

SECTION 06100 - ROUGH CARPENTRY

1. GENERAL

- 1.1. Provide conventional wood-frame construction for pavilion shelter addition as shown on drawings.
- 1.2. Design and Code Requirements: CAN/CSA-O141; CAN3-O86.1, "Engineering Design in Wood", Canadian Plywood Association's "Plywood Handbook", Ontario Building Code and good construction practices.
- 1.3. Shop Drawings: Submit shop drawings for Engineered Roof Trusses, prepared and stamped by professional structural engineer licenced to practice in Province of Ontario.
- 1.4. Product Handling: Protect materials from weather during shipment and site storage, wrap securely with moisture resistant covers, or store in dry and ventilated inside space.

2. PRODUCTS

- 2.1. General: All kiln dried to maximum 19% moisture, and in clean condition. Engineered roof trusses to maximum 15% moisture.
- 2.2. Structural Framing Lumber and Miscellaneous Blocking: Except as otherwise designated, Spruce/Pine/Fir (SPF), NLGA 121b Standard, meeting minimum No. 2 Grade requirements of CAN/CSA-O141.
- 2.3. Roof and Wall Sheathing: Lumber core Douglas Fir plywood to CSA O121-M, in thickness specified on drawings, T&G edges on roof sheathing.
- 2.4. Nails and Connecting Hardware: CSA B111; framing nails, common spiral; use cadmium plated or galvanized for fasteners used for treated lumber, in exterior walls and damp areas.
- 2.5. Engineered Roof Trusses: In configuration shown on architectural section drawings and designed to carry design loads specified on structural drawing S-1.

3. EXECUTION

- 3.1. Erect Work plumb, true and permanently fixed. Where used as substrate for gypsum board, add blocking to CAN/CSA-A82.31-M, Appendix B, and as indicated on drawings.
- 3.2. Conform to requirements of Wood-Frame Construction of Ontario Building Code (OBC), and Tables 9.23.3A and B of OBC for nailing requirements. Provide necessary temporary bracing until connectors are permanently installed.
- 3.3. Install materials using greatest length of material practicable. Provide sill gasket at underside of sill plates bearing on concrete, and secure to foundation walls as shown on structural drawing S-1.
- 3.4. Fasten wood framing, blocking solidly to adjacent materials in true planes, and as shown on structural drawing S-1.
- 3.5. Connect trusses to supporting members in accordance with manufacturer's instructions. As a minimum, secure trusses to supporting members with Simpson Strong-Tie H1.

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- 3.6. Following installation of continuous rigid insulation, as described in Exterior Wall Assembly notes on section drawing, install strapping required for installation of exterior siding in conformance with siding manufacturer's specifications. Space strapping vertically 16" on centre over wall studs, sandwiching rigid insulation, to ensure fastener penetration into studs to depth recommended by siding manufacturer.

END OF SECTION

SECTION 06200 - FINISH CARPENTRY

1. GENERAL

- 1.1. Work includes, but is not limited to, providing pavilion shelter addition with baseboard and casing trim, V-joint ceiling cladding, miscellaneous wood trim as required, installation of doors and windows, if not installed under Window and Door Sections, and installation of door hardware supplied under hardware allowance.
- 1.2. Finish Carpenters: Journeymen only.
- 1.3. Extended Warranties: Closers, 5 years; locks and locksets 2 years.

2. PRODUCTS

- 2.1. Wood Materials:
 - 2.1.1. Baseboard and Casing Trim: Yellow birch, size and profile as shown on drawings.
 - 2.1.2. V-Joint Cladding: Pine, 3/4" thick T&G with 5" exposure, no. 1 and 2 grade.
- 2.2. Rough Hardware: CSA B111. Provide necessary fasteners including non-fibrous inserts for installation of all Work.
- 2.3. Adhesives: Types recommended by manufacturer to give tight, permanent bond.

3. EXECUTION

- 3.1. Install to recognized good carpentry and joinery practice with joints true, tight and solidly nailed. Comply with Architectural Woodwork Manufacturers Association of Canada (AWMAC) standard practice to match quality grade of work.
- 3.2. Install all casing and baseboard trim. Make field joints to conceal shrinkage with mitre or scarf joints. Set nails for putty. Pellet all counter-bored screws with solid dowels of matching species.
- 3.3. Install V-joint ceiling cladding in Shelter Addition and on walls in New Vestibules.
- 3.3. Install door hardware supplied under hardware allowance.

END OF SECTION

SECTION 07200 - THERMAL INSULATION

1. GENERAL

- 1.1. Work includes, but is not limited to providing batt insulation within wood stud wall cavities, continuous rigid insulation on exterior side of sheathing, blown and cellulose insulation in trussed roof attic space of new pavilion shelter addition.

2. PRODUCTS

- 2.1. Batt Insulation: Unfaced glass fibre batts, conforming to CSA A101-M, Type 1 manufactured by Owens Corning, or approved equal, for friction fit installation.
- 2.2. Rigid Insulation: Rigid EPS insulation, with reflective lamination both sides, "Silverboard" by Amvic.
- 2.3. Sheathing Tape: Contractor's sheathing tape for polyethylene vapour barrier "Tuck Tape" by Cantech, to tape joints in rigid insulation.
- 2.4. Loose Fill Blown Cellulose Fibre Insulation: Light fibrous cellulose fill, for installation at a density of 56 kg/m³.
- 2.5. Foamed-In-Place Spot Insulation: Polyurethane foam, slow rise; manufactured by Insta-Foam Products, Inc., or "EnerFoam".
- 2.6. Attic Rafter Vents: Rigid extruded polystyrene attic rafter vents, "Raft-R-Mate" by Owens Corning.

3. EXECUTION

- 3.1. Application: Use only competent installers and execute Work in accordance with material manufacturer's printed directions.
- 3.2. Install friction fit batt insulation in exterior stud walls and where indicated cutting batts neatly around all obstructions. Do not compress insulation.
- 3.3. Install loose fill fibre insulation after installation of air/vapour barrier and horizontal resilient channels to underside of bottom chords of trusses.
- 3.4. Installed insulation shall provide continuous uniform thermal insulation over insulated areas.

