

08520 ALUMINUM WINDOWS

SPECIFIER:

CSI MasterFormat 2004 number 08 51 13.

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish and install aluminum windows complete with hardware and related components as shown on drawings and as specified in this section.
- B. Related Sections:
 - 1. 03300 - Cast-In-Place Concrete
 - 2. 03450 - Architectural Precast Concrete
 - 3. 03460 - Tilt-up Precast Concrete Sandwich Panels
 - 4. 03470 - Tilt-up Precast Concrete
 - 5. 07900 - Joint Sealers.
 - 6. 08800 - Glass and Glazing

1.2 REFERENCES

- A. American Architectural Manufacturers Association (AAMA)/NWWDA 101/IS2 (Latest Edition) - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors, latest edition.
- B. AAMA 902 – Voluntary Specifications for Sash Balances.
- C. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site, latest edition.
- D. American Society for Testing and Materials (ASTM) - latest edition of the following:
 - 1. A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 2. B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 3. C509 - Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
 - 4. D2000 - Standard Classification System for Rubber Products in Automotive Applications.
 - 5. E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 6. E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylight and Curtain Walls by Uniform Static Air Pressure Difference.

7. E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylight, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 8. E 1105 - 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.
 9. F 588 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.
- E. Florida Building Code (FBC), latest edition.
- F. American Society of Civil Engineers (ASCE) 7, latest edition.
- G. National Fire Protection Association (NFPA), latest edition.
- H. Florida Fire Prevention Code (FFPC), latest edition.
- I. Federal Specifications and Standards - FS L-S-125 - Screening, Insect, Nonmetallic; Revision B, latest edition.
- J. Society for Protective Coatings: SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").

1.3 DEFINITIONS

- A. Exposed: Any fasteners, anchors, clips, accessories, sealants, etc., visible on the exterior or interior side of a window when in the maximum open position.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation Meeting: Before starting work in this section, the Contractor shall convene a meeting that includes the Project A/E, M-DCPS Project Manager, Contractor's representative and window installer. Agenda shall include review of the following items:
1. Review NOA or Florida Product Approval submittals.
 2. Review surface preparation and window installation procedures.
 3. Review shop drawing submittals.
 4. Review special details and field conditions.
 5. Discuss sequence of construction, responsibilities and schedule for subsequent operations.
 6. Review "Window Field Leak Test" procedures and requirements.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's specifications and catalog cuts. This information shall include but not be limited to all component dimensions, information on glass and glazing, internal drainage details, descriptions of hardware and accessories, fabrication methods, dimensions of individual components and profiles, hardware, and finishes for each type of product indicated.
- B. Manufacturer's Installation Instructions: Include complete preparation, installation, and cleaning requirements.

C. Shop Drawings:

1. Signed and sealed by a Florida Registered Professional Engineer. Submit to A/E and the Building Code Consultant (BCC).
2. Indicate elevations, sections, details, locations, markings, quantities, materials, jamb conditions, metal thicknesses, sizes, shapes, dimensions and finishes.
3. Indicate locations for installing frames.
4. Indicate methods of assembling, connecting, anchoring, fastening, and bracing.
5. Indicate types, material, finishes, sizes, and locations of hardware.
6. Indicate operable and fixed panels of each window unit.
7. Identify each type of mullion and anchorage system.

D. Any window identified on the drawings as an "emergency rescue" window, shall meet all the requirements for "Windows for Rescue" specified by FFPC, and NFPA 101.

E. Missile Impact Certification:

1. Provide current Miami-Dade County Notice of Acceptance (NOA) or Florida Product Approval, demonstrating compliance with FBC missile impact criteria for High Velocity Hurricane Zone (HVHZ), for window type, size, and configuration indicated on drawings.
2. Comply with calculations, signed and sealed by a Florida registered Professional Engineer, establishing wind velocity pressure values for the specific project, according to FBC and ASCE 7, using Classification Of Buildings Category III, Exposure Category "C" and Importance Factor of 1.15.

