DISCLAIMER: This BrandedSPEC specification section includes requirements specific to the manufactured product(s) cited, in a format that is compatible with other Spex.ca master specifications and software. BrandedSPEC sections are written or reviewed by Digicon Information Inc. for grammar quality, referential integrity, and technical coherence. The distribution of this section does not imply Digicon's nor Spex.ca's endorsement of any information provided herein, nor its suitability for use.

This section includes residential and light commercial extruded plastic (PVC) windows: fixed sash, casement or awning operable sash, glass and glazing, head flashing and perimeter air seal. Sealants are referenced to applicable technical specification section. Air barrier and vapour retarder continuity from window frames to adjacent construction is critical to building air tightness; specify compatible materials in conjunction with technical specification section for air barrier and vapour barrier materials.

CODE REVIEW: Specifier should confirm the code requirements with local authorities having jurisdiction. Review of local codes will determine applicable reference standards that will be used to edit this specification. Some current code references are as follows:
1) 2012 International Building Code references NAFS 2011.
2) National Building Code of Canada 2010 references NAFS 2008.
3) British Columbia Building Code (BCBC) 2012 references NAFS 2008.
4) Ontario Building Code (OBC) 2012 references NAFS 2008
5) Alberta Building Code (ABC) 2014 references NAFS 2011

Part 1 General

1.1 SECTION INCLUDES

In this article, select the components or assemblies that are intended to be part of the content of this section and will not be included in other sections.

.1 Factory fabricated vinyl windows with:

.1 [direct glazed picture window].

.2 [direct glazed fixed sash appearance]

.3 [[casement] [and] [awning] operable vents]

.2 Insulating glass units.

.3 Insect screens on operable vents.

.4 Operating and locking hardware.

1.2 RELATED SECTIONS

In this article, indicate those sections that inter-rely on this section. The listing below is only partial and should be edited to include those sections specific to the project that describes subjects or products that affect this section directly.

.1 Section [_____-_____]: Preparation of adjacent work to receive work of this section.

.2 Section [05 41 00] - Structural Metal Stud Framing: Framing for rough openings.

.3 Section [06 10 00] - Rough Carpentry: Framing for rough openings.

.4 Section [06 20 00] - Finish Carpentry: [_____].

.5 Section [07 21 19] - Foamed-In-Place Insulation.

.6 Section [07 26 00] [_____] - Vapour Retarders: Perimeter vapour seal between window frame and adjacent construction.

.7 Section [07 27 00] [_____] - Air Barriers: Perimeter air seal between window frame and adjacent construction.

.8 Section [07 92 00] [_____] - Joint Sealants: Perimeter sealant and back-up materials.

.9 Section [08 80 00] [_____] - Glazing.

1.3 REFERENCES

Edit this article after editing the rest of this section. Only list reference standards below, that are included within the text of this section, when edited for a project specification - delete other references that do not apply.

.1 AAMA (American Architectural Manufacturers Association)

.1 AAMA 2400-10 - Standard Practice for Installation of Windows with a Mounting Flange in Stud Frame Construction.

.2 ASTM (American Society for Testing and Materials)

.1 ASTM E783-02(2010) - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors

.2 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

.3 ASTM A123/A123M-12 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.4 ASTM A653/A653M-11 - Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

.5 ASTM D696-08e1 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer.

.6 ASTM D4216-06 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly(Vinyl Chloride) (CPVC) Building Products Compounds.

.7 ASTM E283-04(2012) - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

.8 ASTM E330-02(2010) - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

.9 ASTM E547-00(2009) - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.

.10 ASTM E1300 - 12ae1 - Standard Practice for Determining Load Resistance of Glass in Buildings.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-12.1-M90 - Tempered or Laminated Safety Glass.

.2 CAN/CGSB-12.2-M91 - Flat, Clear Sheet Glass.

.3 CAN/CGSB-12.3-M91 - Flat, Clear Float Glass.

.4 CAN/CGSB-12.8-M90 - Insulating Glass Units.

