SECTION 085113

ALUMINUM WINDOWS

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\*\* NOTE TO SPECIFIER \*\* Winco Window Company; Aluminum Windows.

This section is based on the products of Winco Window Company, which is located at:

Winco Window Co.

6200 Maple Ave.

St. Louis, MO 63130-3305

Toll Free: 800-525-8089

Tel: 314-725-8088

Fax: 314-725-1419

Email: [Send Message to Winco Window Co.](http://admin.arcat.com/users.pl?action=UserEmail&company=Winco%20Window%20Co.&coid=36570&rep=146&fax=314-725-1419&mf=)

Web: [www.wincowindow.com](http://www.arcat.com/clickthru.pl?loc=www.wincowindow.com&coid=36570)

At Winco, we are committed to creating custom aluminum windows for commercial applications in both new and historic buildings — and everything in between. Working with customers, we develop custom window solutions, and with most of our products engineered and tested in house, we ensure premium performance every time. See why Winco has been a trusted leader in windows for more than 100 years.

In addition to meeting the HC (Heavy Commercial) standard, most Winco windows are also AW (Architectural Window) rated (the most stringent rating given by AAMA).

When you are looking for a window company that really understands your needs, that can deliver windows on your time schedule, to meet your budget, and that isn’t afraid to take a custom approach...then there really is only one choice...Winco, clearly.

Please contact your local sales representative for project specific requirements.

1. GENERAL
   1. SECTION INCLUDES
      1. Fixed windows.
      2. Projected windows.
      3. Blast resistant windows.
      4. Impact resistant windows.
   2. RELATED SECTIONS
      1. Section 07900: Joint Sealers.
      2. Section 081316: Aluminum Terrace Doors.
      3. Section 08400: Entrances and Storefronts.
      4. Section 08490: Balanced Entrance Doors.
      5. Section 085653: Wind and Impact Security Windows.
      6. Section 08580: Special Function Windows.
      7. Section 08587: Pressure Resistant Windows.
      8. Section 08590: Window Restoration and Replacement.
      9. Section 08700: Hardware.
      10. Section 08800: Glazing.
   3. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section. Contact your local code officials for assistance and/or Winco for performance testing.

* + 1. AAMA/WDMA/CSA 101/I.S.2/A440 - Voluntary Specification for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.
    2. AAMA 701/702; 2000 - Combined Voluntary Specifications for Pile Weather strip and Replaceable Fenestration Weather Seals.
    3. AAMA 902; 1999 - Voluntary Specification for Sash Balances.
    4. AAMA 907 - Voluntary Specification for Corrosion Resistant Coatings on Carbon Steel Components.
    5. AAMA 910 - Voluntary "Life Cycle" Specifications and Test Methods for Architectural Grade Windows and Sliding Glass Doors.
    6. AAMA 1503.1 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
    7. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test/Consumer Products Safety Commission CPSC 16 CFR 1201.
    8. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.
    9. ASTM E 330; 1997 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.
    10. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
    11. ASTM E 547 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference
    12. ASTM F 588; 1997 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.
    13. ASTM F1233 - Standard Test Method for Security Glazing Materials and Systems.
    14. ASTM F1642 - Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings.
    15. GSA TS 01-2003 - US General Services Administration Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.
    16. LEED: The Leadership in Energy & Environmental Design; U.S. Green Building Council (USGBC).
    17. ASTM E 1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
    18. ASTM E 1996 – Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes. Miami-Dade County Protocols:
        1. PA 201-94 - Impact Test Procedures.
        2. PA 203-94- Cyclical Loading Test Procedures.
    19. Florida Building Code Protocols:
        1. TAS 201-94, Impact Test Procedures.
        2. TAS 202-94, Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure Loading.
        3. TAS 203-94, Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
    20. UFC 4-010-01 Unified Facilities Criteria (UFC) - Department of Defense Minimum Antiterrorism Standards for Buildings.
  1. SUBMITTALS
     1. Submit under provisions of Section 01300.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings:
        1. Elevation for each style window specified indicating its size, glazing type, muntin type and design.
        2. Manufacturer's head, jamb and sill details and section views for each window type specified.
     4. Schedules:
        1. Provide a window schedule indicating the type, size, color, and operation of each unit specified. Coordinate with window mark types found in the Contract Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if a pre-construction meeting is not scheduled.