END OF SECTION

SECTION 07270 - AIR/VAPOUR BARRIERS

1. GENERAL

- 1.1. Provide polyethylene air/vapour barrier throughout walls of pavilion shelter addition, including provision of transition membranes at window and door openings, and other building penetrations.

2. PRODUCTS

- 2.1. Air/Vapour Barrier: Polyethylene sheet of UV resistant type, minimum 150 um thickness to CAN2-51.34-M86, Type 2. Furnish minimum 1800 mm roll widths.
- 2.2. Sheathing Tape: Contractor's sheathing tape for polyethylene vapour barrier "Tuck Tape" by Cantech, to tape joints in rigid insulation
- 2.3. Flexible Transition Membrane: Blueskin Butyl Flash, by Henry, width to suit site application.

3. EXECUTION

- 3.1. Quality of Work: Apply air/vapour barrier envelope to applicable requirements of Section 07200. Protect surrounding surfaces against damage from this work.
- 3.2. Examination: Examine surfaces to receive membranes to assure they are smooth, dry and free from conditions that will adversely affect execution, permanence, or quality of Work. Do not install air/vapour barrier until other Work which penetrates membrane has been completed.
- 3.3. Flashing, Corner Reinforcing and Transition Membrane Installation:
- 3.3.1. Install membrane flashing in 900 mm widths. Bring flashing 150 mm onto horizontal surfaces and 200 mm up walls from horizontal elevation.
- 3.3.2. Apply transition membrane at window and door frame openings in accordance with manufacturer's installation instructions.
- 3.3.3. Installation:
- 3.3.3.1. Install membrane over flashings and corner reinforcement. Lay membrane without buckles, fish-mouths, and avoid stretching.
- 3.3.3.2. Lap all membranes 65 mm on the side laps and 150 mm on all end laps. Stagger end laps. Roll membrane with 75 mm wide hand roller.
- 3.3.3.3. Inspect membrane for punctures, misaligned seams and fish-mouths, apply additional layer of membrane over affected area, extending minimum of 150 mm beyond damaged area in all directions.
- 3.4. Air/Vapour Barrier Installation:
- 3.4.1. Staple air/vapour barrier to wood substrates such as studs, top and bottom plates of walls, lintels, and bottom chords of trusses, lapping joints 100 mm minimum. Staple 150 mm on centre and tape all joints with sheathing tape.

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- 3.4.2. Place air/vapour barrier on warm side of insulation.
- 3.4.3. Install vapour barrier "boots" at locations where electrical receptacle, switch and light fixture boxes would otherwise penetrate air/vapour barrier. Tape perimeter of boot flanges to surrounding air/vapour barrier. Install in 2 phase sequence as necessary, working in close cooperation with electrical trades installing electrical boxes on exterior walls or insulated ceilings.
- 3.4.4. Where structural members, services and the like penetrate vapour barrier, use second layer of tape, 1/2 lapping onto non-poly surfaces.
- 3.4.5. Ensure surfaces to which tape is to be adhered are free of any contaminants which would otherwise effect bond of tape. Follow tape manufacturer's instructions.
- 3.4.6. Upon completion of air/vapour barrier installation, notify Consultant for inspection, and forbid any further Work which would conceal vapour barrier prior to inspection.

END OF SECTION

SECTION 07311 – FIBERGLASS-REINFORCED ASPHALT SHINGLES

1. **GENERAL**

- 1.1. Work includes but is not limited to providing new fiberglass-reinforced asphalt shingle roofing on existing pavilion structure, existing office addition, and existing gazebo structure. Provide new eavestroughs and rainwater pipes on structures noted above, as well as on new pavilion addition shelter. Include stripping of existing shingles. Separate prices are required, as noted on Bid Form.
- 1.2. **Reference Standards:**
CAN3-A123.51-M85
CAN/CGSB-19.13-M87
CAN/CGSB-37.4-M89
CAN/CGSB-37.5-M89
CAN/CGSB-93.1-M85
CSA A123.1-M1979
CSA B111-1974
- 1.3. **Related Work:** Replacement of vent boots penetrating roof.
- 1.4. **Submittals:** Submit sample of asphalt shingle roofing for approval by Consultant and Owner of colour and style of shingle.
- 1.5. **Warranty:** Warrant work of this Section against defects and deficiencies for period of two years from date Work is certified as substantially complete. Promptly correct, at no expense to Owner, any defects or deficiencies which become apparent within warranty period.

2. **PRODUCTS**

- 2.1. **Asphalt Shingles:** Self-sealing fibreglass-reinforced shingles, conforming to CSA A123.1, weighing not less than 100 kg/10m² (225 lbs/100 sq. ft.). Colour and style to be selected by Consultant and Owner from manufacturer's standard range, product warranty, 50 years.
- 2.2. **Plastic Cement:** CAN/CGSB-37.5.
- 2.3. **Lap Cement:** CAN/CGSB-37.4.
- 2.4. **Eaves Protection:** Self adhesive self-sealing sheet composed of polyethylene with a bituminous back: Colphene 1000 GSA by Soprema or Eaveshield by Domtar Construction Materials Ltd., or Eaveguard by Bakor Inc., or Armourguard Ice and Water Projection by IKO Industries Ltd.
- 2.5. **Roofing Nails:** CSA B111 of galvanized steel or aluminium, minimum 25mm (1") long.
- 2.6. **Sheet Metal:** Minimum 0.49mm (0.0217") overall thickness, zinc coating Z275 galvanized sheet steel, or Galvalume by Dofasco Inc., pre-painted to Stelcolour 5000 by Stelco Inc. or System 5000 by Dofasco Inc.
- 2.7. **Sheet Metal:** Pre-finished aluminium alloy, post-forming and non post-forming sheet finish coated one side, 0.60mm (0.0235") min. base sheet thickness, CAN/CGSB-93.1; by Alcan Building Products or Reynolds Aluminum Co. of Canada. Colour and finish as selected by Architect from manufacturer's standard.

