DIAMOND 8000 SERIES
HC DOUBLE HUNG WINDOW (DWNSZ)
MODEL 8101 SPECIFICATION

TO FINISH SPECIFICATION:1. Read then delete comments in *stars*. 2. Add or delete options in (parentheses). 3. Replace preceding standards with options in [brackets] or delete options in [brackets]. 4. Revise paragraph numbers and/or letters, as necessary.

SECTION 08520 - ALUMINUM WINDOWS (Commercial)

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Material: aluminum windows as on the drawings and specified in this section.

B. Installation: labor, tools, and material needed to install aluminum windows.

C. Glass and glazing.

(1.02 PRODUCTS FURNISHED BUT NOT INSTALLED)
Enter description, e.g., extra sash sets to be supplied and stored for the future

(1.03 PRODUCTS INSTALLED BUT NOT FURNISHED)
Enter description, e.g., louver supplied by others to be installed in new window

1.04 RELATED SECTIONS - Section 07900 - Sealants

1.05 REFERENCES

A. AAMA - American Architectural Manufacturers Association

1. AAMA/WDMA/CSA 101/I.S.2/A440-05 “Standard/Specification for windows, doors,and unit skylights

2. AAMA 502-02 "Voluntary Specification for Field Testing of Windows and Sliding Glass Doors"

3. AAMA 611-98 "Voluntary Specification for Anodized Architectural Aluminum"

4. AAMA 701-00 "Voluntary Specification for Pile Weatherstripping"

5. AAMA 800-92 "Voluntary Specifications and Test Methods for Sealants"

6. AAMA 902-99 “Voluntary Specification for Sash Balances”

7. AAMA 1503-98 "Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections"

8. AAMA 2603-02 “Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”

9. AAMA 2604-02 “Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels”

10. AAMA 2605-02 “Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels”

11. AAMA CW-10-97 "Care and Handling of Architectural Aluminum from Shop to Site"

B. ASTM - American Society for Testing and Materials

1. ASTM E 90-97 "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions"

2. ASTM E 283-99 "Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors"

3. ASTM E 330-97 "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference"

4. ASTM E 547-00 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential"

5. ASTM E 774-00 "Specification for Sealed Insulating Glass Units"

1.06 SYSTEM DESCRIPTION

A. AAMA Designation: H-HC50.

B. Windows: 3-1/4" frame depth; extruded aluminum with integral structural polyurethane thermal break in frame and sash members; equal-leg [flange] [prime] frame; finish factory-applied; frames and sash factory-assembled.

C. Configuration: double hung [double hung-to-double hung with continuous head and sill] [three-lite with top sash fixed] [three-lite with bottom sash fixed]; top and bottom sash tilt in for glass cleaning.

D. Glazing: 7/8" insulating glass [or single lites in thermal or non-thermal sash]; black reuseable flexible PVC channel gasket with weep holes; glass description in paragraph 2.04; factory-glazed.

1.07 PERFORMANCE REQUIREMENTS

A. Conformance to H-HC50 specifications in AAMA/WDMA/CSA 101/I.S.2/A440-05 when tests are performed on the prescribed 36" x 72" minimum test size with the following test results:

1. Air Infiltration: maximum 0.03 cfm/square foot when tested per ASTM E 283-99 at a static air pressure difference of 6.2 psf.

2. Water Penetration: no uncontrolled water leakage when tested per ASTM E 547-00 at a static air pressure difference of 7.52 psf.

3. Uniform Structural: window to be operable, and maximum .3% permanent deformation per member when tested per ASTM E 330-97 at a static air pressure difference of 75 psf and deflection no greater than L/175 at 50 psf

4. Uniform Structural: window to be fully functional & operable, when tested per ASTM E 330-97 at a static air pressure difference of 135 psf (Design pressure rating of 90 psf)

B. Thermal testing per AAMA 1503-98, at the prescribed 4'0" x 6'0" test size glazed with 7/8” insulating glass made with 1/8” clear and 1/8” hard coat low E lites, with argon gas, with the following test results:

1. Condensation Resistance Factor: minimum 49 frame and 59 glass CRF.

2. Thermal Transmittance: maximum .48 BTU/HR/SQ.FT/F U value.

(C. Sound: testing per ASTM E 90-97 with 3/4" insulating glass made with 1/4" laminated glass and 1/8" annealed glass: minimum 36 STC.)

1.08 SUBMITTALS

A. Shop drawings: window location chart; typical window elevations; details of assemblies, hardware, and glazing details for factory-glazed units.

B. Product data: manufacturer's specifications and test reports from an AAMA-accredited laboratory.

C. Samples: each specified finish for aluminum; other samples as requested.

1.09 QUALITY ASSURANCE

A. Submit for prebid approval ten days prior to bid opening a sample window representing the bid window except for color and valid test reports from an AAMA-accredited laboratory conforming to test results in Paragraph 1.07.

B. Acceptance will be by addendum only as no verbal approvals will be allowed.

C. Submit bid on prequalified products in prebid written addendum. Bidder must identify manufacturer and model of product on which the bid is based.