* + 1. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns. Samples may be subsequently installed on the project.
    2. Test Reports: Submit certified independent testing agency reports indicating window units meet or exceed specified performance requirements.

\*\* NOTE TO SPECIFIER \*\* Retain applicable paragraphs below for projects intended to be LEED-certified. Verify credits required with project LEED coordinator.

* + 1. LEED Submittals: Manufacturer’s Product Data indicating compliance with the following LEED Credits:
       1. Energy and Atmosphere:
          1. EA Credit 1 - Optimize Energy Performance.
          2. EA Credit 2 - Renewable Energy.
       2. Materials and Resources:
          1. MR Credit 4.1 - Recycled Content: 10 percent (post-consumer and 1/2 pre-consumer).
          2. MR Credit 4.2 - Recycled Content: 20 percent (post-consumer and 1/2 pre-consumer).
          3. MR Credit 5.1 – Regional Materials: 10 percent extracted, processed and manufactured regionally.
          4. MR Credit 5.2 – Regional Materials: 20 percent extracted, processed and manufactured regionally.
       3. Indoor Environmental Quality:
          1. EQ Credit 4.1 - Low-Emitting Adhesives and Sealants.
          2. EQ Credit 4.2 - Low-Emitting Paints.
          3. EQ Credit 8.1 - Daylight and Views: Daylight 75 percent of spaces.
          4. EQ Credit 8.2 - Daylight and Views: Views for 90 percent of spaces.
  1. SYSTEM DESCRIPTION
     1. Test Units:
        1. Air, water and structural test unit shall conform to requirements set forth in AAMA/WDMA/CSA 101/I.S.2/A440.
     2. Test Procedures and Performance:
        1. Windows shall conform to AAMA/WDMA/CSA 101/I.S.2/A440 requirements for each window type.
        2. Air Infiltration Test:
           1. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 283 at static air pressure of 6.24 psf.
           2. Air infiltration shall not exceed that specified for each Product.
        3. Water Resistance Test:
           1. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 331 and ASTM E 547 at static air pressure difference of 12 psf.
           2. There shall be no uncontrolled water leakage.
        4. Uniform Load Deflection Test:
           1. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 330 at static air pressure (positive and negative) difference of 100% design pressure.
           2. During testing, no member shall deflect more than 1/175 of its span.
        5. Uniform Load Structural Test:
           1. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 330 at static air pressure (positive and negative) difference 150% of design pressure.
           2. At conclusion of test, there shall be no glass breakage; no permanent damage to fasteners, hardware parts, support arms, or actuating mechanisms; no other damage which would cause window to be inoperable.
        6. Condensation Resistance Test (CRF):
           1. With window sash closed and locked, test unit in accordance with AAMA 1503.1.
           2. Condensation Resistance Factor (CRF) shall not be less than that specified for each Product.
        7. Thermal Transmittance Test (Conductive U-Value):
           1. With window sash closed and locked, test unit in accordance with AAMA 1503.1.
           2. Conductive thermal transmittance (U-Value) shall not exceed that specified for each Product.
        8. Life Cycle Test:
           1. Test window in accordance with AAMA 910.
           2. At conclusion of test, there shall be no damage to fasteners, hardware parts, support arms, or actuating mechanisms; no other damage which would cause window to be inoperable. Subsequent air infiltration and water resistance tests shall not exceed specified requirements.
        9. Forced Entry Resistance Test: ASTM F 588, Type and Grade as indicated for each Product.
        10. Blast Resistance Testing:
            1. Furnish windows capable of providing “low level of protection” or better, as defined in UFC 4-010-01, the DoD Anti-Terrorism Standard for Buildings, at the design blast load.
            2. Furnish window that do not transmit excessive loads to the structure at the design blast load.
            3. Provide Live Explosive Test Results and/or Independent Professional Engineer Calculations to indicate the ability of the window to be anchored into the type of wall specified in the Project.
            4. Anchors, clips, stops and other accessories shall be provided to comply with AAMA 101.1.S.2 and AAMA 907. Provide units and anchorage mechanism with sufficient strength to withstand required blast design pressure and strength for specified load conditions.
            5. Fastener, clips and other accessories shall be capable of delivering blast and rebound reactions to the adjacent structure.
            6. All screens, hardware, trim and covers must be sufficiently tested using live explosives to ensure that they do not disengage during an explosion.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: All windows and window hardware specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years’ experience.
     2. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing windows of the same type and scope as specified.
     3. Provide test reports from AAMA accredited laboratory certifying that window units are found to be in compliance with AAMA/WDMA/CSA 101/I.S.2/A440-97 and performance standards listed above.
        1. Test reports shall be accompanied by the window manufacturer’s letter of certification stating that the tested window meets or exceeds criteria for the appropriate AAMA/WDMA/CSA 101/I.S.2/A440 test.
     4. Code Compliance: Provide windows that comply with regulations of the code bodies having jurisdiction.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Finish areas designated by Architect.
       2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
       3. Testing for Air and Water as specified
       4. Refinish mock-up area as required to produce acceptable work.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Store products in manufacturer's unopened packaging until ready for installation in accordance with manufacturer’s recommendations.
     2. Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.
  2. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
  3. WARRANTY
     1. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

