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Specifications for:

CITY OF CORNWALL

BOYS & GIRLS CLUB
499 HENRY STREET, CORNWALL, ONTARIO

WINDOW INSTALLATION

IRCBSG Project No. EE13-006SD-14469

GENERAL DOCUMENTS

SPECIFICATIONS

DRAWINGS

1. Supervision and Special Qualifications

.1 Provide a competent supervisor to oversee all work and act as the Contractor's representative unless otherwise designated.

.2 Employ only experienced and qualified workers and ensure that workmanship conforms to the best standard practices. Replace all work that results from inferior products and/or workmanship.

.3 The Contractor is responsible to co-ordinate the work of all trades as to expedite the project in a timely manner in accordance with the agreed upon work schedule and in a manner that will not compromise the integrity of the roof system and building interior.

.4 Do not employ any unfit or unskilled workmen. The Owner and the Consultant reserve the right to require the dismissal from the site, workers deemed incompetent, careless, insubordinate or otherwise objectionable.

2. Documents Required

.1 The Contractor shall ***maintain*** at job site when required one copy of following:

.1 Contract Drawings
.2 Specifications
.3 Addenda
.4 Reviewed shop drawings
.5 Change orders
.6 Other modifications to Contract
.7 Manufacturer's installation and application instructions.
.8 Building Permit

3. Licenses and Permits

.1 The Contractor shall make application and pay for any license, permit, or fees required by any Municipality, governing body or authority to provide for the proper inspection, or certification in connection with his work, however**, the building permit will be provided at no cost to the contractor**.

.2 Complete all gas, electrical, mechanical and plumbing work as required by local authorities having jurisdiction. Have work inspected and pay all fees relative to such inspection to ensure work meets with published standards and codes. Submit with final documentation, certificate or letter of approval to consultant.

4. Changes in Work

.1 All changes to the Contract documents which result in an extra or credit to the Contract amount are not to be executed until written instructions have been received and the extra or credit agreed to in writing by all parties of the Contract.

.2 Execute variations, alterations and substitutions, which do not affect the Contract amount as instructed by the Consultant.

5. Work Schedule

.1 Provide within five (5) working days after contract award, schedule showing anticipated progress stages and final completion of work within time period required by Contract documents.

.2 Interim reviews of work progress based on work schedule will be conducted as decided by the Consultant.

.3 The Contractor shall commence work upon notification of award of contract and shall work in a continuous manner to ensure that all work including corrections of deficiencies are completed in the time period specified.

6. Invoicing

.1 Before submitting first progress claim, ***submit breakdown*** of Contract price, in detail, as directed by the Consultant. After approval, cost breakdown will be used as a basis for progress payment.

.2 Monthly draws on account against work completed will be payable in accordance with the terms and conditions outlined by the Owner's purchase order. Holdback will be 10% of the total value of work completed at date of invoicing.

.3 Final payment will be made in accordance with the latest requirements of the Mechanics Lien Act, 45 days after all work of the contract is 100% complete.

.4 ***All invoices for payment*** to be submitted to the Owner and submitted for verification. Separate invoices for holdback payments must also be submitted. The Contractor should not assume that holdback payments will be made automatically at the end of the holdback period without first submitting an invoice.

.5 All invoices that exceed the actual amount of work completed at the date of invoicing will be returned to the contractor.

.6 Information (if applicable) to be broken down as per tender proposal and cost breakdown required as per 6.1 above.

7. Contractor's use of Site

.1 Examination of Site:

.1 Each of the trades involved must satisfy himself by personal examination of the site and by any other means as he may prefer as to the actual conditions and the requirements of the work.

.2 Approval from Owner and/or the Consultant must be obtained before examination of the site can be made.

.3 The Contractor shall examine the existing condition of the building envelope and mechanical systems with the roofing Consultant prior to the start of work on site. All existing deficiencies shall be noted by the Contractor and submitted to the Consultant prior to the start of any work. The Contractor shall be responsible for the correction of all deficiencies and damages incurred during the window installation project. The Contractor shall take photographs of or video the site prior to start of work and provide one copy to the Consultant.

.4 Due to the nature of the site and occupancy of the building and grounds, the Owner shall designate an area for storage and setup prior to commencement of work. The Contractor shall strictly observe these boundaries at all times throughout the project.

.2 Access to Site During Construction:

.1 Clearance must be obtained from the Owner or his designate before gaining vehicular access during the hours in which this site is occupied.

.2 All vehicles employed by the Contractor or his forces (including material deliveries, etc...) will be restricted to non-movement during any period when occupants of the building are close to the area of work.

.3 As a matter of policy, Tradesmen/Contractors must advise the Building Superintendent of the scope, progress and completion of his particular work.

8. Codes and Standards

.1 Obtain and comply with all requirements of lawful authority having jurisdiction of any such matters in regards to labour and safety.

