

SPECIFICATIONS

The Wintech Series 9000 consists of 4 1/8" frame heavy commercial aluminum windows with poured urethane thermal barriers. Model 9000 is a double hung window with ratings of HC45:HC60 and Model 9500 is a fixed window with a rating of F-HC70. Both windows have the versatility of mulling and stacking. Through modifications, these windows are available with integral frame flanges for replacement or new construction applications. The windows are supplemented with a complete line of panning, trim, mullions, and other accessories.

SECTION 08520 ALUMINUM WINDOWS

PART 1 – GENERAL

1.01 GENERAL PROVISIONS:

- A. All Contract Documents and Drawings apply to the Work in this Section.
- B. The Work shall be coordinated with that of all construction contractors affected by this Contract to assure the steady progress of the project.
- C. All bids shall be based on pre-qualified products. To qualify, the bidder must furnish one complete window unit and additional information as shown below prior to the bid date.
 - 1. This sample shall be identical to the model of the window on which the bid is based, with the finish being the only exception.
 - 2. The prospective bidder shall include the following in the qualification package.
 - a. The independent laboratory test reports, which certify that the proposed window product meets or exceeds the classification DH-HC45:HC60 for double hung and F-HC70 for fixed windows as specified herein.
 - b. A Notice of Product Certification from the Administrator/Validator of a Certification Program. This certification shows continuing compliance of the window with the specification requirement.
 - c. An independent laboratory test report, indicating that the insulated glass units have been tested to the CBA level.

1.02 DESCRIPTION OF WORK:

- A. The Work of this Section includes all labor, materials, tools, and equipment needed to furnish and install aluminum windows as shown in the Drawings and as specified.
- B. The building shall be kept dry, secure, and weather tight throughout the Work.
- C. The Work shall include:
 - 1. Field observation and measurements of existing openings and conditions. Replacement of all remaining deteriorated structures.
 - 2. Removal and disposal of existing window components and construction materials.
 - 3. Installation of new factory glazed aluminum windows and accessories in existing rough openings. Application of treated wood blocking, shims, and nailers, as required for a secure installation
 - 4. Insulation of fiberglass between window frames and adjacent construction.
 - 5. Proper sealing of the exterior of window units, including any required panning, after installation per AAMA 808.

1.03 RELATED WORK:

- A. The Contract Documents for requirements, which affect the Work of this Section, shall be carefully examined. All stated functions shall be performed.
- B. The Work includes the following related Sections.
 - 1. Section 01730 – Selective Demolition
 - 2. Section 06100 – Rough Carpentry
 - 3. Section 07900 – Joint Sealers
 - 4. Section 08800 – Glass and Glazing

1.04 ITEMS FURNISHED BUT NOT INSTALLED:

- A. Architect and/or Specifier should add any applicable requirements to this Section as deemed necessary.

1.05 ITEMS INSTALLED BUT NOT FURNISHED:

- A. Architect and or Specifier should add any applicable requirements to this Section as deemed appropriate.

1.06 TESTING AND PERFORMANCE REQUIREMENTS:

- A. Standards: Except as otherwise indicated, requirements for all aluminum windows, terminology and standards of performance, and fabrication workmanship are those specified and recommended in AAMA 101/I.S.2-97 and published by AAMA and the AA.
- B. Performance and Testing: Except as otherwise indicated, air infiltration test, water resistance test and applicable load test shall meet the AAMA 101/I.S.2-97 requirement for type, rating and classification of the window units.
- C. Testing: For manufacturer's standard window units, independent certification shall be provided to indicate compliance with specified test procedures.
 - 1. Windows submitted for tests shall be of manufacturer's standard construction.
 - a. Test windows shall comply to the following structural requirements.

