

ADDENDUM NO. 5**CONTRACT NO. 2023-4010**

Grading, Drainage, Granular Base, Hot Mix Paving, Electrical and Structures - Fenelon Falls
Maintenance Patrol Yard (MPY 249) Southeast Quadrant of Glenarm Road and Country Lane

0 km

Eastern Region

The following will now form part of the Special Provisions of the contract and amends the applicable information contained in the original contract tendering documents.

SPECIAL PROVISIONS (REVISIONS)**NMS DIVISION 6 SPECIFICATIONS**

Special Provision (Page 104)

All information under the above special provision is deleted in its entirety and replaced with the following:

The following Division 6 National Master Specifications are included in this Contract.

NMS 060573 – WOOD TREATMENT

Special Provision

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 06 10 11 – Rough Carpentry.

1.2 REFERENCES

- .1 AWWA.M4-80 Care of Preservative-Treated Wood Products.
- .2 AWWA.M2-81 Inspection of Treated Timber Products.
- .3 CAN/CSA-O80.201-M89 Standard for Hydrocarbon Solvents for Preservatives.
- .4 CSA O80 Series -97 Wood Preservation.

1.3 SOURCE QUALITY CONTROL

- .1 Plant inspection of products treated with preservative by pressure impregnation will be carried out by designated testing laboratory to AWP.A.M2.

1.4 CERTIFICATES

- .1 For products treated with preservative fire-retardant by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
 - .1 Information listed in AWP.A.M2 applicable to specified treatment.
 - .2 Moisture content after drying following treatment with water-borne preservative.
 - .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

Part 2 Products

2.1 GENERAL

- .1 See the Drawings and/or Section 06 10 11 – Rough Carpentry, and Section 06 20 00 - Finish Carpentry, for list of all materials required to be pressure fire retardant treated.

2.2 PRESSURE TREATMENT PRESERVATIVE

- .1 Treat lumber material to CSA O80.4M and panel material to CSA O80.1M and O80.9M.
- .2 Use chromated arsenate type preservative applied by a licensee treatment plant of Timber Specialties Ltd., Mississauga, Ont., in a closed cylinder by vacuum- pressure process in strict accordance with recommendations of CSA O80.
- .3 Minimum retention of dry salts shall be according to oxide formulations which are 4.0 kg per cu m (0.25 lbs per cu ft) of wood.
- .4 Use preservative manufacturer's recommended solvent to CSA O80.201.
- .5 Following water-borne preservative treatment, dry material to maximum moisture content of 12%.
- .6 All material required to receive preservative or fire retardant treatment shall receive such treatment prior to any fabrication or installation.
- .7 Acceptable products:
 - .1 C-50 CCA by Timber Specialties Ltd.
 - .2 Contract Administrator approved equivalent.

2.3 SURFACE APPLIED PRESERVATIVE

- .1 5% pentachlorophenol solution, water repellent preservative. Use clear material for surfaces to be painted or left exposed; coloured material for concealed areas. Acceptable products:
 - .1 Clear:
 - .1 Pentox Clear by Osmose Pentox Inc.
 - .2 10-10 Paintable Penta by Solignum Inc.
 - .3 Contract Administrator approved equivalent.
 - .2 Coloured:
 - .1 Pentox Green by Osmose Pentox Inc.
 - .2 Woodlife by Lepages.
 - .3 Preserv-Green 1-42 by Solignum Inc.
 - .4 Contract Administrator approved equivalent.

Part 3 Execution

3.1 PRESSURE TREATED WOOD PRESERVATIVE

- .1 Pressure treat exposed exterior lumber including the following:
 - .1 Any wood in direct contact with the ground.
- .2 Install as per manufacturers' directions.

3.2 SURFACE-APPLIED WOOD PRESERVATIVE

- .1 Surface apply material to those areas indicated on the Drawings including the following:
 - .1 Wood cants, fascia backing, curbs, nailers, sleepers, or other supports related to roofing work.
 - .2 Wood furring where used on outside surface of exterior masonry and concrete walls.
 - .3 Wood sleepers or framework supporting wood subflooring over concrete slabs in contact with ground or fill.
 - .4 Shims for pressure treated lumber.
 - .5 All wood members in contact with concrete or masonry surfaces. Such material shall also be separated from concrete or masonry by a layer of building paper.
- .2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
- .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

3.3 FIELD TREATMENT OF PRESERVATIVE TREATED PRODUCTS

- .1 Comply with AWPAM4.
- .2 Remove with fine sandpaper, chemical deposits on treated wood to receive applied finish.

3.8 CLEAN-UP

- .1 At the completion of the work of this Section, remove any excess materials, debris and equipment from the site.

NMS 060899 – ROUGH CARPENTRY FOR MINOR WORKS

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 06 05 73 – Wood Treatment.
- .2 Section 07 27 00 – Air Barrier.
- .3 Section 07 55 00 – Modified Bituminous Roofing Membrane.
- .4 Section 09 91 00 – Painting.

1.2 REFERENCES

- .1 ASTM C1177/C1177M-96, Standard Specification for Glass Mat Gypsum Substrate for

Use as Sheathing.

- .2 ASTM C1280-99, Standard Specification for Application of Gypsum Sheathing.
- .3 CAN3-O188.1-M78, Interior Mat Formed Wood Particleboard.
- .4 CAN O437 Series-93, Standards on OSB and Waferboard.
- .5 CAN/CGSB-11.3-M87, Hardboard.
- .6 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .7 CAN/CSA-O141-91, Softwood Lumber.
- .8 CSA A123.3-M1979 (R1992) Asphalt or Tar Saturated Roofing Felt.
- .9 CSA B111-1974 - Wire Nails, Spikes and Staples.
- .10 CSA O80 Series-97 Wood Preservation.
- .11 CSA O121-M1978, Douglas Fir Plywood.
- .12 CSA O151- M1978, Canadian Softwood Plywood.
- .13 National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber, 1987.
- .14 Ontario Building Code (OBC), Ontario Regulation 403/97.
- .15 Underwriters Laboratories of Canada (ULC), latest edition.

1.3 SHOP DRAWINGS

- .1 Submit Shop Drawings of Prefabricated Structural Wood Members, if any are indicated, in accordance with Division 1. Include joists and laminated beams and posts. Indicate all connections and hangers between components.

1.4 SOURCE QUALITY CONTROL

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.

Part 2 Products

2.1 LUMBER MATERIAL

- .1 General: Lumber for each structural or architectural component shall be of the same species and grade. Unless specified otherwise, all lumber for rough carpentry to be softwood, SPF Species, S4S (surfaced four sides), moisture content 19% or less conforming to CAN/CSA-O141 and NLGA.
- .2 Framing Members: SPF No. 2 or better grade.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 SPF Standard or better grade.
 - .2 S2S (surfaced two sides) is acceptable for nailing strips, grounds and sleepers; otherwise use S4S.

- .3 Board sizes: "Standard" or better grade.
 - .4 Dimension sizes: "Standard" light framing or better grade.
 - .5 Post and timbers sizes: "Standard" or better grade.
- .4 Lumber material designated as "pressure treated" to be White Jack Pine, No. 1 grade.
- .5 Glued end-jointed (finger jointed) lumber is not acceptable.

2.2 PANEL MATERIALS

- .1 Panels to be of thicknesses indicated and comply to the following standards. Grades for panel work shall be as indicated under "Panel Materials - End Uses" clause of this section.
- .2 Douglas fir plywood (DFP): to CSA O121.
- .3 Marine Ply: DFP treated for water resistance.
- .4 Canadian softwood plywood (CSP): to CSA O151.
- .5 Interior mat-formed wood particleboard: to CAN3 O188.1.
- .6 Waferboard: to CSA O437 Series.
- .7 Hardboard: to CAN/CGSB-11.3.
- .8 Glass Mat Sheathing Panels for exterior wall sheathing:
 - .1 Glass mat-embedded, water resistant gypsum core panel with bond enhancing surface coating manufactured in accordance with ASTM C1177/1177M. Provide 12.7 mm (½") thick in largest panels available to minimize joints.
 - .2 Provide the following accessories:
 - .1 Joint Tape: 51 mm (2") 10 x 10 fibreglass mesh tape.
 - .2 Joint Compound: Georgia-Pacific Canada Inc GyProc 90 setting-type compound.
 - .3 Fasteners: Provide size and type in accordance with manufacturer's recommendations.
 - .4 Sealant: Dow Corning 795 or equivalent.
 - .3 Acceptable products:
 - .1 Dens-Glas Gold by Georgia-Pacific Canada Inc., Mississauga.
 - .2 Contract Administrator approved equivalent.

