SERIES 400

Double Hung, Rated Heavy Commercial

Thermally Improved Prime Repacement Windows

DETAILS

Utilizes complete Thermal Break Sash and Master Frame for optimal insulating value

Features 1" clear insulating glass made with Super Spacer*, the world's only TrueWARM* edge technology

Deep double-step Hospital Sill provides superior ventilating and water performance

Marine Glazing protects glass edge and assures easy repair

Anti-Creep Lock on top sash creates stability for worry-free operation

Telescoping Sash Engineering provides optimum air and water protection

Special Tubular Sash Design gives added strength and long life

Block and Tackle Balances are standard

Custodial Hardware assures safe operation (Ideal for schools and institutional use)

UNIVERSAL
Window and Door

Thermally Improved Prime Replacement Windows Rated Heavy Commercial

Performance

DC HC-45 *@60" x 96"*

DH HC-60 *@ 48" x 60"*

Air Infiltration *@ 1.57 psf: .10*

Water Resistance *@ 11.00 psf: No Entry*

Uniform Structural Load
67.5 psf @ 66" x 84"
97.5 psf @ 48" x 72"

Operating Force: *42 lbs MAX.*

Condensation Resistance Factor: *46*

Options

Glass:
Low-E, Soft-Coat, Solar Control, Argon, Tempered, Obscure, Wire or Spandrel
Balances:
Ultralift, Superlift, Block and Tackle
Wrapping Systems:
Exterior Panning Systems
Interior Trim Systems
Receptor Systems
Flange Frame
Head Expander and Sill Angle
Finishes:
Special finishes and custom architectural finishes are available
Child Guard and Vandal Screens
Internal, External and Interior Grids

Specifications

General: All aluminum windows furnished as shown in the plans shall conform to the specifications in AAMA/NWWDA 101/IS2-97. They are furnished with all necessary hardware, trim and miscellaneous items as specified.
Material: Aluminum used is commercial quality 6063-T5 alloy with a minimum ultimate tensile strength of 22,000 psi, free of defects impairing strength and durability, and with standard wall tolerances as defined in the Architectural Aluminum Manufacturer's Association Master Specifications for aluminum windows. All members of the frame and sash shall be split and bridged with a continuous structural thermal break of high density, low conductivity urethane insulation cavity fill, with removal of the extrusion cavity bridging aluminum after curing.
Construction and Operation: Windows are assembled to perform as herein specified, to assure a neat appearance and weather tight construction. All sash and frame members are firmly joined with mechanical joints using stainless steel screws into integral screw ports. Each frame corner joint is secured with two screws. Sash corner joints are telescoped for rigidity and appearance. Meeting rails have mechanical interlocks, and the horizontal rails of the upper and lower sashes have extruded handles for operating the sashes. When windows are not being expressly used for ventilation, they must be fully closed and locked. Failure to do so may result in personal injury or damage to property. All sashs are tilt type for easy cleaning. Top sashes have "Anti-Creep" latches.
Glazing: Sashes are glazed with 1" sealed insulated glass, using "Float Glass" quality, and constructed to allow field replacement of glazing material. Glazing is "Marine" type wrap around vinyl gasket, without the use of removable beads or glazing compound. All insulated glass conforms to, and is in compliance with, ASTM E 773-83 AN E 744-74A- Class CBA.
Spacer: Edgetech's Super Spacer* contains NO-Metal and is one of the most thermatically efficient IG spacers available today. Super Spacer* reduces sealant stress while improving heat flow resistance, glass surface temperature, condensation resistance and sound absorption. Super Spacer* is the only polymer foam, NO-Metal warm edge spacer.
Finish: The exposed surfaces of all aluminum members shall be clean and free of serious blemishes, scratches or tool marks. Standard finish is electrostatically applied acrylic enamel with a 5-stage chromate under-coating conforming to AAMA 603.8 standard. Standard colors are white, black, bronze, green and beige (see color chart). Other architect specified finishes may be available at additional cost.
Hardware: All fasteners, screws and other miscellaneous fastening devices shall be of non-corrosive material compatible with aluminum. Balances of appropriate size and capacity to hold each sash stationary at open position are factory installed. They meet AAMA 902.2 specification, and are easily replaceable after the window is installed. Block and Tackle balances are standard. Ultra-Lift and Spiral balances are available at an additional cost.