<u>Class</u>	<u>Product Type</u>	<u>Test Window Size</u>	<u>Rating</u>
HC	Double Hung	5'0" x 8'0"	DH-HC45
HC	Double Hung	4'6" x 7'0"	DH-HC60
HC	Fixed	6'0" x 6'0"	F-HC70

 - b. Procedures set forth by AAMA 101/I.S.2-97 shall apply.
- D. Specific Requirements: Windows shall conform to specified AAMA 101/I.S.2-97 standards or those specified herein, whichever are the more stringent.
 - 1. Operating Force: The sash of the double hung window shall be adjusted to operate, in either direction, with a force not exceeding 45 pounds after the sash is in motion. No further adjustment affecting the operating force shall be made for the balance of the tests.
 - 2. Air Infiltration Test: The sash of the double hung window shall be in a closed and locked position. The windows shall be subjected to

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an air infiltration test in accordance with ASTM E283-91. Air infiltration shall not exceed 0.11 cubic foot per minute, per foot of crack length for the double hung window and 0.01 cubic foot per minute, per foot of crack length for the fixed window, when tested at 1.57 psf.

3. Water Resistance Test: The sash of the double hung window shall be in the fully closed and locked position. The window units shall be subjected to a water resistance test in accordance with ASTM E 547. At water test pressures of 9.00 psf for the double hung and 12.00 psf for the fixed window, no water shall pass the interior plane of the window frames as defined in the ASTM E 547 test procedure.

4. Uniform Structural Load Test: The following minimum exterior and interior uniform loads shall be applied to the entire surface of the test units.

Class	Window	Test Window Size	Minimum Load
HC	Double Hung	5'0" x 8'0"	67.5 psf
HC	Double Hung	4'6" x 7'0"	90.0 psf
HC	Fixed	6'0" x 6'0"	105.0 psf

Tests shall be conducted in accordance with ASTM E 330. At the conclusion of tests, there shall be no glass breakage, permanent damage of fasteners, hardware, or any other damage causing the window to be inoperable.

5. Forced Entry Resistance: The double hung and fixed windows shall be tested to the requirements of ASTM F 588 and shall achieve the performance level 10.

6. Condensation Resistance Factor: The double hung and fixed windows shall be tested in accordance with the AAMA 1503-98 and ASTM C 236-91 thermal performance standards and shall yield a condensation resistance factor of no less than CRF 57.

7. Thermal Transmittance "U-Factor" Test: For both the double hung and fixed windows, Thermal Transmittance shall be tested to AAMA 1503-98 and shall produce U Factors no greater than 0.60 for clear glazed and 0.41 for Low-E/Argon glazed windows.

1.07 QUALITY ASSURANCE:

A. The standards set forth in AAMA 101/I.S.2-97 and other referenced standards shall be met.

B. Test Reports shall be provided from an independent laboratory certifying that the performance for air infiltration, water resistance, uniform structural load, condensation resistance and thermal transmittance has been met or exceeds the criterion required by the standards.

1.08 REFERENCES:

- A. American Architectural Manufacturers Assoc. (AAMA)
- American Society for Testing and Materials (ASTM)
- American National Standards Institute (ANSI)
- Aluminum Association (AA)

1.09 SUBMITTAL REQUIREMENTS:

A. General: The following submittals shall be furnished.

1. Product Data: Manufacturer's specifications, suggestions and standard product details for aluminum window units, including independent laboratory certified test report to show compliance with requirements.

2. Shop Drawings: Shop drawings that include typical unit elevations, details of the head, jamb and sill of each product and typical installation features. Drawings are to show anchor locations, type of glazing, screening, and window finish that will be supplied.

3. Samples: Samples of each required finish of an extruded shape or flat aluminum stock. Additional samples, as requested by Architect, to show fabrication techniques, workmanship, component parts and design of hardware.

1.10 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Windows, hardware and all related items shall be stored and handled in strict compliance with the manufacturer's instruction.

B. Windows, accessories and related materials shall be adequately protected against damage from the elements, construction activities and other hazards before, during and after installation.

1.11 PROJECT WARRANTIES:

A. Manufacturer's Warranties: Written warranties from window manufacturer shall be submitted for the following:

1. Windows: Windows furnished shall be certified as fully warranted against any defects in material or workmanship, under normal use and service, for a period of one year from date of installation.