.2 Materials shall be new, and work conform to, or exceed, the minimum applicable standards of Canadian General Standards Board (CGSB), the Canadian Standards Association (CSA) or the National Building Code of Canada. Latest edition at Tender closing date and the most stringent conditions apply.

.3 Carry out all work in accordance with specific applicable requirements of the latest edition of the following Codes and Standards:

- Local Building Codes
- Ontario Building Code
- Occupational Health and Safety Act, Bill 70
- Printed instructions from the Manufacturer of materials being employed.

.4 Lack of possession or lack of knowledge of any Code or Standard shall not constitute sufficient reason for deviation from codes and standards.

9. Project Meeting

.1 Hold project meetings at times and locations as directed by the Consultant and the Owner.

.2 Notify all parties concerned of meetings.

10. Concealment

.1 Conceal drainage pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

11. Existing Services

.1 Where work involves breaking in to or connecting to existing services carry out work with a minimum of disturbance, at times directed by the Building Facility Services.

.2 Before commencing work, establish location and extent of service lines in area of work and notify the Building Facility Services of these findings.

.3 Obtain ***approval*** from the Building Facility Services for any shutdown or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.

.4 Where unknown services are encountered, ***immediately advise*** the Consultant and Building Facility Services and confirm findings in writing.

.5 On completion of work, restore building facade or other property damaged by result of work, to conditions found before commencement of the Contract period, except for items permanently altered by the terms of this contract.

12. Use of Premises

.1 Execute work with least possible interference or disturbance to occupants, public and normal use of premises. Arrange with the Building Facility Services to facilitate execution of work.

.2 Where security has been effected by work of contract, provide temporary means to maintain security at pre-construction levels.

.3 Provide temporary dust screens, barriers, warning signs in locations where renovation and alteration work is adjacent to finished area.

.4 Review requirements with the Building Facility Services for above, prior to start of demolition.

.5 Use of washroom facilities by Contractor shall be allowed by building management.

1.1 General

.1 Provide all labour, material and equipment necessary to properly execute and complete all works indicated on the Drawings, in the Specifications and as listed below.

1.2 Safety/Access

.1 Provide protection to surrounding property, vehicles and building occupants from the work during the course of the project.

.2 Do not block access lanes to the parking lot or pedestrian sidewalks at any time.

.3 Provide the appropriate signage redirecting pedestrian traffic.

1.3 Rough Openings

.1 Create new rough opening(s) in the identified locations of the existing masonry wall to accommodate the installation of two (2) new windows. Both locations are located on the South elevation of the Boys & Girls Club.

.2 Salvage, and clean existing bricks for reuse in finishing the openings once the windows have been installed.

.3 Rebuild/rearrange the existing stud pattern on the interior of the building to properly support the new opening. New stud layout to be as detailed in and in accordance with Ontario Building Code requirements.

1.4 Window Installation

.1 Prepare the rough openings by lapping the membranes/barriers appropriately and cleaning the substrate.

.2 Install the specified windows as detailed; shim and spray foam around each opening to suit.

1.5 Finishing

.1 Reinstate the existing masonry units removed during demolition and make good around the window perimeter to provide a flush and uniform finish.

.2 Replace interior finishes to match existing prior to demolition. To include preparation of new gypsum board and painting.

.3 Upon completion of the project, repair/mend any damage to soft and/or hard landscape damaged during the installation process.

1.6 Shop Drawings/ Erection Diagrams

.1 Supply detailed shop drawings and erection diagrams for the new windows (which includes type of window, actual dimensions, fasteners, and interior/exterior finishes), certified by a Professional Engineer licensed in Ontario.

.2 The intent of the Contract Drawings is for conceptual purposes only. **Detailed design of the new openings and windows is the responsibility of the Contractor and is to be reflected within the Shop Drawings in strict accordance with the Ontario Building Code 2011.** As such, the contractor is solely responsible for all field measurements required for the fabrication and installation of the new openings/windows. Such measurements are to be detailed within the shop drawings and certified by a Professional Engineer licensed to practice in Ontario.

1.7 Pricing

.1 The Stipulated Price should include all necessary labour, material and equipment required to remove/reinstate the masonry wall assembly and install new windows as detailed within the Specifications and Drawings.

END OF SECTION

1.1 Requirements Included

.1 Shop drawings and product data

.2 Samples.

.3 Testing results.

.4 Construction Schedule.

1.2 Administrative

.1 Submit to Consultant, submittals listed for review. Submit with reasonable promptness and in an orderly sequence that does not delay the work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Work affected by the submittal shall not proceed until review is complete.

.3 Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with the requirements of the work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.

.4 Verify field measurements and affected adjacent work are co-ordinated.

.5 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant review of submittals.

.6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant's review.

.7 Keep one reviewed copy of each submission on site.

1.3 Shop Drawings And Product Data

.1 The term "Shop Drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the work.

