

**Part 1 General****1.1 RELATED SECTIONS**

- .1 Section 21 05 01 - Common Work Results for Mechanical
- .2 Section 26 05 00 - Common Work Results for Electrical

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International. (ASTM).
  - .1 ASTM D4434 / D4434M-12. Standard Specification for Poly(Vinyl Chloride) Sheet Roofing.
- .2 National Research Council (NRC)/Institute for Research in Construction (IRC).
  - .1 National Building Code of Canada - 2010.

**1.3 SYSTEM DESCRIPTION**

- .1 Provide building structure and enclosure to physical dimensions shown on drawings.
- .2 Building occupancy as defined by National Building Code of Canada is Group D.
- .3 Generally, building is intended to enclose General Administrative functions.

**1.4 DESIGN REQUIREMENTS**

- .1 Ensure total absence of condensation on interior surfaces under following minimum condition.
  - .1 Interior: 22 degrees C. 30 % RH, still air.
  - .2 Exterior: - 30 degrees C. 25 km/h wind.
- .2 Vapour seal building enclosure to withstand, without failure, design RH at design ambient temperature condition, maintained against interior atmospheric pressure of 250 Pa.
- .3 Maximum deflection for roofing under full specified live load: 1/240 of clear span.
- .4 Maximum deflection for exterior cladding under full specified exterior wind induced loads: 1/180 of clear span.
- .5 Design building support pads, sized as required to bear on existing asphalt.
- .6 Design building to allow for thermal movement of component materials caused by ambient temperature range of 65 degrees C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects. Maintain watertight construction throughout temperature range.

**PREFABRICATED BUILDINGS**

- .7 Design building enclosure elements to accommodate, by means of expansion joints, movement in wall and structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage
- .8 Design, assemble and secure building elements to building frame to ensure stresses in sealants and seals are within sealant manufacturer's recommended maximum.
- .9 Design building assembly to permit easy replacement and disassembly of components.
- .10 Doors and windows to sizes and locations indicated weather resistant, insulated and weatherstripped.
- .11 Maintain following tolerances for building structure and enclosure elements.
  - .1 Maximum variation from plane or location shown on shop drawings: 1 mm/1 m of length and up to 1 mm/5 m maximum.
  - .2 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm.

**1.5 PRE-INSTALLATION MEETING**

- .1 Convene pre-installation meeting one week before starting work of this section. Departmental Representative, manufacturer representative and installation Contractor to attend.

**1.6 SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Provide manufacturer's complete product data sheets for all components and assemblies. Include application instructions for caulking, tape, sealant and primers.
- .3 Submit Shop Drawings. Submit drawings stamped and signed by qualified Professional Engineer registered or licensed in Province of Ontario for fabricator designed assemblies, components and connections.
  - .1 Indicate dimensioned floor plans. Indicate grid lines, structural members and connection details, bearing and anchorage details.
  - .2 Provide vertical wall sections and building cross sections.
  - .3 Submit details for roof membrane, wall cladding, framed openings, accessories.
  - .4 Provide details for exterior doors and windows. Indicate glazing details and glazing methods, drainage details, details of other pertinent components of the work and adjacent construction. Provide details and specifications for all weather stripping products.
  - .5 Provide details for all fasteners, and specifications for exposed caulking and sealant materials.
  - .6 Submit schedule of interior materials and finishes.
  - .7 Submit structural drawings and details. Indicate camber and loadings, fasteners and welds.

**PREFABRICATED BUILDINGS**

- .8 Provide exterior elevations.
- .9 Submit Colour Charts indicating all available colours and patterns for interior and exterior finishes.
- .10 Indicate methods of support from existing grades. Indicate sizes, types and locations of piers, supports and anchors.
- .4 Indicate detailed description of mechanical, electrical and other systems. Describe requirements of other systems of components related to this Work but provided by others. Obtain necessary information required to detail this Work including methods of integration and securing.
- .5 Submit erection drawings to Departmental Representative for approval before construction. Indicate erection dimensions and methods.
- .6 Submit test reports from approved independent Testing Laboratories certifying compliance with specifications. Submit Test Reports stamped and signed by a Registered Professional Engineer whose qualifications meet or exceed Quality Assurance criteria. Submit substantiating engineering data, test results of previous tests which purport to meet performance criteria and other supportive data.
- .7 Manufacturer's Field Reports: submit to Departmental Representative manufacturer's written report, within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

**1.7 CLOSEOUT SUBMITTALS**

- .1 Provide operation and maintenance data for complete Prefabricated Building for incorporation into Operation and Maintenance Manual.
- .2 Submit manufacturer's instructions covering operation, adjustments and other relevant maintenance data for Work of this Section.
- .3 Provide PDF file format for all documents. Provide separate files for each document.

**1.8 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications. Manufacturer who is regularly engaged in the design, manufacture, fabrication, finishing and installation of custom, premier quality, prefabricated buildings of institutional complexity and scope. Manufacturer to provide written documentation to demonstrate to the satisfaction of the Departmental Representative that they have successfully performed on comparable projects.
- .2 Offsite trailer review: Allow Departmental Representative access to off-site manufacturing facility for construction review during assembly and finishing.

**1.9 DELIVERY, STORAGE AND HANDLING**

- .1 Transport, handle, store, and protect building and finished products in accordance with Section 01 61 00 - Common Product Requirements and as per manufacturer's written instructions.
- .2 Protect against damage from the elements, construction activities and other hazards before, during, and after installation.

**PREFABRICATED BUILDINGS**

- .3 Provide temporary protection for exposed surfaces. Protect factory finished surfaces. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.
- .4 Prepare unit for transport to site. Brace frames to maintain squareness and rigidity during shipment and installation.
- .5 Handle and store in such a manner that no damage will be done to the materials or to the work of other Sections.
- .6 Remove temporary protection after installation. Do not leave coating residue on any surface.

**1.10 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction / Demolition Waste Management and Disposal.
  - .1 Remove from site and dispose of packaging materials at appropriate recycling facilities. Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
  - .2 Handle and dispose of hazardous materials in accordance with Regional and Municipal regulations.

**Part 2 Products****2.1 COMPONENTS**

- .1 Roof Construction. Provide structural, waterproofed, insulated roof and finished interior ceiling at clear heights as indicated in the drawings. Roof structure as follows:
  - .1 Roof Membrane: Flexible polyvinyl chloride PVC sheet membrane: to ASTM D4434. Class A, 2, Fiberglass matt reinforced. 45 mil thickness. Colour: selected from Manufacturers range of colours. Fully adhered. Heat welded seams and joints
  - .2 Exterior Sheathing: 15.9 mm thick OSB.
  - .3 Framing: Construction No 1 grade, SPF. 38 mm stock of sizes and spacing to meet NBC and specified Design Requirements. Top edge tapered to provide nominal slope to perimeter of the building.
  - .4 Insulation: friction fit mineral fibre batt insulation between framing. RSI 4.9 minimum.
  - .5 Air/Vapour Barrier. 0.152 mm thick polyethylene sheet. Taped and caulked at joints and penetrations.
  - .6 Interior Finish: 15.9 mm thick Gypsum board. All joints taped and finished 2 coats of joint compound.
  - .7 Ceiling. Suspended T-bar ceiling. 610 x 610 x 19 mm thick lay in acoustical panels.
- .2 Exterior Wall Construction:

## PREFABRICATED BUILDINGS

- .1 Exterior cladding/sheathing. Vertical grooved engineered plywood sheathing panels. 12.5 mm thick with shiplapped joints. Integral grooves at 200 mm OCV. Glued to framing with exterior grade adhesive. Screwed to framing at spacing to meet Design Requirements. Screw locations filled and sanded. Factory painted with minimum 2 coats semi-gloss exterior acrylic latex paint. Corners detailed with battens and trim to conceal edges of boards.
  - .2 Framing: 38 x 89 Construction no. 1 grade SPF studs @ 400 mm OC.
  - .3 Insulation: friction fit mineral fibre batt insulation between framing. RSI 2.1 minimum.
  - .4 Air/Vapour Barrier. 0.152 mm thick polyethylene sheet. Taped and caulked at joints and penetrations.
  - .5 Interior Finish: 15.9 mm thick Gypsum board. All joints taped and finished 2 coats of joint compound. Painted: primer and 2 coats of interior acrylic latex eggshell enamel. Provide 15.9 mm thick cement board where Ceramic tile finish is indicated.
  - .6 Baseboard: 100 mm high coved rubber baseboard. Colour selected by Departmental Representative. Provide ceramic tile base where wall finish is ceramic tile.
- .3 Interior Wall Construction:
- .1 Cladding: (both sides) 15.9 mm gypsum board. Screwed to framing. All joints taped and finished 3 coats. Painted: primer and 2 coats of interior acrylic latex eggshell enamel. Provide 15.9 mm thick cement board where ceramic tile finish is indicated.
  - .2 Framing: 38 x 89 Construction No 1 grade SPF studs @ 400 mm OC. Provide 38 x 140 mm deep studs where indicated for washroom walls.
  - .3 Insulation: 89 mm thick, friction fit mineral fibre insulation where indicated in the drawings. Provide 140 mm thick insulation where 135 mm studs are used.
  - .4 Finish: provide ceramic tile finishes where indicated in the schedule.
- .4 Secure Wall Construction:
- .1 Refer to drawings for construction assemblies.
  - .2 Cladding: (both sides) 15.9 mm gypsum board. Screwed to framing. All joints taped and finished 3 coats. Painted: primer and 2 coats of interior acrylic latex eggshell enamel.
  - .3 Security Cladding of walls floor and ceiling: 1.52 mm thick hot rolled sheet steel. Secure to framing with self drilling screws at 150 mm OC at panel edges and 300 mm OC in field. Provide on "outside" face of wall assembly only.
  - .4 Framing: 152 mm deep x 1.6 mm thick heavy gauge steel studs at 300 mm OC.
  - .5 Insulation: 152 mm thick, friction fit mineral fibre insulation.
- .5 Floor Construction:
- .1 Flooring: varies by room. Refer to drawing schedules for finishes.
  - .2 Subfloor: 16 mm thick, G1S spruce ply. T&G edges. Glued and screwed to floor framing.
  - .3 Framing: 38 mm thick, Construction no. 1 grade SPF. Depth and spacing as required to meet Design Requirements.

**PREFABRICATED BUILDINGS**

- .4 Insulation: friction fit, mineral fibre batt insulation between framing. RSI 3.5 minimum.
- .5 Protection board: 6.4 mm thick OSB over entire underside of floor. All edges to occur over framing or solid blocking.
- .6 Sub Frame: Manufacturer's standard steel sub frame. Bolted and welded steel structure designed to support complete structure during fabrication, transport and installation. Including tandem or tri-axle running gear as required for transport. Provide designated locations for permanent support of structure on site constructed foundations. Demountable hitch removable after installation on bearing points.
- .6 Doors and frames: Door sizes and swings as indicated on drawings. Doors and frames by section 08 11 14 - Metal doors and frames.
- .7 Exterior Windows: Sizes as indicated. Manufacturer's standard wood framed, PVC clad, colour: black. Fixed as indicated. Provide multiple latches on units over 1200 mm high. Provide tempered glass for all windows. Apply Security Glazing film to interior surfaces as indicated in Section 08 87 53 – Security Film. Window to be complete with painted solid wood exterior window trims as per window schedule and details.
- .8 Mechanical: as indicated on drawings and specified in Divisions 21, 22 and 23.
- .9 Electrical: as indicated on drawings and specified in Divisions 26.

**2.2 FABRICATION**

- .1 Do not start fabrication until shop drawings have been reviewed. Fabricate to profiles, elevations and sizes as indicated in the Drawings. Dimensions detailed are maximum permissible sizes.
- .2 Fabricate units square and true with maximum tolerance of plus or minus 5 mm. Brace structure to maintain squareness and rigidity during shipment and installation.
- .3 Provide mitered or butt jointed components as appropriate to meet the design requirements. Reinforce corners and connections with rigid framing to ensure consistent alignment and rigidity. Weld or secure corners with hidden fasteners.
- .4 Maintain continuity of air and vapour and thermal barrier throughout building enclosure elements.
- .5 Locate air/vapour barrier on warm side of thermal insulation. Seal air and vapour membrane at all openings.
- .6 Complete enclosure assembly with exterior skin, window units doors. inner air/vapour seal membrane, thermal insulation and interior finish. Install exterior wood window trims and sills.
- .7 Accurately fit and rigidly frame together joints, corners and mitres.
  - .1 Match components carefully to produce continuity of line and design.
  - .2 Make joints and connections toward exterior weathertight.

**PREFABRICATED BUILDINGS**

- .3 Provide hairline joints for materials in contact.
- .4 Co-ordinate location of visible joints.

**Part 3 Execution****3.1 ERECTION**

- .1 Deliver building to site completely assembled. Install building to prepared bearing points in accordance with Manufacturer's instructions.
- .2 Complete installation of site applied finishes. Repair cracks and other damages to interior finishes caused by transportation or installation.
- .3 Erect building access structures and enclosure elements.

**3.2 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - .3 Schedule site visits, to review Work, as described in PART 1 - QUALITY ASSURANCE.

**3.3 CLEANING**

- .1 Remove excess sealant by moderate use of low VOC mineral spirits or other solvent as approved by sealant manufacturer.
- .2 Clean surfaces.

**3.4 PROTECTION**

- .1 Provide protection to finished surfaces with strippable coatings, strippable wrappers, plywood or sheet materials as required before acceptance of Work.

**END OF SECTION**





**PREFABRICATED GUARD BOOTH****Part 1 General****1.1 RELATED SECTIONS**

- .1 Section 21 05 01 - Common Work Results for Mechanical
- .2 Section 26 05 00 - Common Work Results for Electrical

**1.2 REFERENCES**

- .1 American Architectural Manufacturers Association (AAMA).
  - .1 AAMA 2605-11. Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- .2 American Society for Testing and Materials International. (ASTM).
  - .1 ASTM A36/A36M-12. Standard Specification for Carbon Structural Steel.
  - .2 ASTM A1008/A1008M-12a. Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
  - .3 ASTM A653/A653M-11. Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .4 ASTM A656/A656M-12ae1. Standard Specification for Hot-Rolled Structural Steel, High-Strength Low-Alloy Plate with Improved Formability.
  - .5 ASTM B209-10. Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  - .6 ASTM B221-13. Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- .3 Canadian Standards Association (CSA) International.
  - .1 CSA-C22.1-12. Canadian Electrical Code. Part I (22nd edition). Safety Standard for Electrical Installations.
  - .2 CAN/CSA-G164-M92 (R2003). Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CSA-G40.20-04/G40.21-04 (R2009). General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .4 US Department of Justice. National Institute of Justice (NIJ).
  - .1 NIJ Standard 0108.01 (September 1985). Ballistic Resistant Protective Materials.

**1.3 SYSTEM DESCRIPTION**

- .1 Custom fabricated, ballistic resistant, prefabricated guard booth meeting the ballistic requirements of NIJ Standard 0108.01. Factory fabricated from prefinished aluminum and steel components. Including ballistic resistant roof, walls, doors and windows.

**PREFABRICATED GUARD BOOTH**

- .2 Self contained, self supporting, building enclosure to physical dimensions as indicated in the drawings. Nominal exterior height: 2350 mm+/- . Nominal interior clear height: 2110 mm+/- . Building is intended to function as a secure Guard Booth.
- .3 Classic style booth enclosure with flat wall panels, flat roof panels with minimal overhang. Rectangular building to size as indicated in the drawings. Square corners with corner window mullion posts. Frame to be either mechanical tube frame structure or self supporting structural panels.
- .4 All panels factory prefinished with custom colours.
- .5 Electrical system for interior and exterior lighting as well as heating and cooling systems. Empty conduit runs to allow for communications and future connections.

**1.4 DESIGN REQUIREMENTS**

- .1 Ballistic requirements: Design the complete structure to meet the ballistic requirements of NIJ 0108.01. Ballistic Rating: TYPE III-A, 5 shots. All building components to be ballistic resistant construction including: wall panels, roof panels, door assemblies, window assemblies, etc.
- .2 Design glass with "No Spall" quality. Design all glass components including support structures to resist ballistic loadings and retain all glazing panels inside the frames.
- .3 Provide insulated building construction to maintain an interior environment as follows:
  - .1 Winter: minimum 20 degrees C. Maintain relative humidity of 25 - 50 %.
  - .2 Summer: maximum 25 degrees C. Maintain relative humidity of 25 - 50 %.
- .4 Design building to allow for thermal movement of component materials caused by ambient temperature range of 65 degrees C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects. Design building enclosure elements to accommodate, by means of expansion joints, movement in wall and structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage.
- .5 Ensure total absence of condensation on interior surfaces under following minimum condition.
  - .1 Interior: + 22 degrees C. 30 % RH, still air.
  - .2 Exterior: - 30 degrees C. 25 km/h wind.
- .6 Vapour seal building enclosure to withstand, without failure, design RH at design ambient temperature condition, maintained against interior atmospheric pressure of 250 Pa.
- .7 Provide watertight building construction.
- .8 Maximum deflection for roofing under full specified live load: 1/240 of clear span.
- .9 Design building with integral floor structure intended to be attached to Cast-in-Place Concrete foundations as indicated in the drawings.
- .10 Design building assembly to permit easy replacement and disassembly of components.
- .11 Design building with concealed connections. No exposed fasteners on exterior of structure.

**PREFABRICATED GUARD BOOTH**

- .12 Allow for ceiling, piping, conduit and other interior dead loads imposed on this structure.
- .13 Provide integrated, self contained, electrically operated heating, ventilating and air conditioning systems.
- .14 Building lighting: Integral lighting with switches as indicated on drawings.
- .15 Doors and windows: to sizes and locations indicated. Ballistic Rated, weather resistant, insulated and weatherstripped.

**1.5 PRE-INSTALLATION MEETING**

- .1 Convene pre-installation meeting one week before starting work of this section. Departmental Representative, Booth manufacturer representative and installation Contractor to attend.

**1.6 SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Provide manufacturer's complete product data sheets for all components and assemblies. Include application instructions for caulking, tape, sealant and primers.
- .3 Submit shop drawings. Submit drawings stamped and signed by qualified Professional Engineer registered or licensed in Province of Ontario for fabricator designed assemblies, components and connections.
  - .1 Indicate plans and grid lines, structural members and connection details, bearing and anchorage details.
  - .2 Submit details of roof cladding, wall cladding, framed openings, accessories, schedule of materials and finishes, camber and loadings, fasteners and welds.
  - .3 Submit complete details for Ballistic Resistant components including Wall panels, Roof panels, Windows, Doors, etc. Indicate how ballistic rating is maintained at junction and joints between different components and assemblies.
  - .4 Provide complete elevations of each booth. Indicate opening dimensions, framed opening tolerances, affected related work and installation requirements.
  - .5 Submit floor plans and sections.
  - .6 Indicate methods of anchoring booths to existing foundations. Indicate sizes, types and locations of anchors.
  - .7 Indicate glazing details and glazing methods, drainage details, details of other pertinent components of the work and adjacent construction.
  - .8 Provide details for all fasteners, and specifications for exposed caulking and sealant materials.
  - .9 Provide complete technical literature including specifications on all glass and glazing materials including sealants and gaskets. Indicate glazing methods for each glass Type.
  - .10 Provide details and specifications for all weather stripping products.
  - .11 Submit electrical schedule, service entrance locations. Indicate detailed description of mechanical, electrical and other systems in Work.

**PREFABRICATED GUARD BOOTH**

- .12 Describe requirements of other systems of components related to this Work but provided by others. Obtain necessary information required to detail this Work including methods of integration and securing.
- .13 Submit Colour Charts indicating all available colours and patterns for interior and exterior panels.
- .4 Submit test reports from approved independent Testing Laboratories certifying compliance with specifications. Submit Test Reports stamped and signed by a Registered Professional Engineer whose qualifications meet or exceed Quality Assurance criteria. Submit substantiating engineering data, test results of previous tests which purport to meet performance criteria and other supportive data for the following:
  - .1 Submit Test Reports for all Ballistic Resistant components and assemblies certifying that all products and components meet specified Ballistic Ratings.
  - .2 Glass. Submit test reports for all glass panels.
- .5 Submit erection drawings to Departmental Representative before start of construction. Indicate erection dimensions and methods.
- .6 Submit manufacturer's written report, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

**1.7 CLOSEOUT SUBMITTALS**

- .1 Provide operation and maintenance data for complete Guard Booth for incorporation into Operation and Maintenance Manual.
- .2 Submit manufacturer's instructions covering operation, adjustments and other relevant maintenance data for Work of this Section.
- .3 Provide PDF file format for all documents. Provide separate files for each document.

**1.8 QUALITY ASSURANCE**

- .1 Manufacturer Qualifications. Manufacturer who is regularly engaged in the design, manufacture, fabrication, finishing and installation of custom, premier quality, ballistic resistant guard booths of institutional complexity and scope. Manufacturer to provide written documentation to demonstrate to the satisfaction of the Departmental Representative that they have successfully performed on comparable projects.

**1.9 DELIVERY, STORAGE AND HANDLING**

- .1 Transport, handle, store, and protect products in accordance with Section 01 61 00 - Common Product Requirements and as per manufacturer's written instructions.
- .2 Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.
- .3 Provide temporary protection for exposed surfaces. Protect factory finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.
- .4 Individually wrap and crate each unit for transport to site. Brace frames to maintain squareness and rigidity during shipment and installation.
- .5 Handle and store material in such a manner that no damage will be done to the materials or to the work of other Sections.

**PREFABRICATED GUARD BOOTH**

- .6 Remove temporary protection after installation. Do not leave coating residue on any surface.

**1.10 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction / Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities. Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

**Part 2 Products****2.1 MATERIALS**

- .1 Aluminum:
  - .1 Extruded aluminum: to ASTM B221 and aluminum association alloy AA6063-T5 alloy and temper. Factory prefinished.
  - .2 Sheet aluminum: to ASTM B209. Form aluminum components from sheet aluminum stock, of alloy and temper to suit their purpose and finish requirements. Factory prefinished.
- .2 Steel:
  - .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, ASTM A656/A656M and ASTM A36/A36M. Roll formed to suit mullion sections. Grade 350W. Factory prefinished
  - .2 Sheet Steel: to ASTM A1008. Steel sheet, cold rolled, commercial quality. Factory prefinished.
  - .3 Galvanized sheet steel: to ASTM A653. Galvanealed sheet steel. Factory prefinished.

**2.2 COMPONENTS**

- .1 Floor Structure: Manufacturer's standard pre-assembled, mechanical tube frame floor assembly. 100 mm deep, fabricated from galvanized, structural steel members. Connection: mechanical fasteners. Insulated. Assembly covered with 5 mm thick aluminum plate covered with vinyl composite tiles. Bottom of floor structure enclosed with aluminum plate. Provide openings for conduit and other service entrances. Floor assembly maximum 150 mm thick. Provide for mechanical attachment of floor structure to existing Cast-in-Place Concrete Foundation.
- .2 Wall and roof panels. Fabricated from prefinished, extruded aluminum alloy sections or structural steel sections sufficient to meet the Design Requirements as specified. Mig welded connections or mechanical fasteners. Ballistic resistant including joints and corners. Insulated. Interior and exterior cladding: prefinished aluminum panels. Interior Finish: White. Exterior Finish: custom colour as selected by Departmental Representative. Roof panels to overhang wall panels minimum 100 mm all sides.
- .3 Doors: Manufacturers manual, top hung, sliding door centered on elevation. Fabricated from prefinished, extruded aluminum alloy sections or structural steel sections sufficient to meet the Design Requirements as specified. Insulated. Interior

