

## 1. GENERAL

### 1.1. RELATED REQUIREMENTS

- .1 Section 03 30 00 – Cast-in-Place Concrete
- .2 Section 04 22 00 – Concrete Unit Masonry
- .3 Section 07 26 00 – Vapour Retarders
- .4 Section 07 46 13 – Thermofused Membrane Air/Vapour Barrier
- .5 Section 07 62 00 – Sheet Metal Flashing and Trim
- .6 Section 07 92 00 – Joint Sealants
- .7 Section 08 71 00 – Door Hardware
- .8 Section 08 80 50 – Glazing
- .9 Section 09 91 00 – Painting

### 1.2. REFERENCES

- .1 Aluminum Association Designation System For Aluminum Finishes (AA)-1997.
  - .1 DAF 45 [2003], Designation System For Aluminum Finishes.
- .2 American Architectural Manufacturers Association (AAMA).
  - .1 AAMA CW-10-[97], Care and Handling of Architectural Aluminum From Shop to Site.
  - .2 AAMA CW-11-[85], Design Wind Loads for Buildings and Boundary Layer Wind Tunnel Testing.
  - .3 AAMA T1R-A1-[02], Sound Control for Fenestration Products.
  - .4 AAMA 611-[98], Voluntary Specifications for Anodized Finishes Architectural Aluminum.
  - .5 AAMA 612-[02], Voluntary Specifications, Performance Requirements, and Test Procedures for Combined Coatings of Anode Oxide and Transparent Organic Coatings on Architectural Aluminum.
  - .6 AAMA 2603-[02], Voluntary Specification Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
  - .7 AAMA 2604-[02], Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
  - .8 AAMA 2605-[02], Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- .3 American Society for Testing and Materials International, (ASTM).
  - .1 ASTM A 36/A 36M-[103a], Specification for Carbon Structural Steel.
  - .2 ASTM A 123/A 123M-[02], Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .3 ASTM A 167-[99], Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
  - .4 ASTM A 653/A 653M-[03], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .5 ASTM B 209-[02a], Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  - .6 ASTM B 221-[02], Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
  - .7 ASTM C 794-[01], Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
  - .8 ASTM C 1401-[02], Guide for Structural Sealant Glazing.
  - .9 ASTM E 283-[91(1999)], Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
  - .10 ASTM E 330-[02], Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls, by Uniform Static Air Pressure Difference.

- .11 ASTM E 331-[00], Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform Static Air Pressure Difference.
- .12 ASTM E 413-[87(1999)], Classification for Rating Sound Insulation.
- .13 ASTM E 1105-[00], 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 Canada Green Building Council (CaGBC)
  - .1 LEED Canada NC 2009, LEED: Green Building Rating System Reference Package for New Construction and Major Renovations (including Addendum).
- .5 Canadian General Standards Board (CGSB).
  - .1 CGSB 1.132M-[90], Zinc Chromate Primer, Low Moisture Sensitivity.
  - .2 CAN/CGSB 1.181-[99], Ready-Mixed, Organic Zinc-Rich Coatings.
- .6 Canadian Standards Association (CSA International).
  - .1 CSA G40.20/G40.21-[98(R2003)], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.
  - .2 CAN/CSA-G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CSA S136-[01], North American Specification for the Design of Cold-Formed Steel Structural Members.
  - .4 CAN3-S157-[M83(R2002)], Strength Design in Aluminum.
  - .5 CSA W59.2-[M1991(R2003)], Welded Aluminum Construction.
- .7 Environmental Choice Program (ECP).
  - .1 CCD-45-[95], Sealants and Caulking Compounds.
  - .2 CCD-47-[1998], Surface Coatings.
- .8 Society for Protective Coatings (SSPC).
  - .1 SSPC - Paint 20 Zinc Rich Coating.

### **1.3. SUBMITTALS**

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details and water flow diagrams.
- .3 Provide framing member structural and physical characteristics, calculations, dimensional limitations, and special installation requirements.
- .4 Provide wrenches and tools required for maintenance of equipment.
- .5 Co-ordinate submittal requirements and provide submittals required by Section 01 35 20 – LEED Sustainable Requirements.

### **1.4. SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Manitoba, Canada.
- .3 Indicate layout, dimensions, elevations, detail sections of members and sill conditions, materials, finishes, recesses, hardware including mounting heights, anchors and reinforcements, provisions for expansion and contraction, methods of joining sheet metal and joint locations, [glass types and] glass thicknesses, glazing details, types of sealants, details of other pertinent components of the work, and adjacent construction to which work of this section is attached.
- .4 Identify installation tolerances required, assembly conditions, routing of service lines, locations of operating components, controls and boxes.
- .5 Indicate door signs.

