



3 Part Specification Aluminum Windows

WD:T02

GENERAL NOTES TO SPECIFIER:

THIS SPECIFICATION SYSTEM HAS BEEN PREPARED TO ASSIST DESIGN PROFESSIONALS IN THE PREPARATION OF PROJECT OR OFFICE MASTER SPECIFICATIONS. IT FOLLOWS GUIDELINES ESTABLISHED BY THE CONSTRUCTION SPECIFICATIONS INSTITUTE, AND THEREFORE MAY BE USED WITH MOST MASTER SPECIFICATION SYSTEMS WITH MINOR EDITING.

EDIT CAREFULLY TO SUIT PROJECT REQUIREMENTS. MODIFY AS NECESSARY AND DELETE ITEMS THAT ARE NOT APPLICABLE. VERIFY THAT REFERENCED SECTION NUMBERS AND TITLES ARE CORRECT (NUMBERS AND TITLES REFERENCED ARE BASED ON MASTERFORMAT, 2004 EDITION.)

THIS SECTION ASSUMES THE PROJECT MANUAL WILL CONTAIN COMPLETE DIVISION 1 DOCUMENTS INCLUDING 01 25 13 – PRODUCT SUBSTITUTION PROCEDURES, SECTIONS 01 33 00 – SUBMITTAL PROCEDURES, 01 62 00 – PRODUCT OPTIONS, 01 66 00 – PRODUCT STORAGE AND HANDLING REQUIREMENTS, 01 74 00 – CLEANING AND WASTE MANAGEMENT, 01 77 00 – CLOSEOUT PROCEDURES, AND 01 78 00 – CLOSEOUT SUBMITTALS. CLOSE COORDINATION WITH DIVISION 1 SECTIONS IS REQUIRED. IF THE PROJECT MANUAL DOES NOT CONTAIN THESE SECTIONS, ADDITIONAL INFORMATION SHOULD BE INCLUDED UNDER THE APPROPRIATE ARTICLES.

THIS IS AN OPEN PROPRIETARY SPECIFICATION ALLOWING USERS THE OPTION OF APPROVING OTHER MANUFACTURERS THAT COMPLY WITH THE CRITERIA SPECIFIED HEREIN.

NOTES TO THE SPECIFIER ARE CONTAINED IN BOXES AND SHOULD BE DELETED FROM FINAL COPY.

OPTIONAL ITEMS REQUIRING SELECTION BY THE SPECIFIER ARE ENCLOSED WITHIN BRACKETS, E.G. [35] [40] [45]. MAKE APPROPRIATE SELECTIONS AND DELETE OTHERS.

ITEMS REQUIRING ADDITIONAL INFORMATION ARE UNDERLINED BLANK SPACES, E.G. _____.

OPTIONAL PARAGRAPHS REQUIRING SELECTION OF ONE OF THE OPTIONS ARE SEPARATED BY "OR" WITHIN A BOX. E.G.

OR

BOLD FACE TYPE IDENTIFIES OPTIONAL PARAGRAPHS AND FEATURES THAT MAY BE INCLUDED OR DELETED DEPENDING UPON PROJECT REQUIREMENTS. CONVERT THE BOLD FACE TYPE TO REGULAR TYPE WHEN INCLUDING THESE PARAGRAPHS OR FEATURES.

REVISE FOOTER TO SUIT PROJECT/OFFICE REQUIREMENTS.

ELECTRONIC VERSIONS OF THIS SPECIFICATION UTILIZE AUTOMATIC PARAGRAPH NUMBERING.

WHEN EDITING IS COMPLETE, DELETE ALL TEXT ON THIS PAGE, THEN REMOVE THE SECTION BREAK AT THE TOP OF THE NEXT PAGE TO REMOVE THIS PAGE FROM THE DOCUMENT.

SPECIFICATION BEGINS ON THE FOLLOWING PAGE.



ALUMINUM WINDOWS - 08 51 13

With the thin lines that Milgard's Aluminum Windows provide, they are ideal for both new construction as well as replacement. This series of products provide an economical solution while providing architectural style.

Aluminum Windows

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Solid and tubular aluminum extruded windows of the following type(s):

Picture Window	Series 710, 710S, 910C, 910S, 911C, 1185H, 1285H
Casement	Series 910C, 910S, 911C
Awning	Series 910C, 910S, 911C
Horizontal Slider	Series 1110H, 1110SH, 1180H, 1280H
Vertical Slider	Series 1510, 1510S, 1580, 1680
Bay Window	Series 1550
Bow Window	Series 1560
Radius	Series R15, R15S

B. Related Sections:

INSERT APPROPRIATE SECTION NUMBERS AND TITLES BELOW FOR WINDOW FLASHING AND INSTALLATION SEALANTS.