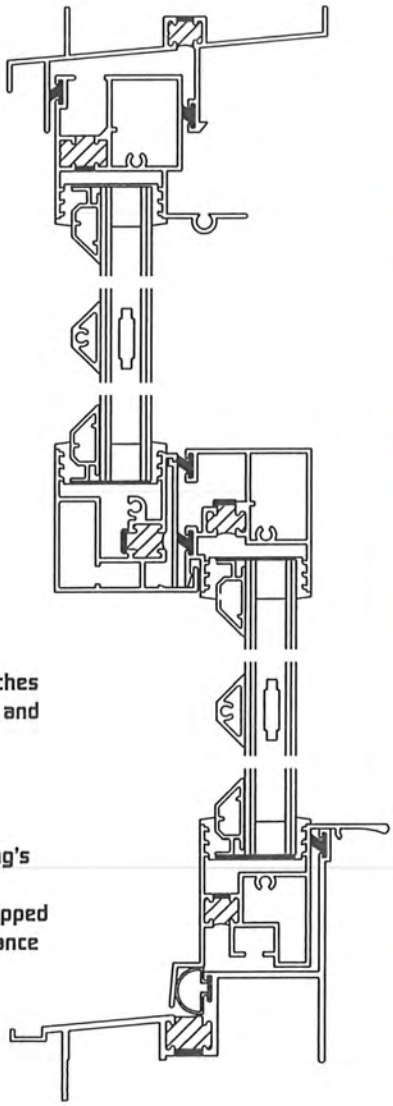
Narrow Sightlines Allow Replication of Existing Margins

Dual Grid Provides Single Pane Appearance

Non-reflective Dark Spacer Eliminates the Look of Insulated Glass

"Putty Line" Matches Original in Profile and Dimension

Baked-on Finish Preserves Building's Appearance. No "Eyesore" Chipped Paint or Maintenance Issues



SERIES 400 HISTORIC

UNIVERSAL WINDOW AND DOOR, LLC.
303 Mechanic Street,
Marlborough, MA 01752
800-633-0108 508-481-2850
www.universalwindow.com

For performance factors and specifications, please see individual product sheets on our Series 400, 550, 600, 800 and 1199 windows.

OPTIONS

Glazing: Low-E, Soft Coat, Solar Control, Argon, Tempered, Obscure, Wire or Spandrel
Ultra Lift or Spiral Balances
Exterior Panning Systems (Square and Colonial types)
Interior Trim Systems
Receptor Systems
Self-Mulling, I-Mullions or Structural Mullions
Roto-op or Under-screen Push Bar Hardware
Flange Frame, Backer Rod Strips, Installation Clips
Special Finishes and Custom Architectural Finishes
Child Guard and Vandal Screens
Internal or External Grids and Internal Colonial Grids

Division 8 Doors and Windows

SECTION 08520
ALUMINUM WINDOWS

Part 1 – GENERAL

1.1 **REFERENCES**

A. The general conditions, supplementary conditions and applicable portions of division 1 of the specifications are a part of this section, which shall consist of all labor, equipment and materials necessary to complete all quality control work indicated on the drawings, herein specified or both.

B. The following minimum provisions standards and tolerances shall apply to all work under this contract. Where stricter standards and tolerances are specified, they shall take precedence over these standards and tolerances. Owner reserves the right to define intent of specifications.

C. Manufacturer will have been producing the model window used for this project for similar projects for a minimum of five years.

D. It will be the bidder responsibility to verify all quantities and type of windows.

1.2 **SCOPE**

A. The work of this section consists of supply and installation of aluminum windows and related items, as indicated on the drawings and specified herein. Such work includes but is not limited to the following:

1. Double hung windows, double-glazing, thermally broken with tilt-in sash and factory standard balances. Side load will not be acceptable.

2. Screens: Exterior half screens. Finish to match windows. With fiberglass mesh.

3. Factory glazing:

4. Sealant within window system

5. Hardware, accessories and appurtenances.

1.3 **SUBMITTALS**

A. Shop drawings showing installation conditions throughout and catalog cuts shall be submitted for approval. Shop drawings shall include elevations of all windows (minimum scale ½ inch equals 1 foot), and full size details of every conditions indicating thickness of aluminum, fastenings, the size and spacing of anchor, method of glazing, details of operations hardware, method and materials for weatherstripping, and method of attaching screens.