F. Calculations/Test Results/Details:

1. Provide wind pressure test results by an M-DCPS nationally recognized testing laboratory (NRTL) demonstrating compliance with applicable HVHZ requirements for supplied window units.
2. Provide Installation details, signed and sealed by a Florida registered Professional Engineer, detailing anchorage system noted and specified to comply with ASCE 7.

G. Samples:

1. Submit two samples, 12 x 12 inch in size, illustrating typical corner construction and accessories, including locks and color finishes.
2. 12" x 12" glass.
3. Sealants: Manufacturer color chart.

H. Maintenance Data: For operable window sash, operating hardware, weather stripping, window system operators, and finishes to include in maintenance manuals.

I. Forced Entry: Comply with AAMA 1302.5.

J. Warranty certification.

1.6 SYSTEM DESCRIPTION

A. Performance Requirements: Fabricate units to comply with:

1. Design Wind Velocity Pressures: According to ASCE 7, latest edition.
2. Requirements of testing and certification by AAMA/NWDA 101 for commercial or higher rated windows complying with AAMA/NWDA 101, Table 2.1 Gateway Performance listed values as determined by ASCE 7, latest edition.
3. Provide double glazed windows with 45 condensation resistance factor, according to AAMA 1502.6.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in fabrication of commercial aluminum windows of types required, with no fewer than five years of experience.
- B. Installer Qualifications: Capable of assuming engineering responsibility and performing Work of this Section and who is acceptable to manufacturer. Minimum of five years of experience in the installation of specified assemblies.
 1. Engineering Responsibility: Preparation of data for aluminum windows including the following:
 - a. Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.
- C. Notify inspector within 24-hours after completion of windows to arrange for inspection.
- D. Do not conceal anchors and connections until inspection is complete.
- E. Exposed fasteners, when the window is in a closed or opened position, shall be tamperproof.
- F. Coordination of Fabrication:
 1. Check actual window openings in construction work by accurate field measurement before fabrication. Show recorded measurements on final shop drawings.
 2. Coordinate fabrication schedule with construction progress as directed by Contractor to avoid delay of work.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of AAWA CW-10.
- B. Deliver packaged materials in manufacturer's original, unopened, labeled containers.
- C. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.
- D. Store items to prevent damage to materials or structure and in approximate order of use to avoid excessive re-handling.
- E. Repair damaged materials and replace materials that cannot be repaired to original condition. Replace warped materials.

- F. Protect exposed surfaces of metal with removable covering to prevent damage to finish. Protect metal while adjacent painting and caulking are being performed.

1.9 WARRANTY

- A. Submit written warranty, signed jointly by manufacturer, installer, and Contractor, agreeing to replace aluminum window units that fail in materials or installations within 3 years after substantial completion. The 3 parties jointly and separately are responsible for the installation for the warranty period.
- B. Failure of materials or installation shall include, but not be limited to, excessive leakage or air infiltration, excessive deflections, faulty operation of sash, deterioration of finish or metal in excess or normal weathering, and defects in hardware and weather-stripping, failure of glass seal, including interpane dusting or misting.

PART 2 PRODUCTS

SPECIFIER: Edit the following paragraphs according to project requirements.

- A. Missile Impact Resistant Single Hung: Tempered glass and exterior operable certified missile impact resistant metal louvers:
 - 1. Sol-A-Trol - Series 540-S-IMP.
 - 2. Other A/E Accepted equivalent.
- B. Missile Impact Resistant Double Hung: Tempered glass and exterior operable certified missile impact resistant metal louvers:
 - 1. Sol-A-Trol - Series 540-IMP.
 - 2. Other A/E Accepted equivalent.
- C. Missile Impact Resistant Louverless Windows, as indicated on the Plans, using certified missile impact resistant glass.
 - 1. Sol-A-Trol Aluminum Products.
 - 2. Traco Windows
 - 3. EFCO Corp.
 - 4. Winco Window Co.
 - 5. Innovative Window Concepts (IWC).
 - 6. Kawneer Company, Inc.
 - 7. Trulite Window and Door Solutions
 - 8. Construction Glass Industries (CGI).
 - 9. YKK AP America Inc.
 - 10. ES Windows
 - 11. PGT
 - 12. Florida Impact Windows
 - 13. RC Aluminum Industries Inc.
 - 14. International Window Corporation (IWC)
 - 15. CRL-US Aluminum Industries
 - 16. Mr. Glass Doors and Windows Inc.