1. - .
2. - .
3. 08 32 13 - **Aluminum Sliding Doors.**

INCLUDE APPROPRIATE LANGUAGE BELOW IF PRODUCTS SPECIFIED IN THIS SECTION ARE TO BE BID AS ALTERNATES. OTHERWISE DELETE FOLLOWING PARAGRAPH.

C. Alternates:

1. Reference Section 01 23 00 – Alternates.

Aluminum Windows (continued)

1.02 SUBMITTALS

A. Reference Section 01 33 00 – Submittal Procedures; submit following items:

1. Product Data.
2. Shop Drawings: Include window schedule, window elevations, sections and details, and multiple window assembly details.
3. Samples:
 - a. Color samples: Minimum 1x4 inch (25x100 mm) samples of Aluminum with painted or anodized color.
 - b. Glass, showing specified tint color.**
4. Quality Assurance/Control Submittals:
 - a. Qualifications: Proof of manufacturer's qualifications.
 - b. U-Factor and structural rating charts required for AAMA and NFRC labeling requirements.**
 - c. Installation Instructions – AAMA 2400 (“Mounting Flange Installation”) or AAMA 2410 (“Flush Fin Installation”).

B. Closeout Submittals: Reference Section 01 78 00 – Closeout Submittals; submit following items:

1. Temporary window labels marked to identify windows that labels were applied to.
2. Maintenance instructions.
3. Special Warranties.

1.03 QUALITY ASSURANCE

A. Overall Standards: Comply with ANSI/AAMA 101.I.S.2, except as otherwise noted herein.

B. Qualifications:

1. Manufacturer Qualifications:
 - a. Minimum five years experience in producing aluminum windows of the type(s) specified.
 - b. Member AAMA, NFRC.

INSERT LOCAL REGULATORY REQUIREMENTS BELOW.

Aluminum Windows (continued)

C. Regulatory Requirements:

D. Certifications for insulated glass windows:

1. AAMA: Windows shall be Gold Label certified with label attached to frame per AAMA requirements.
2. NFRC: Windows shall be NFRC certified with temporary U-factor label applied to glass and an NFRC tab added to permanent AAMA frame label.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Reference section 01 66 00 - Product Storage and Handling Requirements.
- B. Follow manufacturer's instructions on label applied to windows.

1.05 WARRANTY

SELECT "RESIDENTIAL" WARRANTY BELOW FOR OWNER OCCUPIED SINGLE FAMILY RESIDENTIAL AND OWNER OCCUPIED CONDOMINIUM PROJECTS. SELECT "COMMERCIAL WARRANTY FOR NON-OWNER OCCUPIED CONDOMINIUMS, COMMERCIAL, AND MULTI-FAMILY PROJECTS.

A. Residential Special Warranty:

1. Lifetime guarantee to original owner.
2. Transferability:
 - a) Permit unlimited transfer of ownership in first ten years.
 - b) Upon first transfer of ownership, guarantee period shall become ten years from date of original purchase.
3. Guarantee windows against defect in materials and workmanship including costs for parts and labor.

OR

B. Commercial Special Warranty:

1. 10-year guarantee.
2. Guarantee windows against defects in manufacturing and workmanship including costs for parts and labor.

Aluminum Windows (continued)

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. Milgard Manufacturing, Inc.
1010 54th Avenue East
Tacoma, WA 98424

Tel: 1.800.MILGARD (645-4273)
(253) 922-2030
Fax: (253) 926-0848
Web: milgard.com

INSERT NAME, ADDRESS AND PHONE NUMBERS OF MANUFACTURER'S REPRESENTATIVE BELOW

1. Manufacturer's Representative:

Tel: _____
Fax: _____
Email: _____

B. Window Series: Milgard Aluminum Windows

C. Substitutions: Reference Section 01 25 13 – Product Substitutions Procedures.

2.02 MATERIALS

A. Aluminum: Comply with requirements of AAMA/WDMA/CSA 101/I.S.2/A440-05, 6063-T5 temper for strength, corrosion resistance and application of required finish.

B. Extruded frame members are to be .060" in thickness for structural walls.

VERIFY THAT WINDOW FLASHING MATERIAL AND INSTALLATION SEALANT IS SPECIFIED IN APPROPRIATE SECTIONS.