### **1.5. SAMPLES**

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

- .2 Submit sample 12" x 12" in size illustrating prefinished aluminum surface, finish, colour, texture, specified glass units, insulated infill panels and glazing material.

**1.6. PRE-INSTALLATION MEETINGS**

- .1 Convene 2 weeks prior to commencing work of this section.

**1.7. DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Handle work of this section in accordance with AAMA CW-10.
- .3 Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings, which bond when exposed to sunlight or weather.

**1.8. ENVIRONMENTAL REQUIREMENTS**

- .1 Do not install sealants when ambient and surface temperature is less than 5 degrees C.
- .2 Maintain this minimum temperature during and after installation of sealants.

**1.9. SEQUENCING**

- .1 Co-ordinate the work of this section with installation of firestopping, air barrier placement, vapour retarder placement, flashing placement, installing duct work to rear of louvres, and components or materials.

**1.10. WARRANTY**

- .1 Warranty: include coverage of repair or replacement of components or entire units which fail in materials workmanship. Failures include but are not necessarily limited to, structural failures including excessive deflection, excessive leakage or air infiltration, faulty operation of operators (speed control) and hardware, deterioration of metals, metal finishes, and other materials beyond normal weathering.

**2. PRODUCTS**

**2.1. SYSTEM DESCRIPTION**

- .1 Design requirements: design power assist and low energy power operated doors to applicable requirements of ANSI/BHMA A156.19.
- .2 Performance requirements:
  - .1 Automatic door equipment to accommodate medium frequency pedestrian traffic of 30 cycles per hour, and weight of doors.
- .3 Operator equipment: CSA approved.
- .4 Automatic locks and panic hardware to non-fire rated exit doors: ULC listed and labelled.

**2.2. EQUIPMENT**

- .1 Horton Automatics:
  - .1 **Profiler Series 2000B Elite Type 310 Biparting SO-SX-SX-SO**
    - .1 Asymmetrical sidelites to align centre of door with structural space frame above.
    - .2 Header mounted Apex sensor system both sides of doors including hold open beams.
    - .3 **Autolock Fail Secure option. (D100a)**
    - .4 **Surface mounted panic exit device. (D100a)**
    - .5 **Coordinate access control with provider.**

**2.3. 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 structural sealant glazing system as calculated in accordance with Manitoba Building Code.
- .2 Design and size components to withstand seismic loads and sway displacement as calculated in accordance with Manitoba Building Code.
  - .3 Limit mullion/glazing deflection to flexure limit of glass; with full recovery of glazing materials.
  - .4 Size glass units and glass dimensions to limits established in CAN/CGSB-12.20.
  - .5 Design for thermal movement of door and screen framing system caused by ambient temperature as applicable by NBC MB without causing buckling, failure of seals, undue stress on fasteners or other detrimental effects, and to prevent transmission of stress to operators.
  - .6 Design for dimensional distortion of components during operation.
  - .7 Prevent condensation in pneumatic lines.
  - .8 Eliminate possibility of water accumulating and freezing in door power units.
  - .9 Supply manual operation for opening and closing of doors during electrical power failure and when power is manually switched off.
  - .10 Include fully adjustable operators for opening and closing speeds, checking speeds, hold open time and cancellation on activation of fire alarm and smoke detection system, building door control system or security system.
  - .11 Limit air infiltration through assembly to 1.5L/s maximum per meter of door crack as per tested to ASTM E 283 at pressure differential of 75 Pa.
  - .12 Exterior thermally broken door units and screen framing to remain free of condensation on interior (warm side) surface of sealed insulated glass and frame when indoor design temperature is 20 degrees C, inside design relative humidity is 35%, outside winter design temperature for the location is -25 degrees C and resultant minimum Temperature Index is 63%, and when calculated and tested to CAN/CSA-A440 and CAN/CSA-A440.1.
  - .13 Design exterior screen framing systems with no water penetration (excluding edges at operable doors) to CAN/CSA-A440, and when tested to ASTM E 331.
  - .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 Design equipment to operate at ambient temperatures between -40 degrees C and 170 degrees C.