2. Weather Stripping: All weather stripping shall be warranted for a period of one year from date of window installation.

3. Finish: The pigmented organic finishes on the aluminum profiles and component parts shall comply with the requirements of AAMA 603. Painted aluminum profiles are to be fully warranted for five years whereas anodized aluminum profiles are to be fully warranted for one year against chipping, peeling, cracking, and blistering from date of installation.

4. Glazing: Insulated glass unit shall be warranted from visual obstruction, due to internal moisture, for a period of five years from date of installation.

1.12 EXTRA MATERIAL

A. Specified extra material shall be furnished and delivered to Owner at the project location for potential future maintenance or replacement.

PART 2 – PRODUCTS

2.01 GENERAL:

A. Manufacturer: Subject to compliance with Contract Documents and Specifications, window products are to be manufactured by Window Tech Systems, Inc.

1. Products: Wintech Model 9000 Double Hung Window and Model 9500 Fixed Window – Heavy Commercial Rated, Thermally Broken.

B. Window Construction: Manufacturer's standard construction, which has been in use on similar window units for a period of not less than ten years and has been tested to the thermal conductance, condensation, and strength requirements of this application, shall be supplied.

2.02 MATERIALS:

A. Frame and Sash Members: Aluminum alloy 6063 extruded shapes, with a minimum tensile strength of 22,000 psi and a minimum yield strength of 16,000 psi. Extrusions to meet requirements of ASTM B 221.

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- B. Hardware:
 - 1. Lock & Keeper: White bronze alloy sweep lock and keeper.
 - 2. Sash Release Tilt Mechanisms: Cast zinc housing and latch units.
 - 3. Tilt Pivot Bar: Heat treated type 410 stainless steel with high strength and rigidity.
- C. Fasteners:
 - 1. Stainless steel flat, hexagon, pan or oval head screws.
 - 2. Stainless steel tamper proof tri-wing screws.
- D. Weather Stripping:
 - 1. Silicone-treated pile with a polypropylene center fin to AAMA 701.
 - 2. Non-rigid bulb weather seal to AAMA 702.
- E. Balance Systems:
 - 1. Aluma-Tilt spiral balances.
 - 2. Block and tackle balances.
 - 3. Ultra-lift balances.
- F. Balance Shoes: Celcon Acetal pivot lock shoes with glass reinforced nylon cams.
- G. Screens: Aluminum alloy 6063-T5 frame half or full screens with aluminum 18 x 16 mesh or fiberglass mesh.
- H. Glazing: Marine glazed 7/8" thick sealed insulated glass, consisting of clear or Low-E annealed or tempered flat glass, hot melt butyl sealant, molecular sieve desiccant, anodized aluminum spacers and plastic corner keys. Insulated glass units with CBA level certification.
- I. Grid Muntins:
 - 1. Internal: Painted aluminum roll formed rectangular bars.
 - 2. External: Painted aluminum extruded trapezoidal bars.
- J. Anchor, Clips and Window Accessories:
 - 1. Fabricated aluminum or stainless steel.
 - 2. Fabricated zinc plated or cadmium plated steel to ASTM B 633 and B 766 respectively.
- K. Compression Glazing Strips: Extruded neoprene gaskets and polyethylene foam sealant tape to AAMA 810.
- L. Sealant: Permanently elastic, non-shrinking, and non-migrating sealant to ASTM 803.
- M. Insulation: Fiberglass to ASTM C 665 Type 1.

2.03 WINDOW CLASSIFICATION:

A. AAMA 101/I.S.2-97 DH-HC45:HC60 Double Hung windows and F-HC70 Fixed windows complying with requirements for AAMA's Classification "HC" for "Heavy Commercial" type windows.

2.04 WINDOW CONFIGURATIONS:

A. General: Operating arrangements for types of sash required in window units and the minimum provisions for each type are hereby specified.

1. Heavy Commercial rated double hung aluminum windows have vertically sliding sash, with spiral balancing or ultra lift balancing mechanisms which appropriately hold the sash in a stationary position when opened to any distance. Balances are accessible and replaceable. Both sash units have latch release mechanisms, which permit the sash to tilt into the building for cleaning of interior and exterior surfaces.