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- 2.8. Fascia Cladding: Pre-formed, pre-finished, aluminum sheet metal crimped for stiffness, colour and finish selected by Architect from manufacturer's standard range.
- 2.9. Drip Edge: Continuous along eaves, in galvanized sheet metal.
- 2.10. Eavestroughs: Standard profile, 5" wide, fabricated from prefinished aluminium, complete with corners, stops and drops for down pipe connections.
- 2.11. Rainwater Leaders: 3" square profile, with positive lock seams throughout entire length, fabricated from specified sheet metal.
- 2.12. Sealant: One component, chemical curing, CAN/CGSB-19.13, Class M-2-25-B-N.

3. EXECUTION

3.1. Preparation:

- 3.1.1. Remove existing asphalt shingles, eavestroughs, downpipes, and fascia cladding at designated roof locations shown on drawings.
- 3.1.2. Examine existing deck and report damaged, deteriorated or unsuitable sheathed areas prior to commencement of work.
- 3.1.3. Re-nail existing plywood sheathing that has come loose, taking care to not penetrate existing pavilion or gazebo finished ceilings.
- 3.1.4. Install new work promptly after removal of existing roofing to minimize exposure of sheathing to weather. Do not apply work during rain, fog or snow, or over frozen surfaces.

3.2. Installation:

- 3.2.1. Conform to CAN3-A123.51 and to this Section.
- 3.2.2. Install sheet metal roof flashings and fascia cladding. Install drip edge along eaves, overhanging 12.7mm (1/2"), with minimum 51mm (2") flange extending onto roof decking. Nail to deck at 406mm (16") o.c. maximum.
- 3.2.3. Install eave protection in accordance with manufacturer's instructions, and as required by Ontario Building Code. Cover deck with underlay specified by shingle manufacturer.
- 3.2.4. Apply shingles in accordance with manufacturer's installation instructions.
- 3.2.5. Install eavestroughs and secure to building at 762mm (30") o.c. with concealed fastening brackets. Slope eavestroughs to downpipes. Seal joints for watertight connections.
- 3.2.6. Install downpipes and provide goosenecks back to wall. Secure downpipes to wall with straps at 1829mm (72") o.c.; minimum of two straps per downpipe. Provide pre-cast concrete splash pans where downpipes discharge at grade.

END OF SECTION

SECTION 07464 – ENGINEERED LAP SIDING

1. GENERAL

- 1.1. Clad pavilion shelter addition with horizontal engineered lap siding, as shown on elevation drawings.
 - 1.1.1. Comply with requirements of Division 1- General Requirements.
- 1.2. Related Work:
 - 1.2.1. Strapping to support siding, Section 06100 – Rough Carpentry.
 - 1.2.2. Continuous rigid insulation behind siding, Section 07210 – Thermal Insulation.
- 1.3. Submittals
 - 1.3.1. Submit sample of siding in selected colour for approval by Owner and Architect.
- 1.4. Warranty:
 - 1.4.1. Warrant work of this section against defects and deficiencies for period of 15 years for paint finish, and 5 years on labour, from date work is certified as substantially performed. Promptly correct, at no expense to Owner, defects or deficiencies which become apparent within warranty periods specified above.

2. PRODUCTS

- 2.1. Lap Siding: “Resistech Engineered Siding” by Maibec, treated engineered lap siding with a strand substrate and textured finish, in 5.84” width for 4.84” exposure, or in 7.84” width for a 6.84” exposure, packaged in 16’ lengths in bundles.
- 2.2. Nails: Maibec 2 1/2” long hot dipped zinc galvanized ring shank nails with textured heads that are corrosion resistant.
- 2.3. Ventilated Starter Strips: Maibec galvanized ventilated starter strips, perforated to provide 50% open pattern, and designed to prevent rodents and certain insects from infiltrating behind siding.

3. EXECUTION

- 3.1. Wall Preparation:
 - 3.1.1. Examine wood strapping installed by Section 06100 – Rough Carpentry, and report to Architect any damaged, missing, or out-of-plumb strapping unsuitable for support of siding, prior to commencement of work.
- 3.2. Installation:
 - 3.2.1. Upon acceptance of wall preparation, install new lap siding in accordance with manufacturer’s installation instructions.
 - 3.2.2. Install continuous ventilated starter strip at bottom of wall to be clad. Ensure starter strip

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is installed level, straight and true, and securely fastened to strapping.

- 3.2.3. Secure lap siding to strapping using Maibec nails in quantity and spacing specified by siding manufacturer. Ensure joints between siding lengths are staggered, with no joints aligned vertically.
- 3.2.4. Regularly check siding installation with level and adjust as required to ensure siding is in alignment on both sides of door and window openings.
- 3.2.5. Proper installation of siding shall ensure continuous air gap between face of continuous rigid insulation and back of lap siding.
- 3.2.6. Do not apply work during rain, fog or snow. Do not work over damp, frozen or unsuitable surfaces.

END OF SECTION

SECTION 07540 – THERMOPLASTIC MEMBRANE ROOFING

1. GENERAL

- 1.1 Provide thermoplastic polyolefin, TPO single-ply, fully-adhered roofing membrane on roof deck of new pavilion shelter addition.
 - 1.1.1. Conform to sections of Division 1 as applicable.
- 1.2. Reference Standards:
ASTM D6878/D6878M “Thermoplastic Polyolefin Based Sheet Roofing”.
ASTM D6878/D6878M-11a “Thermoplastic Polyolefin Based Sheet Roofing”.
- 1.3. Related Work:
 - 1.3.1. Reglets where TPO roofing is terminated at stone masonry wall finish.
 - 1.3.2. Sealants except for flashing seals, Section 07900, Joint Sealants.
- 1.4. Submittals:
 - 1.4.1. Shop Drawings:
 - 1.4.1.1. Submit shop drawings in accordance with General Conditions of the Contract, showing membrane sheet layout, methods of seaming, fastener layout, flashing of protrusions and penetrations, connections to air barrier in wall, details of insulation, tapered insulation and vapour barrier, including installation and securement details.
 - 1.4.2. Maintenance Data:
 - 1.4.2.1. Supply all necessary maintenance data and repair instructions for binding into maintenance manuals described in Section 01300, Submittals.
 - 1.4.2.2. Bind into each maintenance manual, dated and executed copy of manufacturer’s guaranty, including name, address and phone number of nearest manufacturer’s representative.
- 1.5. Quality Assurance
 - 1.5.1. Roofer shall be approved by membrane manufacturer.
- 1.6. Delivery, Storage and Handling
 - 1.6.1. Protect sheet metal materials from bending and scratching.
 - 1.6.2. Deliver and store sealants and adhesives in manufacturer’s original containers with wrapping and seals intact. Store at temperatures recommended by adhesive manufacturer. ~~Protect from heat and open flames.~~
 - 1.6.3. Protect roofing materials from inclement weather. Keep sheathing and insulation absolutely dry and remove only as much from storage as can be applied on same day. Reject damaged materials, including materials showing signs of exposure to moisture.
- 1.7. Manufacturer’s and Installer’s Guaranty

