4500 Series

4-1/2” Heavy Commercial Non-Sloped Thermally Improved Double Hung Window

SECTION 08520 ALUMINUM WINDOWS
SERIES 4500 Thermal DH-AW/HC___ Grade Double Hung Windows

PART 1 GENERAL

1.01 Work Included

A. Furnish and install aluminum architectural windows complete with hardware and all related components as shown on drawings and specified in this section.

Insert 4500 Series Thermal.

B. All windows shall be Winco (4500) DH-AW/HC_____. Other manufacturers requesting approval to bid their product as an equal must submit the following information fifteen days prior to close of bidding.
   1. A sample window (size and configuration) as per requirements of architect.
   2. Detail cuts and product data.
   3. Test reports documenting compliance with requirements of section 1.05.

C. Glass and Glazing
   1. All units shall be factory glazed.

   -OR-

   1. Reference Section 08800 for Glass and Glazing.

1.02 Related Work

A. Section 08400 - Entrance and Storefronts
B. Section 08480 - Balanced Door Assemblies
C. Section 08640 - Glazed Patio Doors
D. Section 08652 - Replacement Windows
E. Section 08900 - Glazed Curtain Walls
F. Section 08960 - Slope Glazing System
G. Section 07900 - Caulking and Sealant

1.03 Items Installed But Not Furnished

1.04 Items Installed But Not Furnished

1.05 Testing and Performance Requirements

A. Test Units
   1. Air, water, and structural test unit shall conform to requirements set forth in ANSI/AAMA/NWWDA 101/I.S.2-97.

B. Test Procedures and Performances
   1. All windows shall conform to ANSI/AAMA/NWWDA 101/I.S.2-97requirements for referenced window type in section 1.01B. In addition, the following specific performance requirements shall be met.
   2. Air Infiltration Test
      a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 283, at static air pressure of 6.24 psf.
      b. Air infiltration shall not exceed .3 cfm per square foot.
   3. Water Resistance Test
      a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 331, at static pressure difference of _____ psf.
      b. There shall be no uncontrolled water leakage.
   4. Uniform Load Deflection Test
      a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 330, at a static air pressure difference (positive and negative) of ___ psf.
      b. During the course of the test, no member shall deflect more than 1/175 of its span.

5. Uniform Load Structural Test
   a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E 330 at a static air pressure difference of ___ psf.
   b. At conclusion of test there shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms, nor any other damage which would cause the window to be inoperable.
6. Condensation Resistance Test (CRF)
   a. With window sash closed and locked, test unit in accordance with AAMA 1503.1.
   b. Condensation Resistance Factor (CRF) shall not be less than ____.
7. Thermal Transmittance Test (Conductive U-Value)
   a. With window sash closed and locked, test unit in accordance with AAMA 1503.1.
   b. Conductive thermal transmittance (U-Value) shall not be more than ____BTU/hr/sf per degrees F.
8. Life Cycle Test
   a. Tested in accordance with AAMA 910, there shall be no damage to fasteners, parts, support arms, activating mechanisms, or any other damage, which would make the window inoperable. Subsequent air infiltration and water resistance tests shall not exceed specified requirements.

*=For certified test reports consult Winco.

1.06 Quality Assurance

A. Provide test reports from AAMA accredited laboratory certifying the performance as specified in Section 1.05.
B. Test reports shall be accompanied by the window manufacturer's letter of certification stating that the tested window meets or exceeds the afore mentioned criteria for the appropriate ANSI/AAMA/NWWDA 101/I.S.2-97.

1.07 References

1.08 Submittals

A. Contractor or window manufacturer shall submit shop drawings, finish samples, test reports, and warranties, per requirements of architect.
   1. Shop Drawings: Include typical unit elevations, full or half-scaled detail sections and typical installation details. Include type of glazing, screening, and window finish.
   2. Product Data: Manufacturer's specifications, recommendations and standard details for window units.
   3. Samples of materials may be requested without cost to owner, i.e. frame sections, corner samples, mullions, extrusions, anchors, and glass.

1.09 Delivery, Storage, and Handling

A. Store and handle windows and other components in strict compliance with manufacturer's instructions.
B. Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.

1.10 Warranties

A. Total Window System
   1. The responsible contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total window installation which includes that of the windows, hardware, glass (including insulated units), glazing, anchorage and setting system, sealing, flashing, etc. as it relates to air, water and structural adequacy as called for in the specifications and approved shop drawings.
   2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the responsible contractor at his expense during the warranty period.

PART 2 PRODUCTS

2.01 Materials

A. Aluminum
   1. Extruded aluminum shall be 6063-T6 alloy and temper, with a tensile strength of 24,000 PSI.

B. Hardware
   1. Sweep locks shall be manufactured from a white bronze alloy with a US25D brushed finish.
   2. Extruded aluminum auto-spring catch shall be provided at the head of the windows to hold the top sash in the closed position.