2.3 FASTENERS AND ACCESSORIES

- .1 Nails, spikes and staples: to CSA B111.
- .2 Bolts: 12.5 mm (½") diameter unless indicated otherwise, complete with nuts and washers.
- .3 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, to be as recommended for purpose by manufacturer.
- .4 Sill Gaskets: continuous closed cell polyethylene strip, minimum 12 mm (½") thick, width to suit plate width. Acceptable products:
 - .1 Ethafoam 2211 by Dow Chemical.
 - .2 2220X Perma-Stik by Jacobs & Thompson Inc.
 - .3 Contract Administrator approved equivalent.

- .5 Galvanizing: to CAN/CSA-G164; use galvanized fasteners for exterior work, interior highly humid areas, and for any preservative or fire-retardant treated lumber.
- .6 Building Paper Type: No. 15 asphalt saturated felt to CSA A123.3.

2.4 WALL AIR BARRIER

- .1 See Section 07 27 00 – Air Barriers, for materials.

2.5 WOOD TREATMENT

- .1 See Section 06 05 73 – Wood Treatment, for materials.

2.6 PANEL MATERIALS – END USES

- .1 Roof sheathing: DFP, unsanded exterior sheathing grade, square edges, 12.7mm (½") thick.
- .2 Wall Sheathing: glass matt sheathing panel for areas to receive masonry veneer or siding.
- .3 All other locations: CSP, G1S, thickness as indicated.

Part 3 – Execution

3.1 FURRING AND BLOCKING

- .1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding and other work as required.
- .2 Align and plumb faces of furring and blocking to tolerance of 1:600.

3.2 NAILING STRIPS, GROUNDS AND ROUGH BUCKS

- .1 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

3.3 CANTS, CURBS, BACKING, SUPPORTS

- .1 Install wood cants, fascia backing, curbs, nailers, and other wood supports as required and secure using galvanized steel fasteners.
- .2 Install wood backing, dressed, tapered and recessed slightly below top surface of roof insulation if detailed for roof hoppers.

3.4 ERECTION OF FRAMING MEMBERS

- .1 Install members true to line, levels and elevations.
- .2 Construct continuous members from pieces of longest practical length.
- .3 Install continuous sill gaskets under sill plates on concrete or masonry walls.
- .4 Comply with local and provincial authorities regarding provisions for hold-down clips and anchors at roof/wall connections.

3.5 AIR BARRIER INSTALLATION

- .1 See Section 07 27 00 – Air Barriers, for installation.

3.6 GLASS MAT SHEATHING

- .1 Provide glass matt sheathing to exterior walls to receive masonry veneer and siding.
- .2 Install in accordance with manufacturer's instructions and applicable instructions in ASTM C1280.
- .3 Examine sub-framing; verify that surface of framing and furring members to receive sheathing does not vary more than 6.4 mm (1/4") from the plane of faces of adjacent members.
- .4 Drive fasteners to bear tight against and flush with surface of sheathing. Do not countersink.
- .5 Locate fasteners minimum 9.5 mm (3/8") from edges and ends of sheathing panels.

3.7 SURFACE-APPLIED WOOD PRESERVATIVE

- .1 See Section 06 05 73 – Wood Treatment.

3.8 PRESSURE TREATED WOOD PRESERVATIVE

- .1 See Section 06 05 73 – Wood Treatment.

3.9 FASTENERS

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.

3.10 CLEAN-UP

- .1 At the completion of the work of this Section, remove any excess materials, debris and equipment from the site.

NMS 061011 – ROUGH CARPENTRY

Special Provision

Part 1 General

1.1 SOURCE QUALITY CONTROL

- .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.

1.2 PRODUCT HANDLING

- .1 Store all lumber and other materials in a dry place and protect them completely from dampness and damage.

Part 2 Products

2.1 LUMBER MATERIAL

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:

- .1 CAN/CSA-O141-91(R1999).
- .2 NLGA Standard Grading Rules for Canadian Lumber, latest edition.
- .2 Machine stress-rated lumber is acceptable for all purposes.
- .3 Furring, blocking, nailing strips, rough bucks, soffit framing and wall plates.
 - .1 Board sizes: "Standard" or better grade.
 - .2 Dimension sizes: "Standard" light framing or better grade.

2.2 FASTENINGS AND HARDWARE

- .1 Nails, spikes and staples: to CSA B111-1974(R1998).
- .2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .3 Galvanizing: to CSA G164-M92 (R1998), use galvanized fasteners in attic area, exterior work, interior highly humid areas, and for preservative treated lumber.
- .4 Use surface fastenings of following types, except where specific type is indicated:
 - .1 To hollow masonry, drywall and panel surfaces use toggle bolt.
 - .2 To solid masonry and concrete, use expansion shield with lag screw or bolt.
 - .3 To structural steel, use bolts through drilled hole, or welded stud-bolts or power driven self-drilling screws.
- .5 Supply fastenings which are to be built into work of other trades to the applicable trade with written instructions and/or necessary templates.

2.3 WOOD PRESERVATIVE

- .1 Pressure-treated wood, CCA or CA: to CSA O80 Series for elements concealed within walls or roofing.

Part 3 Execution

3.1 CONSTRUCTION

- .1 Comply with requirements of the Ontario Building Code, Part 9, supplemented by the following paragraphs.

3.2 FURRING AND BLOCKING

- .1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascias, soffits, siding, and other work as required.
- .2 Align and plumb faces of furring and blocking to tolerance of 1:600.

3.3 LUMBER

- .1 Install soffit framing, wall plates, rough bucks, nailers, and framing for rough openings as required to provide backing and support and other work.

3.4 FASTENERS

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.

3.5 SURFACE-APPLIED WOOD PRESERVATIVE

- .1 Treat surfaces of material with wood preservative, before installation.
- .2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
- .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
- .4 Treat following material:
 - .1 Wood cants, fascia and trim backing, curbs, nailers, plywood sheathing to walls and parapets.
 - .2 Wood blocking in cavity walls on perimeter of window openings and louvres, etc.
- .5 Pressure-treated lumber and plywood in lieu of surface- applied wood preservative is acceptable.

3.6 ELECTRICAL EQUIPMENT BACKBOARD

- .1 Provide backboards for mounting electrical equipment as indicated. Use 19 mm thick Douglas fir plywood (GIS) on 19 x 38 mm furring around perimeter and at maximum 300 mm intermediate spacing.
- .2 Secure furring to masonry or concrete surfaces using anchors as specified, or indicated.

NMS 061053 – MISCELLANEOUS ROUGH CARPENTRY

Special Provision

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 10 11 – Rough Carpentry.
- .2 Section 06 17 53 – Shop Fabricated Wood Trusses.

1.2 REFERENCE STANDARDS

- .1 American National Standards Institute/National Particleboard Association (ANSI/NPA)
 - .1 ANSI/NPA A208.1-2009 Particleboard.
- .2 ASTM International (ASTM)
 - .1 ASTM A123/A123M-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .2 ASTM A153/A153M-09 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - .3 ASTM A307-14 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength.
 - .4 ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM D 5055-13e1, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
 - .6 ASTM D 5456-14b, Standard Specification for Evaluation of Structural Composite Lumber Products.
 - .7 ASTM F1667-13 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.

- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-11.3-M87, Hardboard.
 - .2 CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.
- .4 Canadian Wood Council
 - .1 Wood Design Manual 2010 (R2014) Edition.
 - .2 Engineering Guide for Wood Frame Construction 2014.
- .5 CSA Group (CSA)
 - .1 CAN/CSA-A123.2-14, Asphalt Coated Roofing Sheets.
 - .2 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .3 CSA O86-14 Engineered Design in Wood.
 - .4 CSA O112.9-10, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).
 - .5 CSA O121-08 (R2013), Douglas Fir Plywood.
 - .6 CSA O141-05 (R2014), Softwood Lumber.
 - .7 CSA O151-09 (R2014), Canadian Softwood Plywood.
 - .8 CSA O153-13, Poplar Plywood.
 - .9 CSA O325-07 (R2012), Construction Sheathing.
 - .10 CAN/CSA-S406-92 (R2008), Construction of Preserved Wood Foundations.
 - .11 CAN/CSA-Z809-08, Sustainable Forest Management.
- .6 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .7 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.
- .8 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).
- .9 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
 - .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.
- .10 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2015-2019 Standard.
- .11 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S706-09, Standard for Wood Fibre Insulating Boards for Buildings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Include manufacturer's pre-engineered floor, ceiling and roof joist span charts, and manufacturer's pre-engineered installation details.
 - .3 Submit certified test reports for prefabricated structural members from approved independent laboratory indicating compliance with specifications for specified performance characteristics and physical properties.
 - .4 Submit CCMC Product Evaluation Report for engineered wood products.
 - .5 Submit manufacturer's installation instructions.

