



**Model 140A Thermal Horizontal Sliding Window  
Series HS-AW40**

**GUIDE SPECIFICATION**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

A. Furnish and install commercial grade windows complete with hardware and related components as shown on drawings and specified in this section.

B. All windows shall be Starline Series 140 HS-AW40 thermal horizontal sliders. Other manufacturers requesting approval to bid their product as an equal must submit the following information fifteen days prior to close of bidding.

1. Actual window sample identified by manufacturer's series number and AAMA/ANSI designation.
2. Letter of conformance to this specification from manufacturer.
3. Certified structural and thermal test reports.

C. Glass and Glazing - specify type of glass in this section if windows are to be factory glazed by manufacturer. Glass and glazing by others should be specified in Section 08800.

**1.02 RELATED SECTIONS**

- A. Section 08800....Glass and Glazing
- B. Section 07920.....Perimeter Sealants
- C. Other.....(louvres, panels, steel, insulation, etc.)

**1.03 REFERENCES**

- A. Aluminum Association (AA):
  1. Designation system for aluminum finishes.

B. American National Standards Institute (ANSI) and American Architectural Manufacturers Associations (AAMA).

1. 101/I.S. 2-97: Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Sliding Glass Doors.
2. 603.8-92: Voluntary Performance for Organic Coatings.
3. 701.92 and 702-92: Voluntary Specifications for Pile Weather-strip.
4. 1503.1-88: Voluntary Test Method for Condensation Resistance of Windows.
5. ASTM C236-87 and 1503.1-88: Voluntary Test Method for Thermal Transmittance of Windows.
6. 1302.5-76: Voluntary Specification for Force Entry Resistant Aluminum Prime Windows.
7. 607.1: Guide Specification for Clear Anodic Finishes.
8. 608.1: Guide Specification for Color Anodic Finishes.
9. ANSI-A117.1-86: Accessibility and Usability for Physically Handicapped People ANSI-A117.1.86, Section 4.12 Windows and 4.25 Controls.

C. American Society for Testing Materials (ASTM).

1. ASTM E283: Test for Air Leakage through Exterior Windows.
2. ASTM E547: Test for Water Leakage through Exterior Windows.
3. ASTM E330: Test for Structural Performance of Exterior Windows.
4. ASTM E987: Test for Deglazing Force of Fenestration Products.

D. General Services Administration (GSA).

1. FSDD-G-451D: Federal Specification - Glass.
2. FSL-S-125B: Federal Specification - Screening, Non-Metallic Insect.
3. FSRR-W-365: Federal Specification - Wire Fabric (Insect Screening).

## **1.04 SYSTEM REQUIREMENTS**

A. General Standard: In addition to requirements shown or specified, comply with applicable ANSI/AAMA 101/I.S.2-97 for design of materials, fabrication and installation of component parts.

B. Design Requirements

1. Drawings are diagrammatic and do not purport to identify or solve problems of thermal or structural movement, glazing, anchorage or moisture disposal.
2. Attachment considerations are to take into account site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connection between units and building structure or between units themselves.

C. Performance Requirement

1. Air Infiltration: Air leakage shall not exceed 0.3 cfm/ft at test pressure of 6.24 psf.
2. Water Infiltration: No uncontrolled leakage when tested in accordance with ASTM E331 at a test pressure of 12 psf.
3. Life Cycle Tests: When tested in accordance with AAMA 910-93 there shall be no damage to fasteners, hardware parts or any other damage which could cause the window

to be inoperable, and shall meet air infiltration and water resistance tests (1) and (2) above.

4. AAMA 501.1-94, Standard Test Method for Exterior Windows, Curtain Walls, and Doors for Water penetration Using Dynamic Pressure.

5. SBC, Standard Building Code (formerly Southern Building Code), Chapter 16, Structural Loads, Section 1606, Wind Loads.

#### D. Structural Requirements

1. Uniform load deflection test: With the sash in a closed and locked position the windows shall be tested in accordance with ASTM E330 at a static pressure of 40 psf. The load shall be applied both positively (exterior) and negatively (interior) to the surface of the unit. No member shall deflect more than 1/175 of its span.

2. Uniform Loaded Structural Test: With the sash in a closed and locked position the windows shall be tested in accordance with ASTM E330 at a static pressure of 60 psf. The load shall be applied both positively (exterior) and negatively (interior) to the surface of the unit. After each loading there shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms, or any other damage which causes the window to be inoperable. There shall be no permanent deformation of any main frame, sash, panel or sash member in excess of 0.2% of its span.

**NOTE: HIGHER STRUCTURAL DESIGN PRESSURES ARE AVAILABLE FOR COASTAL AREAS OR LARGER STORY BUILDINGS TO MEET CODE REQUIREMENTS.**

#### E. Thermal Requirements

1. Condensation Resistance Factor (CRF): When tested in accordance with AAMA Specification 1503.1-88 on a test size of 6'0 x 4'0, the CRF shall not be less than 51.

2. Thermal Transmittance (U-Value): When tested in accordance with AAMA C-236.87, the thermal transmittance due to conduction ( $U_c$ ) shall not exceed 0.63 BTU/HR.FT<sup>2</sup>.F.

F. Forced Entry Resistance (FER): When tested in accordance with AAMA 1302.5, there shall be no entry.

### **1.05 DELIVERY, STORAGE AND HANDLING**

A. Deliver units with cardboard corners to protect finished surfaces during delivery and when stored at site.

B. Store windows in an upright position, off ground.

C. Remove any labels from glass which can become firmly bonded when exposed to sun or which may be difficult to remove from exterior side of window.

D. The general contractor shall be responsible for protecting the windows and their finish from damage by the elements, construction activities and other hazards before, during and after installation.

## **1.06 PROJECT CONDITIONS**

A. Ensure ambient and surface temperatures and joint conditions are suitable for installation of materials.

## **1.07 WARRANTY**

A. Product: Manufacturer to provide a letter of conformance to the specifications.

1. Windows shall be warranted against defects in material or workmanship, under normal use for a period of one year after installation.
2. Insulated glass shall be warranted against visual obstruction resulting from film formation or moisture collection between the glass surfaces for a period of (5) years after installation. Labor is excluded.

B. Installation: Installer shall furnish written warranty to correct any units which do not operate properly or have excessive air infiltration or water penetration or any other defect which is directly related to faulty installation.

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURERS**

A. Acceptable Manufacturers (Subject to conformance with the Performance Requirements.):

1. Starline Industries, Baltimore, MD

### **2.02 MATERIALS**

A. Aluminum

1. Aluminum shall be 6063-T5 alloy and temper and all frame and vent wall thickness minimums shall be in conformance with ANSI/AAMA 101/I.S. 2-97 specification.

B. Hardware

1. Each operating vent to have spring loaded handle/latches, which will automatically engage the frame meeting rail and lock when closed.
2. Handicap locks are available upon request and will conform to ADA requirements in ANSI 117.1-86 Section 4.12.

3. Operating vents shall ride on a minimum of two adjustable machined stainless steel ball bearing rollers in stainless steel housing. The roller surface in the sill frame shall be

covered with a stainless steel track to prevent damage to the window finish, which can be caused by roller abrasion. The stainless steel track shall be replaceable.

4. Weatherstrip shall be silicone treated pile with a polypropylene center fin conforming to AAMA 701.2 and 702.92

5. Screens: (Optional) Screen frames to be extruded aluminum or rolled form box type (choose one). Screen cloth to be aluminum or fiberglass mesh (choose one). Screen frame to be installed and removed from the interior of the unit only.

6. Thermal barrier to be poured in place and debridged two part polyurethane.

7. Glass and glazing - a minimum glass thickness of 3/4" overall shall be provided. Individual glass lites forming the insulated glass unit shall be based on minimum thickness allowed in Federal Glass Specifications FSDD-G-451D and calculated by identifying the correct design pressure based on the wind velocity zone and corresponding building height. (Alternate glass types and thicknesses may be specified.)

8. Miami Dade NOA#04-1202.05 Impact glass and glazing is available for designated areas within the windbourne debris requirement.

## **2.03 WINDOW TYPES**

### **A. Horizontal Sliding Units**

1. Provide units complying with AAMA/NWWDA 101/IS 2-97 (HS-AW40) performance criteria.
2. Provide units with one fixed and one horizontal sliding sash.
3. Provide units glazed with a minimum 3/4" insulated glass thickness and consisting of glass lites suitable for building design pressure. Glass type to be (as selected by architect).
4. Provide units that lock automatically when closed.
5. Provide screens which can only be removed from inside and fit tightly at their perimeter against the window frame.

## **2.04 FINISH**

1. Organic (paint) finish applied over a five stage aluminum pretreatment. Finish shall be a one coat, one bake system and shall conform to AAMA 603.8-92.
2. Clear Anodic Finish - Class I - AAMA 12C22A41. Minimum thickness shall be 0.7 mil and conform to AAMA 607.1.
3. Dark Bronze Anodic Finish - Class I - AAMA 12C22A44. Minimum thickness shall be 0.7 mil and conform to AAMA 608.1.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

A. Openings shall be verified to be within allowable tolerances, plumb, level and clean, providing a solid anchorage surface and in accordance with approved shop drawings. Unsatisfactory conditions shall be corrected prior to installation.

### **3.02 INSTALLATION**

A. All windows shall be erected in accordance with the approved shop drawings and the following manufacturer's recommendations: No springing, forcing or distorting frames into openings. Head and sill members shall be aligned parallel and square with jambs. Sill shall be adequately supported and leveled along its entire length. Adequate header clearance shall be provided to avoid downward bowing caused by construction settlement. Prior to erection of frames, erector must inspect both sill end connections at jamb junction for any breaks in the seal and if required reseal the joints with a quality small seam sealer.

B. After installation of windows the erector shall inspect the units for proper operation and make any adjustments that may be required. Any factory defects must be reported in writing to manufacturer at time of installation.

C. At inspection of windows after installation, any labels, excess sealant or other temporary materials should be removed from glass or aluminum.

D. Final cleaning or glass repairs are not part of this specification.