1. PRODUCTS

MANUFACTURERS

* + 1. Acceptable Manufacturer: Winco Window Co., 6200 Maple Ave., St. Louis, MO 63130-3305. ASD. Toll Free: 800-525-8089. Tel: 314-725-8088. Fax: 314-725-1419. Web: [www.wincowindow.com](http://www.arcat.com/clickthru.pl?loc=www.wincowindow.com&coid=36570).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
  1. MATERIALS
     1. Aluminum:
        1. Frame: Extruded aluminum, 6063-T6 alloy and temper, tensile strength of 25,000 psi.
        2. Ventilator: Extruded tubular aluminum, 6063-T6 alloy and temper, tensile strength of 25,000 psi.
  2. THERMAL PROJECT/FIXED WINDOWS – WINCO 1550 SERIES
     1. Acceptable Product:
        1. Winco 1550 Series: 4-1/2 inch Heavy Commercial Thermally Improved Window.
     2. Performance: AAMA/WDMA/CSA 101/I.S.2/A440.
        1. Architectural Window: AW-100.
        2. Water Resistance, ASTM E 331: 12 psf (575 Pa).
        3. Water Resistance, ASTM E 547: 12 psf (575 Pa) for AW-80 rated windows.
        4. Air Infiltration, ASTM E 283 at static air pressure of 6.24 psf: 0.03 cfm/sf.
        5. Uniform Load Structural Test, ASTM E 330: 150 psf (5748 Pa).
        6. Forced Entry Resistance, ASTM F 588: Grade 10.
        7. Thermal Performance ("U" Value), AAMA 1503.1: 0.46 BTU/Hr-F°-Ft2.
     3. Frame: Thermally broken.
        1. Wall Thickness: 0.125 inches (3.175 mm)
        2. Depth: 4-1/2 inches (114 mm).
        3. Corners: Closely fit and mechanically fastened with screws. Must be sealed using AAMA approved sealants in a multi-step process to provide sealant redundancy.
        4. Leg: Provide equal leg frame.
     4. Ventilator and Access Sash: Thermally broken.
        1. Wall Thickness: 0.125 inches (3.2 mm).
        2. Ventilator Depth: 2 inches (51 mm).
        3. All vent extrusions shall be tubular on all 4 sides.
        4. Corners: Mitered and assembled by means mechanical fastening with screws. Joinery is sealed with AAMA approved small joint sealant.
        5. Each vent shall have two rows of Santoprene® weather stripping installed in a specifically designed weather strip pocket for the extrusion.
     5. Weather Strip
        1. All weather strips shall be double Santoprene® thermoplastic rubber or equal.
     6. Thermal Barrier
        1. Poured-in-place structural thermal barrier shall transfer during bending and provide composite action between frame components.
        2. Thermal barrier pocket on aluminum extrusions shall be Azo-Braded to create a mechanical lock to improve the adhesion properties between the polyurethane polymer and the surface of the thermal barrier pocket.
        3. Window manufacturer must provide a warranty from the manufacturer of the polyurethane thermal barrier that warrants against product failure as a result of thermal shrinkage beyond 1/8 inch (3.2 mm) from each end and fracturing of the polyurethane for a period not to exceed ten years from the date of window manufacture.
        4. Thermal barriers made of crimped in place polyamide (insulbar®) strips are not acceptable unless all strips are covered and tooled with Dow 795 silicone caulking to climate water migration.
  3. HARDWARE

\*\* NOTE TO SPECIFIER \*\*Delete paragraphs not required for Project.