- .3 Shop Drawings:
 - .1 For structural applications or conditions beyond the scope of the manufacturer's pre-engineered design information, submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
 - .2 Include on drawings:
 - .1 Design data in accordance with CAN/CSA-O86 and CWC Engineering Guide for Wood Frame Construction.
 - .2 Indicate configuration and spacing of joists, hanger and connector types, fasteners, locations and design values; bearing details.
 - .3 Submit stress diagrams or print out of computer design indicating design loads for members. Indicate allowable load and stress increase.
 - .4 Indicate arrangement of webs or other members to accommodate ducts and other specialties.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with the General Conditions and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location, off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store materials off ground with moisture barrier at both ground level and as a cover forming a well-ventilated enclosure, with drainage to prevent standing water.
 - .3 Store wood I-beams and I-joists on edge.
 - .4 Stack, lift, brace, cut and notch engineered lumber products in strict accordance with manufacturer's instructions and recommendations.
 - .5 Store and protect architecturally exposed lumber from nicks, scratches, and blemishes.
 - .6 Replace defective or damaged materials with new.
 - .7 Store separated reusable wood waste convenient to cutting station and work areas.

Part 2 Products

2.1 STRUCTURAL FRAMING

- .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 Glued end-jointed (finger-jointed) lumber SPS, are not acceptable for use.
- .3 Plant fabricated structural wood:
 - .1 Proprietary prefabricated I-joists of solid, laminated veneer lumber glue laminated lumber flanges or oriented strandboard panel web, with factory pre-punched knock-out holes for electrical services and ventilation holes for roof joists.
 - .2 Proprietary prefabricated open web parallel chord joists of solid, laminated veneer lumber glue laminated lumber flanges or oriented strandboard panel web, with factory pre-punched knock-out holes for electrical services and ventilation holes for roof joists.
 - .3 Adhesive: Exterior rated phenol-formaldehyde or phenol-resorcinol: to CSA O112.9.
 - .4 Plant fabrication with quality control in accordance with ASTM D 5055.

- .4 Structural Composite Lumber (SCL) in accordance with ASTM D 5456, for following uses:
 - .1 Laminated veneer lumber (LVL): beams, hip and valley rafters, headers as indicated.
 - .2 Parallel strand lumber (PSL): headers and beams as indicated.
 - .3 Laminated strand lumber (LSL): studs as indicated.
 - .4 Oriented strand lumber (OSL): studs as indicated.
- .5 Framing and board lumber: in accordance with NBC.

2.2 FURRING AND BLOCKING

- .1 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 S2S is not acceptable.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
 - .4 Post and timbers sizes: "Standard" or better grade.
- .2 Where indicated, provide pressure treated materials for furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers.

2.3 PANEL MATERIALS AND APPLICATION

- .1 Roof sheathing:
 - .1 Plywood, DFP sheathing grade, square edge.
- .2 Exterior/Interior wall sheathing:
 - .1 Plywood, DFP sheathing grade, square edge.
 - .2 Use one side good plywood when paint finish is specified
- .3 Subflooring:
 - .1 N/A
- .4 Underlay:
 - .1 N/A
- .5 Electrical equipment mounting boards and all wall mounting boards:
 - .1 Plywood, DFP grade, square edge, minimum 16mm thick.
 - .2 Fire retardant treated.
- .6 Where indicated, provide pressure treated panel materials in accordance with CSA 080.

2.4 MATERIALS AND PRODUCTS FOR TREATED WOOD FOUNDATIONS

- .1 Lumber and panel materials: to CAN/CSA-S406.
 - .1 Preservative treatment in accordance with CSA O80.
- .2 Fasteners and connectors, moisture barrier, sealant and field applied preservative: to CAN/CSA-S406.

2.5 ACCESSORIES

- .1 Subflooring adhesive: to CAN/CGSB-71.26, cartridge loaded.
- .2 General purpose adhesive: to CSA O112.9.
- .3 Nails, spikes and staples: to ASTM F1667.
- .4 Bolts: 12.5 mm diameter unless indicated otherwise, hot dip galvanized, complete with nuts and washers.

- .5 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.
- .6 Joist hangers, connectors and fasteners: in accordance with accepted shop drawings, minimum 1 mm thick sheet steel, galvanized to minimum ZF001 coating designation.
- .7 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, formed to prevent dishing. Bell or cup shapes not acceptable.
- .8 Roof sheathing H-Clips: formed "H" shape, thickness to suit panel material, extruded 6063-T6 aluminum alloy type approved by Contract Administrator.
- .9 Fastener Finishes:
 - .1 Galvanizing: to ASTM A123/A123M, use galvanized fasteners for all areas
 - .2 Proprietary corrosion resistant fasteners for pressure- preservative, fire-retardant, treated lumber: as recommended by manufacturer for material and service conditions.
- .10 Wood Preservative: to CSA O80.
- .11 Sill Plate Gasket: Closed cell polyethylene foam gasket in width to match sill plate width, 6 mm thick.

Part 2 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Contract Administrator.
 - .2 Inform Contract Administrator of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Contract Administrator.

3.2 SYSTEMS INTEGRATION

- .1 Install air barrier and vapour retarder sheeting around framing members to ensure continuity of protection and to lap and seal to main sheets.
- .2 Install insulation in exterior wall framing cavities that will not be accessible after completion of framing.
- .3 Install sill plate gasket in continuous lengths between concrete surfaces and wood framing.

3.3 FRAMING INSTALLATION

- .1 Install engineered framing and plant fabricated structural wood components, including all hangers, connectors and fasteners, in accordance with accepted shop drawings and manufacturers' instructions.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.

- .5 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .6 Countersink bolts where necessary to provide clearance for other work.
- .7 Install specified panel product for each application.
- .8 Install wall sheathing in accordance with manufacturer's printed instructions and accepted shop drawings.
- .9 Install roof sheathing in accordance with requirements of NBC and accepted shop drawings.
- .10 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.4 FURRING AND BLOCKING

- .1 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.
- .2 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
 - .1 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .3 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .4 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized steel fasteners.
- .5 Install sleepers as indicated.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

3.6 WASTE MANAGEMENT

- .1 Separate waste materials for recycling and reuse in accordance with the General Conditions.
- .2 Re-use scrap lumber to the greatest extent possible. Separate scrap lumber for use on site as accessory components, including: shims, bracing, and blocking.
- .3 Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill. Prevent saw dust and wood shavings from entering the storm drainage system.
- .4 Do not burn scrap lumber that has been pressure treated.
- .5 Do not send lumber treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by rough carpentry installation.

NMS 061753 – SHOP FABRICATED WOOD TRUSSES

Special Provision

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 10 11 – Rough Carpentry.

1.2 REFERENCE STANDARDS

- .1 CSA Group (CSA)
 - .1 CAN/CSA O80 Series-08, Wood Preservation.
 - .2 CSA O86 Consolidation-09, Engineering Design in Wood.
 - .3 CSA O141-05 (R2009), Softwood Lumber.
 - .4 CSA S307-M1980 (R2001), Load Test Procedure for Wood Roof Trusses for Houses and Small Buildings.
 - .5 CSA S347-99 (R2009), Method of Test for Evaluation of Truss Plates Used in Lumber Joints.
 - .6 CSA W47.1-09, Certification of Companies for Fusion Welding of Steel.
 - .7 CAN/CSA-Z809-08, Sustainable Forest Management.
- .2 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .3 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.
- .4 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).
 - .2 Canadian Construction Materials Centre (CCMC)-on-line edition, Registry of Product Evaluations.
- .5 Truss Plate Institute of Canada (TPIC)
 - .1 TPIC - 2007, Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses (Limit States Design).
- .6 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2010-2014 Standard.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood trusses and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario, Canada.
 - .2 Include on drawings:
 - .1 Each shop drawing submission showing connection details.
 - .2 Indicate special structural application and specification as according to local authorities having jurisdiction.