D. Furnish a valid AAMA "Notice of Product Certification" indicating that the windows for the project conform to AAMA/WDMA/CSA 101/I.S.2/A440-05

E. Furnish visible, permanent IGCC certification labels for the CBA rating level on double insulating glass units.

F. Manufacturer's warranties:

1. Windows: warrant for one year against defects in material or workmanship under normal use.

2. Insulating glass units: warrant seal for five years **Contact DIAMOND WINDOW for other time frames** against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.

3. Paint finish: PPG…

Enter the following for an AAMA 2605 70% fluoropolymer paint finish

…Duranar™ organic finish conforming to AAMA 2605-02: warrant for fifteen years against chipping, peeling, cracking, chalking, or fading.

Or enter the following for an AAMA 2604 50% fluoropolymer paint finish

…Acrynar FX™ organic finish conforming to AAMA 2604-02: warrant for ten years against chipping, peeling, cracking, chalking, or fading.

Or enter the following for an AAMA 2603 acrylic paint finish

…Duracron™ organic finish conforming to AAMA 2603-02: warrant for five years against chipping, peeling, or cracking.

(G. Project Survey: **Contact DIAMOND WINDOW to register before project bid date** by installer and manufacturer's representatives; one year after date of completion; to recommend maintenance procedures.)

1.10 DELIVERY, STORAGE, AND HANDLING - Handle and protect windows and accessories in accordance with AAMA CW-10-97 until project completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. DIAMOND WINDOW 8101 HC Double Hung Tilt Thermal Aluminum Window

B. Other acceptable manufacturers who have demonstrated a successful history of manufacturing for **Enter number** years equivalent products:

1. **Enter appropriate information as required**

2. **Enter appropriate information as required**

2.02 MATERIALS

A. Aluminum extrusions: produced from commercial quality 6063-T5 alloy; free from defects impairing strength and durability.

B. Hardware: zinc meeting rail lock and keeper - one per window under 48", two on wider windows; (white bronze automatic sill lock;) (aluminum automatic head lock;) plated steel pivot bars, one spring-loaded for sash removal without tools; **Enter either (slot) or (finger button)** tilt latches, spring-loaded for automatic jamb engagement when sash is in vertical position.

C. Weatherstrip: secured in extruded ports; double rows on sash perimeters: one pile conforming to AAMA 701-00 in meeting rail, one flexible black thermoplastic elastomer (TPE) bulb/flap for UV stability, low temperature flexibility, and resistance to compression set in bottom sash lift rail in contact with frame sill, and pile conforming to AAMA 701-00 with polypropylene center fin in remaining locations.

C. Balances: spiral [block and tackle] conforming to AAMA 902-99 with capacity to hold sash stationary and permit it to operate freely; nylon balance shoes which lock when tilted to prevent sash travel.

For optional screens, enter either "E. Insect screens" or "E. Protection screens"

(E. Insect screens: half [full]; held in exterior tracks with stainless steel leaf springs; 5/16" x 1-1/2" x .045" extruded tubular aluminum frame with same finish as window; corners mitered, gusset reinforced, and crimped; 18 x 16 dark fiberglass [aluminum] mesh; PVC spline.)

(E. Protection screens: full; held by a top full-width aluminum hinge and two bottom automatic slide latches released from interior; extruded .078" tubular aluminum frame with same finish as window: 1-1/16" x 1-11/16" rails, 1-1/16" x 1-3/8" stiles, 1-1/16" x 2-1/4" mid-height brace bar; corners fastened with tamper-resistant screws; **Enter*

*color and material for woven wire mesh or perforated sheet metal** secured with interior pressure plates fastened with screws concealed with aluminum cover plates.)

2.03 FABRICATION

A. Frame: head and sill coped and fastened to jambs with two stainless steel screws per corner; corners factory-sealed with die cut 1/8 “foam gaskets and sealant conforming to AAMA 800-92.

B. Sash: tubular horizontal sash rails coped and fastened to vertical sash stiles with two stainless steel screw per corner; corners factory-sealed with sealant conforming to AAMA 800-92.

C. Sash design: continuous extruded pull-down rail on top sash interior (and exterior) and lift rail on bottom sash interior; mechanical meeting rail interlock.

2.04 DOUBLE INSULATING GLASS UNITS

A. Performance

1. Seal durability: conformance to ASTM E 774-00; visible, permanent IGCC certification label for CBA rating level.

(2. Other: **Enter U value, etc., information as required**)

B. Exterior glass lite

1. Thickness: 1/8" [3/16"] [1/4"].

2. Tint: clear [bronze] [gray].

3. Type: annealed [tempered] [laminated **Enter interlayer and lite descriptions**].

(4. Coating: solar-reflective.)

C. Interior glass lite

1. Thickness: 1/8" [3/16"] [1/4"].

2. Tint: clear [pattern #62 obscure].

3. Type: annealed [tempered] [laminated **Enter interlayer and lite descriptions**].

(4. Coating: hard coat low E on #3 surface.)