.4 Canadian Standards Association (CSA)

.1 AAMA/WDMA/CSA 101/I.S.2/A440-[08][11] - NAFS - North American Fenestration Standard / Specification for Windows, Doors, and Skylights; including A440S1-09 - Canadian Supplement.

.2 CAN/CSA-A440.2-09 - Fenestration Energy Performance.

.3 CAN/CSA-A440.4-07(R2012) - Window, Door, and Skylight Installation.

.4 CAN/CSA-G164-M92 (R2003) - Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 Insulating Glass Manufacturers Alliance (IGMA)

.1 IGMAC Certification Program for manufacturers of insulating glass units.

.6 National Fenestration Rating Council (NFRC)

.1 ANSI/NFRC 100 – Procedure for Determining Fenestration Product U-Factors.

.2 ANSI/NFRC 200 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

.3 NFRC 500 – Procedure for Determining Fenestration Product Condensation Resistance Values.

.7 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC S705.1-01 – Standard for Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density – Material – Specification.

.2 CAN/ULC S705.2-05 - Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Installation.

1.4 ADMINISTRATIVE REQUIREMENTS

.1 Section [01 31 00]: Project management and coordination procedures.

.2 Pre-installation Meetings: Convene [one (1) week] [[_____] weeks] before starting work of this section.

1.5 SUBMITTALS FOR REVIEW

.1 Section [01 33 00] [_____]: Submission procedures.

.2 Shop Drawings: Submit shop drawings, indicate materials and details in scale for head, jamb and sill, profiles of components, junction between combination units, elevations of unit, and hardware.

.3 Product Data: Provide data for hardware accessories.

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

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

.5 Samples:

.1 Submit one representative corner section and one mullion intersection for each typical unit specified, sized 300 mm x 300 mm (12 x 12 inch) each direction. Include frame, sash, sill, glazing and weatherproofing method, insect screens and surface finish.

.2 Submit samples if requested of operating hardware.

1.6 SUBMITTALS FOR INFORMATION

The following submittals are informational; responsive action by the Consultant is not required.

.1 Section [01 33 00] [_____]: Submission procedures.

.2 Installation Data: Provide application instructions.

1.7 CLOSEOUT SUBMITTALS

The following submittals are for project close-out purposes; do not request these submittals if the information submitted will be assessed for acceptability.

.1 Section [01 78 10]: Submission procedures.

.2 Warranty Documentation: [_____].

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications:

.1 Manufacturer to have established recycling program in place for waste plastic, aluminum and glass.

.2 Installer Qualifications:

.1 Company specializing in performing the work of this section with minimum [five (5)] [_____] years documented experience [and approved by the manufacturer].

.3 Certifications:

.1 Insulating glass units must be supplied by an IGMAC certified manufacturer.

.2 Provide products of this section with ENERGY STAR label and associated performance certification label, in accordance with ENERGY STAR labeling guidelines.

Use the following when applicable local code references CAN/CSA-A440.

.4 CSA Marking Requirements:

.1 Permanent marking, visible after installation, stamped, etched or approved permanent label:

.1 CSA Certification Mark;

.2 Manufacturer’s name or identification;

.3 Standard number.

.2 Other markings, need not be permanent:

.1 Specific performance ratings that the product has achieved;

.2 Additional markings required for traceability to a certification.

Use the following when applicable local code references NAFS.

.5 NAFS Marking Requirements:

.1 Permanent marking indicating the manufacturer in a location visible when the product is installed.

.2 Temporary markings indicating primary and secondary performance designators including;

.1 positive design pressure, where applicable;

.2 negative design pressure, where applicable;

.3 water penetration test pressure; and

.4 Canadian air infiltration and exfiltration level.

.6 Perform Work in accordance with IGMAC for glazing installation methods.

1.9 MOCK-UP

Use this article for assessing full sized erected assemblies for review of construction, coordination of work of several sections, testing, or observation of operation. A mock-up may also be used for assessing field applied finishes.

.1 Section [01 43 00]: Requirements for mock-up.