2. Heavy Commercial rated fixed aluminum windows with insulated glazed glass units or insulated panels have no operating hardware or equipment.

2.05 FABRICATION AND ACCESSORIES:

A. General manufacturer's standard fabrication and accessories, which comply with the specifications indicated, shall be provided.

B. Window members, including any muntin bars, shall be made of aluminum. Secondary members such as friction tabs, shoes, and weather stripping guides, shall also be made of aluminum or a compatible material.

1. Main frame and sash members shall have wall thicknesses as allowed by AAMA 101/I.S.2-97. The standard wall thickness tolerance as defined by the Aluminum Association shall apply.

2. The master frame shall be no less than 4 1/8" in-depth. The sash shall have hollow extruded sections.

C. Thermal Break: The thermal barrier shall provide a continuous uninterrupted thermal break around the entire perimeter of the frame and sash of the double hung and frame of the fixed windows. All members shall not be bridged by any metal conductors.

D. Construction Assembly: Frame and sash shall be assembled in a secure and workmanlike manner to perform as specified herein. All joints of the main frame and sash shall be of butt type construction, coped and neatly joined with stainless steel screws anchored in integral boss.

1. Frame: Mainframe shall be sealed watertight with joint sealant per AAMA Specification 803. Gaskets shall be used to seal the mechanically fixed frame joints.

2. Tilt Sash: Sash shall be sealed with joint sealant complying with AAMA Specification 803. The meeting rails of the sash shall comprise of two rows of fin seal weather stripping and a metal interlock for locking the sash in the closed position. The sash shall be easily removed from the frame for either cleaning or repair. Reglazing shall be easily accomplished without the use of special glazing tools. The horizontal sash rails of the top and lower sash shall contain full length extruded handles for efficient operation. Sash shall not contain mechanical fasteners such as anti-bow pins to restrict tilt operations.

3. Lock & Keeper: The heavy duty sweep lock and keeper of the double hung windows shall be fastened on the meeting rails to provide a watertight seal and maximum security. Windows over 32" in width shall have two locking assemblies.

4. Sash Release Tilt Mechanisms: The tilt housing and latch units shall be mechanically anchored to the sash rails. The latches shall be spring loaded and afford positive lock into the jamb profile. In a tilted position, the sash shall be removable to the interior.

5. Structural Members: For assembled units with integral mullions, independent mullions, or a combination of frame members, the resulting members shall be capable of withstanding load requirements under the Uniform Load Structural Test.

6. Weather Stripping: Weather stripping shall be capable of meeting the environmental exposure and performance requirements. The solid barrier fin-type weather stripping shall be applied between the sash and frame of the double hung window. The bottom sash rail shall include the non-rigid bulb weather seal, which will compress onto the sill when the sash is closed.

7. Balances: Balances of appropriate size and capacity to ensure proper operation and to hold operable sash stationary in any open position shall be used. Sash balances shall be easily accessible and replaceable in the field without use of special tools. Balances shall comply with the requirements of AAMA Specification 902.

8. Glazing: All glazing units and insulated panels shall be assembled at the factory. Both sash of the double hung window and glazed frame of the fixed window shall be marine glazed. The dimension of the dehydrated air space is dependent on the glass thickness and aluminum spacer used to produce the overall minimum thickness of 7/8" for the sealed insulated glass unit.

9. Grid Muntins: Colonial or diamond internal muntins are available to instill a decorative appearance. These painted aluminum

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muntins, when installed between the glass panes, improve the ease of cleaning. Colonial exterior muntins may be applied on the outer surface of the insulated glass units to meet historical standards.

10. Screens: Either half or full insect screens shall be supplied for operable sections of the double hung windows. Half screens slide in an external window frame channel and are removable from the inside. Full screens, which are removable to the outside, are secured in the window jamb channel with spring clips. Aluminum or fiberglass mesh screen shall be provided.