.2 Indicate materials, a method of construction, attachments, anchorages, erection diagrams, connections, explanatory notes and other information necessary for completion of work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications. Where requested in the specification Sections, shop drawings to be signed, stamped and dated by a professional engineer licensed to practice in the Province of Ontario.

.3 Adjustments made on shop drawings by the Consultant are not intended to change the Contract Price. If adjustments affect the value of work, state such in writing to the Consultant prior to proceeding with the work.

.4 Make changes in shop drawings as the Consultant may require, consistent with Contract Documents. When resubmitting, notify the Consultant in writing of any revisions other than those requested.

.5 Submit a PDF copy by email of shop drawings for each requirement requested in specification Sections.

.6 Submit a PDF copy by email of product data sheets or brochures for requirements requested in specification Sections and as the Consultant may reasonably request where shop drawings will not be prepared due to standardised manufacture of product.

.7 If upon review by the Consultant, no errors or omissions are discovered or if only minor corrections are made, three (3) copies will be returned and fabrication and installation of work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation of work may proceed.

1.4 Samples

.1 Submit all samples requested in the specification Sections, for review and approval of the Consultant and Owner.

.2 Do not place orders for or incorporate any products where the sample has not been approved by the Consultant and Owner. Any non-approved products, which are installed, are to be removed by the Contractor at no cost to the Owner, and no claims for delays will be accepted due to this removal work.

.3 On completion of work land prior to final inspection, submit record documents to Consultant.

PART 1 - GENERAL

1.1 Safety Regulations

.1 The Contractor shall comply with the latest edition and amending regulations of the following documents, and in the case of conflicts between documents, the more stringent rule shall apply:

.1 The Occupational Health and Safety Act [Revised Statutes of Ontario, 1990] and Regulations for Construction Projects [O. Reg. 213/91 amended to O. Reg. 628/05].

.2 Hazardous Projects Act and the Canada Labour Code, most recent edition.

.3 Occupational Health and Safety Regulation for Construction Projects, Revised Statutes of Ontario, Regulation 213-91 as amended by O. Reg. 628/05.

.4 The Workplace Safety and Insurance Act, 1997 as amended by 1997,c.26, Sched.; 1998, c. 36; 1999, c.6, s. 67; 2000, c. 26, Sched. I; 2001, c. 9, Sched. I, s. 4; 2002, c.8, Sched. P, s.8; 2002, c. 18, Sched. J, s. 5.

.5 Ontario Building Code Act 2011, and Ontario Regulation 403/97 as amended to O. Reg. 220/02.

.6 The Ontario Fire Code, O. Reg. 388/97 as amended by 315/01.

.7 Regulation 447 - Environmental Protection Act.

.8 Workplace Safety and Insurance Board, Regulation 1101, First Aid Requirements.

.9 National Building Code 2010, Safety Measures at Construction and Demolition Sites.

.10 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

1.2 Temporary Stairs, Hoists, Scaffold, etc.

.1 Furnish and maintain all equipment such as stairs, ladders, ramps, scaffolds, swing stages, hoists, runways, derricks, chutes, elevators, etc., as required for proper execution of work.

.2 Construct and maintain scaffolding in rigid, secure and safe manner. Erect scaffolding independent of walls. Remove promptly when no longer required.

.3 Provide all necessary temporary barricades, fencing, guardrails, night lights, overhead protection and barriers as necessary for the work.

.4 Where such structures are of a complicated nature, employ the services of a Registered Professional Engineer to design such swingstage, scaffolding framework, or other temporary supports as required.

1.3 Safety and Security Requirements

.1 Enforce use of CSA approved hardhats and safety boots for all entering or working on construction site.

.2 The Contractor shall remove from the site any persons not observing or complying with safety requirements.

.3 The Contractor will report to the Owner's representative, and jurisdictional authorities, any accident or incident involving the Contractor, the Owner's staff, or the public; personnel and/or property, arising from the Contractor's execution of the work.

.4 The Contractor will include all provisions of the Contract in so far as they are pertinent in any agreement with Sub-contractors, and hold all Sub-contractors equally responsible for safe work performance.

.5 Delays in the progress of the Work arising out of infractions of legislation or Contract health and safety requirements are the responsibility of the Contractor.

.6 Provide and maintain adequate lighting where workers or public may be subject to hazards and in all working areas.

.7 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials, and regarding labelling and the provision of material safety data sheets.

.8 In addition to the requirements of the Occupational Health and Safety Act, and Regulations for Construction Projects, provide temporary safeguards and protection against:

.1 Accident or injury to any workers or other persons on the site, adjacent work and property, roads and walks.

.2 Damage to any part of the work and to any adjoining or adjacent structure, properties, pavements, walks, services, and other similar items by frost, weather, overloading, and any other cause resulting from the execution of the work.

