



**Model 400 Thermal Single Hung Window
Series SH-HC95**

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 400 SH-HC95 thermal single hung. 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.
4. All products shall conform to the 2003 International Building Code requirements for windborne debris in coastal applications.

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.

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

1. 101.88: Voluntary Specifications for Aluminum Prime Windows and Sliding Glass Doors.
2. 603.8-85: Voluntary Performance for Organic Coatings.
3. 701.2-74: Voluntary Specifications for Pile Weather-strip.
4. 1503.1-88: Voluntary Test Method for Condensation Resistance of Windows.
5. 1302.5-76: Voluntary Specification for Force Entry Resistant Aluminum Prime Windows.
6. 607.1: Guide Specification for Clear Anodic Finishes.
7. 608.1: Guide Specification for Color Anodic Finishes.
8. 605.2 Guide Specification for High Performance Finishes
9. 2000 International Building Code
10. SBCCI Test standard for determining impact resistance from windborne debris.

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 E1996 01
5. ASTM C236-87 and 1503.1-88: Voluntary Test Method for Thermal Transmittance of windows.

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 101-88 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. Project shop drawings are required 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 0.20 cfm/ft of sash crack when tested in accordance with ASTM E283 at a static air pressure difference of 6.24 psf.
2. Water Infiltration: No uncontrolled leakage when tested in accordance with ASTM E547 at a test pressure of 15 psf.

3. Design units so that no frame assembly fasteners are exposed on the exterior and interior face of the window.

D. Structural Requirements

In accordance with ASTM E330 on a test size of 5' 0" W x 8' 0" H at a static test pressure difference of +95 psf both exterior and interior pressure applied. There shall be no glass breakage or permanent damage to the window which would cause it to be inoperable.

E. Thermal Requirements

1. Meet AAMA minimum thermal specification for heavy commercial grade windows, CRF and U-values vary with the use of various types of glass substrates and airspaces.

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

1.05 FABRICATION

A. General.

1. All frames to be 4.25 inches deep.
2. Frame head, jambs and vents of .080" frame/sill members shall have a minimum wall thickness of .125" All horizontal vent extrusions to be tubular.
3. Frame and vent connections shall be mechanically fastened.
4. All frame jambs shall have dual commercial thermal cavities to provide improved thermal frame values.
5. Weatherstripping to be Schlegel – fin seal or equal.
6. Glazing shall be a combination of two-sided foam tape with wet silicone corner seal with a snap in aluminum glazing bead and EPDM glazing wedge between the aluminum glazing bead and the inboard lite of glass. When glazing laminated missile type glass, provide a 1 5/16" glass rebate to accommodate a 1/2" air space between the glass lites.

1.06 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 and Material 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 101-88 specification.

B. Hardware

1. Each operating vent to have one white bronze sweeplock and keeper at the vent/frame meeting rail and an additional lock on windows wider than three feet.
2. Balances to be block and tackle type (Class 5 heavy duty springs.)
3. Screens- box type frames, fiberglass screen cloth removable from interior only.
4. Thermal barrier to be poured in place two part polyurethane.
5. Glass and glazing - a minimum glass thickness of 1" 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

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corresponding building height. (Alternate glass types and thicknesses may be specified.) Please see section 8800 for glass types and performance requirements.

2.03 WINDOW TYPES

A. Single Hung Windows

1. Provide units complying with AAMA 101-88 SH-HC95 performance criteria.
2. Provide units with one fixed and one vertical sliding vent.
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 with white bronze cam locks at meeting rails.
5. Provide screens which can only be removed from inside to minimize the possibility of "blow out."

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 603.8-85.
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.
4. Two coat high performance organic finish per AAMA 605.2.- 70% fluoropolymer
5. Two coat high performance organic finish per AAMA 605.2- 50% fluoropolymer.

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. Any missile weephole covers should be replaced at this time.

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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. Any labels or excess sealant should be removed prior to installation as it may cause discoloration of glass.

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

PART 4 – SOUND TRANSMISSION CLASS

4.01

- A. Standard glazing 35 STC
- B. STC and laminated glazing 40 STC
- C. Sound Transmission Loss ASTM E90

PART 5 – FIELD TESTING

5.01 All field testing should be completed in accordance with AAMA 502-02 specifications.