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- 1.7.1. Provide membrane manufacturer's guaranty naming Owner as beneficiary, covering defects and deficiencies and weather tightness of complete membrane, and lasting for 10 years from date work is certified as substantially performed.
- 1.7.2. Guaranty shall cover labour and materials and include repair or replacement at manufacturer's and/or installer's expense, to extent required, of all work of this Section in event of leaks or other failure if such failure results from defects and deficiencies of membrane and flashings or their installation.
2. **PRODUCTS**
- 2.1. **Materials**
- 2.1.1. General: all materials used in single ply sheet roofing system shall be parts of "UltraPly TPO Membrane System", by Firestone Building Products, or approved equal, attached to substrate providing a base tie-in force of 1 kN (200 lbf) in any direction.
- 2.1.2. Membrane: UltraPly TPO membrane, white, not less than 1.6mm (0.06") thick.
- 2.1.3. Membrane Flashing: As recommended by membrane manufacturer.
- 2.1.4. Membrane Adhesive, Flashing Adhesive, and Membrane Lap Adhesive: UltraPly Bonding Adhesive, Single-Ply LVOC Bonding Adhesive, or Single-Ply LVOC Bonding Adhesive 1168.
- 2.1.5. Seaming Requirements: Single Weld or WideWeld System, using robot welder.
- 2.1.6. Cover Board: Isogard HD Cover Board, 12mm (1/2") thick.
- 2.1.7. Fastener Type: Firestone All-Purpose Fastener, or Firestone Heavy Duty Fastener.
- 2.1.8. Sheet Metal: Minimum 0.46mm (0.0185") core thickness: zinc coating Z275, ASTM A526 or Galvalume by Dofasco, commercial quality sheet, stretcher-levelled or temper rolled to stretcher level standard of flatness. Pre-painted to Stelcolour 5000 by Stelco Inc., or Pre-coat 5000 Series by Dofasco Inc. Colour to be selected by Consultant and Owner.
- 2.1.9. Sheet Metal Fasteners: CSA B111 Table 12, of compatible material finished to match material being fastened if exposed to view. Size and type to suite requirements.
- 2.1.10. Sealant: CAN/CGSB-19.13, Class M-2-25-B-N. One component chemical curing.
- 2.1.11. Wall Terminations: Termination Bar with surface mounted or inserted counter flashing.
- 2.1.12. Curb and Wall Flashings: Anchor curb, wall and expansion joint flashing with HD Seam Plates and HD Fasteners, as recommended by manufacturer. Flash curbs and walls using min. 0.06" UltraPly TPO Membrane, or UltraPly TPO 18" Curb Flashing. Flashings must be sealed with welds.
- 2.1.13. Corners: Use UltraPly TPO Inside/Outside Corners.
- 2.1.14. Roof Edges/Parapets: AnchorGard, or EdgeGard Fascia, or Drain Bar systems, Firestone

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Coping System, or UltraPly TPO Coated Metal.

3. **EXECUTION**

- 3.1. **Examination:** Inspect completed roof deck to ensure deck is properly installed with all required slopes, and that all items on or penetrating roof are firmly attached.
 - 3.1.1. Report any defects or irregularities in roof deck detrimental to roofing application. Do not proceed until corrected.
- 3.2. **Preparation:** Before commencing roofing, dry and sweep roof surfaces clean, remove debris, water, dew, frost, snow, ice and foreign materials which could impair work.
 - 3.2.1. Work is not to be done during rain, fog, sleet or snow, or upon surfaces covered with dust, water, dew, ice, frost or snow.
- 3.3. **Protection:** Protect existing and completed portions of roof from damage.
 - 3.3.1. Use minimum 10mm (3/8") thick plywood sheathing in work areas and along work routes as required to prevent damage to completed roofing.
- 3.4. **Installation:** Comply with reviewed shop drawings, and where not otherwise shown, to membrane manufacturer's standard details.
 - 3.4.1. **Membrane Installation**
 - 3.4.1.1. Follow adhesive manufacturer's recommendations on proper installation, adhesive compatibility, and safety practices.
 - 3.4.1.2. Position membrane over reviewed substrate without stretching, lapping adjacent sheets and over edges. Allow membrane to relax at least 39 minutes before applying adhesive.
 - 3.4.1.3. Apply adhesive to membrane and substrate at proper coverage rate. Allow solvent-based adhesives to "flash-off" before placing glued membrane on glued substrate.
 - 3.4.1.4. Splice all joints in accordance with membrane manufacturer's instructions and apply membrane to substrate in accordance with membrane manufacturer's details and reviewed shop drawings.
 - 3.4.1.5. Install membrane flashing where roof meets vertical surfaces and around all roof penetrations, curbs, etc. in strict accordance with drawings, manufacturer's details and shop drawings.
 - 3.4.1.6. On each roof drain, centre and fully adhere 900mm (3'-0") square of membrane. Cut out drain opening.
 - 3.4.1.7. Run flashing up vertical faces as shown, terminating in manufacturer's recommended mechanical fastening system. Lap bottom edge over membrane, and weld seams. At parapets and curbs, run flashing over top and 50mm (2") down outside face, unless shown otherwise.
 - 3.4.1.8. Bed membrane flashing, lapping all joints, as per manufacturer's instructions.