B. Submit color chips for selection by architect from manufacturer's standard.

C. One complete full-size sample window of type proposed for use shall be submitted for approval. Sample shall be complete with hardware, glazing, weatherstripping, anchors, screen and other accessories, and shall be furnished as specified by the architect.

Division 8 Doors and Windows

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. The windows and doors of this section shall be of a type herein specified by Universal Window and Door LLC.

B. Similar to Universal DH CW45 – Model # 400 sizes according to the window schedule.

2.2 GENERAL REQUIREMENTS

A. All windows shall be of the thermally broken type, including sash and frame members.

B. MATERIALS: Aluminum shall be of commercial quality aluminum alloy 6063 T5 free from defects impairing strength durability. All window members shall be of extruded aluminum and shall have a guaranteed minimum ultimate tensile strength of 22,000 PSI, and a yield of 16,000 PSI. Secondary members such as self-alignment clips, weatherstripping, guides, etc. shall be made of a suitable and compatible material.

C. HARDWARE: Double hung units shall be equipped with an integral lift handle on bottom sash; top of upper sash to have a continuos integral pull down handle. Both upper and lower sash shall be counter balanced so that they remain open in any position. Balances shall be heavy-duty factory standard type as customary with the manufacturer and suitable for installation required. Balances shall conform to AAMA 902.2.

D. FINISH: Standard finish shall be factory-applied thermo setting acrylic enamel. Color selected by architect from manufacturer's standard. Finish to conform to AAMA 603.8 standard.

E. GLAZING: Both sashes shall be channel glazed using 5/8" thick double insulated glass with a flexible "marine" type vinyl-glazing channel. The overall glass thickness of 5/8" with an air space measured ½" consisting of 3mm RLE soft coat Low-E / Argon gas / 3mm clear annealed separated with Edgetech "warm edge" super spacer.

F. Simulated Divided Lite Muntins are to be of External applied trapezoid type and between glass type-configurations shown on drawings.

G. Both sashes are able to be removable after tilting without the use of special tools.

H. Top sash to be held by "anti-creep" latch.

PERFORMANCE CRITERIA

All double hung to conform to the following criteria:

1. Air infiltration: Not to exceed .03 cfm/ft @ 25 mph. ASTM E283
2. Water resistance: There shall be no leakage as defined in the high performance test method with a test pressure of 7.52 PSF. ASTM E547 & E331
3. Uniform Load Deflection Test: Under an exterior uniform load of 45 PSF no member in the completely assembled window shall deflect more that 1/175 of its span. Test shall be conducted in accordance of ASTM E330.
4. Uniform Load Structural Test: The window shall be subjected separately to an exterior uniform load of 67.5 PSF and an interior uniform load of 67.5 PSF. Tests shall be conducted in accordance with ASTM E330
5. NFRC u-value of .42

Division 8 Doors and Windows

PART 3 – EXECUTION

3.1 INSTALLATION

A. Work Included: Provide labor, materials and equipment necessary to complete the work of the Replacement Window Contract, and with out limiting the generality thereof include:

1. Windows to be installed plumb, square, and level with proper shimming and blocking to support window in opening.
2. Windows to be installed in strict accordance with approved shop drawings.

3.2 CLEANING

A. Clean interior and exterior surfaces of window units of mortar, plaster, paint spattering spots, and other foreign matter to present a neat appearance and to prevent fouling of weathering surfaces and weatherstripping, and to prevent interference with the operation of hardware.

3.3 PRODUCT HANDLING

A. All materials shall be delivered, stored, handled, and installed so as not to be damaged or deformed.

3.4 GUARANTEES AND TEST DATA

A. Provide manufacturer's guarantees and independent test results indication compliance with AAMA specifications and performance criteria. Manufacturer's standard guarantee shall be for a minimum of one year.

B. Insulated glass units shall be provided with a five-year warranty unless otherwise approved by the architect.

3.5 COORDINATION

A. Coordinate work with that of all other trades affecting or affected by work of this section. Cooperate with such trades to assure the steady progress of all work under the contract.

Universal Window and Door, LLC
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400 Series DH HC-45 external applied grid and Euro contour grid between the glass