- .3 Indicate TPIC Truss Design Procedure and CSA O86 Engineering Design in Wood and specific CCMC Product Registry number of the truss plates.
- .4 Indicate species, sizes, and stress grades of lumber used as truss members. Show pitch, span, camber, configuration and spacing of trusses. Indicate connector types, thicknesses, sizes, locations and design value. Show bearing details. Indicate design load for members.
- .5 Submit stress diagram or print-out of computer design indicating design load for truss members. Indicate allowable load and stress increase.
- .6 Provide certification that trusses meet requirements of CSA S307 and CSA S347.
- .7 Indicate arrangement of webs or other members to accommodate ducts and other specialties.
- .8 Show location of lateral bracing for compression members.
- .9 Test reports: submit certified test reports for prefabricated wood trusses from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
- .10 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .11 Instructions: submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Fabricator for trusses to show evidence of quality control program such as provided by regional wood truss associations, or equivalent.
 - .2 Fabricator for welded steel connections to be certified in accordance with CSA W47.1.
- .2 Sustainable Standards Certification:
 - .1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in dry location, off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect wood trusses from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Provide bearing supports and bracings. Prevent bending, warping and overturning of trusses.

Part 2 Products

2.1 DESIGN REQUIREMENTS

- .1 Design light metal plate connected wood trusses in accordance with TPIC truss design procedures for wood truss chords and webs in accordance with engineering properties in CSA O86.

- .2 Design light metal plate connected wood trusses in accordance with TPIC truss design procedures for truss joint designs to test engineering properties in accordance with CSA S347 and listed in CCMC Registry of Product Evaluations.
- .3 Design trusses, bridging, and bracing in accordance with CSA O86.1 for building locality as ascertained by Ontario Building Code (OBC), Climatic Information for Building Design in Ontario and minimum uniform and minimum concentrated loadings stipulated in NBC commentary and for loads indicated on the contract drawings.
- .4 Limit live load deflection to 1/360th of span where gypsum board or plaster ceilings are hung directly from trusses.
- .5 Limit live load deflections to 1/240th of span unless otherwise specified or indicated.
- .6 Provide camber for trusses as indicated.

2.2 MATERIALS

- .1 Lumber: SPF, No1/2, softwood, S4S, with maximum moisture content of 19 % at time of fabrication and to following standards:
 - .1 CSA O141.
 - .2 NLGA (National Lumber Grading Association), Standard Grading Rules for Canadian Lumber.
 - .3 CAN/CSA-Z809 or FSC or SFI certified.
- .2 Fastenings: to CSA O86.
- .3 Preservative: N/A.
- .4 Fire retardant: N/A.

2.3 FABRICATION

- .1 Fabricate wood trusses in accordance with reviewed shop drawings.
- .2 Provide for design camber and roof slopes when positioning truss members.
- .3 Connect members using metal connector plates.
- .4 Apply preservative and/or fire retardant in accordance with CAN/CSA O80 Series.

2.4 SOURCE QUALITY CONTROL

- .1 Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Administration Board.
- .2 Certify by agency accredited by Standards Council of Canada that fire retardant and preservative treated wood in accordance with CAN/CSA O80 Series.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Contract Administrator.
 - .2 Inform Contract Administrator of unacceptable conditions immediately upon discovery.

- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Contract Administrator.

3.2 MANUFACTURER'S INSTRUCTIONS

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

3.3 ERECTION

- .1 Erect wood trusses in accordance with reviewed shop drawings.
- .2 Handling, installation, erection, bracing and lifting in accordance with manufacturer's instructions.
- .3 Make adequate provisions for handling and erection stresses.
- .4 Exercise care to prevent out-of-plane bending of trusses.
- .5 Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing and decking are installed.
- .6 Install permanent bracing in accordance with reviewed shop drawings, prior to application of loads to trusses.
- .7 Do not cut or remove any truss material without approval of Contract Administrator.
- .8 Remove chemical and other surface deposits on treated wood, in preparation for applied finishes.

3.4 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Have manufacturer of products supplied under this Section review work involved in handling, installation/application, protection and cleaning of its products, and submit written reports, in acceptable format, to verify compliance of work with Contract.
 - .2 Manufacturer's field services: 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 at stages listed:
 - .1 After delivery and storage of products, and when preparatory work on which work of this Section depends is complete, but before installation begins.
 - .2 Twice during progress of work at 25% and 60% complete.
 - .2 Upon completion of work, after cleaning is carried out.
 - .3 Obtain reports within three days of review and submit immediately to Contract Administrator.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.

NMS 062000 – FINISH CARPENTRY

Special Provision

Part 1 General

1.1 REFERENCES

- .1 ANSI A208.1-1989 Particleboard, Matformed Wood.
- .2 CAN3-O188.1-M78 Interior Mat Formed Wood Particleboard.
- .3 CAN3-O437.0/0437.1-M85 Waferboard and Strandboard/Test methods for Waferboard and Strandboard.
- .4 CAN4-S104-M80(R1985) Fire Tests of Door Assemblies.
- .5 CAN4-S105-M85 Fire Door Frames.
- .6 CAN/CGSB-11.3-M87 Hardboard.
- .7 CAN/CSA-O141-91 Softwood Lumber.
- .8 CAN/CSA-G164-M92 Hot Dip Galvanizing of Irregularly Shaped Articles.
- .9 CSA B111-1974 Wire Nails, Spikes and Staples.
- .10 CSA O115-M1982 Hardwood and Decorative Plywood.
- .11 CSA O121-M1978 Douglas Fir Plywood.
- .12 CSA O151-M1978 Canadian Softwood Plywood.
- .13 National Hardwood Lumber Association (NHLA) Rules for the Measurement and Inspection of Hardwood and Cypress January 1998.
- .14 National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber 1987.
- .15 Quality Standards for Architectural Woodwork published by the Architectural Woodwork Manufacturers Association of Canada (AWMAC), 1998 edition.

1.2 WORK INCLUDED

- .1 Fabricate work of this Section in the shop or on site (Contractor's choice). Job measure site conditions when shop fabricated. Install on site. Included are items of both interior and exterior finish carpentry.
- .2 Examine Drawings thoroughly to determine extent of items in this section. Include complete supply and installation of all items of finish carpentry indicated.
- .3 Work under this Section shall also include:
 - .1 Installation only of finish hardware for all doors. Hardware supplied under Section 08 71 00 Door Hardware.
 - .2 Installation only of miscellaneous specialty items listed in Division 10 - Specialties, unless specified to be installed by others.
- .3 Supply and installation of wood trims and closet shelving.

1.3 SAMPLES

- .1 Submit samples of the following in accordance with Section 01 33 00 – Submittal Procedures:
 - .1 Items Duplicate 300 x 300 mm (12" x 12") samples of each type of paneling and each type of solid wood or plywood scheduled to receive stain or natural finish.
 - .2 Duplicate 300 mm (12") long samples of each type of trim and molding.as requested.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings for any prefabricated carpentry items specified in this section in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Clearly indicate details of construction, profiles, jointing, fastening and other related details.

Part 2 Products

2.1 LUMBER MATERIAL

- .1 Lumber generally: All lumber to have a maximum moisture content of between 5% and 9% for interior work and between 10% and 15% for exterior work. Lumber selected for natural or clear finish shall be to AWMAC, premium grade. Lumber selected for opaque finish shall be to AWMAC custom grade. See "End Uses" clause of this Section for material grades.
- .2 Softwood lumber: to CAN/CSA 0141 and National Lumber Grades Authority requirements, species as follows:
 - .1 Type 1: Spruce-pine-fir
 - .2 Type 2: Cedar
 - .3 Type 3: Redwood
 - .4 Type 4: Ontario Pine
 - .5 Type 5: Finger jointed Ontario Pine.
 - .6 Type 6: Clear western pine
 - .7 Type 7: White jack pine.
- .3 Hardwood lumber: to National Hardwood Lumber Association (NHLA) requirements, species as follows:
 - .1 Type 1: Red oak
 - .2 Type 2: White Oak
 - .3 Type 3: Birch
 - .4 Type 4: Mahogany
 - .5 Type 5: Cherry
 - .6 Type 6: Maple.