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3.5. Sheet Metal Work

- 3.5.1. Do not install metal flashing before membrane flashing has been reviewed by Consultant, Owner, and approved by membrane manufacturer.
- 3.5.2. Double back exposed edges at least 13mm (1/2") for appearance and stiffness.
- 3.5.3. Provide continuous starter strips to present true, leading edge. Anchor to backup to provide rigid, secure installation. Conceal fastening.
- 3.5.4. Dovetail, mitre, lock joint and seal corners. Counter flash membrane flashings as shown.
- 3.5.5. In general, use slip expansion seams. Make joints to permit thermal movement. Make surfaces free from buckling, warp, wave, dents, oil canning or other defects. Make corners square and surfaces straight and in true plane. Equally space joints in each run of flashing to suit building module or window spacing and in all cases locate in consultation with Consultant before installation commences. Space seams not farther apart than 2.4 m (8'-0").
- 3.5.6. Use concealed fastenings wherever possible. Obtain Consultant's approval prior to employing exposed fastenings. If exposed screws or bolts are used, use neoprene washers with them.
- 3.5.7. Close lock seams gently with wood block and mallet. Apply sealant to all joints and seams.

3.6. Field Quality Control

3.6.1. Inspection

- 3.6.1.1. In accordance with Section 01400, Owner may engage an independent inspection company to inspect work. Give notice of at least 2 weeks before starting work and allow inspector free access. Inspection may include thermo graphic survey of completed roof.

3.6.2. Manufacturer's Field Services

- 3.6.2.1. A representative of membrane manufacturer shall visit site on day work commences and periodically thereafter and shall ensure work is properly performed. Upon completion of work, manufacturer's representative shall inspect roof and verify if work is done well and is weather tight. Upon successful verification, manufacturer's representative will issue guaranty. Inform Consultant promptly in writing when inspection is complete, and provide detailed report describing any problems.

END OF SECTION

SECTION 07920 - JOINT SEALANTS

1. GENERAL

- 1.1. Work includes, but is not limited to providing neatly caulked joints where exterior siding, door and window frames abut dissimilar materials at both interior and exterior of building.
- 1.2. Qualifications of Applicator: Only specialists with minimum 3 years proven experience.
- 1.3. Submittals: Submit product information on each sealant to be used, complete with manufacturer's recommendations and installation instructions.
- 1.2. Extended Warranty: 2 years against leaks.

2. PRODUCTS

- 2.1. General: Colours of sealants are to match predominant material to which sealant is applied. Colours limited to manufacturer's standard colour range. Properly formulate each sealant type for anti-sag characteristics when material is used in vertical and overhead locations. Sealants in whole or in part shall not bleed or migrate to components or surfaces of adjacent materials.
- 2.2. Sealant Type 'A': One component silicone base sealant, chemical curing conforming to CAN/CGSB-19.13-M, Classification MG-2-25-A or B-N unless otherwise directed, and anti-fungus composition for interior use. Acceptable types; "Silpruf Construction Sealant" by Canadian General Electric, "DC795" by Dow Corning Canada. Use at all exterior locations where dissimilar materials meet, except as otherwise indicated. Anti-fungus types; "DC-786" by Dow or "SCS 1700" by CGE for interior use at damp and wet areas.
- 2.3. Sealant Type 'B': 2 component polysulphide or epoxy-polyurethane based sealant conforming to CAN/CGSB-19.24-M, Class B, Types 1 and 2; manufactured by PRC Chemical Limited or Sternsons Ltd.; or "DYmeric by Tremco Canada. Use DYmeric at all interior "dry" joints.
- 2.4. Sealant Type 'C': At Contractor's option, one of the following types; 1 component acrylic base, solvent curing, conforming to CGSB 19-GP-5M; or 1 component polyurethane base, chemical curing conforming to CAN/CGSB-19.13-M. Acceptable types; "Mono" by Tremco, "Acryflex" by Sternsons Ltd., and "Parr-Crylic" by Parr Sealants of Canada Ltd. For use at all interior, secondary locations as determined by Consultant.
- 2.5. Preformed Sealant Type 'F': Acrylic impregnated foam sealing strips; "Greyflex Expanding Foam Sealant" by Emseal Corporation, factory compressed to min. 33% of relaxed thickness. Factory produce in pre-compressed custom sizes as required, in roll or stick form to fit joint widths indicated, and to develop a watertight and airtight seal when compressed to degree specified by manufacturer. Provide products which are permanently elastic, mildew-resistant, nonmigratory, non-staining, compatible with joint substrate and other joint sealers.
- 2.6. Joint Primers and Backing: As recommended by manufacturer of sealant; closed cell plastic foam filler type. Ensure joint backing material and filler strips do not contain oils or solvents or other chemicals which will bleed and cause staining. Provide closed cell foam polyethylene, closed cell urethane foam, rubber tubing, or non-migrating plasticised vinyl having Shore 'A' hardness of 20 and tensile strength of 830 - 900 kPa, type of which is compatible with sealant type.

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- 2.7. Bond Breaker: Type recommended by manufacturer for particular application.
- 2.8. Cleaning Material for Surfaces to Receive Sealants: Xylol, MEK (methy-ethyl-ketone), toluol or as recommended by manufacturer of sealant.
- 3. **EXECUTION**
 - 3.1. Install sealants after preparing and masking, in accordance with ASTM C 962-86 and manufacturer's instructions.
 - 3.2. Tool joints, smooth; min. thickness of sealant over rope backing, 6 mm. Clean sealant from adjacent surfaces not meant to receive sealant.
 - 3.3. Test all exterior joints with hose stream in presence of Consultant.

