SECTION 08560
POLYVINYL CHLORIDE (PVC) WINDOWS
Viwinco Inc.
Series/Model: S-Series 3 Lite Slider Window

Part 1 – General

1) APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in text by basic designation only.
   a) Code of Federal Regulations (CFR)
      i) 16 CFR 1201Consumer Product Safety Commission. Safety Standard for Architectural Glazing Materials
   b) American Architectural Manufacturers Association (AAMA), National Fenestration Rating Council (NFRC), American Society for Testing and Materials (ASTM)
      i) North American Fenestration Standard/Specification for windows, doors, and skylights (AAMA/WDMA/CSA 101/I.S.2/A440)
         (1) Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen (ASTM E 283)
         (2) Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Differences (ASTM E 330)
         (3) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Cyclic Static Air Pressure Differences (ASTM E 547)
         (4) Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units (ASTM E 774)
         (5) Standard Test Method for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact (ASTM F 588)
      ii) Voluntary Specifications for Pile Weather stripping and Replaceable Fenestration Weather seals (AAMA 701/702)
      iii) Voluntary Specification for Sash Balances (AAMA 902)
      iv) Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections (AAMA 1503)
      v) Procedure for Determining Fenestration Product U-Factors (NFRC 100)
      vi) Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence (NFRC 200)
   c) AAMA Certification Program for Vinyl Window Manufacturers
2) SUBMITTALS – Submit to contractor officer for approval
   a) Certified Test Reports: Submit for air infiltration, water resistance, and uniform loading in accordance with the above referenced specification.
   b) Catalog Data: Shall describe each type of window, hardware, fastener, accessory, operator, screen, and finish.
   c) Certification of Compliance: Submit certificates that identical windows have been successfully tested and meet the requirements specified herein for air infiltration and water penetration.
   d) Selection Samples: Select from Manufacturer's full range of colors.
3) DELIVERY AND STORAGE – Deliver windows to project site in an undamaged condition. Use care in handling and hoisting during transportation and at the job site. Store windows and components out of contact with the ground, under cover, protected from weather, so as to prevent damage to the windows. Do not use unvented plastic or canvas shelters. Provide ¼" space between units to promote air circulation. Damaged windows shall be repaired to an "as new" condition or replaced as approved.
4) PROTECTION: Finished surfaces shall be protected during shipping and handling using manufacturers' standard method.
5) CERTIFICATION: Window units shall be tested and certified for performance with the above referenced test methods. All window units shall be labeled certifying conformance with

AAMA/WDMA/CSA 101/I.S.2/A440, NFRC 100, NFRC 200, and Energy Star, Program Requirements for Residential Windows, Doors and Skylights.

6) CERTIFIED FABRICATOR: Windows shall be fabricated by an AAMA Certified Fabricator.
7) WARRANTIES:
   a) Windows shall be fully warranted against any defects in material or workmanship under normal use and service for a period of 20 years from date of acceptance on commercial projects and lifetime limited warranty to original homeowner on residential projects, 1 year factory labor included.
   b) Insulated Glass Units shall be fully warranted against visual obstruction resulting from film formation or moisture collection between the interior glass surface, excluding breakage, for a period of 20 years from date of acceptance on commercial projects and lifetime warranty to original homeowner on residential projects, 1 year factory labor included.
   c) Contractor shall provide a written service warranty that clearly spells out how requests for service shall be handled, by whom, under whose responsibility and shall include the time frame for handling these service requests. A labor warranty providing service on the windows shall cover a period of not less than 5 years, and shall be provided in writing. A copy of the product and labor warranty must accompany other applicable warranties and be presented with the bid.
8) PERFORMANCE REQUIREMENTS – General – Provide vinyl windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified
   a) Test for air infiltration shall be in accordance with AAMA/WDMA/CSA 101/I.S.2/A440. On a test, the air rate shall not be greater than 0.3 cfm per square foot of sash area.
   b) Test for water infiltration shall be in accordance with AAMA/WDMA/CSA 101/I.S.2/A440. Test results for different window sizes appear below.
   c) Uniform Load Structural Test, with the window closed and locked, shall be in accordance with AAMA/WDMA/CSA 101/I.S.2/A440. Test results for different window sizes appear below.

Type	Class	Performance Grade (PG)	Max. Structural Test Pressure[1]	Water Infiltration[2]	Air Infiltration[3]	Size Tested	Lites
HS	R	R30	45.14	8.36	0.11	138 x 60	1/3-1/3-1/3
HS	C	C30	45.14	8.36	0.11	138 x 60	1/3-1/3-1/3
HS	R	R25	37.62	8.36	0.08	138 x 60	1/4-1/2-1/4

[1]Structural Test Pressure (psf) tested to at least 150% of DP rating
[2]Water infiltration (psf) tested to at least 15% of DP rating
[3]Air Infiltration units are cfm/ft²

   d) Test for Thermal Performance shall be in accordance with NFRC 100 and NFRC 200.
   e) Test for Condensation Resistance Factor (CRF) shall be in accordance with AMMA 1503.

Window Size	Thermal Package	Foam[1]	Grid Type	Total Window U-Value	Solar Heat Gain Coefficient	Visible Light Transmittance	Condensation Resistance Factor
138 x 60	30/30	No	None	0.28	0.27	0.49	60
	30/30	No	Both	0.28	0.24	0.44	60
	R4	No	None	0.25	0.26	0.44	49
	R4	No	Both	0.25	0.23	0.39	49
	R5	Yes	None	0.22	0.18	0.39	50
	R5	Yes	Both	0.22	0.16	0.35	50

[1]For foam filled frame and sash components. See Part 2, Section2g, for details.

PART 2 – Products

1) MANUFACTURER: Viwinco S-Series 3 Lite Slider Window as manufactured by Viwinco, Inc., located at 851 Hemlock Road, Morgantown, PA 19543-0499. Phone (610) 286-8884. www.viwinco.com
2) Materials – Windows shall conform to the requirements of specifications listed above. Provide windows of combinations, types and sizes indicated or specified.
   a) Frame
      i) Extruded PVC components, produced from commercial quality virgin PVC (unplasticized polyvinyl chloride), conforms to AAMA 303, Voluntary Specification for Rigid Poly (Vinyl Chloride) (PVC) Exterior Profiles, from sections in one piece, straight, true and smooth. Provide multi-chambered PVC extruded frame in accordance with the manufacturer's standard practice. Make fusion welded frame joints strong enough to develop full strength of members, with an exterior wall thickness of .080". Head and jamb members shall have an integral 1 ¼" nailing flange, accessory grooves, integral screen stops, and beveled exterior. Inserted into both channels of the sill shall be a full length aluminum monorail with a vinyl snap on cover for the sashes to travel on. The head of the frame shall have an aluminum monorail with a vinyl snap on cover located above the sash in the locked position from the jamb to the center of the frame so that the sash can interlock to the head when closed. All frame members shall be weather-stripped using silicone treated pile with a mylar center fin bonded to backing on the interior side of the interior channel creating a third point of contact to the sash.
   b) Sash –
      i) Make interior Vertical top surfaces of both meeting rails flat and in the same plane. Meeting rails have an integral interlock with two contact points of pile weather-strip provided. Sash shall have fusion welded miter corners with an external wall thickness of .070. Both sashes shall have equal glass lites and ease of removal. All sash units shall be double weather-stripped where the sash meet the jamb using silicone treated pile with a mylar center fin bonded to backing. The fixed lite shall be fixed to the frame with 2 brackets that are attached to the sash and the frame.
   c) Glass – – Factory glazed 15/16" insulating glass conforming to ASTM E 2190, Standard Specification for Insulating Glass Unit Performance and Evaluation. Sputter-coated Low –E double strength (3 mm) glass with Ultra Intercept Stainless Steel Spacer and argon gas. Glazing shall be exterior glazed against a bead of silicone, secured with PVC mitered glazing beads and designed to maintain a watertight seal between glass and sash frame.
   d) Hardware
      i) Locking Devices: Cam-action sweep sash locks. Double locks where opening exceeds 32" in height. Triple locks where opening exceeds 60" in height.
      ii) Glide pads: Nylon glide pads located underneath the lower rail for the sash to ride on the monorail system.
   e) Screen –
      i) Screen Frame: Provide same quality and color finish as the window units. Frames shall have extruded aluminum sections with reinforced corners and built in lift rails for ease of operation. Hardware, attachment devices, and accessories shall be manufacturer's standard and of same quality, material and finish as hardware of window unit.
      ii) Insect Screening: ASTM D 3656, Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl Coated Glass Yarn, (plastic coated or impregnated fibrous glass

yarn) of standard color as approved. BetterVue fabric, .009 by .011 diameters, 18 x 18 woven mesh count. Provides for 68-69% light transmission.

f) Caulking and Sealing: As specified or recommended by window manufacturer.

g) Foam: To achieve R4 and R5 U-factors for certain configurations, manufacturing sprays a two part polyurethane foam into specific cavities in the frame and sash lineals for processing that same day.

