Part 1 General

1.1 SECTION INCLUDES

.1 Factory fabricated and glazed, extruded PVC windows.

.2 Glazed windows with

- .1 [fixed sash.]
- .2 [fixed and [casement] [awning]operable sash]
- .3 [[casement] [awning]operable sash,]
- .4 [operating hardware].

.3 Insect screens.

1.2 RELATED SECTIONS

.1	Preparation of adjacent work to receive work	
.2	Wood Blocking and Curbing: Wood perimeter shims.	Section 06 10 53
.3	Vapour Retarders. Perimeter vapour seal between window frame and adjacent construction.	Section 07 26 00
.4	Joint Sealing: Perimeter sealant and back-up materials.	Section 07 92 00
.5	Glazing.	Section 08 80 00

1.3 REFERENCES

.1 AAMA (American Architectural Manufacturers Association – Installation Masters Certification Program.

.2 ASTM A653/A653M - Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

.3 ASTM D696 - Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C With a Vitreous Silica Dilatometer

.4 ASTM D4216 - Rigid Poly (Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly (Vinyl Chloride) (CPVC) Building Products Compounds

.5 ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

.6 ASTM E330 - Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

.7 ASTM E547 - Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference

.8 CAN/CGSB-12.3 - Flat, Clear Float Glass.

.9 CAN/CGSB-12.8 – Insulating Glass Units

.10 CSA-A440-2000 - Windows

.11 CSA-G164 - Hot Dip Galvanizing of Irregularly Shaped Articles

1.4 SYSTEM DESCRIPTION

.1 Windows: Extruded tubular plastic sections, factory fabricated, vision glass, related flashings, anchorage and attachment devices.

.2 Configuration: [Fixed, non-operable] [and] [outward opening, side hinged casement] [outward opening, awning, side hinged] sash.

1.5 PERFORMANCE REQUIREMENTS

.1 System Design: Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of window as measured in accordance with ASTM E330.

.2 Deflection: Limit member deflection to [flexure limit of glass] [1/200] of the longer dimension with full recovery of glazing materials.

.3 Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.

.4 Classification rating to CAN / CSA – A440-00.1 “User Selection Guide to CSA Standard CAN / CSA- A440-00, Windows.”

.5 System Internal Drainage: Drain incidental water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network within the hollow tube members.

.6 Air and Vapour Seal: Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound. [Position thermal insulation on exterior surface of air barrier and vapour retarder.]

1.6 QUALITY

.1 Window Manufacturer: CSA Certified facility, manufacture to CSA A440.

.2 Window Performance: Comply with requirements for North American Energy Star® program.

.3 Window Installers: AAMA registered with Installation Masters recognized training program.

1.7 SUBMITTALS FOR REVIEW

.1 Product Data: Provide component dimensions, anchorage and fasteners, glass, internal drainage details and .

.2 Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work; installation requirements.

.3 Use the following paragraph for submission of physical samples for selection of finish, colour, texture, etc.

1.8 SUBMITTALS FOR INFORMATION

.1 Manufacturer's Certificate: Certify that windows meet or exceed specified requirements.

1.9 DELIVERY, STORAGE, AND PROTECTION

.1 Transport, handle, store, and protect products. Section 01 65 00

.2 Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

.3 Jig, brace, and box the window frame assemblies for transport to minimize flexing of members or joints.

1.10 WARRANTY

.1 Warranties. Section 01 78 36

.2 Provide a twenty (20) year manufacturer's limited warranty on vinyl (PVC) components from date of manufacture against defects in materials and workmanship;

.3 Provide twenty (20) year manufacturer's limited warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.

Part 2 Products

2.1 MANUFACTURERS

.1 All Weather Windows - Series 2000 / 2500. Or approved equal

2.2 MATERIALS

.1 Plastic: Hollow tubular sections of extruded polyvinyl chloride (PVC),

.1 ultra-violet resistant colour coating, and
.2 integral perimeter nailing flange.