END OF SECTION

SECTION 08000 – EXTERIOR DOORS AND WINDOWS

1. GENERAL

- 1.1.1 Provide pavilion shelter addition with weather-tight glazed bi-folding doors, sliding doors and windows, with extruded aluminum-clad exterior and pre-finished wood interior finishes.
- 1.1.1.1 Comply with requirements of Division 1- General Requirements.
- 1.2 Design:
 - 1.2.1 Conformance: Exterior wood doors shall conform to CSA 0132.2, “Wood Doors”. Exterior Sliding doors shall conform to CAN/CGSB-82.1-M, “Sliding Doors”. Air infiltration for exterior doors and windows shall not exceed requirements of Ontario Building Code in conformance with ASTM E283, “Standard Method of Test for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors”. Windows shall conform to CAN/CSA-A440-M, “Windows” and meet minimum classification of A1 for air leakage, B1 for water leakage and C1 for wind load resistance. Exterior wood doors shall conform to requirements of Ontario Building Code, Section 9.6.6., “Resistance to Forced Entry”.
 - 1.2.2 Glass and/or Sash Replacement: Design of doors and windows shall permit replacement of individual glass and/or sash units without requiring removal or dismantling of door or window units. Provide dry glazing seal system to simplify glass replacement.
 - 1.2.3 Finish Colours: To be selected by Owner from manufacturer’s standard colour range.
- 1.3 Warranty:
 - 1.3.1 Warrant insulating glass units against failure of seal enclosing air (Argon filled gas) space and against intrusion of deposits on inner faces of glass detrimental to vision, but for five years from date of substantial Performance of Contract.
- 1.4 Submittals:
 - 1.4.1 Product Information: Submit to Consultant product literature clearly illustrating all components, materials and methods of assembly. Include description of all materials, product standards, finish specifications, test data and other pertinent information.
 - 1.4.2 Shop Drawings: Submit shop drawings in accordance with GC 3.10 of General Conditions of the Contract. Include in shop drawings, schedule showing rough opening requirements for all doors and windows. Provide scalable cross sections of all fixed and movable door and window members.
 - 1.4.3 Warranty: Submit to Consultant warranty certificate, clearly identifying full extent and limitations on all manufacturer’s and installer’s warranties.

2. PRODUCTS

- 2.1 Materials:
 - 2.1.1 Preservative Treatment: (Pressure) Treat all wood components with water repellent and wood preservative.

SECTION 08000 – EXTERIOR DOORS AND WINDOWS

- 2.1.2 Wood Frames: Douglas Fir, kiln dried to 12% moisture content.
- 2.1.3 Glass and Glazing Units: Double glazed, sealed insulating units, of minimum 1/8" thick low-emissivity glass, separated with sealed 1/2" air space filled with Argon Gas.
- 2.1.4 Weather-Stripping: Full perimeter continuous weather-stripping, bulb or fin-seal flexible vinyl, or closed-cell foam.
- 2.1.5 Hardware: Manufacturer's standard hardware, required for functioning of all units, including but not limited to multi-point single lever locking hardware, manual flush bolt and stainless steel hinges.
- 2.1.6 Decorative Muntin Bars: Simulated divided-light muntin bars on both sides of glass unit, finished to match frames.
- 2.1.7 Finish: Factory finished extruded aluminum on exterior, factory finished wood on interior.
- 2.2 Fabrication:
 - 2.2.1 Treat all wood components with preservative prior to assembly.
 - 2.2.2 Fabricate new construction doors and windows to suit rough opening dimensions verified on site.
 - 2.2.3 Supply doors and windows complete with glazing and hardware.
- 2.3 Installation:
 - 2.3.1 Install doors and windows true and plumb. Fill voids between frame and rough opening with low expansion polyurethane insulating foam. Conceal all securement devices, clips, nailers and fasteners.
 - 2.3.2 Supply and install all accessories and trim required to complete installation work, including but not limited to provision of jamb extensions to suit wall thickness.
 - 2.3.3 Provide exterior caulking and around perimeter of door and window units to ensure weather-tight installation.

END OF SECTION

SECTION 08400 - ALUMINUM DOORS AND WINDOWS

1. GENERAL

1.1. Furnish glazed extruded aluminum hinged entrance doors, door frames, window screens and operating hardware as shown on drawings and schedules.

1.2. Applicable Standards and Design Criteria:

1.2.1. Window and doors shall confirm to requirements in AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights", and CSA A440SI, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights".

1.2.2. Refer to schedules and drawings for metal-framed glazed door assemblies required to incorporate thermal breaks to minimize condensation. Thermally broken frames are to ensure no interior air is permitted to reach cold exterior surfaces of framing.

1.2.3. Prevent circulation of interior air from travelling within window and door frames by installing plugs inside each mullion at every expansion joint. Seal top and bottom of every run of mullion to stop entry of air.

1.2.4. All component parts of window and door systems are to be secured by concealed means.

1.2.5. Make systems complete with necessary matching custom trim pieces and closures where framing abuts existing pavilion stone-clad walls. Include internal flashing sections and either sealed metal or flexible air/vapour barriers carefully extended to meet surrounding air/vapour barriers where applicable.

1.3. Submittals:

1.3.1. Submit detailed shop and erection drawings, samples if requested by Owner, and manufacturer's printed recommendations for maintenance and cleaning. Show all glass thicknesses and frame connectors on shop drawings.

1.4. Protection: Provide strippable coating for all finished, exposed surfaces.

1.5. Warranty: 5 years for insulated glass units and door closers, 2 years for locks and panic sets.

2. PRODUCTS

2.1. Acceptable Manufacturers: Kawneer Company of Canada Limited; Alumicor Limited; Commdoor Aluminum, Zimmcor Limited, or equal pre-approved by Owner and Architect.

2.2. Aluminum Extrusions: Aluminum alloy AA-6006-T6, min. frame extrusion thickness; 2 mm, free from scratches and surface blemishes.

2.3. Aluminum Sheet and Plate: Aluminum alloy 5052 (Alcan 6063-T5) for exposed work requiring finish to match extruded sections. For concealed connectors and reinforcing, aluminium alloy to manufacturer's discretion.

