Architectural Manual

Standard
ALUMINUM SERIES
Windows & Patio Doors

Milgard
WINDOWS & DOORS
Clearly the best.
Instructions on how to use this manual:

This document has been designed for easy navigation and to quickly click to the section you need. Here’s some important tips on using this document:

- Any item print in red, will click through to the corresponding item.

- Click to any item in the Table of Contents on page 3. Click on the Milgard logo at the top of any page to return to the Table of Contents - FULL MANUAL ONLY.

- From each section’s Quick Links page, click to any Drawing listed.

- From any Drawing page, click the “Go Back to Quick Links” box on the bottom right of the page to return to the list of drawings.

- Click on the links on the bottom of the page to go to Revit, SketchUp .PDF and .DWG files. Please note that you must have internet access for these links and you will be re-directed to the Milgard site.

- This document can also be navigated from Adobe Acrobat Bookmarks.

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here: Standard Aluminum Architectural Library
## Contents

**About Standard Aluminum Series** 4
- Energy Packages 4
- Test Standards 4
- Standard Aluminum Options 5
- Full Lifetime Warranty 6
- Why Milgard? 6

**Awning and Casement Window** 7
- Overview 7
- Components 7
- Options 8
- Configurations 9
- Minimum/Maximum Sizes 9
- Available Frame Styles 9
- Drawings - Quick Links 10
- Awning Window 11
- Casement Window 17

**Horizontal Sliding Window** 23
- Overview 23
- Components 23
- Options 24
- Configurations 25
- Minimum/Maximum Sizes 25
- Available Frame Styles 25
- Drawings - Quick Links 26
- Horizontal Sliding Window 27

**Picture and Radius Window** 35
- Overview 35
- Components 35
- Options 36
- Configurations 37
- Minimum/Maximum Sizes 37
- Available Frame Styles 37
- Drawings - Quick Links 38
- Picture and Radius Window 39

**Single Hung Window** 47
- Overview 47
- Components 47
- Options 48
- Configurations 49
- Minimum/Maximum Sizes 49
- Available Frame Styles 49
- Drawings - Quick Links 50
- Single Hung Window 51

**Bay & Bow Window** 56
- Configurations 56
- Components 56
- Options 57
- Bay And Bow Windows Installation 57
- Configurations 58
- Minimum/Maximum Sizes 58
- Available Frame Styles 58
- Drawings - Quick Links 59
- Bay & Bow Window 60

**Sliding Door** 71
- Overview 71
- Components 71
- Options 72
- Configurations 74
- Minimum/Maximum Sizes 74
- Available Frame Styles 74
- Drawings - Quick Links 75
- Sliding Door 76
About Standard Aluminum Series

A Standard Aluminum window is made of extruded aluminum. No enhancements are made to reduce thermal transfer.

Features and benefits of Standard Aluminum windows include:

- Sealed, mechanically-joined corners stay square and true over years of use, helping to keep homes dry.
- Clean, narrow sight lines for contemporary designs and maximum view area.
- Milgard SunCoat® Low-E glass for excellent energy savings and protection against fabric fading.
- Industry-leading Full Lifetime Warranty.
- Anodized coating or painted finish helps to prevent against rusting, pitting and corroding.

Energy Packages

Milgard adheres to ENERGY STAR® v6 requirements to meet or exceed U-Factor and Solar Heat Gain Coefficient (SHGC) criteria for all ENERGY STAR® zones.

Milgard also offers high energy performance options for the ultimate in energy efficiency. Energy efficient windows could include one or more of the following features based on your climate.

- SunCoat® or SunCoatMAX®
- EdgeGardMAX®
- Argon or Krypton
- 4th Surface
- Triple Glaze

For more details on Milgard Energy Efficient packages, visit [www.milgard.com/learn/energy-efficiency/energy-efficient-components](http://www.milgard.com/learn/energy-efficiency/energy-efficient-components)

To check the energy performance of all Milgard windows and doors, use our Energy Calculator at:

[www.milgard.com/energy-calculator](http://www.milgard.com/energy-calculator)

Test Standards

Contact your Milgard Representative for specific test data.