.9 Make good with material identical with existing and adjoining surfaces any damage resulting from the execution of the work to any part of the work or any buildings, pavements, landscaping, poles, hydrants, services, etc., on or surrounding the site.

.10 **Contractor to obtain a Hot Works Permit from the Owner prior to completing any open flame work.**

.11 **Fire extinguisher must be on hand at all times when propane torch or other flame/heat producing device is being used.**

1.3 Safety and Security Requirements (cont'd)

.12 Contractor to ensure that all materials/equipment are safely secured against extreme wind conditions at all times.

.13 Adhere to Owner's site specific Health and Safety policies, as applicable, which include the following:

.1 Use of hard hats and safety boots

.2 WHMIS: training, staff awareness of chemicals on site, emergency plan

.14 The Contractor shall be responsible to ensure that all individuals are properly trained in Fall Arrest and Fall Protection as required by the Ministry of Labour of Ontario. Anyone not in possession of a certification card should not be allowed to work in locations where Fall Arrest and Fall Protection is required.

.15 **The Contractor shall abide by all Workplace Health and Safety regulations. Should the Contractor, in the opinion of the Engineer, fail to meet those regulations, ONE written warning will be given to the Contractor. Further non-compliance will result in the notification of the Ministry of Labour.**

.16 **The Contractor shall provide, in writing, a safety plan prior to commencing work.**

PART 1 – GENERAL

1.1 Section Includes

.1 Inspection and testing, administrative and enforcement requirements.

.2 Mock-ups.

1.2 Related Sections

.1 Section 01 00 50 - General Requirements.

.2 Section 01 11 00 - General scope of work

.2 Section 01 33 00 - Submittals

1.4 Inspection

.1 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Consultant may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.5 Independent Inspection Agencies

.1 Independent Inspection/Testing Agencies will be engaged by Consultant for purpose of inspecting and/or testing portions of Work.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Owner and Consultant. Pay costs for retesting and reinspection.

1.6 Access to Work

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.7 Procedures

.1 Notify appropriate agency Consultant in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.8 Rejected Work

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If, in opinion of Consultant, it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Consultant.

1.9 Reports

.1 Submit 2 copies of inspection and test reports to Consultant and Owner

1.10 Mock-ups

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.

.2 Contractor to co-ordinate with Consultant and manufacturer’s representative their attendance during the construction of the mockup to verify all suitable removal and application conditions.

.3 Contractor to co-ordinate with Consultant and manufacturer’s representative, applicable testing of new sealant, once cured, to ensure proper adhesion and bonding.

.4 Construct mock-ups in all locations acceptable to Consultant.

.5 Prepare mock-ups with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.

.6 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.7 Mock-ups may remain as part of Work.

PART 1 - GENERAL

1.1 RELATED WORK

.1 General Scope of Work - Section – 01 11 00

.2 Brick Masonry Repairs - Section – 04 21 10

.3 Rough Carpentry - Section – 06 12 00

1.2 PROTECTION

.1 Protect existing items designated to remain and materials designated for salvage. In event of damage, immediately replace such items or make repairs to approval of Consultant and at no additional cost to Owner.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect site and verify with Consultant items designated for removal and items to be preserved.

.2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

.3 Notify utility companies before starting demolition.

3.2 REMOVAL

.1 Remove items indicated promptly after demolition. No storage of demolition material is allowed.

.2 Do not disturb adjacent items designated to remain in place.

3.3 SALVAGE

.1 Carefully dismantle items containing materials directed or indicated for salvage. Stockpile salvaged materials at locations directed or indicated. Clearly identify items to be reinstated noting location for reinstatement.

3.4 DISPOSAL OF MATERIAL

.1 Dispose of materials not designated for salvage or re-use in work off-site.

3.5 RESTORATION

.1 Upon completion of work, remove debris and leave work site clean.

.2 Re-instate areas and existing outside areas of demolition to conditions that existed prior to commencement of work.

PART 1 - GENERAL

1.1 Description

.1 Work involves dismantling a portion of the existing masonry wall assembly and creating rough openings as indicated on drawings. Bricks removed from the assembly are to be salvaged and reused around the new windows.

PART 2 - PRODUCTS

2.1 Brick

.1 Reuse existing bricks.

.1 If bricks are not salvageable new bricks are to be supplied. Colour, size and texture: to match existing masonry.

.1 Approved samples are required.

2.2 Mortar

.1 To be Type "N" or "O" in accordance with CSA CAN3-S304M84.

.2 Standard of acceptance to be: **KING PACKAGED MATERIALS 1-1-6 Type 'N' repair mortar**

2.3 Loose-Laid Brick Angle

.1 Structural Steel: To CSA G40.21-04, Grade 350W. Hollow structural section to CSA G40.21-04, Grade 350W Class H.

.2 Shop Paint Primer: To CAN/CGSB-1.40-97

PART 3 - EXECUTION

3.1 Removal and Replacement

.1 Use a tuck-pointer's toothing chisel to cut out the mortar around deteriorated units. Units selected for replacement can be broken.