3) Fabrication

a) Weathering Surfaces: All frame members shall be multi-chambered PVC extrusions utilizing double wall design without the need for reinforcement. Frame corners shall be fusion welded. Sash members shall be multi-chambered PVC extrusions utilizing double wall design at all glazing locations. Horizontal sash members shall be mitered and fusion welded to vertical sash members.

b) Drips and Weep Holes: Provided as required to return water to the outside.

c) Glazing Thickness: Design glazed windows and rabbets suitable for glass thickness specified above.

d) Fasteners: All fasteners are to be stainless steel type, corrosion resistant. Use flathead, cross-recessed type, exposed head screws with standard threads on windows, trim, and accessories. Screw heads shall finish flush with adjoining surfaces. Self-tapping sheet metal screws are not acceptable for material more than 1/16 inch in thickness. All sheet metal screw fasteners shall penetrate into a PVC screw boss, or screw raceway, or internal .062" wall thickness aluminum reinforcement for secure fastening and reduce pull out.

e) Provisions for Glazing: Design sash for outside double-glazing and for securing glass with manufacturer's standard glazing systems. Provide glazing channels of adequate size and depth to receive and properly support the glass and glazing accessories.

f) Accessories: Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation and proper operation.

g) 2 ¼" Brick Mould Casing: Co-extruded flex-fin durometer weather-strip to provide a seal between the casing and the window frame without the use of surface applied caulking. The extrusion shall consist of multiple chambers with a 1-11/16" extruded nailing fin and ¾" by 5/8" integral J channel with an exterior wall thickness of .065". All welded joints shall be aesthetically cleaned of weld flash material. The nominal overall dimension of the brick mould casing is 2 ¼" by 1 7/8". Casing is factory-applied to nail fin of window frame in a bedding bead of sealant using self-tapping sheet metal screws approximately with 6" spacing. NOTE TO SPECIFIER: *Remove this section if not applicable.*

h) 3 ½" Flat Casing: Co-extruded flex-fin durometer weather-strip to provide a seal between the casing and the window frame without the use of surface applied caulking. The extrusion shall consist of multiple chambers with a 1-11/16" extruded nailing fin and ¾" by 5/8" integral J channel with an exterior wall thickness of .065". All welded joints shall be aesthetically cleaned of weld flash material. The nominal overall dimension of the brick mould casing is 2-1/4" by 1-7/8". Casing is factory-applied to nail fin of window frame in a bedding bead of sealant using self-tapping sheet metal screws approximately with 6"specing. NOTE TO SPECIFIER: *Remove this section if not applicable.*

i) Sill Nose: Co-extruded flex fin durometer weather-strip to provide a seal between the casing and the window frame without the use of surface applied caulking. The extrusion shall consist of multiple chambers with a 1-11/16" extruded nailing fin and 5/8" by ¾" integral J channel. Exterior wall thickness shall be a minimum of .065". A color-matched end cap shall be installed at both ends.

j) Brick Mould J Channel Extender: PVC extrusion simulates a brick mould profile with a minimum wall thickness of .060". Corners are mitered and sealed with silicone. Snaps into the exterior accessory groove of the main frame in the field. Extends basic J pocket in main frame by 1-3/8". NOTE TO SPECIFIER: *Remove this section if not applicable.*

k) Basic J Channel Extender: PVC extrusion with a minimum wall thickness of .045". Snaps into the exterior accessory groove of the main frame. Extends basic J pocket in the main frame by ½". NOTE TO SPECIFIER: *Remove this section if not applicable.*

l) J Pocket Filler: PVC extrusion with a minimum wall thickness of .055". Corners are mitered and sealed with silicone at the head and jambs. Snaps into the exterior accessory groove of the main frame. Conceals integral J pocket of the main frame to provide for a proper perimeter caulk joint for masonry, or field applied trim applications. NOTE TO SPECIFIER: *Remove this section if not applicable.*

m) PVC Color Selection: Integral PVC color with UV inhibitors to reduce fading.
   i) White PVC: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   ii) Tan PVC: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   iii) Clay PVC: NOTE TO SPECIFIER: NOTE TO SPECIFIER: *Remove this section if not applicable.*