2.03 GENERAL PERFORMANCE REQUIREMENTS:

A. Thermal Performance: Comply with NFRC 100.

B. Air Leakage, Water Resistance, Structural Test: Comply with ANSI/AAMA 101/I.S.2.

C. Forced-Entry Resistance: Comply with ASTM E 588.

Aluminum Windows (continued)

2.04 WINDOW TYPES:

SELECT FOLLOWING WINDOW TYPES AND RELATED NAIL FIN/MOUNTING STYLE BASED ON PROJECT REQUIREMENTS.
DELETE WINDOW TYPES NOT USED.

- A. Picture Window and Radius – [710 Series, 1 inch (25mm) nail fin setback] [710S Series, 1 3/8 inch (35mm) nail fin setback with stucco key] [910C Series, 1 inch (25mm) nail fin setback] [910S Series, 1 3/8" (35mm) nail fin setback with stucco key] [911C Series, block frame (no nail fin)] [R-15 Series, 1 inch (25mm) nail fin setback] [R-15S Series, 1 3/8" (35mm) nail fin setback with stucco key] [1185H Series, block frame (no nail fin)] [1285H Series, Z-bar flush fin]:

1. Frame:

- a. 710 & 710S Series, 2 1/16" (52mm) & 2 3/8" (60mm)
- b. 910C Series, 2 1/16" (52mm)
- c. 910S Series, 2 7/16" (62mm)
- d. 911C Series, 1 1/4" (32mm)
- e. R15 & R15S Series, 2 1/16" (52mm) & 2 3/8" (60mm)
- f. 1185H & 1285H Series, 2 1/16" (52mm)

2. Sightlines:

- a. 1185H & 1285H Series, equal to the horizontal slider and single hung

3. Performance Class:

- a. 710 & 710S Series, 95 1/2" x 71 1/2" and smaller: FW-HC40
- b. 910C, 910S & 911C Series, 95 1/2" x 71 1/2" and smaller: FW-HC45
- c. R-15 & R-15S Series, 71 1/2" x 71 1/2" and smaller: FW-HC40
- d. 1185H Series, 71 1/2" x 71 1/2" and smaller: FW-HC45
- e. 1285H Series, 71 1/2" x 71 1/2" and smaller: FW-C35

- B. Horizontal Slider – [1110H Series, 1 inch (25mm) nail fin setback] [1110SH Series, 1 3/8 inch (35mm) nail fin setback with stucco key] [1180H Series, block frame (no nail fin)] [1280H Series, Z-bar flush fin]:

1. Frame:

- a. 1110H & 1110SH Series, 2 1/16" (52mm) & 2 3/8" (60mm)
- b. 1180H & 1280H Series, 2 1/16" (52mm)

2. Sash: Depth of 1 1/8" (29 mm), hollow aluminum extrusion.

3. Sightlines: Non-equal sightlines between sash and fixed glass.
 4. Performance Class:
 - a. 119 ½" x 71 ½" Double Vent, 36" vent set: HS-R20.
 5. Hardware:
 - a. Nylon rollers with stainless steel axles, aluminum integral monorail track.
 - b. Single pull rail on meeting rail sash.
 - c. Automatic, spring loaded, height adjustable positive lock.
 6. Weatherstripping: Fin seal polypropylene pile.
- C. Single Hung – [1510 Series, 1 inch (25mm) nail fin setback] [1510S Series, 1 3/8 inch (35mm) nail fin setback with stucco key] [1580H Series, block frame (no nail fin)] [1680H Series, Z-bar flush fin]:
1. Frame:
 - a. 1510 & 1510S Series, 2 1/16" (52mm) & 2 3/8" (60mm)
 - b. 1580H & 1680H Series, 2 1/16" (52mm)
 2. Sash: Depth of 1 1/8" (29 mm), hollow aluminum profile.
 3. Sightlines: Non-equal sightlines between sash and fixed glass.
 4. Performance Class:
 - a. 47 ½" x 83 ½" and smaller: H-LC25.
 5. Hardware:
 - a. Concealed block and tackle balancer.
 - b. Single pull rail (sash lifts) on meeting rail sash.
 - c. Automatic, spring loaded, height adjustable positive lock.
 6. Weatherstripping: Fin seal polypropylene pile.
- D. Casement – [910C Series, 1 inch (25mm) nail fin setback] [910S Series, 1 3/8 inch (35mm) nail fin setback with stucco key] [911C Series, block frame (no nail fin)]:
1. Frame:
 - a. 910C Series, 2 1/16" (52mm)
 - b. 910S Series, 2 7/16" (62mm)
 - c. 911C Series, 1 ¼" (32mm)
 2. Sash: Depth of 1 5/16" (33mm), solid aluminum extrusion.