2.06 CASING COVER SYSTEM:

A. Exterior Panning: Aluminum panning sections shall be of a one-piece design, which locks around the entire window frame to form a weather-tight connection. Assembly shall allow unrestricted expansion and contraction of panning and window frames. Panning extrusions shall be site assembled and secured at the corners with stainless steel screws in integral screw boss with the joints back sealed per AAMA Spec 803.

B. Exterior Mullions: Mullion covers shall be made of aluminum extrusions or break metal. The covers shall be sealed against panning sections with continuous vinyl bulb weather stripping interlocked within the mullion cover.

C. Interior Trim: Aluminum trim shall be made from extruded profiles. Snap trim shall be supplied in required lengths and attached with clips located within 24" space intervals. No exposed screws are allowed.

D. Receptor Systems: If required, the receptor shall be of two piece construction designed to anchor the windows in place. The receptor shall be made from aluminum extrusions and finished to match the window with the polyurethane thermal break.

2.07 ALUMINUM WINDOW FINISHES:

A. Manufacturer's standard electrostatically applied baked enamel coating, as selected by the Architect, shall be supplied. Application of finish shall be made by extrusion manufacturer for all components to ensure match. Manufacturer's standard substrate preparation shall include cleaning, degreasing, and appropriate pretreatment.

1. The Polycron pigment organic coating shall comply with the AAMA 603 standard.

2. High performance Duranar paint to the AAMA 605 standard is available.

3. Clear anodize finish to AAMA 607 and color anodic finish to AAMA 608 also are available.

PART 3 – EXECUTION

3.01 PREPARATION:

A. For replacement applications, existing windows shall not be removed until new windows are on site and ready for immediate installation. All openings shall be protected at the end of the work day, or for extended periods during wind-driven rains or excessively cold weather.

For new construction applications, new windows shall be supplied in sufficient quantities in advance of contractor's building schedule to permit orderly installation.

B. Replacement work shall be removed carefully, avoiding damage of remaining structures.

C. All other functions shall be performed as necessary to prepare openings for proper installation and operation of new windows.

D. Any shipping damages to windows shall be reported to manufacturer within 72 hours of receipt of delivery.

3.02 DISPOSAL:

A. Existing window debris and other materials shall be removed from the site and disposed by the Contractor.

B. Contractors shall comply with applicable laws, regulations, and governing specifications for proper disposal of all debris.

3.03 INSTALLATION:

A. Contractor installers shall comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators and other components. Any attachments to the structure or to components of the window system shall not adversely affect thermal barriers of the windows.

B. Existing window frames, jambs, sash stop and parting strip shall be removed without causing damage to adjacent materials and surfaces. New windows are to be installed as detailed on Drawings specified herein and recommended by manufacturer.

C. Window finish shall be protected to prevent damage during the course of the construction operations. The finish protection shall be removed before final inspection of the windows.

D. Insulation shall be fitted solid in sill, jamb, head, stool, and mullion areas before the window assemblies are installed.

3.04 SETTING AND ANCHORING:

A. Window frames shall be anchored at jambs, head, and sill as detailed on Drawings and as recommended by window manufacturer.

B. Window units shall be set plumb, level and true to line, without warp or rack of frames or sash and anchored securely in place. Aluminum and other corrodible surfaces are to be separated from sources of corrosion or electrolytic action.

C. Window panning and trim shall be properly anchored in a plumb and level condition.

3.05 ADJUST AND CLEAN:

A. Operating sash and hardware of the double hung windows shall be adjusted to provide tight fit at contact points and at weather stripping to attain smooth operation and weather-tight closure.

B. All aluminum surfaces shall be cleaned promptly after installation, exercising care to avoid damage to protective coatings and finishes.

C. All glass shall be cleaned after installation. The contractor has the responsibility to remove labels, excess sealant compounds, dirt and foreign substances.

D. All protection and precautions shall be initiated to ensure that the window systems will be free of damage or deterioration, other than normal weathering, until time of acceptance by Owner.

**END OF SECTION
10/31/01**