17. Other A/E Accepted equivalent.

D. Acoustical:

1. Milco - Fixed.
2. Other A/E Accepted equivalent.

E. Ticket Window.

1. Model No. SCW103N by C.R. Laurence. Co., or other A/E approved equivalent.

2.2 MANUFACTURED UNITS

A. Missile Impact Resistant Louvered Windows:

1. Comply with ANSI/AAMA 101, Class HC40.
2. 4" exterior extruded aluminum louvers. Maximum louver length shall be 34 inches.
3. Vinyl weather-stripping, tube type at each louver blade.
4. Stainless steel exterior louver jamb weather-stripping.
5. Pair of counterbalancing mechanisms complying with AAMA 902.2 - Specification for Sash Balances, pair of lift handles on lower rail of lower sash.
6. Provide latch at meeting rails to lock sash in closed position.
7. Glazing: 1/4" tempered glass.
8. Comply with items listed in this section, under "Components".
9. Louver Operating Device and Lock:
 - a. Combination of lever handle and cam-type latch.
 - b. Rotary gear crank.
10. Provide for water drainage on louvers
11. Provide flanged type window assembly. Inner and outer equal length flanges are not allowed.

B. Missile Impact Resistant Louverless Windows:

1. Impact resistant windows shall comply with Miami-Dade County NOA or Florida Product Approval requirements.

C. Acoustical Windows:

- a. STC Ratings: As shown on drawings.
- b. Double Glazing: Tempered Glass.

D. Ticket Window:

1. Satin anodized aluminum frame.
2. Clear tempered glass with speak-thru.
3. Brushed stainless steel shelf with built-in "deal tray".

E. Emergency Rescue Openings, where designated on the drawings, shall comply with FBC, ADA and NFPA 101.

2.3 COMPONENTS

SPECIFIER: Since window manufacturers may regularly modify the window components, the A/E shall ensure that the window and all its related components selected for the project, meet all the minimum requirements listed herein.

- A. Aluminum Extrusions: 6063-T5, commercial alloy, minimum 22,000 psi ultimate tensile strength and minimum 0.062" thickness at any location for main frame and sash members.
- B. Assembly shall have current Miami-Dade County NOA for impact resistance (both large and small missile impact) and comply with wind pressures as required by drawings, FBC, and ASCE 7. Assembly shall bear a permanent label affixed to the product according to FBC.
- C. Air Infiltration: System shall have an air intrusion less than 0.3 cf/min/sq. ft. @ an inward test pressure of 6.24 PSF (300 Pa), when tested according to AAMA/WDMA 101/I.S.2/NAFS.
- D. Locks shall be of compatible materials that are corrosion resistant and sufficient strength to pass AAMA 1302.5 forced entry test. Locks shall be readily accessible for service.
- E. Unit shall have minimum 3/4" wide aluminum flange around 100% of the perimeter. Unit shall be set in a full bed of sealant against the 3/4" lip in the masonry opening.
- F. Windows:
 - 1. Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, with operating hardware, related flashings, and anchorage and attachment devices.
 - a. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for operating hardware and imposed loads.
 - b. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
 - c. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
 - d. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
 - 2. Sizes and Profiles:
 - a. Fabricate to sizes and profiles indicated on final shop drawings.
 - b. Details in drawings are based upon standard details by one or more manufacturers.
 - c. Similar details by other manufacturers will be acceptable, provided they comply with size requirements, minimum/maximum profile requirements, and referenced performance standards and are approved by the A/E and M-DCPS.