.2 Fasteners: [Stainless] [Galvanized] steel.

2.3 COMPONENTS

.1 Frames: Tubular PVC, nominal 83 mm (3 ¼ inch) deep profile, (2 1/8 inches jamb depth) integral attachment flange, sills sloped for positive wash, interior applied glass stops.

.2 Sash: Tubular PVC, nominal 57 mm (2 1/4 inch) wide profile,

.3 Jamb Extensions: [____] mm ([___] inch) nominal thickness, tubular plastic fit under sash to project [12 mm (1/2 inch) beyond interior wall face; one piece full width of opening.

.4 Renovation Brickmould: [38] [50] mm ([1 1/2] [2] inch) nominal width, tubular plastic brick mould and sub-sill nosing, one piece full length and width of opening.

.5 Brickmould: 38 mm (1 1/2 inch) tubular plastic; integral nailing flange, one piece full length and width of opening.

.6 Insect Screen Frame at Operable Unit: Rolled aluminum, pre-finished frame of rectangular sections; fit with adjustable locking hardware; nominal size similar to operable unit.

.7 Insect Screens: Glass fibre mesh.

.8 Operable Sash Weather Stripping: Polypropylene pile and thermoplastic elastomer, permanently resilient, profiled to effect a continuous tight fitting weather seal.

.9 Fasteners: [Stainless] steel.

2.4 GLASS AND GLAZING MATERIALS:

.1 Glass and Glazing Materials:

.1 Float glass: to CAN/CGSB-12.3, Glazing quality, mm thick:

.2 Specialty Glass: [Pinhead Obscure] [Glue Chip] [Rain] [Flax] [Florex] [Industrex] [Aquatex] [Textured Flutex] [Narrow Reeded] [Cross Reeded] [Glacier] or [Opaque Glass]

2.5 SEALED INSULATING GLASS

.1 Insulating Glass Units: CAN/CGSB-12.8, [triple] unit, [25] mm ([1] inch) overall thickness.

.2 Glass: CAN/CGSB-12.3.

.1 Glass Thickness: [[___] mm each light.] [[___] mm ([___] inch) inner light.] [[___] mm ([____] inch) middle light.] [[___] mm () outer light.]

.2 Inter-space Thickness: 12 mm ([1/2] inch) between lights with low conductivity spacers.

.3 Glass Coating: [Low E.]

.4 Gas Fill at Space Between Lights: [Inert Argon.]

.3 Performance:

Glazing Performance Chart

	Code	Description	Imperial		Metric			Solar Heat Gain Coefficient	Ultraviolet Light Blockage	Visible Light Trans.
			U-Value Btu/hft²F	R-Value (1/U)	U-Value W/m²C	RSI (1/U)	K-Value Kcal/m²C			
Clear	Dual	Dual Clear	0.5	2.02	2.81	0.36	2.41	0.76	42%	81%

	Tri	Triple Clear	0.32	3.15	1.8	0.56	1.55	0.68	42%	74%
Low E	HS1	Dual 1-LowE	0.35	2.88	1.97	0.51	1.7	0.72	56%	76%
	HS1A	Dual 1-LowE Argon	0.3	3.33	1.73	0.58	1.49	0.73	56%	76%
	HS2	Tri 1-LowE	0.24	4.17	1.38	0.72	1.19	0.66	63%	69%
	HS2A	Tri 1-LowE Argon	0.22	4.58	1.24	0.81	1.07	0.66	63%	69%
	HS3	Tri 2-LowE	0.2	5	1.14	0.88	0.98	0.56	72%	64%
	HS3A	Tri 2-LowE Argon	0.17	5.97	0.95	1.05	0.82	0.56	72%	64%
SunStop	HS4	Dual 1-SunStop	0.29	3.44	1.67	0.6	1.44	0.39	70%	62%
	HS4A	Dual 1-SunStop Argon	0.24	4.17	1.39	0.72	1.2	0.39	70%	62%
	HS5A	Tri 1 - SunStop	0.22	4.57	1.24	0.81	1.07	0.37	75%	57%
	HS5A	Tri 1-SunStop Argon	0.19	5.31	1.07	0.93	0.92	0.37	75%	57%
	HS6	Tri 2-SunStop	0.16	6.31	0.9	1.11	0.77	0.3	86%	43%
	HS6A	Tri 2-SunStop Argon	0.12	8.2	0.69	1.45	0.59	0.29	86%	43%