CAUTION: The use of petroleum based fuels or solvents as release agents in stucco wall installations or glass cleaning will chemically attack materials used in seals and other components, and voids the Milgard Full Lifetime Warranty. The use of wax-based release agents is recommended.

Expanding foam for insulation purposes should not be used. Non-expanding foam or loose packed batt insulation is recommended.
## Standard Aluminum Options

### Hardware
- **Casement and Awning Roto Handle**
- **Casement and Awning Friction Handle**
- **Spring action lock for Single Hung and Horizontal Slider**
- **Sliding Door Handle - Interior**

### Colors
- **White**
- **Clear Anodized**
- **Bronze Anodized**

### Grids
- **5/8” Flat Grid**
- **1-1/16” Sculpted**
Full Lifetime Warranty

At Milgard, we build our windows and doors to last. With the dedication to quality that we put into building the best windows in the business, it wouldn’t make sense to back them with anything but the best warranty in the business. That’s why we back every properly installed window and door for as long as the homeowner owns their home—including parts and labor. It’s why you can be sure you won’t find any windows better than Milgard.

For complete warranty details, visit milgard.com.

Why Milgard?

Milgard is one of the largest and most trusted names in windows and doors. For the last 50 years, we’ve demonstrated our commitment to innovation, quality and service.

While our coverage is extensive, our service is local. Milgard has multiple locations throughout the Western U.S. and Western Canada. Our belief is that by being close to our customers, we can provide them better service. This means faster lead and delivery time, as well as faster response to any warranty situations. We’re there for you long after the job has been completed. Milgard also has a comprehensive network of qualified dealers and offers some of the best training in the industry.

Awards give you added assurances and Milgard has been named “Best Quality in the Nation” eight times and the nation’s “Most Used Vinyl Window” four times by Builder magazine. Both Professional Remodeler and Professional Builder magazines have named us “Most Preferred Vinyl Window” three times.
Sliding Door

Please also see:

Standard Aluminum Options
Full Lifetime Warranty

Overview

The 450 Series is designed as an inside slider (the sliding panel or "vent" slides inside the stationary panel). For the vent to open completely, there must be at least an equal size adjacent stationary panel. The track system provides for one panel in a two-panel or three-panel door to move, and two panels in a four-panel door to move.

Components

FRAME

Frame components are made from 6063-T5 aluminum alloy with a structural wall thickness of .062", and non-structural wall thickness of .050". The frame is available in clear and bronze anodized finishes with a standard .4" mil coating thickness, and white baked enamel finish.

The sliding glass door is constructed from fixed and moving panels mounted in a perimeter frame specifically engineered for insulating glass. Both panels are removable for repair and can be reversed in the field.

A butt-jointed corner is used on the perimeter frame and panel members. Wide screw spacing on the mechanically joined corners ensures a rigid connection with a consistent dimension. With the insertion of the non-moving panel into the perimeter frame, the door squares itself to ensure a rigid connection with an even sight line. It is still necessary to square the frame for installation. The glass in the fixed and sliding panel is equally exposed.

The jamb, sill and all corners are caulked with exterior grade sealant before the fixed panel is installed to maximize weather tight integrity. Standard frame widths is 4 1/2" which will allow for adaptation to most wall conditions.

NAIL-ON FIN

An integral nailing fin extends 1" around the perimeter head and jambs to attach door in opening. The fin is setback 1" from the exterior edge of the frame.

SLIDING PATIO DOOR WEEP SYSTEM

The rectangular weep holes on the interior of the sill section are offset approximately 6" from the holes on the frame exterior to provide a baffling system minimizing "blow back". A hinged weep door to the exterior reduces air infiltration and provides an attractive, uncluttered sill appearance.

GLAZING MATERIAL

Sliding and fixed panels employ a wraparound "U-shaped" vinyl channel designed to effectively seal 1" overall insulating glass units and cushion the glass from the surrounding frame.
GLASS

Glass options are available in 1" overall insulating units, clear, tinted, reflective, obscure and low-emissivity glass. Special safety glass options are available upon request.

SLIDING PANEL

Designed specifically for insulating glass the sliding panel is engineered with the glass unit's weight centered over the roller assembly, which rides on a raised monorail track. This track helps keep the sliding operation free from interference by foreign particles that may collect in the sill. An “L-shaped” lip fully interlocks with the fixed panel, adding security and preventing weather penetration. The panel can be easily removed in the open position by lifting up and pulling the bottom inward. Nylon compression strip is used to ensure an even, weather tight seal. A rubberized stop is attached to the perimeter jamb to cushion the panel in a fully open position.