.2 Provide mock-up of [full size window unit selected by Consultant] installed in each exterior wall assembly, which includes anchorage, shims, insulation continuity and air and vapour barrier interface.

.3 Locate [where directed by Consultant] [_____].

.4 Approved mock-up [may] [may not] remain as part of the Work.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section [01 61 00] [_____]: Transport, handle, store, and protect products as per manufacturers instructions.

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

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

.4 Fully support and brace the frames assemblies for handling and moving into position for installation.

1.11 WARRANTY

.1 Section [01 78 00]: Warranties.

.2 Provide two (2) year comprehensive manufacturer's limited warranty on Products from date of manufacture against defects in materials and workmanship;

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

.4 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 ACCEPTABLE PRODUCT

.1 Ascent 6100 Series windows as manufactured by:

All Weather Windows
Canada Toll Free: 1-800-232-9407
Web site: www.allweatherwindows.com
E-mail: info@allweatherwindows.com

2.2 SYSTEM DESCRIPTION

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

.2 Configuration(s):

.1 [Fixed, non-operable] and [outward opening, side hinged casement] [outward opening, awning, top hinged] sash.

.2 Picture windows with glass set directly into the frame.

.3 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].

.4 Thermal Movement: Design sections to permit movement caused by thermal expansion and contraction of plastic to suit glass, infill, and perimeter opening construction.

Edit this article carefully; restrict statements to identify system performance requirements or function criteria only as required by local code.

Specify performance criteria to NAFS.

2.3 PERFORMANCE REQUIREMENTS

Use the following three paragraphs when specifying to NAFS 2008 or 2011 criteria.
Select from NAFS classes R, LC, CW, AW.
PG ratings for this All Weather Windows product ranges from PG25-PG75.
Use CSA A440S1-09 for reference to NAFS product codes.

.1 Conform to performance requirements of AAMA/WDMA/CSA 101/I.S.2/A440 and A440S1-09, Performance Grade [LC-PG25] [_____].

Air Leakage per NAFS is measured under ambient temperature conditions (20 °C) at an induced pressure differential of 75 Pa or 300 Pa, which represent wind speeds of approximately 11 m/s and 22 m/s, respectively:
.1 A2 — 1.5 L/(s•m2) or 0.5 L/(s•m2) for AW compression seal products
.2 A3 — 0.5 L/(s•m2)
.3 Fixed — 0.2 L/(s•m2)

Level A3 is an optional performance level for operating windows, doors, and unit skylights.

.2 Air Leakage Performance: ASTM E283; Air leakage requirements for both infiltration and exfiltration:

.1 Operable Units: Level [A2] [A3].

.2 Fixed Units: Fixed Level.

The minimum water penetration resistance test pressure for all R, LC, and CW products shall be 15% of the positive design pressure (DP) associated with the Performance Grade (PG). The minimum water penetration resistance test pressure for all AW products shall be 20% of the positive design pressure (DP) associated with the Performance Grade (PG). However, in no case except for limited water testing of side-hinged doors shall the water penetration resistance test pressure be less than 140 Pa.
Use CSA A440S1-09 for reference to NAFS product requirements or reference the Fenestration Canada Calculator.

.3 Water Penetration Resistance: ASTM E 547 (cyclic static pressure) [and ASTM E 331 (uniform static pressure)]:

.1 no water shall penetrate the [window][door][unit skylight] assembly and cause wetting of the interior room surfaces;

.2 no water shall pass through the [window][door][unit skylight] into the rough opening or assembly adjoining the [window][door][unit skylight] below the sill; and

.3 no water shall remain trapped in the [window][door][unit skylight] assembly after the test pressure has been released.

.4 Test Pressure: [730] [_____] Pa

.4 Insect Screen Serviceability Test: Pass; when tested ASTM E1748 with applied outward 60 N load.

.5 Operating Force Requirements: ASTM F 588 or ASTM F 842; [_____].

.6 Condensation Resistance: CR of [48] [_____] when measured in accordance with [NFRC 500].

Include the following paragraphs in addition to CSA or NAFS requirements, if applicable to project.

.7 Thermal Conductivity of Assembly: [[_____]U-Value W/(m^{2}K) - ([_____]U-Value BTU/(h °F ft^2) -)].

.8 Comply with requirements for North American Energy Star® program.

2.4 MATERIALS

.1 Windows: Extruded polyvinyl chloride (PVC) to ASTM D4216; hollow multi-chamber sections.

.2 [Insulating Foam Sealant: [CAN/ULC S705.1-01; low-pressure, low-expansion, polyurethane foam sealant.][As specified by Section 07 21 19].]

.3 Sealant: As specified by Section 07 92 00.

.1 Interior: [White] [_____] coloured [acrylic latex], paintable.

.2 Exterior: [Custom] [_____] coloured [silicone] to match window components.

.4 Air and Vapour Barrier: [_____] [Self-adhering] transition membrane, compatible with wall assembly air and vapour barrier membranes.

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

2.5 WINDOW COMPONENTS

The following paragraphs identify the nominal dimensions of the primary members. If performance specifying, ensure no conflict exists.

.1 Frames: Multi-chamber PVC, nominal 83 mm (3-1/4 inch) deep profile, integral attachment flange, sloped sills, interior applied glass stops.

.1 Extrusion colour: White

.2 Exterior Finish (Acrylic Wrap): Black

.2 Sash: Multi-chamber PVC, nominal 65 mm (2-5/8 inch) wide profile,

.1 Extrusion colour: White

.2 Exterior Finish (Acrylic Wrap): Black

.3 Steel Reinforcing: Formed fit within PVC extrusion chambers as required for structural reinforcing to achieve specified CSA performance rating. Provide flat steel reinforcing plates between combination mullions where necessary.

Custom jamb extensions are available up to 394 mm (15-1/2").

.4 Jamb Extensions: [____] mm ([___] inch) nominal thickness, [stain grade wood] [paint grade wood] [multi-chamber PVC, extrusion colour to match frame].

Brickmoulds are optional components and must be specified.

.5 Brickmould for Renovation: [34 mm (1-1/2 inch)] [46 mm (2 inch) wide face, nominal width, multi-chamber PVC brickmould and sub-sill nosing, one piece full length and width of opening.

.1 Colour (Acrylic Wrap): Black

.6 Rebate Flange: 71 mm (2-13/16 inch) wide face for wide beveled, extruded PVC; one piece with welded corners, factory applied to the face of the window frame full perimeter.

.1 Colour (Acrylic Wrap): Black

.7 Weatherstripping:

.1 Polypropylene pile and thermoplastic elastomer, permanently resilient, profiled for continuous tight fitting weather seal.

.2 Brush seal weatherstripping, locked into integral extruded channel in window frame.

.3 Each opening to have not less than three weatherstrippings.

.1 Sash: Not less than one weatherstripping.

.2 Frame: Not less than two weatherstrippings.

.8 Insect Screen:

.1 Frame at Operable Unit: Rolled aluminum, pre-finished frame of rectangular sections; nominal size similar to operable unit; spring loaded.

.2 Screens: Glass fibre mesh.

Follow this link to the Glass Performance Chart for performance criteria relevant to available glass types.

2.6 GLAZING

.1 [Type 1] Insulating Glass Unit: CAN/CGSB-12.8, [double] [triple] unit, [25] [____] mm ([1] [____] inch) overall thickness. Glazing system cannot exceed 10mm in total glass thickness for dual pane or 12mm for triple pane.

.1 Outer Pane: [Clear] [Tinted], [annealed] [tempered] [laminate] glass, [3 mm (1/8 inch)] [4 mm (5/32 inch)] [5 mm (3/16)], [6 mm (1/4 inch)] thick.

.2 Centre Pane: Clear, [3 mm (1/8 inch)] [4 mm (5/32 inch)] thick.

.3 Inner Pane: [Clear] [Textured], [annealed] [tempered] [laminate] glass, [3 mm (1/8 inch)] [4 mm (5/32 inch)] [5 mm (3/16)], [6 mm (1/4 inch)] thick.