* + 1. Locks:

\*\* NOTE TO SPECIFIER \*\* Select lock type. Retain one of the following six paragraphs. Cam locks are standard for projected windows. Two point lock is standard for casement windows. All other locks are optional.

* + - 1. Cam type locking handles; white bronze alloy with US25D brushed finish.
      2. Pole ring cam lock.
      3. Pole ring snap lock.
      4. Key lock.
      5. Casement lock (multi-point lock).

\*\* NOTE TO SPECIFIER \*\* Retain one of the following five paragraphs. Operating arms are for projected windows. 4-bar arms are standard for projected windows.

* + 1. Operator:
       1. 4 –bar arms conforming to AAMA 904.1.
       2. 4 –bar casement arms conforming to AAMA 904.1.
       3. Friction adjustable HOA arms.
       4. Key release limit arms.
       5. Roto-Operator: Pivot shoe. ADA handle where indicated.
       6. Stainless steel.
    2. Hinge:

\*\* NOTE TO SPECIFIER \*\* Retain one of the following two paragraphs for hinges.

* + - 1. 5 knuckle butt hinge with stainless steel pin.
      2. 4-bar casement hinge.
  1. TRIM AND PANS

\*\* NOTE TO SPECIFIER \*\* Insert Winco Series number, trim Part Number or length in spaces provided for required trim and pans. Delete paragraphs below not required for trim and pans.

* + 1. Provide trim and pans as indicated on Drawings.
    2. Sub Frame and Closure Plate.
    3. Sill Starter.
    4. Winco Sills: \_\_\_\_\_ inches (\_\_\_\_\_mm).
    5. Sub-Sill: \_\_\_\_\_ Series.
    6. Sill Extension: \_\_\_\_\_ inches (\_\_\_\_\_mm).
    7. PVC Comp. Channel (Frame Filler): For \_\_\_\_\_ inch (\_\_\_\_\_mm) frame depth.
    8. Strap Anchor.
    9. Snap Cover: Part # \_\_\_\_\_.
    10. Base Clip: Part # \_\_\_\_\_.
    11. Replacement Pan Systems:

\*\* NOTE TO SPECIFIER \*\* Insert Winco trim Part Number in spaces provided. Delete paragraphs below not required.

* + - 1. Pan Head, Jamb and Sill: Part # \_\_\_\_\_.
      2. Pan Head and Jamb: For use with Part # \_\_\_\_\_.
      3. Pan Extender: For use with Part # \_\_\_\_\_.
      4. Pan Sill: For use with Part # \_\_\_\_\_.
      5. Pan Sill: Part # \_\_\_\_\_.
      6. Pan Jamb: Part # \_\_\_\_\_.
      7. Pan Head: Part # \_\_\_\_\_.
      8. Multi-Purpose Pan: Part # \_\_\_\_\_.
  1. SCREENS

\*\* NOTE TO SPECIFIER \*\*Delete paragraphs not required for Project.

* 1. Frame: Extruded aluminum, 6063-T6 alloy and temper.
     1. Screen mounting holes shall be pre-drilled at the factory

\*\* NOTE TO SPECIFIER \*\*Select screen material. Aluminum mesh is standard. Delete one of the following four paragraphs.

* 1. Screen Fabric: 0.011 inch (0.2194 mm) diameter 5154 alloy wire woven in 18 x 16 mesh.
     1. Color: Charcoal anodized.
     2. Color: Brite Kote aluminum

\*\* NOTE TO SPECIFIER \*\* Select screen color. Delete one of the following two paragraphs.

* 1. Screen Fabric: 0.009 inch (0.2286 mm) diameter stainless steel wire woven in 18 x 16 mesh.

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph for all windows with blind sash.

* 1. MULLIONS AND GRIDS

\*\* NOTE TO SPECIFIER \*\* Retain paragraphs below for mullions or grids. Delete paragraphs not required. Insert Winco Series number, mullion Part Number and window depth in spaces provided.

* + 1. Mullion:

\*\* NOTE TO SPECIFIER \*\* Retain one of the following four paragraphs. Consult Winco for availability of mullions.