2.2 PANEL MATERIAL

- .1 Canadian softwood plywood (CSP): to CSA O151, species limited to those listed in that Standard, grades as indicated under "Panel Material - End Uses" clause of this section.
- .2 Douglas fir plywood (DFP): to CSA O121, grades as indicated under "End Uses."
- .3 Mahogany plywood: industry standard for use as an underlay.
- .4 Mat-formed wood particleboard: to CAN3-O188.1 Grade R, S, T and H, sanded faces, of thickness indicated.
- .5 Hardboard: to CAN/CGSB-11.3 Type 2, (tempered), thickness as indicated (minimum 3mm (1/8") thick).

- .6 Perforated hardboard: to CAN/CGSB-11.3 Type 2, (tempered), 6 mm thick with 7 mm holes @ 25 mm oc. each way (1/4" thick with 5/16" holes @ 1" oc. each way).
- .7 MCP Board: Particleboard to CAN3-O188.1, with plastic laminate factory bonded to all faces. See Section 06 40 23.10 - Plastic Laminates, for laminate grades.

2.3 FASTENERS

- .1 Nails and staples: to CSA B111; galvanized for exterior work, interior highly humid areas and for treated lumber; plain finish elsewhere.

2.4 ADHESIVES

- .1 As recommended by wood panel manufacturer.

2.5 FINISHING HARDWARE

- .1 Finishing Hardware: Supplied by Section 08 71 00 – Door Hardware for installation by this Trade.

2.6 FINISHES

- .1 Specified under Section 09 91 00 – Painting & Coatings, to match Contract Administrator's samples.

Part 3 Execution

3.1 GENERAL

- .1 Do all finish carpentry work to AWMAC standards.
- .2 Set nails and screws, apply wood filler to indentations, sand smooth and leave ready to receive finish.
- .3 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.

3.2 END USES AND MATERIAL GRADES

- .1 Provide grades of material for the following end uses and scheduled finishes: See Drawings for dimensions and extent; see Room Finish Schedules on Drawings or Section 09 91 00 – Painting and Coatings, for finishes description for various surfaces.
 - .1 Any wood trim scheduled to receive an opaque finish: softwood type 5.
 - .2 Any wood trim scheduled to receive a clear or stained finish: hardwood type 1.

3.3 ERECTION

- .1 Set and secure materials and components in place, rigid plumb and square.
- .2 Provide heavy duty fixture attachments for wall mounted cabinetwork.
- .3 Prepare external exposed and semi-exposed surfaces ready for sealing, staining and varnishing or painting.
- .4 Prepare internal non-exposed surfaces ready for sealing with varnish or shellac.
- .5 Apply water resistant building paper or bituminous coating over wood framing members in contact with masonry or cementitious construction.

3.4 CLEAN-UP

- .1 At the completion of the work of this Section, remove any excess materials, debris and equipment from the site.

NMS 064000 – ARCHITECTURAL WOODWORK

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 013300 – Submittal Procedures.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)
 - .1 ANSI A208.1-99, Particleboard.
 - .2 ANSI A208.2-94, Medium Density Fiberboard (MDF).
- .2 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
 - .1 AWMAC Quality Standards for Architectural Woodwork, 1994.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .4 Canadian Standards Association (CSA)
 - .1 CSA B111-74(R1998), Wire Nails, Spikes and Staples.
 - .2 CSA O112.4-M1977 (R1999), Standards for Wood Adhesives.
 - .3 CSA O121-M89 (R1998), Douglas Fir Plywood.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 013300 – Submittal Procedures.
- .2 Indicate details of construction, profiles, jointing, fastening and other related details.
- .3 Indicate materials, thicknesses, finishes and hardware.
- .4 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, handle, store and protect materials of this section in accordance with General Requirements.
- .2 Protect millwork against dampness and damage during and after delivery.
- .3 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

Part 2 Products

2.1 MATERIALS

- .1 Softwood lumber: unless specified otherwise, S4S, moisture content 19% or less in accordance with following standards:
 - .1 CAN/CSA-O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .3 AWMAC custom premium grade, moisture content as specified.
- .2 Machine stress-rated lumber is acceptable for all purposes.
- .3 Hardwood lumber: moisture content 15% or less in accordance with following standards:
 - .1 National Hardwood Lumber Association (NHLA).
 - .2 AWMAC custom grade, moisture content as specified.
- .4 Canadian softwood plywood (CSP): to CSA O151, standard construction.
- .5 Laminated plastic for flatwork: GP grade, matte finish. Manufactured by Formica from standard colour range or Contract Administrator approved equivalent.
- .6 Nails and staples: to CSA B111.
- .7 Wood screws: plated steel, type and size to suit application.
- .8 Splines: wood.
- .9 Sealant: clear silicone.
- .10 Laminated plastic adhesive: contact adhesive to CAN/CGSB-71.20.
 - .1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.
 - .2 Acceptable materials: ECP-44.
- .11 Counter tops: solid surfacing
 - .1 Specified under NMS 066116 – Solid Surfacing Fabrications

2.2 MANUFACTURED UNITS

- .1 Casework.
 - .1 Fabricate caseworks to AWMAC premium quality grade.
 - .2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
 - .1 S2S is acceptable for concealed locations.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
 - .3 Case bodies (ends, divisions and bottoms).
 - .1 Softwood and poplar plywood square edge, 19 mm thick.
 - .2 All exposed faces and edges covered with plastic laminate.
 - .4 Backs.
 - .1 Softwood and poplar plywood square edge, 12 mm thick.
 - .2 Exposed faces and edges covered with plastic laminate.
 - .5 Shelving.
 - .1 Softwood and poplar plywood square edge, 19 mm thick.
 - .2 Exposed faces and edges covered with plastic laminate.
- .2 Drawers
 - .1 Fabricate drawers to AWMAC premium grade supplemented as follows:
 - .2 Sides and Backs.
 - .1 Softwood and poplar plywood square edge, 12 mm thick.
 - .3 Exposed faces covered with plastic laminate.

- .4 Edges fitted with vinyl colour matched moulding, full thickness of panel material, minimum thickness 3 mm, rounded profile.
- .5 Bottoms.
 - .1 Softwood and poplar plywood 12 mm thick.
- .6 Fronts.
 - .1 Softwood and poplar plywood square edge, 19 mm thick.
- .3 Casework Doors
 - .1 Fabricate doors to AWMAC premium grade supplemented as follows:
 - .2 Softwood and poplar plywood square edge, 19 mm thick.
 - .3 Exposed faces covered with plastic laminate.
 - .4 Edges fitted with vinyl colour matched moulding, full thickness of panel material, minimum thickness 3 mm, rounded profile.
- .4 Counter tops and work surfaces
 - .1 Solid surfacing, 32 mm thick, matte finish, with eased edges and field solvent welded and filled joints for monolithic appearance.
 - .2 Provide 100 high back splash, and side splashes in same material and finish when installed at a kitchen area.
 - .3 Provide 75 mm diameter plastic grommets at holes where cables pass through surface to equipment and outlets located below counters.
- .5 Window sills
 - .1 19 mm plywood with plastic laminate on exposed surfaces and edges.

2.3 FABRICATION

- .1 Provide metal filing drawer sides, bottom and backs with adjustable stops.
- .2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
- .3 Shelving to cabinetwork to be adjustable unless otherwise noted.
- .4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
- .5 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
- .6 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .7 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .8 Veneer laminated plastic 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 3000 mm. Keep joints 600 mm from sink cutouts.
- .9 Form shaped profiles and bends as indicated, using post forming grade laminate to laminate manufacturer's instructions.
- .10 Use straight self-edging vinyl strip for flatwork to cover exposed edge of core material.
- .11 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .12 Apply laminated plastic liner sheet to interior of cabinetry.

Part 3 Execution

3.1 INSTALLATION

- .1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
- .2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.
- .3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
- .4 Use draw bolts in countertop joints.
- .5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
- .6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.
- .7 Apply bituminous coating over wood framing members in contact with masonry or cementitious construction.
- .8 Scribe base and filler pieces to adjacent construction within 2 mm gap.
- .9 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
- .10 Site apply laminated plastic to window sills as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where approved. Slightly bevel arises.
- .11 For site application, offset joints in plastic laminate facing from joints in core.

3.2 CLEANING

- .1 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.
- .2 Remove excess glue from surfaces.

3.3 PROTECTION

- .1 Protect millwork and cabinet work from damage until final inspection.

NMS 064023.10 – PLASTIC LAMINATES

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 06 20 00 – Finish Carpentry.
- .2 Section 06 40 00 – Architectural Woodwork.

1.2 REFERENCES

- .1 CAN3-A172-M79 High Pressure Paper Base, Decorative Laminates.
- .2 CAN/CGSB-71.20-M88 Adhesive, Contact, Brushable.
- .3 CSA O112 Series-M1977 CSA Standards for Wood Adhesives.
- .4 CSA O121-M1978 Douglas Fir Plywood.
- .5 CSA O151-M1978 Canadian Softwood Plywood.

1.3 SAMPLES

- .1 Submit duplicate samples of joints, edging, cutouts and postformed profiles in accordance with Section 01300 – Submittals.

1.4 MAINTENANCE DATA

- .1 Provide maintenance data for laminated plastics work for incorporation into Operation and Maintenance Manual specified in Section 01300 – Submittals.

1.5 PRODUCT HANDLING

- .1 Cover finished laminated plastic surfaces with heavy kraft paper or put in cartons during shipment. Protect installed laminated surfaces by approved means. Do not remove until immediately before final inspection.
- .2 Do not store or install materials in areas where relative humidity is less than 25% or greater than 60% at 22 deg C.

Part 2 Products

2.1 GENERAL

- .1 Products manufactured by one of the following companies are suggested for use on this project.
 - .1 Cyanamid Canada Inc., Montreal (Formica).
 - .2 Domtar Construction Materials, Arborite Division, LaSalle Quebec (Arborite).
 - .3 Wilsonart International, Temple, Texas (Wilsonart).
 - .4 Nevamar Corporation, Odenton Md.

2.2 MATERIALS

- .1 Laminated plastic for flatwork: to CAN3-A172, Grade GP, Type SD, 1.25mm (0.050") thick; based on solid colour range with velour finish. Acceptable products:
 - .1 Formica Laminate Grade 10.
 - .2 Nevamar H-5 General Purpose Grade.
 - .3 Wilsonart General Purpose HGS Type 107.
- .2 Laminated plastic for postforming work: to CAN3-A172, Grade PF, Type S, 1.07mm (0.042") thick, based on solid colour range with velour finish. Acceptable products:
 - .1 Formica Laminate Grade 12.
 - .2 Nevamar HF-5 Horizontal Post Forming Grade.
 - .3 Wilsonart Postforming Type 350.
- .3 Laminated plastic backing sheet: supplied by same manufacturer as facing sheet; not less than 0.508 mm (0.02") thick and same colour as face laminate. Sanded one side. Acceptable products:
 - .1 Formica Laminate Grade 20.

- .4 Laminated plastic cabinet liner sheet material or for MCP Board or Cladboard material: supplied by same manufacturer as facing sheet, not less than 0.760 mm (0.028") thick, white colour. Products:
 - .1 Formica Laminate Grade 20.
 - .2 VF-3 Vertical Post Forming Grade by Nevamar.
 - .3 Wilsonart Vertical Surface Type 335.
- .5 Plywood core: Douglas Fir Plywood to CSA-O121 or Canadian Softwood Plywood to CSA-O151 solid two sides, 19 mm (¾") thick.
- .6 Particleboard core: to CAN3-O188.1, Grade R, sanded faces, of thickness indicated.
- .7 Adhesive for laminated plastic: to be CSA approved and one of the following types as selected by the laminate manufacturer as being suitable for the application:
 - .1 Urea resin adhesive to CSA O112 Series.
 - .2 Contact adhesive to CAN/CGSB-71.20.
 - .3 Resorcinol resin adhesive to CSA O112.
 - .4 Polyvinyl adhesive to CSA O112.
 - .5 Two component epoxy thermosetting adhesive.
- .8 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
- .9 Sealant: of a type recommended by the laminate manufacturer and in accordance with Section 07900 - Joint Sealers; colour to be selected by the Contract Administrator.
- .10 Draw bolts and splines: as recommended by fabricator.

2.3 SHOP FABRICATION

- .1 Shop fabricate and shop apply all plastic laminate work on this project.
- .2 Comply with CAN3-A172, Appendix 'A'.
- .3 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
- .4 Ensure adjacent parts of continuous laminate work match in colour and pattern.
- .5 Adhere laminated plastic 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 (8ft). Keep joints 600 mm (24") from sink cutouts.
- .6 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
- .7 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 deg. Do not mitre laminated edges.
- .8 Apply laminate backing sheet to reverse side of core of plastic laminate work.
- .9 Apply laminated plastic liner sheet to interior of cabinetry, including all exposed surfaces such as gable ends, doors and drawers, and where otherwise indicated.

Part 3 Execution

3.1 INSTALLATION

- .1 Install work plumb, true and square, neatly scribed to adjoining surfaces.

- .2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.
- .3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm (18") oc, 75 mm (3") from edge. Make flush hairline joints.
- .4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.
- .5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.
- .6 Where laminated plastic is site applied, adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where indicated or approved. Slightly bevel arises. Cap exposed edges with anodized aluminum extrusions.
- .7 For site application, offset joints in plastic laminate facing from joints in core.

NMS 066116 – SOLID SURFACING FABRICATIONS

Special Provision

Part 1 General

1.1 GENERAL

- .1 Section Includes: Composition quartz surfaces.

1.2 RELATED SECTIONS

- .1 Section 06 10 00 – Rough Carpentry.
- .2 Section 06 40 00 – Architectural Woodwork.
- .3 Section 07 92 00 – Joint Sealants.
- .4 Division 15.

1.3 REFERENCES

- .1 ASTM C920-05: Standard Specification for Elastomeric Joint.
- .2 Sealants ASTM E84-05e1: Standard Test Method for Surface Burning Characteristics of Building Materials.
- .3 NFPA 255-2006: Standard Method of Test of Surface Burning Characteristics of Building Materials.
- .4 NSF/ANSI 51-2002: Food Equipment Materials.

1.4 SUBMITTALS

- .1 Submit shop drawings, product data as specified in Division 1.
- .2 Shop Drawings: including plans, sections, and large scale details, and indicating methods of fabrication and attachment.

- .3 Product Data: manufacturer's standard data sheets for composition quartz materials; and illustrating full range of standard colors.

1.5 SAMPLES

- .1 Submit samples as specified in Division 1.
- .2 Samples: 4" x 4" (100 x 100 mm) size samples, illustrating color availability for final selection by Architect.

1.6 QUALITY ASSURANCE SUBMITTALS

- .1 Submit fabricator qualification certificates, test reports and manufacturer's instructions as specified in Division 1.
- .2 Fabricator Qualification Certificates: proof of fabricator qualifications, including ISO certifications.
- .3 Test Reports: including copies of flammability tests reports and food preparation zone test reports.
- .4 Manufacturer's Instructions: including copies of manufacturer's standard fabrication and installation guidelines.

1.7 CLOSEOUT SUBMITTALS

- .1 Submit closeout submittals as specified in Division 1.
- .2 Closeout Submittals: including care and maintenance instructions, and extended warranties; for inclusion in operating and maintenance manuals.

1.8 QUALITY ASSURANCE

- .1 Fabricator/Installer Qualifications: minimum three years' experience in fabricating and installing composition quartz surface materials, or a distributor's certification comprised of content.
- .2 Manufacturer's Certification: current ISO 9001 and 14001 certificates.

1.9 DELIVERY, STORAGE AND HANDLING

- .1 Refer to Division 1.
- .2 Do not deliver materials until spaces are ready for installation.

1.10 ENVIRONMENTAL REQUIREMENTS

- .1 Maintain areas at normal occupancy temperature and humidity levels for a minimum of 72 hours prior to and immediately following installation.

1.11 WARRANTY

- .1 Submit a manufacturer's extended warranty in accordance with the General Conditions of the Contract.
- .2 Manufacturer's Extended Warranty: Commercial 10-Year Limited Warranty against manufacturing defects in sheet material. HanStone Quartz offers a Residential Lifetime Limited Warranty.

Part 2 Products

2.1 MANUFACTURERS

- .1 Manufacturers of composition quartz surfacing having material considered acceptable for use.
 - .1 Hyundai L&C, as distributed by Hans Stone Quartz.