2.4. Exposed Aluminum Finish: Power coat finish in colour to be selected by Owner.

SECTION 08400 - ALUMINUM DOORS AND WINDOWS

- 2.5. Glass and Glazing Accessories:
- 2.5.1. Single Pane Glass: Clear tempered or laminated safety glass, 6mm thick conforming to CAN/CGSB-12.1-M90, "Tempered or Laminated Safety Glass".
- 2.5.2. Thermal Insulating Glass: Un-banded hermetically dual-sealed insulated glass units consisting of 2 clear panes of 6mm thick float glass, heat strengthened (annealed) with minimum 13mm air space conforming to CAN/CGSB-12.8-97, "Insulating Glass Units". At glazed entrance doors, 6mm air space and clear safety glass.
- 2.5.3. Glazing Spline: 100% virgin neoprene dry compression gasket.
- 2.5.4. Edge Blocking for Glass: 60-70 Durometer neoprene, channel-shaped, 100-150mm long.
- 2.5.5. Thermal Break Component: Rigid polyvinyl chloride (PVC).
- 2.6. Fasteners: Cadmium-plated steel for aluminum to aluminium contact and stainless steel for aluminum to steel contact.
- 2.7. Overhead Concealed Door Closers: By LCN with H90 hold-open arm.
- 2.8. Door Hinges: Stainless steel ball bearing, 1 ½ pair per leaf.
- 2.9. Door Thresholds: Aluminum, tapered on both sides, sized to coincide with frame depth.
- 2.10. Door Cylinders: Provide temporary door cylinders, to be replaced with permanent master-keyed cylinders by Owner.
- 2.11. Door Push/Pull Hardware: Manufacturer's standard bar and pull handles on both sides of all doors, in finish and style to be selected by Owner.
- 2.12. Panic Sets: Standard concealed panic exit devices, in matching clear anodized aluminum finish, in style to be selected by Owner.
- 2.13. Window Fabrication:
- 2.13.1. Window framing is to hold glass firmly in place; yet be sufficiently flexible to permit movement of metal and glass caused by deflection due to wind pressures and thermal expansion and contraction. Visible surfaces of sealed unit glazing spacer bars, after installation, are to be parallel to and within plus or minus 1.5 mm of all frame opening lines.
- 2.13.2. All metal-to-metal joints which require sealing to maintain weather tightness designed and assembled with a ribbon of 1.6 mm thick sealant which shall be compressed to approximately 50% of its original thickness when the joint is secured.
- 2.13.3. Seal end gaskets with adhesive supplied by manufacturer.
- 2.13.4. Provide corner and coupling mullions with allowances to weep infiltrated water directly to exterior through baffled holes.
- 2.14. Door Fabrication:

SECTION 08400 - ALUMINUM DOORS AND WINDOWS

- 2.14.1. Fabricate entrance doors with tubular aluminium sections of following minimum dimensions:
 - 2.14.1.1. Stiles: 60mm wide.
 - 2.14.1.2. Top Rails: 95mm wide.
 - 2.14.1.4. Bottom Rails: 152mm wide.
 - 2.14.1.5. Thickness: 50mm.
 - 2.14.1.6. Perimeter Weatherstripping: Manufacturer's proprietary type.

3. **EXECUTION**

3.1. Installation:

- 3.1.1. Install windows and doors and all finishing hardware in compliance with manufacturer's instructions for weathertight installation, complete with necessary anchors, dowels and fastenings necessary to anchor work.
- 3.1.3. Take special care to align faces of framing plumb in a single vertical plane and orient all horizontal and vertical elements at right angles. Straighten components so that glass and expansion rabbets are square, flat, plumb and true to dimension. Fix supporting connections to safe tension to avoid future shifting of glass components. All connections between framing members are to be hairline joints, and all connections are to be concealed.
- 3.1.4. Intersections with other work are to be carefully fitted and coated to prevent galvanic action and caulked to establish and maintain weathertight framework.
- 3.1.5. Make perimeter junctions of aluminum framing and closures to adjacent dissimilar construction air-tight using system of flexible or rigid metal transition materials, fixed and where applicable, sealed to thermal break line of frames and to air/vapour barrier line of perimeter wall.
- 3.1.6. Set door thresholds in 2 beads of appropriate sealant. Where concrete substrate is rough or not level, resulting in voids beneath thresholds, grout voids with non-ferrous, non-shrink type grout.
- 3.1.7. Upon completion of door installation, check for smooth operation when opening and closing doors. Adjust closers as necessary to ensure positive latching when doors close.

3.2. Clean-Up:

- 3.2.1. Wash down exposed surfaces of aluminium and glass with solution of mild domestic detergent in warm water. Apply with soft clean wiping cloths. Take special care to remove dust and debris from corners. Wipe all surfaces dry.

END OF SECTION

SECTION 09290 - GYPSUM BOARD

1. GENERAL

- 1.1. Provide gypsum board finish on walls in pavilion shelter addition, and on ceilings in new vestibules. Provide reinforced glass mat sheathing finish to cover existing ICF walls in basement of existing pavilion.
- 1.2. Coordination: Provide direction to Section 06100, Rough Carpentry, for supplementary wood blocking as necessary for satisfactory installation of gypsum board.
- 1.3. Environmental Conditions: Minimum 13°C, maximum 22°C for 7 days before and during application of joint compounds. No direct drying with fans is permitted.

2. PRODUCTS

- 2.1. Gypsum Board; Facing, Backing Board and Sheathing:
 - 2.1.1. Unless otherwise indicated, 12.7 mm thick panels of standard faced board, with bevelled edges, buffed square ends, to CAN/CSA-A82.27-M.
- 2.2. Reinforced Glass Mat Sheathing: 12.7 mm thick sheathing boards, with moisture resistant core and fiberglass mat face; "GlasRoc Sheathing by CertainTeed.
- 2.3. Corner Beads: Minimum 0.064 mm galvanized metal corner bead angle, with perforated flanges, for finishing exterior corners.
- 2.4. Casing Beads: For casing trim and edge protection where gypsum panel finish is required to terminate, or is required to be finished where it abuts another finish, such as exposed concrete or finished wooden panelling; "CGC Sheetrock 200-A Metal Trim", or "CGC Sheetrock 200-B Metal Trim". Prefinished types and 'J' trims are unacceptable.
- 2.5. Control Joints: Proprietary type.
- 2.6. Resilient Channels: Galvanized sheet steel minimum 0.627 mm pre-punched holes in flange, with minimum 67 mm face, 12.7 mm deep in 3.6 m lengths. Acceptable type: CGC RC-1.
- 2.7. Joint Tape: Proprietary type.
- 2.8. Joint Fillers: Fast setting, asbestos free, low shrinkage; "CGC Durabond 90" for exterior and damp areas. Use topping compound for final interior coat.
- 2.9. Gypsum Board Fasteners: 31.8 mm, No. 6, Type S bugle head at single layer.
- 2.10. Access Doors: Panels of prime painted steel. Frame; 1.519 mm thick, 22 mm face; door hinged flush 1.897 mm thick; door opening size, 450 x 600 mm high, with cam lock.

