Standard (HGS), 1.2 ± 0.12 mm thick.
- .7 HPDL for postforming work: To NEMA LD3, Horizontal Grade Postforming (HGP), 1.0 ± 0.12 mm thick.
- .8 Laminate liner sheet: Grade CLS, 0.5 ± 0.10 mm thick, white colour.
- .9 Laminate backing sheet: Grade BKL, minimum 0.5 mm thickness.
- .10 Nails and staples: To CSA B111.
- .11 Wood screws: Stainless steel, type and size to suit application.
- .12 Splines: Metal.

2.2 FABRICATION: CABINETS AND COUNTERTOPS

- .1 General:
 - .1 Provide kitchen cabinetry, upper and lower units, with countertop; provide approximately 20 linear feet of cabinetry in 'L' configuration.
 - .1 Do not include space for built-in dishwasher, it is not required.
 - .2 Provide bathroom vanity, full width.
 - .3 Provide shelves over closet rods.
 - .4 Provide shelves in linen closets, mounted on wooden cleats.
- .2 Casework:
 - .1 Cabinet and door interface: Full overlay with inlaid relief panel.
- .3 Case bodies and shelving:
 - .1 Solid maple, 19 mm (¾ inch) minimum thickness, clear finish.
- .4 Doors and drawers:
 - .1 Fronts: Solid maple, 19 mm (¾ inch) minimum thickness, clear finish.
 - .2 Bottoms and sides: Hardboard, minimum 6 mm (¼ inch) thick.
 - .3 Hardware: Closed pull, 100 mm (4 inches) long, brushed nickel finish.
- .5 Countertops:
 - .1 Core: Particleboard or MDF.

- .2 Core at sinks: Moisture-resistant MDF.
- .3 Surface: HPDL.
- .4 Front edge: Postformed.
- .5 Set nails and countersink screws apply stained wood filler to indentations, sand smooth and leave ready to receive finish.
- .6 Shop install cabinet hardware for doors, shelves and drawers.
- .7 Provide cut-outs for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .8 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .9 Veneer laminate to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm. Keep joints 600 mm from sink cut-outs.
- .10 Form shaped profiles and bends as indicated, using postforming grade laminate to manufacturer's instructions.
- .11 Apply laminate backing sheet to reverse side of core of laminate work.

2.3 FABRICATION – BUNK BEDS

- .1 Construct built-in bunk beds in both bedrooms with dimensional lumber, sand and finish with low VOC latex paint. Lag bolt bunk beds to wall structure.
- .2 Size:
 - .1 To accommodate (54 x 74 inch) 'Full' mattress on lower bunk, (39 x 80 inch) 'Twin XL' on upper bunk.
 - .2 Corner posts: Nominal 4" x 4" lumber.

2.4 PREFABRICATED SPECIALTIES

- .1 Horizontal blinds:
 - .1 Vinyl Slats: 25 mm (1 inch) wide; PVC, horizontal slats, radiused slat corners.
 - .1 Colour: White.
 - .2 Slat Support: Woven polypropylene, ladder configuration.
 - .3 Head Rail: Pre-finished, formed aluminum box; internally fitted with hardware, pulleys, and bearings for operation.
 - .4 Control Wand: Extruded hollow plastic removable type; length of window opening height.
 - .5 Head Support Bracket Overhead head rail attachment.
 - .6 Accessory Hardware: Type recommended by blind manufacturer.
- .2 Washroom accessories:
 - .1 Towel bars: Provide two 750 mm (30 inch) towel bars.
 - .2 Toilet paper holder.

- .3 Mirror: Minimum 600 x 750 mm (24 x 30 inches), attached with nickel plated mirror clips.
 - .1 Mirror: 6 mm thickness, polished edges.
- .4 Robe hook: Two prong, approximately 70 mm projection.
- .3 Closet shelving: Epoxy-coated metal wire shelving.
 - .1 Provide in closets for bedrooms, and in laundry room.
- .4 Closet rods: Heavy duty round steel tubing, polished chrome finish.
 - .1 Outside diameter: Minimum 27 mm (1-1/16 inch).
 - .2 Wall thickness: Minimum 2.2 mm (0.087 inch).
 - .3 Mounting brackets: Round, closed flange, three-screw attachment.
 - .1 Provide centre supports for closet rods longer than 1.5 m (5 feet).

Part 3 Execution

3.1 APPLICATION

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

3.2 INSTALLATION: WOODWORK

- .1 Position millwork accurately, level, plumb, and straight.
- .2 Fasten and anchor millwork securely.
 - .1 Supply and install heavy duty fixture attachments for wall mounted cabinets.
- .3 Use draw bolts in countertop joints.
- .4 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.
- .5 At junction of laminate counter back and adjacent wall finish, apply small bead of sealant in accordance with Section 07 92 00 - Joint Sealants.
- .6 Fit hardware accurately and securely in accordance with manufacturer's written instructions.

3.3 INSTALLATION: SPECIALTIES

- .1 Install prefabricated specialties to firm backing, in level position.
- .2 Blinds:
 - .1 Install blinds at exterior windows square, plumb, true to line with operable parts adjusted for correct function.
 - .2 Include centre brackets where necessary to prevent deflection of headrail.
 - .3 Adjust to provide for operation without binding.

- .4 Conceal non-corrosive metal installation fasteners within final assembly.

3.4 CLEANING

- .1 Clean installed products in accordance to manufacturer's recommendation.

END OF SECTION