

Partie 1 General

1.1 RELATED REQUIREMENTS

- .1 The list of Work in this division is indicative but non-limiting. It does not exclude Work described in other specification divisions shown on the drawings or required for full execution of the Work as intended on the drawings.
- .2 Section 03 30 00 – Cast-in-place Concrete.
- .3 Section 05 12 23 – Building Structural Steel.
- .4 Section 05 50 00 – Metal Fabrications.
- .5 Section 07 84 00 – Fire Stopping, at end of floors and curtain wall.
- .6 Section 07 92 00 – Joint Sealants.
- .7 Section 08 11 16 – Aluminum Doors and Frames.
- .8 Section 08 34 83 – Hinged Safety Doors.
- .9 Section 08 50 00 – New wood windows.
- .10 Section 08 80 50 – Glazing.
- .11 Section 08 87 53 – Security Film.

1.2 REFERENCES

- .1 Aluminum Association (AA)
 - .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.
- .2 American Architectural Manufacturers Association (AAMA)
 - .1 AAMA CW-10-04, Care and Handling of Architectural Aluminum From Shop to Site.
 - .2 AAMA CW-11-85, Design Wind Loads and Boundary Layer Wind Tunnel Testing.
 - .3 AAMA T1R-A1-04, Sound Control for Fenestration Products.
 - .4 AAMA 501-05, Methods of Test for Exterior Walls.
 - .5 AAMA 611-98, Voluntary Specifications for Anodized Finishes Architectural Aluminum.
 - .6 AAMA 612-02, Voluntary Specifications, Performance Requirements, and Test Procedures for Combined Coatings of Anode Oxide and Transparent Organic Coatings on Architectural Aluminum.
 - .7 AAMA 2603-02, Voluntary Specification Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 - .8 AAMA 2604-05, Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.

- .3 ASTM International
 - .1 ASTM A36/A36M-08, Specification for Carbon Structural Steel.
 - .2 ASTM A123/A123M-09, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .3 ASTM A167-99(2009), Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .4 ASTM A653/A653M-09a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM B209-07, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - .6 ASTM B221-08, Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - .7 ASTM E283-04, Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - .8 ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls, by Uniform Static Air Pressure Difference.
 - .9 ASTM E331-00(2009), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform Static Air Pressure Difference.
 - .10 ASTM E413-04, Classification for Rating Sound Insulation.
 - .11 ASTM E1105-00(2008), Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.108-M89, Bituminous Solvent Type Paint.
 - .2 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.
- .5 CSA International
 - .1 CSA G40.20/G40.21-F04 (C2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA S136-F07, North American Specification for the Design of Cold Formed Steel Structural Members.
 - .3 CAN/CSA-S157/S157.1-F05, Strength Design in Aluminum/Commentary on CAN/CSA-S157, Strength Design in Aluminum.
 - .4 CSA W59.2-FM1991 (C2008), Welded Aluminum Construction.
- .6 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
- .7 Society for Protective Coatings (SSPC)
 - .1 SSPC - Paint 20-02(R2004), Zinc Rich Coating, Type I - Inorganic and Type II - Organic.

- .2 SSPC - Paint 25 - 97(R2004) BCS, Zinc Oxide, Alkyd, Linseed Oil and Primer for Use Over Hand Cleaned Steel Type 1 and Type 2.
- .8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2007, Architectural Coatings.
 - .2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Co-ordination: co-ordinate work of this Section with installation of fire stopping, air barrier placement, vapour retarder placement, flashing placement, installing ductwork to rear of louvres, components or materials.
- .2 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting 2 weeks prior to beginning work of this Section with Contractor's Representative and Departmental Representative in accordance with Section 01 31 19 - Project Meetings to.
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other building subtrades.
 - .4 Review Manufacturer's written installation instructions and warranty requirements.
- .3 Arrange for site visit with Departmental Representative prior to start of Work to examine existing site conditions adjacent to demolition Work.
- .4 Hold project meetings every week.

1.4 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 curtain wall components, anchorage and fasteners, glass and infill, and internal drainage details and include product characteristics, performance criteria, physical size, finish and limitations and water flow diagrams.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Quebec, Canada.
 - .2 Indicate system dimensions, framed opening requirements and tolerances, adjacent construction, anchor details anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.
- .4 Design documents prepared by system designer hired by the Contractor (delegated design).

- .1 Include framing member structural and physical characteristics, calculations, dimensional limitations, special installation requirements.
- .5 Test Reports:
 - .1 Submit substantiating engineering data, test results of previous tests [by independent laboratory which purport to meet performance criteria, and supportive data.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for glazed aluminum curtain wall for incorporation into manual.