.2 The remaining old mortar should be carefully chiselled out. All dust and debris to be removed using brush, air or water.

.3 Care to be exercised not to allow debris to fall into the cavity behind the wall.

.4 The brick surfaces in the wall to be dampened before new units are placed. The masonry should absorb all the moisture to ensure a good bond.

.5 The appropriate surfaces of the surrounding brick work and the replacement brick should be buttered with mortar.

.6 The replacement brick to be centered in the position and pressed. The excess mortar to be removed with a trowel.

.7 Point around the replacement brick to ensure full joints.

.8 Joints to be tooled to match the original profile when mortar becomes "thumbprint" hard.

3.2 Cleaning Unglazed Clay Masonry

.1 Clean repaired areas of masonry as directed below and leave for one (1) week. If no harmful effects appear and after mortar has set and cured, protect windows, sills, doors, trim and other work, and clean brick masonry as follows:

.1 Remove large particles with wood paddles without damaging surface. Saturate masonry with clean water and flush off loose mortar and dirt.

.2 Scrub with solution of 25mL trisodium phosphate and 25mL household detergent dissolved in 1 L of clean water using stiff fibre brushes, then clean off immediately with clean water using hose. Alternatively, use proprietary compound recommended by brick masonry manufacturer in accordance with manufacturer's directions.

.3 Repeat cleaning process as often as necessary to remove mortar and other stains.

.4 Use acid solution treatment for difficult to clean masonry as described in Technical Note No. 20 published by Brick Institute of America dated Sept./Oct. 1977.

.5 Test acid cleaning method on designated area of wall, followed by waiting period of at least one (1) week, before proceeding with cleaning.

3.3 Cleaning Glazed Clay Masonry

.1 Clean glazed clay masonry as work progresses using soft, clean cloths, within few minutes after laying.

.2 Upon completion, when mortar has set so that it will not be damaged by cleaning, clean with soft sponge or brush, and clean water. Polish with soft, clean cloths.

PART 1 - SCOPE OF WORK

1.1 Related Work

.1 General Requirements - Section 01 00 50

.2 Aluminum Windows - Section 08 52 00

1.2 Disposal

.1 Be responsible for the safe disposal of all debris from the job site.

1.3 Anchors And Fasteners

.1 Co-ordinate the location and installation of anchors and fasteners. Submit types of fasteners to be utilized with Consultant.

.2 Do not use metals in combination that will set up electrolytic action.

.3 Use non-corrosive or galvanized steel fastenings, as approved by Consultant, or as otherwise specified.

.4 Space anchors within load bearing or shear capacity.

PART 2 - MATERIAL

2.1 Quality Assurance

.1 Lumber shall bear the grading stamp of an agency certified by the Canadian Lumber Standards Administration Board.

2.2 Precautions

.1 Provide temporary protection, to the satisfaction of the Consultant, to render all wood blocking watertight; if for any reason permanent membrane protection cannot be provided within the same day.

2.3 Lumber Material

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

.1 CSA 0141-1970.

.2 NLGA Standard Grading Rules for Canadian Lumber, 1987 edition.

.2 Machine stress-rated lumber is acceptable for all purposes.

.3 Glued end-jointed (finger jointed) lumber (is not acceptable) (products certified under (CSA 0168-1974) (NLGA Special Products Standard 1-81) are acceptable.

.4 Framing and board lumber: in accordance with NBC 1990 Sub-section 9.3.2

.5 Furring, blocking, nailing strips, grounds, rough bucks, (cants), curbs, fascia backing and sleepers:

.1 Board sizes: "Standard" or better grade.

.2 Dimension sizes: "Standard" light framing or better grade.

2.4 Insulation

.1 Standard of Acceptance: **Roxul ComfortBatt - 3-1/2" Thickness**

2.5 Fasteners

.1 Nails, spikes and staples: to CSA B111-1974.

.2 Bolts: (12.5)mm 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), recommended for purpose by manufacturer.

.4 Galvanizing: to CSA G164-M1981, use galvanized fasteners for (exterior work) (interior highly humid areas) ((pressure-preservative) (fire-retardant) treated lumber).

.5 Nailing discs: flat caps, minimum (25)mm diameter, minimum (0.4)mm thick, (sheet metal), (fibre), formed to prevent dishing. Bell or cup shapes not acceptable.

2.6 Air Barrier

.1 Standard of Acceptance: **DuPont Tyvek Home Wrap**

2.7 Vapour Barrier

.1 Standard of Acceptance: **6 mil. Polyethylene Sheet Barrier**

2.8 Gypsum Board

.1 Standard of Acceptance: **CGC Sheetrock Brand Abuse-Resistant Gypsum Panels**

PART 3 - EXECUTION

3.1 Construction

.1 Comply with requirements of NBC 1985 Part 9 supplemented by following paragraphs.