Performance data is C.O.G. (Center of Glass) ratings based on Vision v4.0 simulations.
C.O.G. (Center of Glass) U and R-values are based on ASHREA Winter Conditions.
K-Values shown are based on approximate conversion from Imperial measure R-Values (K=1(R/4.88))

2.6 SEALING MATERIALS

.1 Sealant and Backing Materials: Specified in Section 07 92 00, of Types described below:

.1 Exterior Perimeter Sealant:

.2 Sealant Used Within System (Not Used for Glazing):

.3 Interior Perimeter Sealant: [Latex Paintable] type.

2.7 HARDWARE

.1 Awning Sash: Geared rotary handle fitted to projecting sash arms.

.2 Projecting Sash Arms: [Cadmium] [Zinc] plated steel, friction pivot joints, nylon bearings, removable pivot clips for cleaning.

.3 Sash lock:

.1 Awning [Double.]

.2 Casement [Single]

2.8 FABRICATION

.1 Fabricate framing and sash members with fusion welded corners and joints, performed in a rigid shop jig. Supplement frame sections with internal reinforcement where required for structural rigidity.

.2 Form sills in one piece. Slope sills for wash.

.3 Form snap-in glass stops, closure molds, weather stops, and flashings of extruded PVC for tight fit into window frame profile.

.4 Form attachment flange integral to perimeter of unit.

.5 Fabricate components with consistent clearances, shim spaces around perimeter of assembly, enabling installation and dynamic movement of frame and perimeter seal.

.6 Arrange fasteners concealed from view.

.7 Permit internal drainage holes and channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through weep holes.

.8 Assemble insect screen frame with reinforced frame corners. Stretch mesh taut into frame and secure. Fit frame with [spring loaded steel pin] retainers.

.9 Triple weatherstrip operable units.

.10 Factory glaze window units.

2.9 FINISHES

.1 Exterior and Interior Surfaces: [White] colour.

.2 Brick Mould: [White].

.3 Screens: Black colour.

.4 Exposed Hardware: White baked enamel.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of existing conditions before starting work.

.2 Verify wall openings and adjoining air and vapour seal materials are ready to receive work of this section.

3.2 INSTALLATION

.1 Install windows [and hardware] in accordance with manufacturer's instructions.

.2 Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

.3 Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

.4 Install jamb extensions.

.5 Inject low expansion polyurethane foam into spaces at perimeter of window frame assembly to maintain continuity of air, vapour, and thermal barrier.

.6 Coordinate attachment and seal of perimeter air and vapour barrier materials.

.7 Install perimeter sealant to method required to achieve performance criteria using sealant, backing materials, and installation criteria in Section [07900.] [07 92 00.]

3.3 ERECTION TOLERANCES

.1 Tolerances. Section 01 43 00

.2 Maximum Variation from Level or Plumb: (3/32 inch in 3 ft) non-cumulative.

3.4 ADJUSTING

.1 Adjusting installed work. Section 01 75 13

.2 Adjust hardware for smooth operation and secure weathertight closure.

3.5 CLEANING

.1 Cleaning installed work. Section 01 74 23

.2 Remove protective material from pre-finished surfaces.

.3 Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.

.4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.6 PROTECTION OF FINISHED WORK

.1 Protecting installed work. Section 01 73 00

.2 Do not permit continuing construction activities near unprotected finish surfaces.

END OF SECTION