1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Conform to applicable code for sound transmission, requirements.
- .2 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Submit appropriately sized sample showing intermediate mullions, corner mullions, window mullions, glazing and insulated infill glazing panels.
 - .1 Sample illustrating assemblies, including glazing materials, water evacuation network, fasteners and perimeter sealant.
 - .3 Sloped glazing system mullions and junction with vertical curtain wall with other vertical installations, window mullions, bearing system cladding, glazing and insulated glazing.
 - .4 Sample located in indicated area and according to Departmental Representative's instructions.
 - .5 Allow 24 hours for Departmental Representative to inspect sample prior to commencement of work.
 - .6 Once approved, sample will serve as minimum standard for quality of work under this section.
 - .7 Samples will be returned for inclusion into work.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements 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 Handle work of this Section in accordance with AAMA CW-10.
 - .2 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

- .3 Store and protect aluminum glazed curtain wall components from nicks, scratches, and blemishes.
- .4 Protect prefinished aluminum surfaces with wrapping and strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.
- .5 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.8 AMBIENT CONDITIONS

- .1 Install sealants when ambient and surface temperature is above 5 degrees C minimum.
- .2 Maintain this minimum temperature during and for 48 hours minimum after installation of sealants.

1.9 ACCEPTABLE PRODUCTS AND MATERIALS

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

Partie 2 Products

2.1 SYSTEM

- .1 Description:
 - .1 Vertical glazed aluminum curtain wall system includes thermally broken tubular aluminum sections with self-supporting framing, shop fabricated, factory prefinished, vision glass, insulated glass panels with pressure plates or structural compound as indicated; related flashings, anchorage and attachment devices.
 - .2 Exterior copper strip systems on West wing facades, tube framing and copper sheets, shop fabricated and finished stainless steel frames and anchors; related flashings, anchorage and attachment devices.
 - .3 Assembled system to permit re-glazing of individual glass (and infill panel) units without requiring removal of structural mullion sections.
 - .4 Interior curtain wall facing identified as MRI-x on drawings.
 - .5 Prepainted aluminum panels used near bridge entrances, vestibules between bridge and East wing and around SAS acoustic assemblies in multifunctional room.
- .2 Performance Requirements:
 - .1 Design and size components to withstand dead and live loads caused by pressure and suction of wind, acting normal to plane of system as calculated in accordance with NBC.

- .2 Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable codes.
- .3 Flexure limit of glass to L/175 with full recovery of glazing materials.
- .4 Size glass units and glass dimensions to limits established in CAN/CGSB-12.20.
- .5 Ensure system is designed to accommodate the following without damage to components or deterioration of seals.
 - .1 Movement within system.
 - .2 Movement between system and perimeter framing components.
 - .3 Dynamic loading and release of loads.
 - .4 Deflection of structural support framing.
 - .5 Shortening of building concrete structural columns.
 - .6 Creep of concrete structural members.
 - .7 Mid-span slab edge deflection of 15 mm.
- .6 Thermal resistance:
 - .1 Fixed glazing and frame U-value must not exceed 0.33 with high-performance 25 mm glazing, as determined by AAMA 1503, and project specifications. Refer to Section 08 80 50 – Glazing.
- .7 Limit air infiltration through assembly to $0.0003 \text{ m}^3/\text{s}/\text{m}^2$ of wall area, measured at a reference differential pressure across assembly of 300 Pa as measured in accordance with ASTM E283.
- .8 Condensation resistance: must not be less than $\text{CFR}=76$ and $\text{CRF}(\text{frame}) = 79$, when tested to AAMA 1503.
- .9 Vapour seal with interior atmospheric pressure of 25 mm sp, 22 degrees C, 40% RH: no failure.
- .10 Water leakage: none, when measured to ASTM E331 and TAS 202 at 720 Pa.
- .11 Ensure system allows for expansion and contraction within system components when temperature range is 95 degrees C over 12 hour period without causing detrimental effect to system components.
- .12 Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.
- .13 Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with pane of glass and heel bead of glazing compound.
 - .1 Position thermal insulation on exterior surface of air barrier and vapour retarder.
- .14 Ensure no vibration harmonics, wind whistles, noises caused by thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system occur.
- .15 Reinforce curtain wall system to accommodate window washing guide rails.
- .16 Reinforce curtain wall system to receive architectural hardware.
- .17 Supply sufficiently rigid anchors to resist loads caused by equipment platform, without damage to wall system.