FIXED PANEL

The fixed panel is fastened to the perimeter frame and tightly sealed for maximum performance. The fixed panel has an “L-shaped” lip, that fully interlocks with the sliding panel for added security and a weather tight seal.

WEATHERSTRIPPING

Silicone treated, water repellent polypropylene fin seal weather-stripping provides a durable, weather tight seal. This weather-stripping is installed in an integral, continuous keyway around the exterior edge of the closing stile and on the interlock.

ROLLER ASSEMBLY

A cadmium-coated steel roller assembly with sealed ball bearings rides on a raised monorail track and can be easily adjusted. Two tandem rollers are used on each panel.

LOCKING ASSEMBLY

The primary locking assembly is a component of the handle set. The door may be locked or unlocked easily from the inside by the flip-latch mechanism. An anti-lift device is installed in the handle to prevent sliding panel removal when the door is closed.

SCREEN

Screen frames are engineered for rigid strength, finished with three coats of color matched baked polyester for long term durability. Four nylon rollers contained in fully adjustable plated steel housings ride on a raised monorail track for easy operation.

Options

KEY LOCK

A cylinder lock for keyed exterior is available.

GRIDS

Available in 5/8" standard or 1-1/16" sculptured aluminum pro-files sealed between panes.

GLASS

Refer to Glass Section

TEST STANDARDS

Contact your Milgard Representative for specific test data.
INSTALLATION

All 450 Series Doors are factory sized to fit into a framed opening, whether new or created by removing an existing door. Doors will be 1/2" smaller than the framed (rough) opening to allow 1/2" clearance on header and 1/4" clearance on jambs. Built to rough opening size with 1/2” deductions automatically made, no complex calculations are required for ordering. Opening panels must be closed and locked during installation. Doors must be installed level, plumb and square with 1/4” clearance on the sides with weep holes at the bottom.

HEADERS MUST NOT BE NAILED

Nail through fin into framing along sides. At the head, casing nails may be placed 1/2” above fin and bent down over fin, to allow for header deflection. Wood Sill: Caulk entire sill length before setting door.

CONCRETE/MORTAR

Install as with wood sill, except use heavy building paper or redwood barrier between door frame and concrete to prevent corrosion. Caulk both sides of barrier for weather tight performance.

CAUTION: The use of petroleum based fuels or solvents as release agents in stucco wall installations or glass cleaning will chemically attack materials used in seals and other components, and voids the Milgard Full Lifetime Warranty. The use of wax based release agents is recommended. Expanding foam for insulation purposes should not be used. Non-expanding foam or loose packed batt insulation is recommended.
Sliding Door

Configurations

2 PANEL

3 PANEL

4 PANEL

Minimum/Maximum Sizes

2-PANEL
- Min 5 ft 6 in
- Max 6 ft 8 in

3-PANEL
- Min 9 ft 6 in
- Max 12 ft 8 in

4-PANEL
- Min 10 ft 6 in
- Max 16 ft 8 in

Available Frame Styles

- 1" Setback
- 1-3/8" Setback
- Standard Z-bar
- No Fin (Block Frame)
- H-Bar (Slope Sill)

NOTE: For engineering approval contact your Milgard representative for any configuration over 40 square feet. Each Milgard Manufacturing plant reserves the right to alter or change sizes and configurations according to location capabilities. Ask your Milgard rep about specialty applications. Windows over 40 square feet shipped open for field glazing. Varies by location.

Not all frame styles available at all Milgard locations. Contact your Milgard Representative for more information.
Drawings - Quick Links

Sliding Door

17—1” Nailfin Setback
18—1-3/8” NailFin Setback
19—Block Frame
20—Block Frame with Z-bar
21—1” Nailfin Setback - OXO
22—1” Nailfin Setback - XOO
23—1-3/8” Nailfin Setback - OXO
24—Block Frame - XOO
25—1-3/8” Nailfin Setback - OXXO

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:
Standard Aluminum Architectural Library
Standard Aluminum

Sliding Door

1" Nailfin Setback

<table>
<thead>
<tr>
<th>CAD File Scale</th>
<th>View</th>
<th>File Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTS</td>
<td>Horizontal &amp; Vertical</td>
<td>Aluminum_450_SGD_AP_1in</td>
<td>Inch</td>
</tr>
</tbody>
</table>

More Technical Documents can be found at milgard.com/professionals

Due to continual research and development, details may be changed at any time. ©2013 Milgard Mfg.

SLIDING DOOR
SERIES 450

AP CONFIGURATION SHOWN,
P.A CONFIGURATION ALSO AVAILABLE.

HEAD & SILL

JAMBS

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:

Standard Aluminum Architectural Library

© Milgard Manufacturing, Inc.
Standard Aluminum

Sliding Door

1-3/8” NailFin Setback

<table>
<thead>
<tr>
<th>CAD File Scale</th>
<th>View</th>
<th>File Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTS</td>
<td></td>
<td>Aluminum 450S SGD AP 1.375in</td>
<td>Inch</td>
</tr>
</tbody>
</table>

More Technical Documents can be found at milgard.com/professionals
Due to continual research and development, details may be changed at any time. ©2013 Milgard Mfg.

SLIDING DOOR
SERIES 450S

AP CONFIGURATION SHOWN.
PA CONFIGURATION ALSO AVAILABLE.

HEAD & SILL

JAMBS

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:
Standard Aluminum Architectural Library

© Milgard Manufacturing, Inc.
Standard Aluminum

Sliding Door

Block Frame

<table>
<thead>
<tr>
<th>CAD File Scale</th>
<th>View</th>
<th>File Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTS</td>
<td>Horizontal &amp; Vertical</td>
<td>Aluminum_450_SGD_AP_block</td>
<td>Inch</td>
</tr>
</tbody>
</table>

More Technical Documents can be found at milgard.com/professionals
Due to continual research and development, details may be changed at any time. ©2013 Milgard Mfg.

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:
Standard Aluminum Architectural Library
Standard Aluminum

Sliding Door

Block Frame with Z-bar

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:

Standard Aluminum Architectural Library

© Milgard Manufacturing, Inc.
Standard Aluminum

Sliding Door

1" Nailfin Setback - OXO

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:
Standard Aluminum Architectural Library

© Milgard Manufacturing, Inc.
Standard Aluminum

Sliding Door

1" Nailfin Setback - XOO

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:

Standard Aluminum Architectural Library
Standard Aluminum

Sliding Door

1-3/8” Nailfin Setback - OXO

<table>
<thead>
<tr>
<th>CAD File Scale</th>
<th>View</th>
<th>File Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTS</td>
<td>Horizontal &amp; Vertical</td>
<td>Aluminum_450S_SGD_OXO_1.375in</td>
<td>Inch</td>
</tr>
</tbody>
</table>

More Technical Documents can be found at milgard.com/professionals

Due to continual research and development, details may be changed at any time. ©2013 Milgard Mfg.

HEAD & SILL

JAMBS

Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:

Standard Aluminum Architectural Library

© Milgard Manufacturing, Inc.
### CAD File Scale

<table>
<thead>
<tr>
<th>VIEW</th>
<th>FILE NAME</th>
<th>UNITS</th>
<th>REVISION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORIZONTAL &amp; VERTICAL</td>
<td>Aluminum_450C_SGD_XOO_Block</td>
<td>INCH</td>
<td>10/2016</td>
</tr>
</tbody>
</table>

More technical documents can be found at milgard.com/professionals. Due to continual research and development, details may be changed at any time. © 2016 Milgard Mfg.

---

**SLIDING FOOT**

**SERIES 450**

**XOO CONFIGURATION SHOWN ALSO AVAILABLE AS ODX CONFIGURATION**

---

**Revit, SketchUp, .PDF and .DWG files can be accessed at milgard.com/professionals or clicking here:**

**Standard Aluminum Architectural Library**

---

© Milgard Manufacturing, Inc.
Standard Aluminum

Sliding Door

1-3/8” Nailfin Setback - OXXO

More Technical Documents can be found at milgard.com/professionals
Due to continual research and development, details may be changed at any time. ©2013 Milgard Mfg.