3.2 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 spanning members with "crown-edge" up.

3.5 Wall Sheathing

.1 Install wall sheathing in accordance with manufacturer's printed instructions.

3.6 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 Install furring to support siding applied vertically (where there is no blocking and) where sheathing is not suitable for direct nailing.

.3 Align and plumb faces of furring and blocking to tolerance of (1:600).

3.10 Fasteners

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

PART 1 - SCOPE OF WORK

1.1 Related Work	.1	General Requirements - Section 01 00 50
	.2	Glass and Glazing – Section 08 80 00
1.2 General	.1	Provide the necessary labour and materials to create a new rough opening in the existing wall, and supply and install new windows as specified herein.
1.3 Reference Standards	.1	Conform to CAN/CSA-A440-M90 windows, except where specified otherwise.
	.2	CAN3-S157 "Strength in Aluminum".
	.3	Maximum deflection of 1/175 of the span.
1.4 Disposal	.1	Be responsible for the safe disposal of all debris from the job site.

PART 2 - GENERAL

2.1 Shop Drawings	.1	Submit Shop Drawings in accordance with Section 01300.
	.2	Clearly indicate materials and large scale details for head, jamb and sill profiles of components, elevation of unit, anchorage details, description of related components and exposed finishes and fasteners.
	.3	**Provide evidence of structural review of shop drawings (stamped drawings) by Professional Engineer licensed in the Province of Ontario accompanying submitted material. Provide structural calculations per conformance to Building Codes and CAN/CGSB 12.20-M89.**
2.2 Certificate	.1	Submit manufacturer's certificate certifying compliance with specification requirements.
2.3 Maintenance Data	.1	Provide maintenance data for cleaning and maintenance of aluminum windows.
2.4 Inspection and Testing	.1	Inspection and testing of aluminum windows and associated work will be done by an Independent Consultant appointed by the Owner. Notify the Consultant at least forty-eight (48) hours before commencement of any work.
	.2	The Consultant reserves the right to have inspections made to establish quality of work. Such inspections shall be made in the presence of the Contractor.
	.3	Notify Consultant in the event that specifications conflict with Manufacturer's recommendations.
	.4	The inspection and testing service does not relieve the Contractor of his responsibility for quality control of production and for errors made by him.

PART 3 - MATERIALS

3.1 Materials

.1 Materials to CAN/CSA-A440-M90 supplemented as follows.

.2 All windows by same manufacturer.

.3 Isolation coating: Alkali resistant bituminous paint.

.4 Extruded aluminum: Aluminum Association alloy AA6063-T5.

.5 Closures and facings: break formed aluminum sheet metal of type and size as detailed to suit job conditions; minimum **2.0mm** thick, and complete with anchoring devices.

.6 Exterior panning trim: extruded aluminum minimum **2.0mm** thick of type and size as detailed to suit job conditions complete with joint covers, jamb drip deflectors, chairs and caps and anchoring devices.

.7 Interior trim mouldings: provide extruded trim moulding of sufficient size to neatly finish the window to the interior opening. Provide snap-on trim where shown on drawings. Exposed fasteners or brake formed shapes not acceptable. Seal joints between (a) trim mouldings and window with silicone sealant, (b) trim moulding and interior window opening with one part polyurethane sealant.

.8 Foam insulation: to be one or two component polyurethane foam to suit site conditions. Foam to be flame retardant. To be Abisko Enerfoam or approved equal.

.9 Thermal spacer: extruded PVC, **maximum width 25mm**.

.10 Bedding compound: to CGSB 19-GP-14M.

.11 Screens: Heavy Duty to CAN/CGSB-79.1-M91

.1 Extruded aluminum frame having a wall thickness of 1.9mm.

.2 Screen frames: colour to match window frames.

.3 Screen cloth: 18 x 24 mesh located as shown on drawings. Aluminum nest for hopper windows.

3.2 Window Type and Classification

.1 Aluminum Horizontal Sliding Windows: double window units with thermal break to CAN/CSA-A440-M90 performance levels A3, B7, C3, I=55 ratings. All windows are to contain double glazing on the interior slider, single glazing on the exterior slider and contain a screen between the operable sash, and interior and exterior sash locks. One exterior slider to be fixed, or secured in place with removable fastening device. **Acceptable Materials: Alumicor Operslid Easy Slide Acoustical 200 Series with SideSlide 250 Section**.

.2 Provide test results, if so requested by Consultant, indicating that testing was performed with test windows secured using concealed fasteners only.

3.3 Frame Members

.1 Typical: to be 19mm x **152mm** of extruded aluminum alloy 6063-T5 of 1.6mm minimal wall thickness with snap-on stops. Sizes as shown on drawings.

.2 Frame members to suit size of existing opening.

.3 Frames and windows to be by same manufacturer.