[2.04 TRIPLE INSULATING GLASS UNITS]

A. Performance: *Enter U value, etc., information as required*

B. Exterior glass lite

1. Thickness: 1/8" [3/16"].

2. Tint: clear [bronze] [gray].

3. Type: annealed [tempered] [heat-strengthened].

C. Internal film: Southwall Heat Mirror™ #SC75.

D. Interior glass lite

1. Thickness: 1/8" [3/16"].

2. Tint: clear [pattern #62 obscure].

3. Type: annealed [tempered] [heat-strengthened].

[2.04 MONOLITHIC VISION LITES]

A. Thickness: 1/8" [3/16"] [1/4"].

B. Tint: clear [bronze] [gray] [pattern #62 obscure].

C. Type: annealed [tempered] [laminated *Enter interlayer and lite description*] [1/4" clear wired *Enter pattern*] [*polycarbonate* *Enter description*].

(D. Coating: solar-reflective [hard coat low E on #2 surface].)

(E. Performance: *Enter transmittance information as required*)

2.05 FINISH ON ALUMINUM EXTRUSIONS

A. Application: on clean extrusions free from serious surface blemishes; on exposed surfaces visible when installed product's operating sash are closed.

Enter the following for an AAMA 2605 70% fluoropolymer paint finish

B. Coating: PPG Duranar™ with resin containing 70% fluoropolymer; thermosetting; alternative finishes will not be acceptable.

C. Quality standard: conforming to AAMA 2605-02, including 10 years Florida exposure and 4000 hours humidity tests.

D. Pretreatment: five-stage; zinc chromate conversion coating.

E. Application: electrostatic spray and oven bake by approved applicator.

F. Coating quantity: minimum one primer coat and one color coat.

G. Dry film thickness: minimum 1.2 mils on exposed surfaces, except inside corners and channels.

H. Color: chosen from manufacturer's standards.

(I. Additional different interior finish and color: subject to manufacturer's approval.)

Or enter the following for an AAMA 2604 50% fluoropolymer paint finish

B. Coating: PPG Acrynar FX™ with resin containing 50% fluoropolymer; thermosetting; alternative finishes will not be acceptable.

C. Quality standard: conforming to AAMA 2604-02, including 5 years Florida exposure and 3000 hours humidity tests.

D. Pretreatment: five-stage; zinc chromate conversion coating.

E. Application: electrostatic spray and oven bake by approved applicator.

F. Coating quantity: minimum one primer coat and one color coat.

G. Dry film thickness: minimum 1.4 mils on exposed surfaces, except inside corners and channels.

H. Color: chosen from manufacturer's standards.

(I. Additional different interior finish and color: subject to manufacturer's approval.)

Or enter the following for an AAMA 2603 acrylic paint finish

B. Coating: PPG Duracron™ with acrylic resin; thermosetting.

C. Quality standard: conforming to AAMA 2603-02, including 1 year Florida exposure and 1500 hours humidity tests.

D. Pretreatment: five-stage; zinc chromate conversion coating.

E. Application: electrostatic spray and oven bake by approved applicator.

F. Coating quantity: one color coat.

G. Dry film thickness: minimum .8 mils on exposed surfaces, except inside corners and channels.

H. Color: chosen from manufacturer's standards.

Or enter the following for an AAMA 611 clear anodize finish

B. Coating: clear anodize.

C. Quality standard: conforming to AAMA 611-98.

D. Thickness: AAM10C22A41 Class I - .7 mils #215 [AAM10C22A31 Class II - .4 mils #204].

Or enter the following for an AAMA 611 color anodize finish

B. Coating: color anodize.

C. Quality standard: conforming to AAMA 611-98.

D. Thickness: AAM10C22A44 Class I - .7 mils.

E. Color: #313 dark bronze [#311 light bronze] [#312 medium bronze] [#315 black].

(2.06 INSTALLATION ACCESSORIES)

A. Material: extruded aluminum; nominal .062" wall; with exposed surfaces finished to match window color and finish performance; concealed fasteners; required weatherseals; designed for unrestricted expansion and contraction.

B. Exterior: (wrap around panning;) (preset panning;) (two-piece mullion cover;) (two-piece head and jamb receptor with thermal break;) (subsill with thermal break and end dams;) (sill cover;) (slip-on expanders).

C. Interior: (two-piece snap trim;) (stool cover).

D. Mullions: with thermal break; (stack;) (offset stack;) (three-piece).

PART 3 - EXECUTION

3.01 PREPARATION - Prepare openings to be in tolerance, plumb, level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION

A. Install windows in accordance with manufacturer's recommendations and approved shop drawings with skilled craftspeople who have demonstrated a successful history of installing windows for **Enter number** years.

B. Provide required support and securely fasten and set windows plumb, square, and level without twist or bow.

C. Apply sealant per sealant manufacturer's recommendations at joints, wipe off excess, and leave exposed sealant surfaces clean and smooth.

(3.03 FIELD TESTING)

A. Test installed units in conformance with AAMA 502-02 minimum requirements for air and water infiltration with the window manufacturer, contractor, and owner present.

B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 ADJUSTING AND CLEANING - Adjust windows as necessary for smooth and weathertight operation, and leave windows clean and free of construction debris.

END OF SECTION