2.2 MATERIALS

- .1 Extruded aluminum: to ASTM B221, minimum 1.7 mm thick.
- .2 Sheet aluminum: to ASTM B209.
- .3 Sheet steel: to CSA S136 and ASTM A653/A653M; galvanized.
- .4 Steel sections: to CSA G40.20/G40.21, Type 304 stainless; shaped to suit mullion sections.
- .5 Copper sections for West wing sun-screen: 1.5mm minimum thickness.
- .6 Copper sheets 0.68 mm thick, minimum weight 20 oz/sq.ft.².
- .7 Concealed copper rivets (sealed): backing rings, appropriate length and 4 mm minimum diameter.
- .8 Screws: copper no. 8, appropriate length, depending on thickness of sides.
- .9 Stainless steel turnbuckles, cables and cable clamps, 304 gauge.
- .10 Stainless steel aircraft wire (dimensions according to manufacturer and structural engineer).
- .11 Minimum expansion polyurethane foam to CAN/ULC-S705.1.
- .12 Stainless steel slats, as indicated on drawings.
- .13 Anchors: 3-way adjustment, hot-dipped galvanized iron.
- .14 Fasteners: stainless steel, finish identical to curtain wall.
- .15 Insulating sealer: epoxidic solution.
- .16 Glazing: refer to Section 08 80 50 – Glazing.
 - .1 Insulating glass exterior panels.
 - .2 Clear tempered glass interior panels.
 - .3 Spandrel glass panels.
 - .4 Translucent tempered glass.
- .17 Fire Safety Materials: see Section 07 84 00 - Fire Stopping and 08 87 53 – Security Film.
- .18 Sealant:
 - .1 Perimeter sealant: single compound silicon base, to Section 07 92 00 – Joint Sealants.
 - .2 Sealant used within system (not used for Glazing: according to manufacturer's standards.
- .19 Thermal break: typically composed of 25 mm spacer between interior and exterior members for continuous sealing, to ASTM E2692.
- .20 Structural caulking without pressure plates: to Section 08 80 50 – Glazing.
- .21 Setting blocks, peripheral blocks, preformed adhesive glazing tape for structural caulking and sealants for conventional glazing: to Section 08 80 50 – Glazing.

2.3 COMPONENTS – EXTERIOR CURTAIN WALLS

- .1 Framing: manufacturer's standard frames, extruded or formed aluminum, required thickness and reinforced as required for loads.
- .2 Glazing system: integrated on 4 sides or 2 sides with SSG, as indicated on drawings.
- .3 Glazing plan: front.
- .4 Glazing: 25 mm insulating glass; 6 mm for spandrel applications. Refer to Section 08 80 50 – Glazing.
- .5 Supports and reinforcements: manufacturer's standard heavy duty aluminum, non-staining, for system component alignment.
- .6 Frame sealants: compatible with aluminum curtain windows, as specified by manufacturer.
- .7 Accessories and fasteners: manufacturer's standard corrosion resistant, non-staining, non-drip and compatible with adjacent materials. Exposed components must be stainless steel.
- .8 Perimeter anchors: for steel anchors, provide insulation between steel and aluminum materials to prevent galvanization.
- .9 Mullion profile:
 - .1 Dimensions as indicated on drawings (walls).
 - .2 Thermally broken with interior tubular section insulated from exterior pressure plate.
 - .3 Matching stops and pressure plate of sufficient size and strength to ensure adequate bite on glass.
 - .4 Drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system.
 - .5 Internal mullion baffles to eliminate "stack effect" air movement within internal spaces.
- .10 Reinforced mullion: extruded aluminum cladding with internal reinforcement of shaped steel structural section.
- .11 Infill panel: internally reinforced, glazing edge sealed permitting internal air movement to glazing space, outside air barrier line, structurally sufficient to support wall fin radiation saddles.
 - .1 Outer face: ceramic glass, 6 mm thick, reference colour: Span Tech 2202200620-Charcoal.
 - .2 Core: insulating, mineral fibre.
 - .3 Inner face: galvanized steel 1.005 mm thick.
- .12 Flashings: refer to Section 07 62 00 – Sheet Metal Flashing and Trim.
- .13 Operable sash: provide for openings in West wing curtain wall as follows:
 - .1 Aluminum doors provided by manufacturer of curtain walls compatible with curtain wall, installed between mullions, opening in, dimensions indicated on drawings, for access to adjacent roofs.

- .2 Door components: nominal size 111 mm and 57.2 mm deep.
- .3 Door finish matched to adjacent curtain wall colour.
- .4 Steel reinforcing as required.
- .5 Glazing, setting blocks, sealants: as recommended by manufacturer.
- .6 3-way adjustable aluminum hinges; top, middle and bottom.
- .7 Standard lock hardware: stainless steel, multipoint locking system, swivel hook, spring lock, deadbolt and lever handle.
- .8 Glazing: as adjacent curtain wall.
- .14 Air barrier: specified in Section 07 26 00 – Air Barriers.