.4 Interpane Space: [13 mm (1/2 inch)], argon gas filled [, with low conductivity spacers].

.5 Heat System: [HS1] [HS4] [HS1V][HS4V] [HS2] [HS3] [HS5][HS6]

Decorative grilles fitted between panes are optional and must be specified.

.2 Internal Decorative Grilles - Fitted between glass panes: [8 mm (5/16 inch)] [16 mm (5/8 inch)] [25mm (1 inch)] [flat] [16 mm (5/8 inch) Georgian] face width.

.1 Colour: [Gold] [White] [Patina] [Lead] [Wicker].

.2 Pattern: [rectangular] [perimeter] [ladder] [double ladder] [triple ladder].

Simulated Divided Lites (SDLs) are optional components and must be specified.

.3 Simulated Divided Lite Grilles: Interior and exterior surface applied grills.

.1 Face Width: [23 mm (7/8 inch)] [31.75 mm (1-1/4 inch)] wide profile.

.2 Material: Extruded PVC

.3 Colour: To match PVC frame colour.

.4 Pattern: [rectangular] [perimeter] [ladder] [double ladder] [triple ladder].

Carefully select and edit the following paragraphs to suit the operating hardware appropriate to the required window operation.

2.7 HARDWARE

Select the following paragraphs for awning type operable vents.

.1 Sash Locking Handles: Cam handle with concealed keeper. Provide two per operable vent. Finish selected by Consultant from standard range.

Select the following paragraphs for casement type operable vents.

.2 Sash Locks: Check rail cam lock with concealed keeper and multi-point locking, positive detent with sash pull-in. Provide one per operable vent. Finish selected by Consultant from standard range.

.3 Operators: Encore operator with stainless steel guide tracks. Provide folding handle. Provide one per operable vent. Finish selected by Consultant from standard range.

.4 Hinges: Manufacturer's standard type to suit window configuration, stainless steel, tamper resistant in closed position.

Include the following device, only if mandated by code. This device restricts the movement of operable windows.

.1 Limiting Device: Manufacturer's standard; limit projection of operable units to a [100 mm (4 inch)] clear opening. Provide one per operable vent.

2.8 FABRICATION

.1 Fabricate framing with box-to-box joints and mechanically fastened mullions.

.2 Supplement frame sections with internal reinforcement where required for structural rigidity.

.3 Form snap-in glass stops, closure, 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 nylon pin] [_____] retainers.

.9 Factory glaze window units.

Part 3 Execution

3.1 EXAMINATION

.1 Section [01 73 00]: 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 in accordance the manufacturer's written instructions [and AAMA 2400] [CAN/CSA-A440.4].

.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 Plumb and align level with adjacent units unless noted otherwise.

.5 After attachment of window assembly into the opening, insulate the rough framed opening at the perimeter of window frame assembly to maintain continuity of air, vapour, and thermal barrier. Insulation must be positioned to the outer half of the wall cavity from the back side of the attachment flange and inward to a minimum of 75 mm (3 inches).

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

.7 Insulate space between window frame and rough opening framing using [low expansion foam-in-place polyurethane] [_____] insulation [as indicated].

3.3 ERECTION TOLERANCES

Do not assume that there are industry standards for tolerances. Specify tolerances below as appropriate to the nature or character of the project. Verify that such tolerances are realistic and realizable.

.1 Section 01 73 00: Tolerances.

.2 Maximum Variation from Level or Plumb: [<1.5 mm/m><<0.06 inches every 3 ft>>] non-cumulative or [<12 mm per 30 m><<0.5 inches per 100 ft>>], whichever is less.

3.4 CAULKING

.1 Apply sealant in accordance with Section 07 92 00. Conceal sealant within window units except where exposed use is permitted by Consultant.

.2 Seal exterior joints using silicone sealant.

.3 Seal interior joints around window using paintable latex sealant.

3.5 ADJUSTING

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

3.6 CLEANING

.1 Section [01 73 00] [_____]: Cleaning installed work.

.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.

END OF SECTION