3. Performance Class:
 - a. 95 ½" x 59 ½" Double Casement with center picture window, 32 vent set: C-C30.
 4. Hardware:
 - a. Operators will be of single push arm design driven by a hand crank. Constructed of hardened steel worm and gearing and high-pressure zinc alloy die castings with high-strength plastic trim cover.
 - b. Cam style locking mechanism with latch on jamb.
 - c. Tension adjustable hinge.
 5. Weatherstripping: Dual durometer vinyl bulb seal.
- E. Awning – [910C Series, 1 inch (25mm) nail fin setback] [910S Series, 1 3/8 inch (35mm) nail fin setback with stucco key] [911C Series, block frame (no nail fin)]:
1. Frame:
 - a. 910C Series, 2 1/16" (52mm)
 - b. 910S Series, 2 7/16" (62mm)
 - c. 911C Series, 1 ¼" (32mm)
 2. Sash: Depth of 1 5/16" (33mm), solid aluminum extrusion.
 3. Performance Class:
 - a. 47 ½" x 83 ½" Bottom Awning, 36" barset: AP-C30.
 4. Hardware:
 - a. Operators will be of combined push arm and drag arm/link design driven by a hand crank. Constructed of hardened steel worm and gearing and high-pressure zinc alloy die castings with high-strength plastic trim cover.
 - b. Cam style locking mechanism with latch on jamb.
 - c. Tension adjustable hinge.
 5. Weatherstripping: Dual durometer vinyl bulb seal.
- F. Bay Windows – [1550 Series, 1 inch (25 mm) nail fin setback]:
1. Frame: Depth of frame is 2 1/16" (52mm)
 2. Unit configuration and window types as shown on drawings; mulled together to form single window unit.
 3. Assembly posts at 45 degrees.
- G. Bow Windows – [1560 Series, 1 inch (25 mm) nail fin setback]:

1. Frame: Depth of frame is 2 1/16" (52mm)
2. Unit configuration and window types as shown on drawings; mulled together to form single window unit.
3. Assembly posts at 13 degrees.

Aluminum Windows (continued)

2.05 GLAZING

- A. Insulated Glass Units: ASTM E 774, Class A, 3/4 inch (19mm) thick overall except 710 and 710S which are 1 inch (25mm) thick.

1. Glazing Type: [Clear/Clear] [Clear/SunCoat® Low-E] [Clear/SunCoat® Low-E, argon gas filled] [Clear/SunCoatMAX™ Low-E] [Clear/SunCoatMAX™ Low-E, argon gas filled] [Clear/Hardcoat Low-E] [Clear/Hardcoat Low-E, argon gas filled].

WARM EDGE SPACERS ARE NOT AVAILABLE ON SOME UNITS
INCLUDING CERTAIN OVERSIZE UNITS, RADIUS AND GABLED UNITS.

2. Spacer Bar: [Warm edge steel spacer] [Aluminum box spacer] [Warm edge foam spacer].

MOST COMMON TYPES OF INSULATED UNITS ARE INCLUDED ABOVE, BUT SEVERAL OTHER TYPES INCLUDING TINTED, REFLECTIVE, HEAT STRENGTHENED, TEMPERED, OBSCURE, WIRE, AND LAMINATED ARE AVAILABLE FOR SPECIAL APPLICATIONS. SELECT DESIRED TYPES FROM MILGARD WEBSITE milgard.com/architects AND SPECIFY IN LIEU OF, OR IN ADDITION, TO THE ABOVE WITH ALL NECESSARY CRITERIA SUCH AS OBSCURE PATTERNS. IF MORE THAN ONE TYPE OF GLAZING IS REQUIRED FOR THE PROJECT, BE CERTAIN THAT TYPE FOR EACH WINDOW IS CLEARLY NOTED ON DRAWINGS OR IN WINDOW SCHEDULE.