n) Interior / Exterior Color Selection: Laminating films in accordance with RAL 716/1 and EN 513-2 resist abrasion and weather. NOTE TO SPECIFIER: *Remove this section if not applicable.*
   i) White PVC with Bronze Laminate Exterior: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   ii) White PVC with Hunter Green Laminate Exterior: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   iii) White PVC with Cocoa Brown Laminate Exterior: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   iv) White PVC with Driftwood Laminate Exterior: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   v) Cherry Laminate Interior with White PVC: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   vi) Natural Oak Laminate Interior with White PVC: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   vii) Dark Oak Laminate Interior with White PVC: NOTE TO SPECIFIER: *Remove this section if not applicable*
   viii) Maple Laminate Interior with White PVC: NOTE TO SPECIFIER: *Remove this section if not applicable.*

o) Jamb Extension: NOTE TO SPECIFIER: *Remove this section if not applicable*.
   i) Cellular PVC finish to match window
   ii) Cellular PVC Paintable/Stainable Finish

p) Grill options to be verified by manufacturer. NOTE TO SPECIFIER: *Remove this section if not applicable.*
   i) Grill Patterns: Refer to Drawings
   ii) 5/8" Flat Internal Grids: NOTE TO SPECIFIER: *Remove this section if not applicable.*
   iii) 11/16" Contour Internal Grids: NOTE TO SPECIFIER: *Remove this section if not applicable*.
   iv) ¾" SDL Grids - SDL (Simulated Divided Lites) NOTE TO SPECIFIER: *Remove this section if not applicable.*

q) Weather-stripping: Provide for ventilating sections of all windows to insure a weather tight seal meeting the infiltration tests specified herein. Use easily replaceable factory applied weather-stripping of manufacturer's stock type, as specified above. For sliding surfaces, use silicone treated pile, with a mylar center fin bonded to a plastic-backing strip. Do not use neoprene or polyvinylchloride weather-stripping where they will be exposed to direct sunlight.

r) Screens: Provide one insect screen for each operable ventilating unit. Design screens to fit closely around entire perimeter of each ventilator or opening, to be rewired, easily removable from inside building, and interchangeable for same size ventilators of similar type windows, with no exposed fasteners. Provide all guides, stops, clips, bolts, and screws as necessary, for a secure and insect tight attachment to window.

s) Screening: Install screening with weave parallel to frame and stretch sufficiently to present a smooth appearance. Conceal edges of screening in the spline channel.

t) Screen Finish – Exposed surfaces of aluminum extrusions shall be thoroughly cleaned, primed and given a baked enamel finish in accordance with AAMA 603.8, Voluntary Performance

Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum, with total dry thickness not less than 0.8mil. The finish color shall match the vinyl window.

PART 3 – Execution

1) Examination
   a) Have installer verify that project conditions are acceptable before beginning installation of products; verify that rough openings are as indicated, and are correct sizes for clearance spaces specified in manufacturer's instructions.
   b) Correct unacceptable conditions before proceeding with installation.
2) Installation
   a) Method of Installation: Install in strict accordance with the window manufacturer's printed instructions and details, except as specified otherwise herein. Install windows without forcing into prepared window openings. Insulate perimeter of window frame with acceptable approved insulation material, as recommended by window manufacturer. Set windows at proper elevation, location, and reveal; plumb, square, level, and in alignment; and brace, strut, and stay properly to prevent distortion and misalignment. Protect ventilators and operating parts against accumulation of dirt, and building materials by keeping ventilators tightly closed and locked to frame. Bed screws in sill members, joints at mullions, contacts of windows with sills, built in fins, and sub-frames in approved sealant. Install windows in a manner that will prevent entrance of water. Provide sill angle flashed in sealant at windowsills where applicable.
   b) Anchors and Fasteners: Make ample provision for securing units to each other, and to adjoining construction.
   c) Adjustments after Installation: After installation of windows adjust all ventilators and hardware to operate smoothly and to provide weather tight sealing when ventilators are closed and locked. Lubricate hardware operating parts as necessary.
   d) Protection: Where surfaces are in contact with, or fastened to wood or dissimilar materials, the surface shall be protected from dissimilar materials as recommended by the manufacturer. Surfaces in contact with sealant after installation shall not be coated with any type of protective material.
3) Cleaning: Clean interior and exterior of window units of mortar, plaster, paint spattering spots, sealants, and other foreign matter to present a neat clean appearance and to prevent fouling of weather-stripping surfaces and weather-stripping, and to prevent interference with the operation of hardware. Replace with new windows all stained, discolored, or abraded window that cannot be restored to their original condition.

END OF SECTION