2.2 MATERIALS

- .1 Composition Quartz Sheet: 1 1/4" thick, comprised of silicon dioxide quartz chips set in a proprietary matrix; and meeting the following criteria:
 - .1 Flammability: Class A when tested to NFPA 255, Class A when tested to ASTM E84.
 - .2 Hardness (Mohs Scale): 7
 - .3 Density (KSF 2530): 2.465 g/cm²
 - .4 Stain Resistance (ANSI Z124.6.5.2): Pass
 - .5 Tensile Strength (ASTM D638): 17.8 MPa
 - .6 Compressive Strength (ASTM C170): 203 MPa wet, 209 MPa dry
 - .7 Food Equipment Material Compliance: Food Zone to NSF/ANSI 51.
 - .8 Finish: Polished.
 - .9 Color: as selected by Architect.
 - .10 Product and Manufacturer's Name: HanStone Quartz by Hyundai L&C.
 - .11 Brackets and Supports: cold-formed steel, galvanized finish; pre-drilled for fasteners; profiles and sizes as noted on shop drawings.

2.3 ACCESSORIES

- .1 Adhesive for Bonding Composition Quartz Surfacing: two component premium grade adhesive, color to match quartz surfacing.
- .2 Adhesive for Bonding Quartz to Other Materials: one-component silicone, to ASTM C920.
- .3 Joint Sealant: mildew-resistant silicone sealant, as specified in Section 07 92 00.

2.4 FABRICATION

- .1 Fabricate components in shop to greatest extent practical, to sizes and profiles indicated in approved shop drawings.
- .2 Form joints between components to be inconspicuous in appearance and without voids.
- .3 Provide holes and cutouts for bowls, sinks, plumbing fixtures and accessories as indicated on drawings. Finish edges to remove saw marks, nicks and scratches.
- .4 Ensure no cracking, chipping or breakage of components during forming.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine substrate upon which quartz surfacing is to be installed. Verify that support framing is sufficient to support quartz surfacing and is level to within 1/8" (3 mm) in 10' (3.0 metres).
- .2 Beginning of work implies acceptance of existing conditions.

3.2 INSTALLATION

- .1 Install materials plumb and level. B. Secure materials to substrate in accordance with manufacturer's installation guidelines.

- .2 Form field joints using manufacturer's recommended adhesive.
- .3 Avoid placing joints within 12" (300 mm) of quartz surface edges and terminations.
- .4 Install backsplashes and endsplashes fabricated from 3/4" (20 mm) thick composition quartz surfacing material. Adhere to substrate with approved adhesive, and seal joint along countertop.
- .5 Seal between wall and components with joint sealant, as specified in Section 07920.
- .6 Coordinate connection of plumbing fixtures with Division 15.

3.3 ADJUSTING AND CLEANING

- .1 Repair minor imperfections and cracked seams and replace areas of severely damaged surfaces in accordance with manufacturer's guidelines.
- .2 Remove excess adhesive and sealant from visible surfaces.
- .3 Final Cleaning: Clean quartz surfaces in strict accordance with manufacturer's instructions.

3.4 PROTECTION

- .1 Protect quartz surfaces from damage with heavy paper or cardboard covers. Maintain protection until date of Substantial Completion.

NMS DIVISION 28 SPECIFICATIONS

Special Provision (Page 386)

All information under the above special provision is deleted in its entirety and replaced with the following:

The following Division 28 National Master Specifications are included in this Contract.

NMS 281000 – ACCESS CONTROL

Special Provision

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 08 11 13 – Hollow Metal Doors and Frames.
- .2 Section 08 11 16 - Aluminum Doors, Frames and Screens.
- .3 Section 08 71 00 -Door Hardware.
- .4 Section 26: Electrical Power Supply.
- .5 Section 27: Communications

1.2 REFERENCES

- .1 Ontario Building Code (OBC).

- .2 Electrical devices to be ULC approved and installation in accordance with Canadian Electrical Code.

1.3 WORK INCLUDED

- .1 This contractor shall procure, install and commission a completely integrated and ready to operate access control.
- .2 Work to be done under this Section shall include furnishing of labour, materials, and equipment required for installation, testing and putting into proper operation complete systems as shown, as specified and as otherwise required. Complete systems shall be left ready for continuous and efficient satisfactory operation, certified and warranted by the supplier.

1.4 SUBMITTALS

- .1 Submit product data and obtain Contract Administrators approval prior to development of the Contractor's shop drawings. Shop drawing submittal shall include all drawings detailed herein. Separate submittals shall not be acceptable unless authorized by the Contract Administrator.
- .2 System Description and Analysis: Complete system descriptions, analyses, and calculations used in sizing the equipment required by the specifications. Descriptions and calculations shall show how the equipment will operate as a new stand alone system to meet the performance of this specification. The submittal shall include the following at minimum:
 - .1 Product Data Submittals:
Submit catalog cut sheets, technical data sheets, manufacturer specifications and/or diagrams necessary to illustrate a product, material or system for the work. Product data literature is required on all items of material and equipment and should be clearly marked; identifying specific items proposed with a reference to the specification requirement for which the item is being submitted.
 - .2 Product data shall include adequate descriptive literature and catalog cut sheets required for the Contract Administrator to ascertain that the proposed equipment and materials comply with specification requirements.
- .3 Submit shop drawings in accordance with General Contract Requirements and Section 01 33 00 - Submittal Procedures. Shop drawings shall include the following at minimum:
 - .1 System block diagrams.
 - .2 System riser diagrams.
 - .3 Point-to-point color-coded wiring diagrams.
 - .4 Floor plans detailing device locations.
 - .5 Equipment room layouts to scale.
 - .6 Door Rough-in Details. Contract drawing door details shall be utilized and modified for site-specific conditions based on field survey by the Contractor. Details in AutoCAD will be provided for use by the Contractor.
 - .7 Installation of SACS equipment in consoles, cabinets and racks, including wiring diagrams and rack elevations.
 - .8 Installation of SACS equipment located in the communications rooms, including wiring diagrams and rack elevations.
 - .9 Surge protection device installation details.
 - .10 Sequence of operations for each security door and gate type.
 - .11 Details of interconnection to fiber optic backbone system.
 - .12 Details of interconnection to security local area network (LAN).
 - .13 Prepare using AutoCAD.
- .4 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

- .5 Warranty Information: All materials relating to warranties.
- .6 Manufacturer's training certifications of service personnel.
- .7 Manuals:
 - .1 Provide complete sets of manuals and other information necessary for the operation and maintenance of the system in accordance with Division 1 requirements.
 - .2 Manuals: Manuals shall include names, addresses, and telephone numbers of each subcontractor installing equipment and systems, and nearest service representatives for each item of equipment for each system.
 - .3 The manuals shall have a table of contents and tab sheets.
 - .4 Tab sheets shall be placed at the beginning of each chapter or section and at the beginning of each appendix.
 - .5 The final copies delivered after completion testing shall include all modifications made during installation, checkout, and testing.
 - .6 Design Manual: Design manual shall identify the operational requirements for the system and explain the theory of operation, design philosophy, and specific functions. A description of hardware and software functions, interfaces, and requirements shall be included for all system operating modes. Submit design manual with product data submittal.
 - .7 Operator's Manual: The operator's manual shall describe all equipment furnished, including general hardware operations, description, and specifications.
 - .8 Software Manual: The software manual shall describe the functions of all software, and shall include all other information necessary to enable proper loading, testing, and operation, including:
 - .1 Description of required sequences.
 - .2 Description of complete GUI functionality including but not limited to the following:
 - .1 Icon sequence of operation.
 - .2 Graphical hierarchical map operation.
 - .3 VSS interoperability.
 - .9 List of all software licenses.
 - .10 Maintenance and Service: The maintenance manual shall describe maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components. Manufacturer's repair manuals shall include the SACS equipment physical layout and schematics to the component and device level.
 - .11 Operation and maintenance manuals shall be fully corrected to include review comments prior to final submission to the Contract Administrator.