OR

- B. Single Pane Glass:

1. Glazing Type: [Clear] [Solar Bronze] [Solar Gray] [Hardcoat Low-E] [Solar Cool Bronze] [Solar Cool Gray].

MOST COMMON TYPES OF SINGLE PANE GLASS ARE INCLUDED ABOVE, BUT SEVERAL OTHER TYPES INCLUDING REFLECTIVE, HEAT STRENGTHENED, TEMPERED, OBSCURE, WIRE, AND LAMINATED ARE AVAILABLE FOR SPECIAL APPLICATIONS. SELECT DESIRED TYPES FROM MILGARD WEBSITE milgard.com/architects AND SPECIFY IN LIEU OF, OR IN ADDITION, TO THE ABOVE WITH ALL NECESSARY CRITERIA SUCH AS OBSCURE PATTERNS. IF MORE THAN ONE TYPE OF GLAZING IS REQUIRED FOR THE PROJECT, BE CERTAIN THAT TYPE FOR EACH WINDOW IS CLEARLY NOTED ON DRAWINGS OR IN WINDOW SCHEDULE.

2.06 DIVIDED LITE GRIDS

VERIFY THAT DESIRED GRID PATTERNS, IF ANY, ARE SHOWN ON THE DRAWING. CERTAIN GRID PATTERNS MAY NOT BE AVAILABLE WITH ONE OR THE OTHER BAR TYPES IN THE FOLLOWING PARAGRAPH - CONSULT MILGARD FOR UNUSUAL DESIGN APPLICATIONS. GRIDS ARE NOT AVAILABLE FOR SINGLE PANE GLASS WINDOWS.

- A. [5/8 inch (16 mm) wide flat, grids between the glass that are color matched to frame and sash] [1-1/16 inch (27 mm) wide sculptured, grids between the glass that are color matched to frame and sash]

Aluminum Windows (continued)

2.07 INSECT SCREENS

- A. Provide tight-fitting screen for operating sash with hardware to allow easy removal.
 - 1. Screen Cloth: Charcoal colored fiberglass mesh.
 - 2. Frame:
 - a. Cambered formed aluminum with rigid plastic corner keys.
 - b. Pull tabs for removal.

2.08 FABRICATION

- A. Fabricate frames and sash with mechanically joined corners. Corners are fastened with corrosion resistant screws and sealed with an acrylic sealant.
- C. All fixed glass is exterior glazed and all sashes are marine glazed with flexible PVC glazing. The fixed glazing shall be removed without disassembly of a sash. The vents will need to be disassembled to replace the glazing.

2.09 FINISHES

- A. Frame and Sash Color: [White] [Tan] Painted Exterior Finish: Equaling 0.3 mils dry film thickness to AAMA 603.8-92.
- B. Frame and Sash Color: [Bronze] [Clear] Anodized Exterior Finish: Provide AA-C22-A32 Class II Bronze or AA-C22-A31 Class II Clear finish, minimum 0.4 mils thick, electrolytically deposited color anodized finish.
- C. Color match screen frame to window frame and sash color.

2.10 SOURCE QUALITY CONTROL

- A. Windows inspected in accordance with manufacturer's Quality Control Program as required by AAMA Gold Label certification.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine openings in which windows will be installed.
 - 1. Verify that framing complies with AAMA 2400 ("Mounting Flange Installation") or AAMA 2410 ("Flush Fin Installation").
 - 2. Verify that fasteners in framed walls are fully driven and will not interfere with window installation.
- B. Coordinate with responsible entity to correct unsatisfactory conditions.

Aluminum Windows (continued)

- C. Commencement of work by installer is acceptance of substrate conditions.

3.02 INSTALLATION

INSTALLATION INSTRUCTIONS (AAMA 2400) ARE ADEQUATE FOR NORMAL INSTALLATION CONDITIONS IN FRAMED CONSTRUCTION. MASONRY WALLS AND UNUSUAL CONDITIONS MAY REQUIRE ADDITIONAL INFORMATION IN THIS ARTICLE.

- A. Install windows in framed walls in accordance with AAMA 2400 ("Mounting Flange Installation") or AAMA 2410 ("Flush Fin Installation").
- B. Do not remove temporary labels.
- C. Install insect screens on operable sash.**

3.03 CLEANING

- A. Reference Section 01 74 00 – Cleaning and Waste Management.
- B. Remove temporary labels and retain for Closeout Submittals.
- C. Clean soiled surfaces and glass using a mild detergent and warm water solution with soft, clean cloths.

END OF SECTION

This specification was prepared by Milgard Manufacturing, Inc. Comments or suggestions for improvement should be addressed to Milgard at the address in Article 2.01 A.

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