2.4 COMPONENTS – EXTERIOR CURTAIN WALLS FOR VESTIBULES BETWEEN BRIDGE AND CEREMONIAL HALL

- .1 Extruded aluminum frames, stainless steel sections, stainless steel and aluminum plate, thickness and dimensions as indicated on drawings.
- .2 Full aluminum sections, thickness and dimensions as indicated on drawings.
- .3 Aluminum end plates, 3 mm thick.
- .4 Frosted tempered glass, refer to Section 08 80 50 – Glazing.
- .5 Stainless steel L-type profiles.
- .6 Stainless steel kickplates/base.
- .7 Butyl separating membrane.

2.5 COMPONENTS – INTERIOR CURTAIN WALLS

- .1 Framing: manufacturer's standard frames, extruded or formed aluminum, required thickness and reinforced as required for loads.
- .2 Glazing system: Integrated on 4 sides.
- .3 Glazing: 6 mm tempered clear for interior applications. Refer to 08 80 50 – Glazing.
- .4 Frame sealants: Compatible with aluminum glass curtain walls.
- .5 Accessories and fasteners: manufacturer's standard corrosion resistant, non-staining, drip free, compatible with adjacent materials. Exposed components in stainless steel.
- .6 Perimeter anchors: stainless steel anchors, provide insulation between stainless steel and aluminum materials to prevent galvanization.
- .7 Mullions:
 - .1 Dimensions: 45 mm wide x 144 mm deep, as indicated on drawings.
 - .2 Glazing centred on mullions.
 - .3 Curved headers, refer to ICW elevations for locations.
- .8 Glazing: 6 mm clear tempered for interior 08 80 50 – Glazing.
- .9 Frame sealants: compatible with aluminum curtain walls, as specified and tested by manufacturer.

2.6 COMPONENTS – COPPER STRIPS (SUN SCREEN) AND WORK WALKWAYS

- .1 Anchored to structure with locking rods, as indicated on drawings.
- .2 Stainless steel formed plate, 100 mm thick.
- .3 Welded and/or bolted stainless steel sections:
 - .1 C-type profiles.
 - .2 HSS 38mm x 38mm, copper strip centres.
 - .3 Nelson stud, threaded 12.7 mm in diameter.
 - .4 Corner brackets and tubes 38 mm x 38 mm
- .4 Stainless steel slats, welded and/or bolted, as indicated on drawings, refer to structural drawings.
- .5 Turnbuckles, cables and cable clamps.
- .6 Formed copper sheet and profiles as indicated on plans, anchors in consideration of copper dilation into account.
- .7 Holes for condensation evacuation in strips.
- .8 Random injected polyurethane to break wave length.

2.7 PREFABRICATED ALUMINUM PANELS

- .1 Prefabricated aluminum architectural panels, “cassette”, integrated hook, 4-sided bent panels for modular surface grid, concealed fasteners, 32 mm and 3mm between recess joints.
- .2 Prefabricated aluminum panel finish: factory painted with Kynar 500 such as Duranar XL, uniform colour, panel folding after painting. Provide two colours:
 - .1 Exterior aluminum panels and vestibule ceilings between bridge and ceremonial hall: glossy white, approved by Departmental Representative.
 - .2 Aluminum panels around SAS acoustic assemblies and inside multifunctional room, walls and ceiling: dark colour (grey or black), approved by the Departmental Representative.

2.8 FABRICATION

- .1 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- .2 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- .3 Prepare components to receive anchor devices. Install anchors.
- .4 Arrange fasteners and attachments to ensure concealment from view.
- .5 Prepare system components to receive exterior doors and hardware specified in Section 08 71 00 – Door Hardware.
- .6 Reinforce framing members for external imposed loads.

- .7 Visible manufacturer's identification labels not permitted.
- .8 Infill Panels:
 - .1 Fabricate infill panels with metal covered edge seals around perimeter of panel assembly, enabling installation and minor movement of perimeter seal.
 - .2 Reinforce interior surface of exterior panel sheet from deflection caused by wind and suction loads.
 - .3 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
 - .4 Place insulation within panel, adhered to exterior face of interior panel sheet over entire area of sheet with impale fasteners.
 - .5 Ventilate and pressure equalize the air space outside the exterior surface of the insulation, to the exterior.
 - .6 Arrange fasteners and attachments to ensure concealment from view.

2.9 FINISH

- .1 Finish coatings: conform to AA designations, classes 1 and 2 architectural finishes, protective finishes or decorative finishes.
- .2 Finish for interior curtain wall (**MRI**): light satin anodized finish: designation AA-M30C12C30A41, category 1, to AAMA 611.
- .3 Finish for exterior curtain walls (**MR**):
 - .1 Exterior curtain walls, except those listed below, light satin anodized finish, designation AA-M30C12C30A41, category 1, to AAMA 611.
 - .2 Coloured curtain walls:
 - .1 High performance organic finish meeting requirements of AAMA 2605: thermosetting finish, fluoropolymer base, specially formulated primary paint coat and two finish coats (opaque and translucent protection, selected by Departmental Representative.
 - .2 Surface preparation and treatment and application of finish must be executed according to manufacturer's instructions with approved applicator.
 - .3 Finish applicable to identified curtain wall sections:
 - .1 For CW-9 (East wing balcony): exposed faces, including door, colour (non-standard) selected by Departmental Representative.
 - .2 CW behind copper sun-screens (West wing): plugs, colour (non-standard) selected by Departmental Representative.
 - .4 West walls curtain walls behind copper strips, provide stainless steel pressure plates, anchors and screws behind plugs, to prevent electrolytic reaction.

2.10 SOURCE QUALITY CONTROL

- .1 Perform work in accordance with AAMA CW-I-9. Maintain 1 copy on site.

- .2 Manufacturer qualifications: company specializing in manufacturing the products specified in this section with minimum 5 years documented experience.
- .3 Installer qualifications: company specializing in performing the work of this section with minimum 5 years documented experience approved by manufacturer.
- .4 Design structural support framing components to CAN/CSA-S157 under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Province of Quebec.
- .5 Perform welding Work in accordance with CSA W59.2.

Partie 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum curtain wall installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Verify dimensions, tolerances, and method of attachment with other work.
 - .3 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this Section.
 - .4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Install curtain wall system and copper strip sun-screen system in accordance with manufacturer's instructions.
- .2 Prior to installing curtain wall mullions, install galvanized steel reinforcement to withstand wind loads, loads transferred from stainless walkways and copper sun-screen strips. Follow manufacturer's recommendations and methods recommended by structural engineer.
- .3 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- .4 Use alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.
- .5 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.
- .6 Install anchors and thermal insulation connecting curtain wall frames to stainless steel work walkways, horizontal bracing and copper sun screen strips.
- .7 Use thermal isolation where components penetrate or disrupt building insulation.

- .8 Install sill flashings.
- .9 Coordinate firestopping insulation, as indicated under Section 07 84 00 – Firestopping, extremities of each floor slab and intersection with vertical elements, if indicated.
- .10 Co-ordinate attachment and seal of perimeter air barrier and vapour retarder materials.
- .11 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- .12 Install fire-safing in areas as indicated.
- .13 Install operating sash in accordance with Section 08 80 50 - Glazing, to glazing method required to achieve performance criteria.
- .14 Install louvres, associated flashings, blank-off plates and screening. Fit blank-off plates tight to ductwork.
- .15 Install glass and infill panels in accordance with Section 08 80 50 - Glazing, to glazing method required to achieve performance criteria. Place sealant on the up-slope side of the pressure plate cover caps; finish the surface with a slope to encourage drainage over the cap. Cover caps to conceal screws and ensure continuous sightline.
- .16 Install perimeter sealant to method required to achieve performance criteria. Sealant, backing materials, and installation criteria in accordance with Section 07 92 00 - Joint Sealants.
- .17 Install sun-screen strips.

3.3 SITE TOLERANCES

- .1 Maximum variation from plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.
- .2 Maximum misalignment of two adjoining members abutting in plane: 0.8 mm.
- .3 Maximum sealant space between curtain wall and adjacent construction: 13 mm.

3.4 FIELD QUALITY CONTROL

- .1 Inspection will monitor quality of installation and glazing.
 - .1 Test system to: ASTM E1105 and AAMA 501.
 - .2 Evaluate installed system by thermo-photographic scan.
- .2 Manufacturer's Field Services:
 - .1 Obtain written report from manufacturer of curtain wall and glass verifying compliance of Work, in handling, installing, applying, protecting and cleaning of products, and submit written reports in acceptable format to verify compliance of Work with Contract within 3 days of review.
 - .2 Submit 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 Ensure manufacturer's representative of curtain wall is present during critical periods of installation.

3.5 AJUSTING

- .1 Adjust operating sash for smooth operation.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Remove protective material from prefinished aluminum surfaces.
 - .3 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
 - .4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.
 - .5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by glazed aluminum curtain wall installation.

END OF SECTION