3. Glass and Glazing:
 - a. Windows shall be factory glazed.
 - b. Glass color to be determined by A/E.
 - c. Glass assembly shall comply with Miami-Dade County NOA and/or Florida Product Approval, as necessary to meet specified Design Pressures and Missile Impact requirements.
 - d. Comply with requirements of Section 08800, in addition to requirements of ANSI/AAMA 101.
 - e. Glazing compound shall be structural silicone as recommended by window manufacturer.
 4. Provide subframes with anchors for window units as shown, of profile and dimensions indicated (minimum 0.062" thickness extruded aluminum) with mitered or coped corners, welded and dressed smooth or with concealed mechanical joint fasteners. Finish to match window units. Seal joints on inside with sealant.
 5. Fabricate components with smallest possible clearances and shim spacing around perimeter of assembly that will enable window installation and dynamic movement of perimeter seal.
 6. Provide internal drainage of glazing spaces to exterior through weep holes.
- G. Fasteners:
1. Aluminum, nonmagnetic stainless steel, or other materials warranted by manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.
 2. Reinforcement: Fasteners screw-anchored into aluminum less than 0.125" thick, shall have interior reinforced with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed-in splined grommet nuts.
 3. Exposed fasteners, when the window is in a closed or opened position, shall be tamperproof.
 4. Do not use exposed fasteners except for application of hardware.
 5. Exposed fasteners shall match finish of adjoining metal.
- H. Anchors, Clips and Window Accessories: Depending on strength and corrosion-inhibiting requirements, fabricate units of aluminum, nonmagnetic stainless steel, or hot-dip zinc coated steel complying with ASTM A123. Exposed items shall match the window frame color.
- I. Compression Glazing Strips and Weather-stripping: Molded neoprene gaskets complying with ASTM D2000 designation 2BC415 to 3VC620, or molded expanded neoprene gaskets complying with ASTM C509, Grade 4.
- J. Sealant:
1. Seal frame joints, completely filling voids, flush with exposed surfaces. Provide type recommended by window manufacturer for joint size and movement, to remain permanently elastic, non-shrinking, and non-migrating.
 2. Comply with Section 07900 for materials and installation of sealants.
 3. Color shall be as selected by A/E.

- K. Friction Shoes: Nylon or other non-abrasive, nonmetallic, non-staining, non-corrosive durable material.
- L. Balance Mechanism:
 1. Spring loaded, with adjustable tension control.
 2. Balances shall be high performance balances, of appropriate size and capacity to hold sash in position in accordance with AAMA 101 and AAMA 902.
 3. Balances shall meet all minimum AAMA 902 Class 5 requirements.
 4. Balances shall be attached to a locking carrier that slides on extruded rails in the jamb channels.

- M. Mullions:
 1. Provide mullions and cover plates as shown, matching window units, and complete with anchors for support and installation.
 2. Allow for erection tolerances and provide for movements of window units due to thermal expansion and building deflections.

N. Insect Screens:

NOTE TO SPECIFIER: Screens are not required on windows except at kitchen and food preparation areas, cafeterias, home economics rooms, existing toilet rooms, and other locations according to program requirements.

1. Provide insect screen unit for each operable exterior sash.
2. Locate screen units on either side or outside of sash, depending upon window type.
3. Design window units and hardware to accommodate screens in a tight-fitting removable arrangement, with a minimum of exposed fasteners and latches, and without necessity of wickets for hardware access.
4. Fabricate screen frames of either extruded or formed aluminum tubular-shaped members minimum 0.040" wall thickness, with mitered or coped joints and concealed mechanical fasteners, with removable PVC spline-anchor concealing edge of screen fabric.
5. Fit frame with four, spring loaded steel pin retainers.
6. Finish frames to match window units.
7. Screens: Insect wire fabric, 18/16 mesh of 0.024" diameter 5052 aluminum wire, complying with FS RR-W-365, Type VII.