#### **2.4. MATERIALS**

- .1 Extruded aluminum: to ASTM B 221.
- .2 Sheet aluminum: to ASTM B 209.
- .3 Sheet Steel: ASTM A653; galvanized.
- .4 Bituminous paint: CAN/CGSB 1.108, Type [1] [2], without thinner.
- .5 Glass units: see Section 08 80 50 – Glazing.
- .6 Fire Safety Materials: see Section 07 84 00 – Fire Stopping.
- .7 Sealant: as per manufacturer's instructions.
- .8 Steel brackets as required.

#### **2.5. COMPONENTS**

- .1 Sliding panels and sidelites: 1 3/4" deep with narrow profile, intermediate 2 1/4" wide horizontal rail, 4" tall bottom rail
- .2 Jamb/Frame: 1 3/4" deep by 4" wide
- .3 Breakout panels: swing out 90 degrees with no more than 50lbf of force applied at the lock stile to open. Torsion spring to re-close panel after pushed in path of egress. ETL listed as exit way and NFPA 101 compliant.
- .4 Threshold: Shall be aluminum, 1/2" tall by 4" wide. (D100a as specified in door hardware)

- .5 Weather-stripping: Along perimeter of sliding and swing out panels. Weather-stripping material captured in extruded alum. panel. Surface applied adhesive type not acceptable.
- .6 **Hardware: ANSI A156.5, Grade 1, 2-point locking provided and installed in strike rail shall include:**
  - .1 **Surface mounted Panic Exit Device.**
- .7 Air/Vapour barrier: specified in Section 07 46 13 – Thermofused Membrane Air/Vapour Barrier, tie into adjacent construction.
- .8 Sealant and Backing Material: as specified in manufacturer's written instructions.

## **2.6. FABRICATION**

- .1 Fabricate frame 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 and hairline and weatherproof.
- .3 Prepare components to receive anchor devices. Install anchors to allow for installation tolerances.
- .4 Arrange fasteners and attachments to ensure concealment from view.
- .5 Prepare system components to receive exterior doors, and hardware.
- .6 Reinforce framing members for external imposed loads.
- .7 Visible manufacturer's identification labels not permitted.

## **2.7. FINISHES**

- .1 Finish Coatings: Conform to AAMA 2603.
- .2 Exterior Exposed Aluminum Surfaces: Clear anodized, to 0.0007" thickness.
- .3 Interior Aluminum Surfaces: Clear anodized, to 0.0007" thickness.
- .4 Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.
- .5 Shop and Touch-Up Primer for Steel Components: SPCC Paint 25 red oxide.
- .6 Touch-Up Primer for Galvanized Steel Surfaces: SPCC Paint 20 zinc rich.
- .7 Extent of Finish:
  - .1 Apply factory coating to all surfaces exposed at completed assemblies.
  - .2 Apply finish to surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.
  - .3 Apply touch-up materials recommended by coating manufacturer for field applications to cut ends and minor damage to factory applied finish.
  - .4 Seal all joints w/ clear caulk on interior.

## **3. EXECUTION**

### **3.1. EXAMINATION**

- .1 Verify dimensions, tolerances, and method of attachment with other work, and compatibility of materials in the structural sealant glazing system.
- .2 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this section.

### **3.2. INSTALLATION**

- .1 Install aluminum-framed door units in accordance with manufacturer's instructions.
- .2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- .3 Provide alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.
- .4 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional

- tolerances, aligning with adjacent work.
- .5 Install sill flashings.
- .6 Co-ordinate attachment and seal of perimeter air and vapour barrier materials.
- .7 Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- .8 Install glass and infill panels in accordance with Section 08 80 50 - Glazing, to utilize the glazing system manufacturer's recommended glazing methods.
- .9 Joint Sealing
  - .1 Install perimeter sealant as per manufacturer's written instructions.
  - .2 Install fire-safe in areas indicated.
- .10 Electrical**
  - .1 Electrical subcontractor to install all wiring to operator on a separate circuit breaker routed into header. Electrical subcontractor also to install all necessary power and low voltage wiring for proper operation of associated security systems.**

### **3.3. 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.
  - .6 After installation, installer will clean product surfaces and lubricate operating equipment for optimum condition and safety. Advise contractor of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration at the time of acceptance.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 35 20 – LEED Sustainable Requirements and Section 01 74 19 – Waste Management and Disposal.

### **3.4. PROTECTION & ADJUSTMENT**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by glazed aluminum curtain wall installation.
- .3 Adjustment: AAADM certified technician to inspect and adjust installation. Comply with ANSI A156.10.

**END OF SECTION.**