3. EXECUTION

- 3.1. Install and finish gypsum board in accordance with CAN/CSA-A82.31. See drawings for partition descriptions. Maintain 6 mm gaps above floor to prevent moisture transfer.
- 3.2. Install control joints as recommended by manufacturer, consisting of two back-to-back casing beads set in gypsum board facing. Leave 3 mm gap between beads.

SECTION 09290 - GYPSUM BOARD

- 3.3. Upon completion of gypsum board finishing, check for tolerances listed in CAN/CSA-A82.31-M and re-finish where tolerances are exceeded.
- 3.4. Leave gypsum board surfaces free of dust and ready for prime painting.

END OF SECTION

SECTION 09900 - PAINTING AND COATING

1. GENERAL

- 1.1. Work includes painting all "paintable" new surfaces, existing surfaces identified on drawings to be re-painted, and providing clear coat on wood as indicated in this section and/or on drawings. Colours shall be selected by Owner.
- 1.1. Do not paint surfaces that are pre-finished. Omit painter's finishes from the following items:
 - 1.1.1. Any material and equipment furnished completely finish-painted by manufacturer, unless noted otherwise.
 - 1.2.2. Stainless steel, copper, bronze, chromium plate, nickel, anodized or lacquered aluminium.
- 1.3. Product Handling: Store materials at 10°C to 50°C in neat and clean-kept single designated area. Perform mixing and preparation Work in this area only.
- 1.4. Environmental Conditions:
 - 1.4.1. Temperature; minimum 7°C during application and curing of finishes. Maintain uniform ambient temperature during paint application and for at least 24 hours before and after finish of Work in each area.
 - 1.4.2. Except for water-based paints, perform no painting Work unless substrate temperature is minimum 2°C above dewpoint, and relative humidity is less than 80%.

2. PRODUCTS

- 2.1. Paint Manufacturers: Acceptable paint manufacturers:
 - 1. Benjamin Moore and Co. Ltd.
 - 2. Para Paints
 - 3. Pratt and Lambert Ltd.
- 2.2. Painting and Finishing Materials: Use manufacturer's "First Grade Line", non-fading, non-fogging types in accordance with CGSB Specifications, 1-GP Series. Paints and finishes shall meet OBC requirements for flame spread rating and smoke developed classification as applicable. Where applicable, materials shall conform to or exceed requirements of following CGSB quality standards and other requirements specified. Use only products compatible with each other and substrate.
 - 1. Primer-sealer: latex 1.119-M
 - 2. Latex: interior, acrylic, type 1.100-M
 - 3. Latex: exterior 1-GP-138M
 - 4. Zinc rich primer 1-GP-181M
 - 5. Sealer: Clear, Alkali Resistant 1.142-M
 - 6. Pre-treatment solution for galvanized steel 31.116-M
 - 7. Ironclad Galvanized Metal Primer #155-00 by Benjamin Moore & Co. Ltd. (Latex)
- 2.3. Painting systems for all areas shall meet following ratings:
 - 1. Flame Spread: 150 or less
 - 2. Smoke Developed: 50 or less
 - 3. Fuel Contributed: 25 or less.

SECTION 09900 - PAINTING AND COATING

3. EXECUTION

- 3.1. Examination: Prior to commencing painting, inspect surfaces requiring paint finish, and if surfaces cannot be conditioned for correct material application by customary cleaning, sanding, or applying spackle, notify Consultant in writing, or assume responsibility for, and rectifying unsatisfactory finishing resulting from this negligence. Maximum moisture content; 12% for gypsum wallboard, plaster, masonry, concrete, concrete blocks and wood. Perform compatibility tests where re-coating existing finishes.
- 3.2. Surface Preparation:
- 3.2.1. General: Ensure surfaces to be painted are smooth, level, dry, free from dust and any matter liable to interfere with adhesion of paint, cause bleeding or staining.
- 3.3. Application:
- 3.3.1. Follow recommendations of coating manufacturers and those given in Canadian Painting Contractors Association's Painting Specifications.
- 3.3.2. Spread materials evenly and neatly; flow on without runs, sags or excessive brush marks. Apply final coat so that finish surface is uniform in sheen, colour and texture.
- 3.3.3. Method of paint application shall be generally by brush and use of roller. Painting coats specified are intended to cover surfaces satisfactorily when applied in strict accordance with manufacturer's recommendations.
- 3.3.4. Apply each coat at proper consistency in accordance with manufacturer's directions. Do not apply finishes on surfaces that are not sufficiently dry. Sand lightly between coats with No. 00 sandpaper to achieve required finish.
- 3.4. Interior Painting and Finishing Systems:
- 3.4.1. Formula 101
Ferrous Metal to be Painted:
1 coat Latex Primer, unless shop-coated by other trades,
1 Latex matte under coat,
1 Latex matte finish coat.
- 3.4.2. Formula 102
Galvanized Metal to be Painted:
1 coat Interior Galvanizing Primer,
1 Latex satin or pearl under coat,
1 Latex satin or pearl finish coat.
- 3.4.3. Formula 103
Wood to be Painted:
1 coat Latex Primer/Sealer,
1 Latex satin or pearl under coat,
1 Latex satin or pearl finish coat.

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- 3.4.4. Formula 104
Birch Baseboards and Casings to receive Clear Finish:
1 Water-Based Urethane satin under coat,
2 Water-Based Urethane satin finish coats,
with light sanding between coats.
- 3.4.5. Formula 105
Gypsum Board to be Painted:
1 coat Latex Primer/Sealer,
1 Latex eggshell under coat,
1 Latex eggshell finish coat.
- 3.4.6. Formula 106
Existing Wood Surfaces to be Re-Painted same Colour:
2 Latex finish coats matching sheen of existing paint finish.
- 3.5. Exterior Painting and Finishing Systems:
- 3.5.1. Formula 107
Existing Wood Siding to be Re-Painted same Colour:
2 Latex finish coats matching sheen of existing paint finish.

END OF SECTION