NOTE TO SPECIFIER: When the project is located within one mile from a saltwater coastline, new aluminum windows shall have an AAMA 2605 PVDF (polyvinylidene fluoride) corrosion resistant finish such as Kynar 500 or Hylar 5000. Specifier shall edit the following section to meet the specific requirements for the project.

- O. Finish for Windows and Window Components:
 1. At locations within one mile from a saltwater coastline: AAMA 2605 PVDF (polyvinylidene fluoride) coating with 70 percent resin, such as Kynar 500, or Hylar 5000. Color to be as selected by A/E.

2. At locations greater than one mile from a saltwater coastline: Anodized: NAAMM AA-C2241, Class I, minimum 0.7 mils, natural aluminum color (or color to be as selected by A/E).

PART 3 EXECUTION

3.1 MOCK-UP

- A. Prior to fabrication of windows and as early in the Project as possible, agree with M-DCPS and A/E on a location to provide a full-window Mock-up. Window Mock-up shall include windows and components of one full opening from block wall to block wall and include Mid Mullions, sills and all other components required for a full installation.

3.2 INSPECTION

- A. Verify that openings are dimensionally within allowable tolerances, plumb, level, clean, provide a solid anchoring surface, and are in accordance with approved shop drawings.

3.3 INSTALLATION

- A. Install windows according to manufacturer's printed instructions, Miami-Dade County NOA or Florida Product Approval and accepted shop drawings, under direct supervision of manufacturer's representative.
- B. Bed windows with sealants, mastic, or glazing tapes to masonry lip, concrete/precast lip, or wood buck as applicable and secure according to Miami-Dade County NOA or Florida Product Approvals.
- C. Separate aluminum from masonry and ferrous metals by use of bituminous coating or gasketing to eliminate possibility of corrosion from electrolytic action.
- D. Erect windows plumb, level, and true.
 1. Do not distort windows by erection screws or fittings.
 2. After window erection, apply an even spray coat of liquid wax to window surfaces for protection against stains and scratches.
- E. Protect work from corrosion. Prime coat concealed steel stiffeners, anchors, brackets, fasteners, and the like before installation and seal joints between window frames and building tightly and continuously.
- F. Maintain wire or clips holding ventilators closed in place until windows are completely erected and hardware is attached.
- G. Touch-up nicks and scratches on window frames, using manufacturer's approved touch-up coating matching finish color of frame.

3.4 FIELD QUALITY CONTROL

- A. A "Window Field Leak Test" shall be conducted by the Contractor at no cost to M-DCPS. Leak test shall be performed by a qualified testing agency certified in the State of Florida.

Contractor shall notify the A/E and the M-DCPS Project Manager present. The “Window Field Leak Test” sequence that shall be conducted as follows:

1. The initial test series shall be performed after the first factory-glazed operable window assembly has been installed at the site. The window assembly and its installation shall follow all of the requirements in the Contract Documents. After the assembly and installation have met all of the requirements for the “Window Field Leak Test” and been approved, it shall be used as the “standard” window mock-up.
2. The goal shall be to determine, as early as possible, if the installation is being done correctly and to let the installer apply what is learned to succeeding window installations. The test will identify leaking within the window and leaking between the window and the surrounding construction. An outside consultant or an M-DCPS Test Lab are not required to conduct the test. The Contractor and the installer shall conduct the Window Field Leak Test. The A/E and M-DCPS Project Manager will witness and report the test results. A hose and a nozzle shall be utilized to conduct the test.
3. The Contractor shall conduct the initial test and as many re-tests of the initial window assembly as needed, until a leak-free assembly and installation is attained. After the second failed test, the Contractor may be back-charged for all M-DCPS expenses generated by further tests, at the discretion of M-DCPS Project Manager.
4. At the start of the initial test the glazed window assembly shall have been shimmed and fastened in the opening over blocking bedded in sealant as required by the window specifications. The flange at the perimeter of the window frame shall be set in a full bed of sealant. All interior finishes, such as the gypsum board and window stool, shall not yet have been installed against the window frame so that all water intrusions can be identified.
5. A representative from the Contractor, window installer, window producer, M-DCPS Project Manager, and the A/E shall be present during the testing. The Contractor or window installer shall operate the hose nozzle for the testing.
6. The test will be performed in two 5-minute phases with a brief conference between phases. A 5/8-inch garden hose and straight, adjustable brass nozzle shall be used for the test. Set the nozzle to produce an 8 in. to 10 in. diameter pattern at an 8 ft to 10 ft distance from the window. Ascertain and note the water pressure where water from a public source enters the hose, preferably 45 PSI to 55 PSI. If a permanent water source is not available at the time that the test needs to be conducted the contractor shall supply equipment to achieve the required 45 PSI to 55 PSI. The contractor shall spray water against the window while the M-DCPS PM instructs the nozzle holder. The A/E shall observe and note any leaks or other signs of water intrusion at the interior side of the window. Other parties may observe the testing.
 - a. For two minutes, spray the perimeter of the window opening, moving slowly, for 2 circuits, directing slightly more than half of the hose stream just within the window perimeter.
 - b. For one minute, spray the joints within the window opening, moving slowly along the vent joints, and the mullion joints.
 - c. For one minute make another circuit around the perimeter and along all joints.
 - d. Shut off the nozzle while the M-DCPS PM and the A/E confer in presence of other parties to review what the test has revealed. If the test is inconclusive it shall be repeated.
7. The test shall be adjusted to meet the actual window size. The test procedure above is designed for window assemblies/units that are 24 sf to 40 sf. When the window is

less than 24 sf, reduce the 2 minutes to 1-1/2 minutes, and 1 minute to 45 seconds. If the window is 40 sf to 70 sf, expand 2 minutes to 3 minutes, and 1 minute to 1-1/2 minutes. If the window is 70 sf to 120 sf, expand the time to 3-1/2 minutes, and 1-3/4 minutes.

8. If the mock-up window unit allows any water penetration the contractor shall remove the unit completely and re-install the entire window assembly again at no cost to M-DCPS. The Window Field Leak Test shall be repeated as many times as required to produce a result that is free of any water intrusion as determined by all parties.
9. The mock-up must prevent any and all water intrusion before the installation of the remaining windows is permitted.
10. The "Window Field Leak Test" shall continue when all of the window installations have been completed for a building elevation or section of a building. The A/E shall select 10% of the total window area from each building section or elevation to conduct the Window Field Leak Test. The 10% selected shall represent window assemblies from all of the floors and locations within the test zone. All of the procedures detailed above shall be followed when testing each window assembly selected by the A/E. If during the window leak-testing, the windows that are tested fail to keep water from entering the building, the A/E may direct the Contractor, at the Contractor's own expense, to perform the window field leak-test on additional windows beyond the 10% of the windows originally selected by the A/E, until all installations are free from any water intrusion.
11. Comply with Section 08800 for cleaning and maintenance.

B. Protection: Provide protection to prevent damage to window units.

3.5 ADJUSTING AND CLEANING

A. Adjust operating sash and hardware to provide tight fit at contact points and at weather-stripping, and to ensure smooth operation and weather-tight closure.

B. Cleaning:

1. Clean surfaces promptly after installation of windows, exercising care to avoid damage to protective coatings and finishes.
2. Remove excess glazing and sealant compounds, dirt, and other substances.
3. Lubricate hardware and moving parts.
4. Clean glass of pre-glazed units promptly after installation of windows, using methods acceptable to sealant and window manufacturer.
5. Comply with Section 08800 for cleaning and maintenance.

C. Protection: Provide protection to prevent damage to window units.

END OF SECTION