1.5 TRAINING

- .1 System Overview: Conduct an on-site system overview for the Owner and end users (separate from the systems testing) of the access control system to instruct the users on the scope and operations of the systems.
- .2 Provide on-site training by a qualified, factory-trained instructor for designated maintenance technicians and operations personnel on the operation and maintenance of the system(s). If trained personnel from the factory are required for training, they shall be provided onsite by the Contractor at no additional cost to the Owner.
- .3 Provide the following training upon completion of final testing and acceptance of the systems:
 - .1 Demonstrate operation of system during system overview tour. Demonstrate the system in all modes of operation.
 - .2 Provide a minimum of 8 hours of system maintenance training and system customization updates to designated Owner personnel. The Owner will provide information on how they want the intrusion alarm system and access control systems customized. Classes shall accommodate up to five students at one time. Provide multiple classes at two different times to accommodate the Owners ability to maintain

- ongoing maintenance support of the Owners facilities.
- .3 Maintenance training shall cover all technical training required for maintenance, preventative maintenance and system adds, moves and changes including detailed instructions on system software modifications.
- .4 Provide a minimum of 8 hours of operator training to the Owner's Communications Center operators. Classes shall accommodate up to five students at one time. Provide two separate courses to accommodate separate operator shifts.
- .5 Provide minimum of 8 hours of operator training to the Owner's security personnel. Number of classes and class dates and times shall be coordinated with the Owner. Provide multiple classes at different times to accommodate the Owner's ability to maintain ongoing support of the Owner's security operations.
- .6 Provide course syllabus for all training courses in advance of each course, with outline of topics, time allotted for each topic, targeted audience, and training objectives. Submit training manuals to Owner for review and approval a minimum of 21 working days in advance of scheduled training. Training shall not commence until training syllabus has been approved.

1.6 QUALITY ASSURANCE

- .1 The equipment manufacturers shall have been in business manufacturing similar products for at least 10 years.
- .2 Equipment shall be installed by qualified individuals having at least 5 years of experience installing and maintaining similar equipment. The qualified individuals shall have installed at least three systems of similar type and size within the past 5 years. Submit evidence of successful installation, owner training and maintenance for a minimum of the previous five years. Provide listing of projects with verifiable references with names and telephone numbers.
- .3 Personnel:
 - .1 Service personnel shall be qualified to accomplish all work promptly and satisfactorily.
 - .2 Service personnel shall have attended the manufacturer's training school(s) for equipment being serviced. Provide certificates of completion or other documentation showing manufacturers' certification.
 - .3 Notify the Contract Administrator in writing of the name of the designated service representative and of any change in personnel.

1.7 WARRANTY, MAINTENANCE, AND SERVICE

- .1 The warranty, maintenance, and service period shall commence in accordance with the General Conditions and shall not be a function of material delivery dates.

Part 2 Products

2.1 PRODUCTS

- .1 Access control systems.
- .2 The access control systems shall include:
 - .1 Punch pad access control devices at all exterior man doors of the Vehicle Maintenance Garage, Administrative Space and Auxiliary Storage Building. All punch pads shall be stand alone, heavy duty commercial grade rated for exterior exposure. **(No card readers, punch pad access control only)**. The access control device shall include a deadbolt with key override.

- .2 Include all items required to achieve these access control requirements including but not limited to punch pads, door contacts, electric strikes, interior request to exit detectors etc.\
 - .3 Example product: Simplex 8148B26D access control device
- .3 Remaining door hardware: as specified under Section 08.

Part 3 Execution

3.1 INSTALLATION

- .1 Scope of work shall include owner customization and training for these systems.

WATER WELL AND PUMP SYSTEM - Item No. 74

Special Provision (Page 156, Addendum 4)

All information under the above special provision is deleted in its entirety and replaced with the following:

1.0 SCOPE

This specification covers the requirements for the supply and placement of two new water wells and pump systems at the Fenelon Falls Maintenance Patrol Yard (MPY), as shown on the Contract Drawings and as specified herein. One well will service the plumbing fixtures in the Vehicle Maintenance Garage and the other well will be dedicated for the truck wash bay in the Vehicle Maintenance Garage. The scope of work shall include the design, supply and construction of the new well systems including the drilled wells with steel casings, pitless adapters, decorative well head covers, submersible pumps, water supply lines from the wells to the building, well controls including pressure tanks and pressure switches and all appurtenances and other items required for complete functioning well systems. This item does not include the water treatment systems required for each well. See the National Master Specification documents for information regarding the well water treatment systems.

The requirements for the water well and pump system shall be coordinated with the Vehicle Maintenance Garage Building plumbing system requirements specified in the National Master Specifications (NMS) elsewhere in the Contract.

2.0 REFERENCES – Not Used

3.0 DEFINITIONS – Not Used

4.0 DESIGN AND SUBMISSION REQUIREMENTS

Contractor shall submit product documentation to Contract Administrator for review. Shop drawings shall be submitted with the Contractor's stamp and approval as evidence of the Contractor's review and coordination with the affected trades as well as sealed and signed by a Professional Engineer registered in Ontario. Shop drawings shall convey or be accompanied by calculations or other sufficient information to explain the system such as product data. Product data includes catalogue information, material lists, diagrams, performance curves and other descriptive information clearly identifying components being provided. Review of the shop drawings is for compliance with the design intent and does not relieve the Contractor of responsibility for its accuracy or for compliance with the contract documents.

A Request to Proceed shall be submitted to the Contract Administrator at least 10 business days prior to commencement of the work.

The next operation shall not proceed until a Notice to Proceed has been received from the Contract Administrator.

5.0 MATERIALS – Not Used

6.0 EQUIPMENT

The 150 mm dia wells shall be installed at a depth suitable to provide the minimum target pumping rate of 57 LPM (15GPM) for the well servicing the plumbing fixtures of the Vehicles Maintenance Garage and 38 LPM (10GPM) for the well servicing the wash bay of the Vehicle Maintenance Garage. It can be assumed, based on nearby well record information, that the well will be less than 75 m deep. A submersible pump rated for the achieved pumping rate and well depth shall be utilized.

The size of the water supply lines from the well to the building shall be determined by the Contractor as part of the integrated system design. 38mm supply lines are currently shown on the Contract Drawings, but the size shall be confirmed by the Contractor.

The well heads shall be covered with a decorative well casing cover. The decorative well casing cover shall be fiberglass and secured to the surrounding ground surface or concrete sidewalk. Three options for the well head cover shall be provided to the Contract Administrator for review and to select the cover for this site.

7.0 CONSTRUCTION

The well system, water pump and associated appurtenances shall be installed according to and at the location specified in the Contract Documents. Bedding to be 19 mm clear stone with Terrafix 270 R geotextile or approved equal.

Construction and development of the well must comply with Ontario Regulation 903 under the Ontario Water Resources Act to provide water to the Fenelon Falls MPY. The well system shall include a submersible pump complete with steel casing, pressure tank, pressure switches, pitless adapters, site piping and all appurtenances. All water lines feeding the building shall be installed below the frost line or have adequate insulation to protect the lines from freezing. Note, insulation will only be accepted as a method of freeze protection directly adjacent to the building foundation where the water lines enter the building since penetrations through the foundation wall will be made above the footing. All other locations shall have frost protection from ground cover.

A licensed well contractor is required when installing a new water supply well under O. Reg. 903 under the Ontario Water Resources Act (OWRA).

Licensed contractors are required to use licensed well technicians who have the proper class of licence to conduct or supervise any work being done on the well.

8.0 QUALITY ASSURANCE

Provide a written warranty for the installed equipment that includes travel and incidentals for one year and provide three sets of O&M Manuals.

Provide the Contract Administrator with licenses for all well contractors and well technicians working on the new well construction. The license information shall be provided to the Contract Administrator a minimum of 10 days prior to starting construction on the well.

The Contract Administrator may request documentation and obtain and test components to ensure compliance with this specification.

The Contract Administrator may perform a visual inspection to determine conformance with the workmanship, design, and dimensional requirements of this specification and the Contract Documents.

Material not in compliance shall be removed and properly disposed off site and replaced by the Contractor at no additional cost to the Owner.

9.0 MEASUREMENT FOR PAYMENT

Payment for Water Well and Pump System shall be by Lump Sum.

10.0 BASIS OF PAYMENT

Payment at the Contract price for the above item shall be full compensation for all labour, Equipment and Material required to do the work.

CONTRACT DRAWINGS

The following drawing sheet(s) are cancelled and replaced as indicated:

Cancelled	Replaced By
09A	09B
10	10A
19A	19B
20	20A
22A	22B
82	82A
95A	95B
103	103A
106	106A
108	108A
110A	110B

The following drawing sheet(s) are added:

N/A

QUANTITY SHEETS: N/A



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Contract Tendering Section
20 January 2025