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and exterior cladding: prefinished aluminum panels. Finish: custom colour as selected by Departmental Representative. Provide single sliding door on each side of booth as indicated. Door Size: manufacturer's standard. Door suspended from upper track assembly. Ballistic resistant construction for entire assembly including door, frame and glazing. Provide fixed glazing vision panels to minimum upper 50% of door. Provide glazing rebates on perimeter frames sections with an unobstructed glazing surface of at least 19mm. Provide glazing stops of extruded or steel sections secured with mechanical fasteners. Provide integral grooves in the frame sections located in the exterior and interior bedding contacts for the reception of weatherstripping.

- .1 Hardware: Top mounted, heavy duty, aluminum box track with hanger brackets. Heavy duty steel axles, steel ball bearing rollers with nylon wheels. Weatherstripping all 4 sides. Commercial duty, mortised, hook bolt lockset with removable cylinder.
- .4 Windows: Manufacturers standard fixed and operable window assemblies. Provide operable and fixed windows to upper 50% of walls as indicated. Fabricated from prefinished, extruded aluminum alloy sections of size and thickness sufficient to meet the Design Requirements as specified. Finish: custom colour as selected by Departmental Representative. Operable units: single panel horizontal sliding units to locations as indicated. Lockable from interior. Provide insect screens. Ballistic resistant construction for entire assembly including fixed frames, operable frames and all glazing materials. Provide glazing rebates on perimeter frame sections with an unobstructed glazing surface of at least 19mm. Provide glazing stops of extruded or steel sections secured with mechanical fasteners. No exposed fasteners at exterior. Provide integral grooves in the frame sections located in the exterior and interior bedding contacts for the reception of weatherstripping.
- .5 Weatherstripping: extruded EPDM closed cell sponge, flexible silicone or polyethylene clad urethane foam.
- .6 Sealants: manufacturer's standard. Selected for location and purpose intended.
- .7 Thermal Insulation: manufacturer's standard. To suit thickness of wall and roof panels and as designed to meet heating and cooling design requirements. Minimum RSI value: RSI 1.76. (R10).
- .8 Interior Accessories.
  - .1 Custom counter and shelving: refer to millwork drawings for custom freestanding units.

**2.3 MECHANICAL AND ELECTRICAL**

- .1 Perform all work to Canadian Electrical Code, CSA C22.1.
- .2 Heating: Wall mounted, fan forced, electrically operated heater. 120 / 240V operation. Capacity as required to meet design requirements. Controls: surface mounted thermostat capable of operating both heating and A/C units.
- .3 Air Conditioning: self contained, roof mounted, packaged forced air unit. 120 / 240V operation. Sized to meet design requirements. Bullet resistant shroud.
- .4 Lighting: Overhead, surface mounted, fluorescent fixture. Hermetically sealed fixture intended for exterior wet locations. Provide low temperature, electronic ballast and lamps. Provide number and locations as required to meet design requirements. Controlled by surface mounted wall switch.

**PREFABRICATED GUARD BOOTH**

- .5 Panel: Factory wired load centre. Single phase, 125 amp, 120/240V. Sized to suit design requirements. Provide minimum 8 open circuits for future use. Provide minimum of 3 surface mounted duplex receptacles located at work shelf. All receptacles GFCI and arc fault rated.
- .6 Conduit: provide surface mounted EMT conduit and conduit boxes for all interior electrical items. Provide additional 50 mm diameter empty conduit runs from exterior to interior for future installation of Client supplied equipment, as shown on drawings.