* + - 1. Non-Thermal Mullion: Part #\_\_\_\_\_.
      2. Thermal Mullion: Part #\_\_\_\_\_.
      3. Provide mullions as indicated on Drawings.
    1. Window Depth: \_\_\_\_\_ inches (\_\_\_\_\_ mm).
    2. Winco Window Series: \_\_\_\_\_.
    3. Stack:
  1. FINISH

\*\* NOTE TO SPECIFIER \*\* Retain one of the following two paragraphs for anodic or paint finish.

* + 1. Anodic Finish: All exposed areas of aluminum windows and components shall receive a two-step finish: clear anodize components, then color coat with electrostatically deposited finish in accordance with Aluminum Association Designation AA-M12-C22-A, color as indicated.

\*\* NOTE TO SPECIFIER \*\* Select color requirement. Delete six of the following seven paragraphs. Insert a custom color where required.

* + - 1. Color: To be selected by the Architect from the manufacturer’s standard colors.
      2. Color: As noted in the Window Schedule.
      3. Color: A41, Class I clear anodized at 0.7 mils or greater in accordance with AAMA 611-98 (WINCO Finish 215 Clear).
      4. Color: A31, Class II clear anodized at 0.4 mils or greater in accordance with AAMA 611-98 (WINCO Finish 110 Champagne).
      5. Color: A44, Class I color anodized at 0.7 mils or greater in accordance with AAMA 611-98 (WINCO Finish 111 Light Bronze, 112 Medium Bronze or 113 Dark Bronze, 115 Black).
    1. Paint Finish: Finish all exposed areas of aluminum windows and components with the following:
       1. 70 percent Kynar in accordance with AA-M12-C42-R1X, AAMA 2605-98
       2. 50 percent Kynar in accordance with AA-M12-C42-R1X, and AAMA 2604-98.

\*\* NOTE TO SPECIFIER \*\* Select color requirement. Delete two of the following three paragraphs. Insert a custom color where required.

* + - 1. Color: To be selected by the Architect from the manufacturer’s standard colors.
      2. Color: As noted in the Window Schedule.
      3. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
  1. GLAZING

\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if glass and glazing will be specified in Division 8 Section, Glazing (recommended). Transfer glass data from this Section to Section 08800 and delete remaining paragraphs below.

* + 1. Refer to Section 08800, Glazing: Glass and installation.

\*\* NOTE TO SPECIFIER \*\* If glass will be specified in this Section, coordinate with Section 08800 and retain the following paragraph and other required paragraphs, below.

* + 1. Refer to Section 08800, Glazing: Glass installation.
    2. Glazing: All units shall be factory glazed with butyl tape, silicone cap bead on the exterior, with glazing vinyl and extruded snap-in aluminum glazing bead on the interior.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs, or delete this paragraph if allowing manufacturer to use the standard glazing technique.

* + - 1. Interior glazed.
      2. Exterior glazed.

\*\* NOTE TO SPECIFIER \*\* Retain one of the following paragraphs for tinted or reflective glass. Insert color, product name and manufacturer of glass. Delete one or both paragraphs, if not required.

* + - 1. Tinted Glass: (Tint Color) \_\_\_\_\_, (Product Name) \_\_\_\_\_ as manufactured by \_\_\_\_\_ with bronze colored spacer.
      2. Reflective Glass: (Color) \_\_\_\_\_, (Product Name) \_\_\_\_\_ as manufactured by \_\_\_\_\_ with bronze colored spacer.

\*\* NOTE TO SPECIFIER \*\* Select glass type. Delete one of the following two paragraphs. If retaining insulating glass, insert glass type and thickness and air space thickness. If retaining monolithic, insert glass type.

* + 1. Glass Type: Insulating.
       1. Exterior Lite: \_\_\_\_inch (\_\_\_\_mm) \_\_\_\_\_\_\_\_.
       2. Air Space: \_\_\_\_\_inch (\_\_\_\_\_mm).
       3. Interior Lite: \_\_\_\_inch (\_\_\_\_mm) \_\_\_\_\_\_\_\_.
    2. Glass Type: Monolithic; \_\_\_\_\_\_\_\_.
    3. insulated.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions.
   4. PROTECTION
      1. Protect installed products until completion of project.
      2. Final operating adjustment shall be made after glazing work is complete. Operating sash and ventilator shall operate smoothly and shall be weathertight when in locked position
      3. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION