2290 HC SIDELOAD

SECTION 08520-ALUMINUM WINDOWS

1.1 GENERAL

1.1.1 SCOPE. All aluminum windows of the types and sizes shown in the plans and/or as called for in this specification shall be furnished with all the necessary hardware, anchors, and miscellaneous equipment as herein specified, and shall be manufactured by Repco Replacement Products Industries Corporation or equal.

1.2 MATERIALS

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1.2.1 ALLOYS. Aluminum shall be of commercial quality and of proper alloy for window construction free from defects impairing strength and durability. All extruded sections shall be of 6063-T6 alloy temper, and shall have a minimum ultimate tensile strength of 22,000 P.S.I. and a yield of 16,000 P.S.I.

1.2.2 WINDOW MEMBERS. Main frame and sash members shall have a nominal wall thickness of not less then .062" except for fin trim either integral or applied. Frame sill members shall have a nominal wall thickness of 0.078" The standard wall thickness tolerances as defined by the Aluminum Association shall apply. The master frame shall be no less than 3.250" in depth.

1.2.3 FASTENERS. All screws and other miscellaneous fastening devices Incorporated In the product shall be of aluminum, stainless steel, or other non-corrosive material compatible with aluminum. Cadmium or zinc plated steel, where used, shall be in accordance with ASTM A165 or B633. Nickel or chrome plated steel, where used, shall be in accordance with ASTM B-456-79.

1.2.4 HARDWARE. Hardware having component parts which are exposed shall be of aluminum, stainless steel, or other noncorrosive material compatible with aluminum. Cadmium or zinc plated steel where used. must be in accordance with ASTM Specifications A 164-71 or A 165-71.

1.2.5 COUNTERBALANCING MECHANISMS. Balances of appropriate size and capacity to hold both top and bottom sash stationary in any open position shall be used. Sash balances shall allow sash to disengage, without the use of tools, for removal, cleaning or repair. Sash balances shall be easily accessible and replaceable in the field without the use of any special tools.

1.2.6 WEATHERSTRIPPING. All window units shall be weather stripped with a jacketed foam type weatherstripping or pile type weathorstripping with center fin so that there is no metal-to-metal contact between the master frame and the operating sash. All weather-stripping shall be Installed in specially extruded ports and secured to prevent movement, shrinkage, or loss when removing sash for either cleaning or repair and during normal sash operation. Jacketed foam weather-stripping, where used, must conform to AAMA Specification 701.2.

1.3 CONSTRUCTION

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1.3.1 ASSEMBLY. The windows shall be assembled in a workman like manner to perform as herein specified and to assure neat and weathertight construction.

1.3.2 MAIN FRAME. All joints of the main frame shall be butt type construction and secured by means of two (2) screws in each corner anchored In integral screw ports, The main frame at the junction of the sill and jamb shall be sealed on the outside with a good grade of sealant meeting the requirements of AAMA 803.3.

1.3.3 SASHES. Both the sashes shall be counterbalanced and operational and sash members shall be of butt type joined at corners with screws in Integral screw ports which can be easily removed for repair or reglazing. The meeting rails of both sash shall interlock in the closed position.

1.3.4 THERMAL BARRIER. All main frame and sash members shall be thermally broken by poured and debridged method and shall have a 3/16"minimum thermal separation. The thermal barrier material shall be a polyurethane fill with ultimate tensile strength to meet or exceed ASTM Specification D-638.

1.3.5 GLASS. Glass shall not be less than "B" quality and "DSB", shall conform to FS DD-G-451 D. Standard factory glazing shall be DSB 7/8" inch insulating glass, or as specified. Sealed insulating where used, shall meet SIGMA No, 65-7-2 and be of at least "A" quality. Safety glazing materials, where used, shall meet ANSI Z-97. Tempered glazing, where used, shall meet ASTM C 1048. Shall meet CBA requirement.

1.3.6 GLAZING MATERIAL Glass shall be set in channel type vinyl gaskets (marine glazed). Vinyl shall be of materials compatible with ALUMINUM which will not promote corrosion and shall be resistant to deterioration by all forms of weathering and shall be suitably retained to maintain a watertight seal between the glass and its surrounding frame. Flexible vinyl, where used, shall be equal to Commercial Standard CS230-60. Drop in glazing will not be acceptable.

1.3.7 FINISH. The exposed surfaces of all aluminum members shall be dean and free from serious surface blemishes. Standard finish is painted. Painted finish to be electrostatic baked enamel and shall meet AAMA 603.8. Film thickness is to be I mil. ± 0.2 mils. For non-standard finish, contact manufacturer.

1.3.8 HARDWARE. Locking arrangement at meeting rail shall be a device that provide positive locking. All latching arrangements at the meeting rail shall be easily replaced and repaired without disassembly of sash members. Any window over 37 inches in height shall come standard with two locking devices at the meeting rail. All window shall meet AAMA Specification 1302 and ASTM Spec F 588 for force entry requirements. Locking arrangement on the meeting rails shall be of the cam action type, pulling sash together.

1.3.9 EXTERIOR PANNING SYSTEM. Exterior panning system, where used, shall be extruded aluminum of 6063-T5 aluminum alloy and temper in 0.070' thickness to completely cover existing exterior window frame. Panning depth of one inch or less from the exterior face of the window frame can be 0.062" wall a. Aluminum sections shall be one piece designed to lock around the entire window frame and be a

completely weathertight connection but allow unrestricted expansion and contraction of panning members and window frame. The panning section shall be secured at the comers with screws in integral ports and back-sealed. The jamb, head, and sill are to be sealed with a good grade of sealant meeting AAMA Specification 808.3.

1.3.10 INTERIOR TRIM. Interior trims, closures, angles, etc., If used, shall be specified or detailed of extruded shapes with a wall thickness of no less than .050" and of 6063-T5 aluminum alloy and temper. Snap trim dimensions will be in accordance with dimensions as furnished in the architecture details. On all interior trim, no exposed fasteners shall be allowed.

1.4 SCREENS (OPTIONAL)

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1.4.1. Standard screen members shall be of tubular extruded aluminum 6063-T5. Screens shall be provided when specified and be of manufacturer's standard approved design. applicable to the specific window for which it is intended with minimum frame dimensions of 1 1/2"' wide x 5/16" deep.

1.4.2. Corners shall be firmly joined in a secure and workmanlike manner, utilizing staked in place cast corner keys. Frame shall be of sufficient rigidity and cross braced as required to lie flat against window and prevent excess bow in frame members and sag in screening.

1.4.3. Standard screen cloth is aluminum 18 x 16 mesh securely held in frame with vinyl spline and will meet the requirements of CS138-55 "Insect Wire Screening' Fiberglass screen wire is optional.

1.4.4. Screen shall be spring loaded and held in place in an integral screen track. Screen shall be easily removed and replaced without the use of special tools.

1.5 STANDARD DETAILS

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Standard details (to scale) showing all configurations, wall thickness and nature of materials and methods for fastening and assembling shall be submitted with the bid, if requested, The details shall show generally existing conditions.

1.6 INSTALLATION

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The window shall be installed square, plumb, and level in a secure and professional manner to assure neat and weathertight construction in accordance with the ANSI/ASTM Specification F-737-80. A permanent weathertight joint shall be made at the junction of the sill and side frame members of the master frame with a good grade of sealant that shall meet AAMA Specification 803. Windows shall be properly caulked with a compound meeting AAMA 808, 'Specifications for Exterior Perimeter Sealing Compounds, " to accomplish a thoroughly weathertight installation around the perimeter of the window master frame.

1.7 PERFORMANCE AND TESTING

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1.7.1 GENERAL. Except as otherwise indicated, comply with air infiltration tests, water resistance tests, uniform load deflection tests, and uniform load structural tests specified in ANSI/AAMA 101/I.S.2-97 for type and classification of window units required in each case. All units shall meet or exceed the requirements of C-55 and shall be designed for the loads specified below.

a. Design load shall be 55 psf.

b. Test units shall be completely assembled windows constructed in accordance with the drawings unless otherwise specified. The units shall be certified with the specified glazing and glazing gaskets for this project unless the glazing of the tested unit is of a heavier type.

1.7.2 AIR INFILTRATION

a. With the window sash and ventilators closed and locked, test unit in accordance with ASTM E-293 at a static air pressure difference of 1.57 psf.

b. Air infiltration shall not exceed a maximum value of 0.30cfm/ft. for sash.

1.7.3 WATER RESISTANCE

a. With the window sash and ventilators closed and locked, test unit in accordance with ASTM E-331 at static air pressure difference of 7.5 psf.

b. There shall be no water leakage as defined in ASTM E-331 at this specified static air pressure difference to meet the performance requirement.

c. Test shall be completed with and without exterior applied screens.

1.7.4 UNIFORM LOAD STRUCTURAL

a. With window sash and ventilators closed and locked, test unit in accordance with ASTM E-330 at a static air pressure difference of 75 psf with high pressure applied first on one side of the unit and then on the other side.

b. Static air pressure difference shall be 1-1/2 times the design load pressure of 55 psf.

c. 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.

d. Permanent deformation of any window, sash or ventilator member shall not exceed 4% of its span.

1.7.5 CONDENSATION RESISTANCE FACTOR (CRF)

a. With window sash and ventilators closed and locked. test unit in accordance with AAMA 1502.7 using test size of 4'0" by 6'0" and framing configurations specified in the AAMA Specification Standards.

b. Condensation Resistance Factor (CRF) shall not be less than 45.

1.7.6 THERMAL TRANSMISSION (CONDUCTIVE U-VALUE)

a. With window sash and ventilators closed and locked, test unit in accordance with AAMA 1503.1 using same test unit size and configuration as used in 5 above.

b. Conductive thermal transmission (U-Value) shall not be more than .65 BTU's/Hr./s.f./O°F

1.7.7 TESTING. Where manufacturer's standard window units comply with requirements and have been tested in accordance with specified tests, provide certification by manufacturer showing compliance with such tests; otherwise, perform required tests through a recognized testing laboratory or agency and provide certified test results.

1.8 QUALITY ASSURANCE

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a. DESIGN CRITERIA. Drawings indicate sizes, profiles and dimensional requirements of aluminum windows. Window units having minor deviations from dimensions and profiles indicated on drawings may be accepted, provided such deviations do not materially detract from design concept or intended performances and subject to approval of Contracting Officer.

1.9 REFERENCES

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a. STANDARDS. Except as otherwise indicated, requirements of aluminum windows, terminology and standards of performance, and fabrication workmanship are those specified and recommended in ANSI/ AAMA 101/I.S.2-97.

1.10 SUBMITTALS

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a. PRODUCT DATA. Submit manufacturer's technical product data, recommendations and standard details for aluminum window units, including certified test laboratory reports as necessary to show compliance with all requirements of this specification.

b. SHOPDRAWINGS. Submit shop drawings,including window schedules showing locations, wall elevations at 1/2" scale, typical unit elevations at 3/4" scale and full size detail sections of every typical composite member. Show anchors, hardware, operators, and other components not included in manufacturer's standard data. Include glazing details.

c. SAMPLES. Submit samples of each required aluminum finish, on 12" long sections of extrusion shapes as required for window units.

Contracting Officer reserves right to require additional samples which will show fabrication techniques, workmanship of component parts and design of hardware and other exposed auxiliary items.

d. CERTIFICATION. Where manufacturer's standard window units comply with requirements and have been tested in accordance with specified tests, provide certification by manufacturer showing compliance with such tests; otherwise, perform required tests through a recognized testing laboratory or agency and provide certified results.