**2.4 Glazing:**

- .1 Glass: Ballistic resistant glazing. Optically clear and distortion free glazing products built up from layers of glass and clear reinforcing interlayers. Ballistic resistance to meet Type III-A in accordance with NIJ Standard 0108.01.
  - .1 Glass-to-Glass Inter-layers: Clear polyvinyl butyrl (PVB) laminating film/sheet.
  - .2 Window Bite: minimum allowable bite 12.7 mm.
  - .3 Probability of Failure. To determine the response of the glass and the anchorage loads, the probability of breakage for the glass is to be 500 breaks per 1000.
- .2 Glazing compounds / Glazing tape / Glazing clips: to manufacturers standard.
- .3 Setting blocks: Neoprene, EPDM or Silicone, 80-90 Shore A durometer hardness to ASTM D2240. Length of 25 mm for each square meter of glazing. Minimum 100 mm x width of glazing rabbet space minus 1.5 mm x 8 mm thick.
- .4 Spacer shims: Neoprene or silicone. 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

**2.5 ACCESSORIES**

- .1 Fasteners:
  - .1 Hidden anchor bolts and screws: hex head thru bolts. 300 Series stainless steel or as required to meet structural design requirements.
  - .2 Finish steel clips and reinforcement with 380 g/m<sup>2</sup> zinc coating to CAN/CSA-G164.

**2.6 FABRICATION**

- .1 Do not start fabrication until shop drawings have been reviewed. Fabricate to profiles, elevations and sizes as indicated in the Drawings. Dimensions detailed are maximum permissible sizes.
- .2 Fabricate units square and true with maximum tolerance of plus or minus 5 mm. Brace structure to maintain squareness and rigidity during shipment and installation.
- .3 Provide mitered or butt jointed frame components as appropriate to meet the design requirements and maintain the ballistic resistance rating. Reinforce corners and connections with rigid cast framing to ensure consistent alignment and rigidity. Weld or secure corners with hidden fasteners.
- .4 Maintain continuity of air and vapour and thermal barrier throughout building enclosure elements.

**PREFABRICATED GUARD BOOTH**

- .5 Locate vapour barrier on warm side of thermal insulation. Locate air barrier at exterior of insulation layer.
- .6 Complete enclosure assembly with exterior fixed panels, glazed panels, fixed windows, operable windows, sliding doors.
- .7 Seal air and vapour membrane at all openings.
- .8 Accurately fit and rigidly frame together joints, corners and mitres.
  - .1 Match components carefully to produce continuity of line and design.
  - .2 Make joints and connections toward exterior weathertight.
  - .3 Provide hairline joints for materials in contact.
  - .4 Co-ordinate location of visible joints.

**2.7 FINISHES**

- .1 Finish all exposed aluminum components with factory applied Fluoropolymer coating system consisting of 70% PVDF meeting AAMA 2605.
- .2 Thoroughly clean the aluminum using a multi-stage cleaning process to remove organic and inorganic surface soils and residual oxides. Apply a chemical conversion coating to which organic coatings will firmly adhere. Factory apply primer to prepared substrate to achieve a minimum thickness of 0.005 mm – 0.0076 mm. Factory apply the top coating and oven bake to obtain a minimum topcoat film thickness of 0.0254 mm minimum.

**Part 3 Execution****3.1 ERECTION**

- .1 Deliver building to site completely assembled. Install building to prepared foundation in accordance with Manufacturer's instructions.

**3.2 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - .3 Schedule site visits, to review Work, as described in PART 1 - QUALITY ASSURANCE.

**3.3 CLEANING**

- .1 Remove excess sealant by moderate use of low VOC mineral spirits or other solvent as approved by sealant manufacturer.
- .2 Clean surfaces.



**3.4 PROTECTION**

- .1 Provide protection to finished surfaces with strippable coatings, strippable wrappers, plywood or sheet materials as required before acceptance of Work.

**END OF SECTION**

