

**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"

Diamond Windows – Aluminum Window Systems  
Boston, Massachusetts

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

Diamond Windows – Aluminum Window Systems  
Boston, Massachusetts

- 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\**

...Duronar™ 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]

Diamond Windows – Aluminum Window Systems  
Boston, Massachusetts

- 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.

Diamond Windows – Aluminum Window Systems  
Boston, Massachusetts

- 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.

Diamond Windows – Aluminum Window Systems  
Boston, Massachusetts

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.

Diamond Windows – Aluminum Window Systems  
Boston, Massachusetts

- 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