C. Balances
   1. Balances shall be high performance sash balances that are tested in accordance with AAMA 902, "Voluntary Specification for Sash Balances"
   2. Balances shall meet all minimum Class 5 requirements with a minimum .30 Manually Applied Force ratio (MAF)
   3. Balances shall be of appropriate size and capacity to hold sash in position in accordance with 101-88, section 2.2.3.3.2, and AAMA 902, section 8.1.
   4. Balances shall be attached to locking carrier system, which slides on rails extruded in the jamb frame. Mounting brackets that are screw attached to sash are not acceptable.

D. Weatherstrip
   1. Each vent shall have one row of heavy fin seal wool pile weather stripping and one row of ridged vinyl installed in specially designed weather strip pocket in the extrusion.

E. Thermal Barrier:
   1. Poured-in-place structural thermal barrier shall transfer shear 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 barrier's made of crimped in place polyamide (insulbar®) strips are not acceptable unless all strips are covered and tooled with Dow 795 silicone caulking to eliminate water migration.

F. Glass
   1. Insulated glass shall be ( ) as manufactured by ( ) consisting of ( ) exterior, ( )air spacer, and ( ) interior.
   -OR-
   1. Monolithic glass shall be ( )

2.02 Fabrication

A. General
   1. Mechanical fasteners and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all frame and vent corners.

B. Frame
   1. All aluminum frame extrusions shall have a minimum wall thickness of .090.
   2. Main frame sill members shall have a minimum wall thickness of .125.
   3. The main frame depth shall not be less than 4-1/2"
   4. Frame components shall be assembled by means of mechanical fasting with screws. Joinery to be sealed with small joint sealant.

C. Ventilator
   1. All sash frame extrusions shall have a minimum wall thickness of .080.
   2. Each corner shall be assembled by means of mechanical fasting with screws. Joinery is sealed with small joint sealant.
   3. Each vent shall have one row of heavy fin seal wool pile weather-stripping and one row of ridged vinyl installed in specially designed weather strip pocket in the extrusion.

D. Screens **(Applicable only to windows requiring screens)**
   1. Extruded screen frames shall be fabricated from aluminum 6063-T6.
      a. Screen mounting holes shall be pre-drilled at the factory.
      b. Screen mesh shall be (enter aluminum, fiberglass, or stainless steel).
      c. Screen mesh shall be so installed that the cloth may be easily replaceable.

E. Glazing
1. All windows shall be factory pre-glazed using ( ).
2. All units shall be glazed with hot melt, silicon on the exterior, with glazing vinyl and extruded snap-in aluminum glazing bead on the interior.

F. Finish
1. Anodic
a. Finish all exposed areas of aluminum windows and components with electrolytically deposited color in accordance with Aluminum Association Designation AA-M10-C22-(*). Color is to be ( ).

Available colors are clear, light bronze, medium bronze, dark bronze, and black.

AADesignation	Description	Mills	AAMA Guide Spec.
* A41	Class I Clear Anodized	0.7 or Greater	611-98
* A31	Class II Clear Anodized	0.4 or Greater	611-98
* A44	Class I Color Anodized	0.7 or Greater	611-98
* A34	Class II Color Anodized	0.4 or Greater	611-98

-OR-

1. Painted
a. Finish all exposed areas of aluminum windows and components with ( ). Color is to be ( ).
(1) = (70% Kynar) AA-M12-C42-R1X & AAMA 2605-98 & ASCA 96
(4) = (50% Kynar) AA-M12-C42-R1X & AAMA 2604-98

PART 3 EXECUTION

3.01 Inspection

A. Job Conditions
1. Verify that openings are dimensionally correct and within allowable tolerances. Openings must be plumb, level, and clean. Provide a solid anchoring surface that is in accordance with approved shop drawings.

3.02 Installation

A. Use only skilled craftsmen for work to be done in accordance with approved shop drawings and specifications.
B. Set square and level aligning window faces in a single plane for each opening. Windows and materials must be set square and level. Adequately anchor window so when subjected to normal thermal movement, specified building movement, and specified wind loads, so windows will maintain a permanent position.
C. Adjust windows for proper ease of operation after installation has been completed.
D. Contractor furnish and apply sealant, per manufacturers recommendations, to provide a weather tight installation at all opening perimeters. Wipe off excess material and leave all exposed surfaces and joints clean and smooth.

(Winco recommends window flashings, sub-sills and end dams on all window installations).

3.03 Protection and Cleaning

A. After completion of window installation, windows shall be inspected, adjusted, and left in working order. Windows shall be left clean, free of labels, dirt, etc. Protection from this point shall be the responsibility of the building occupant.

(Windows are a finished product and need to be treated carefully as a finished product).

**=The above specifications are subject to change without notice.*