3.4 Fixed Unit Fabrication

.1 Make allowances for deflection of structure. Ensure that structural loads are not transmitted to aluminum work.

.2 All frames shall be complete with factory installed rigid insulation in jamb, head and sill section.

.3 **Window frames shall be factory fabricated in Manufacturer's shop in accordance with reviewed shop drawings.** They shall be cut, drilled and assembled using jigs to ensure proper hairline fit.

.4 Frame sections shall incorporate integral screw ports for mechanical fastening of all corners and intermediate joints with self-tapping screws or spigots. No exposed fastening devices shall be permitted.

.5 Main framing member shall incorporate integral groove to receive snap-in glazing bead where applicable.

.6 Provide extruded aluminum panning of the sizes shown on the drawings. Panning shall be complete with matching end pieces and anchors or brackets.

.7 Fabricate window units square and true with maximum tolerance of plus or minus 1.5mm for units with diagonal measurement of 1.8m or less, and plus or minus 3mm for units with diagonal measurement over 1.8m.

.8 Manufacturer's nameplates on windows are not acceptable.

.9 Take field measurements before starting fabrication.

.10 Fabricate in strict conformance with reviewed shop drawings.

.11 Do all fitting and assembly in shop. Field fabrication of window frames will not be accepted.

.12 Provide rabbets for glazing of depths recommended by manufacturer of glazing units.

.13 Fabricate all inner sections of windows and all joints to be permanently air, water and weather- tight.

3.5 Finishes

.1 Frames, panning and trimwork: to Anodized aluminum dark bronze anodized to CAN/CSA-A440-M90, Class 1, 18µm (.0007") thick.

3.6 Isolation Coating

.1 Isolate aluminum from following components, by means of isolation coating:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

3.7 Glazing

.1 Prepare frames and sash to accommodate glass and glazing method specified in Section 08 80 00.

3.8 Hardware

.1 Locks: each operable sash of slider to lock independently at jamb.

3.9 Interior Trim

.1 1" x 1" extruded aluminum angle; colour to match window frame. Exposed fasteners are not to be used and will be considered unacceptable.

3.10 Caulking

.1 Sealants:

.1 Sealants acceptable for use on this project must be listed on CGSB Qualified Products List issued by CGSB Qualification Board for Joint Sealants. Where sealants are qualified with primers use only these primers. All sealants to be non-bleeding and capable of supporting their own weight.

.2 Sealants compound:

.1 Exterior sealant, window/door perimeters and masonry: one-component, poly-urethane base sealant, complying with CAN/CGS-19.24-M90. **Standard of Accep-tance: Dymonic by Tremco**, or other approved manufacturer.

.2 Interior sealant, interior sill perimeters: one-component, latex sealant, complying with CAN/CGS-19.24-M90. **Standard of Accep-tance: Tremflex 834 by Tremco**, or other approved manufacturer.

PART 4 - EXECUTION

4.1 Window Installation

.1 Install windows in accordance with CAN/CSA-A440-M1990.

.2 Use setting blocks and spacers as required to properly support the glass, centred in place in glazing space independent of the materials and to uniformly distribute its load.

.3 Set glass properly centred with uniform bite and face and edge clearance, free from twist, warp or other distortion likely to develop stress.

.4 Leave glass whole and without cracks, scratches or other defects and with settings in perfect condition at completion, to approval of Consultant. Remove rejected, broken or damaged glass due to defective materials or improper setting and replace with perfect materials. Units producing distorted vision shall be rejected and replaced at the reasonable discretion of the Consultant.

4.2 Sill Installation

.1 Install metal sills with uniform wash to exterior, level in length, straight in alignment with plumb upstands and faces.

.2 Cut sills to fit window opening.

.3 Secure sills in place with anchoring devices located at end joints of continuous sills and evenly spaced 600mm o.c. in between or as shown on approved shop drawings.

4.3 Foam Insulation

.1 Foam insulate between frame members and window opening as shown on drawings.

4.4 Caulking

.1 Seal joints between frame members and other non-operating components with sealant to provide weathertight seal at outside and air, vapour seal at inside.

.2 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.

.3 Apply sealant in accordance with Section 07900. Conceal sealant within aluminum work except where exposed use is permitted by Consultant.

4.5 Interior Trim

.1 Prime and paint quarter round to match existing paint finish around perimeter of window. Ensure adjacent surfaces are sufficiently masked to prevent damage during painting work.

PART 1 - SCOPE OF WORK

1.1 Related Work Specified Elsewhere

.1 General Requirements – Section 01 00 50

.2 Aluminum Windows – Section 08 52 00

1.2 General

.1 Provide glazing as indicated on the drawings. Label each light of glass with the registered name of the product and the weight and quality of the glass.

PART 2 - GENERAL

2.1 Warranty

.1 Contractor hereby warrants insulating glass units against defects and for failure of seal enclosed air space and deposits on inner faces of glass detrimental to vision for **five (5)** years from the date of final completion. Cracked or scratched glass, shrinking, staining, hardening, sagging of materials, loosening or rattling of glass will be considered defective work.

.2 Make all necessary repairs and replacements within forty-eight (48) hours of receipt of written notification.

.3 Provide a written warranty confirming the above, issued on the corporate letterhead, signed and sealed by an authorized signing officer.

.4 Nothing in this article shall be construed as in any way restricting or limiting the liability in common law and Statutory Liability of the Contractor.

PART 3 - MATERIALS

3.1 Glass Materials

.1 Thickness to meet or exceed National Building Code 1995 requirements and CAN/CGSB 12.20-M89 as described in specifications.

.2 Horizontal Sliders:

.1 For exterior slider: minimum 4mm clear tempered unit to CAN/CGSB-12.8-97. **TINTED - GREY**

.2 For interior slider: factory sealed double glazed unit; minimum 4mm clear, tempered outer light, with 4mm clear tempered inner light, Argon filled air space, exterior surface of interior light to be low "E" coated, hermetically sealed 16mm overall thickness to CAN/CGSB-12.8-97. Glazing to be set in an anodized adaptor c/w finish to match surrounding frame and to provide flush finish to interior.

3.2 Glazing and Sealing Compound Materials

.1 Setting blocks: Neoprene, Shore "A" durometer hardness 85 plus or minus 5, minimum of 100mm long x 9mm thick x 6mm high, to span from fixed stop to other side of glass, thickness to suit glass, bite and opening, or according to Manufacturer's instructions.

.2 Spacer shims: Neoprene, Shore "A" Durometer hardness 50, minimum of 75mm long x 9mm high x required thickness or to Manufacturer's instructions.

.3 Glazing gaskets: Neoprene or polyvinyl-chloride manufacturer's standard dry glazing splines to suit aluminum extrusions, colour to match glazing.

.4 Polyshim tape: to be self-shimming tacky preformed tape complete with diameter spacer centred in tape to suit requirements.

.5 Primers, Sealers and Cleaners: to glass manufacturer's recommendations.

PART 4 - EXECUTION

4.1 Workmanship

.1 Remove protective coatings and clean contact surfaces with solvent and wipe dry.

.2 Apply primer-sealer to contact surfaces.

.3 Place setting blocks as per manufacturer's instructions.

.4 Install glass, rest on setting blocks, ensure full contact and adhesion at perimeter.

.5 Install removable stops, without displacing tape or sealant, exert pressure for full continuous contact.

.6 Provide edge clearance of 3mm minimum or to Manufacturer's instructions.

.7 Apply silicone sealant cap bead at exterior void.

.8 Apply sealant to uniform and level line, flush with sightline and tooled or wiped with solvent to smooth appearance.

.9 Do not cut or abrade tempered, heat treated, or coated glass.

4.2 Glazing of Fixed Units

.1 Set polyshim tape against exterior fixed stop 5mm below sightline. Each tape section shall butt the adjoining tape and be united with a tool to eliminate any opening. Dab joint with sealant as recommended by manufacturer, do not overlap tape as this will prevent full contact around the perimeter of glass.

.2 Locate setting blocks in the sill member at quarter points, set blocks at equal distances from centre line of the glass 1.5mm less than full rabbet width and high enough to provide the recommended bite and edge clearances.

.3 Install glass, achieve compression to polyshim tape with a tool.

.4 Install snap-in glazing stop and roll-in glazing gasket.

4.3 Finishing

.1 Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed and have glazing professionally cleaned.

PART 1 - GENERAL

1.1 Related Work

.1 General Requirements – Section 01 00 50.

.2 Rough Carpentry – Section 06 12 00

.3 Aluminum Windows – Section 08 52 00.

1.2 Environmental Requirements

.1 Do not apply paint finish in areas where dust is being generated.

1.3 Scope of Work

.1 Paint all areas which are damaged during the course of the Work. New paint to match existing finishes.

PART 2 - PRODUCTS

2.1 Materials

.1 Only latex base coatings and paints shall be used.

.2 Qualified products: only paint materials listed on the CGSB Qualified Products List are acceptable for use on this project.

.3 Paint materials: to CGSB Standards listed in Finishing Formulae.

.4 Paint materials for each coating formulae to be products of a single manufacturer.

.5 Colour to match existing interior finish.

PART 3 - EXECUTION

3.1 Preparation

.1 Prepare surfaces to CGSB 85-GP-31M.

3.2 Application

.1 Sand and dust between each coat to remove defects visible from distance up to 1.5 m.

3.3 Finishes

.1 For plaster and gypsum board walls apply: one coat Primer Sealer CGSB 1-GP-119M Amdt -Sept. 80 and two coats Semi-Gloss Enamel CGSB 1-GP-57M.