

# THERMALLY IMPROVED ALUMINUM

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## A250

Windows & Patio Doors

Architectural  
Manual



## 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](http://milgard.com)** or clicking here:

**[Technical Resources](#)**

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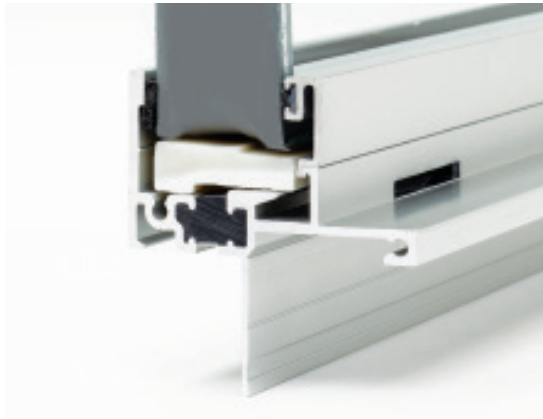
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# About Thermally Improved Aluminum | A250



Milgard Thermally Improved Aluminum windows consist of extruded aluminum, where a “channel” is cut through the aluminum and polyurethane is poured into this channel to separate the interior from exterior extrusion. This process is done to reduce thermal transfer and improve energy efficiency.

Features and benefits of Thermally Improved Aluminum Windows:

- 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 Lifetime Limited Warranty.
- Anodized coating helps to prevent against rusting, pitting and corroding.

*Not all locations manufacture or sell Thermal Break aluminum. Check with your Milgard Dealer.*

## 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

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:**

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

## Thermally Improved Aluminum | A250 Options

### Hardware



Casement and Awning Handle



Spring action lock for Single Hung and Horizontal Slider



Sliding Door Handle - interior  
(Only available in Black)



Sliding Door Handle - exterior  
(Only available in Black)

### Frame Colors

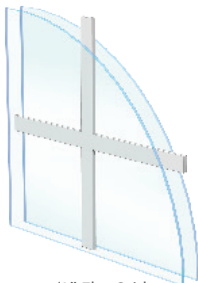


Clear Anodized

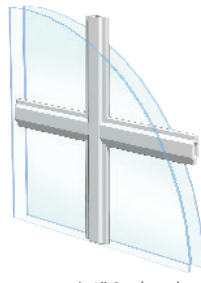


Bronze Anodized

### Grids



5/8" Flat Grid



1-1/16" Sculpted

## Warranty

We have a dedication to quality and build our windows and patio doors to last. With Thermally Improved Aluminum, you're covered for as long as you own your home with our Lifetime Limited Warranty.

For complete warranty details, visit [milgard.com/warranty](https://milgard.com/warranty).

## Why Milgard?

### Quality

Milgard offers award-winning windows and patio doors built for long-lasting comfort. For over 50 years, industry experts have consistently recognized Milgard as a trusted brand. By producing our vinyl and fiberglass frame materials in-house, we can more closely monitor for quality control. Milgard windows and patio doors stand up, while standing out.

### Experience

Since 1962, Milgard Windows & Doors has designed and assembled superior, top quality windows and patio doors. Milgard engineers are known for their industry-leading designs using patented technologies. Whatever your project calls for, Milgard has the right product that can beautifully reflect your vision. From new construction to home remodeling, all Milgard windows and doors are custom made to your exact specifications.

### Service

We serve the Western U.S. and Canada with a dozen full-service facilities and customer care centers. Our belief is that by being close to our customers, we can provide them better service.

# Awning & Casement Windows

*Please also see:*

[TI Aluminum | A250 Options](#)

[Lifetime Limited Warranty](#)

## Overview

All 920 Series Casement and Awning windows are available in both standard and custom sizes to match virtually any design, either new or retrofit.

## Components

### FRAME

Frame components are made from 6063-T5 aluminum alloy with a structural wall thickness of .078", and non-structural wall thickness of .062". The 920 Series utilizes a thermal break for added insulation value. The poured in polyurethane insulator is approximately 1/4" wide at the most narrow point and is used in all frame members. The frame is available in clear and bronze anodized finishes with a standard .4" mil coating thickness. Wide screw spacing on the mechanically joined corners ensure a rigid connection with a consistent dimension. Corners are sealed for added protection from the weather.

The 920 Series is available with either a standard frame with nail-on fin. The standard frame is 2-1/4" in width. Both types utilize 1" overall glazing for either fixed or vented sections.

### NAIL-ON FIN

An integral nailing fin extends 1" around the perimeter of the standard frame and is used to attach the window into the rough opening. The fin is scored for complete removal for retrofit/wood stop installations. The fin is set back 1-5/16" from the exterior edge of the frame.

### WEEP SYSTEM

The rectangular weep holes are located in the frame sill for effective drainage and moisture control.

### GLAZING MATERIAL

AAMA approved glazing tape adheres glass to the fixed and vent frame and seals and cushions the glass. Rigid vinyl setting blocks are used to support the glass-unit, preventing glass slip-page and glass-to-metal contact.

### GLASS

Glass options are available in 1" overall insulating units in clear, tinted, reflective, obscure, Low-E, and safety glass. Other specialty glass is available upon request.

### VENT PANEL

The vent features a clean appearance and rigid construction with mitered and mechanically joined corners. Due to weight limitations of the hinging system, the vent is restricted to a maximum size of 12 square feet for awnings and 15 square feet for casements.

## HINGES

Two types of hinges are available with the 920 Series, one standard and one for egress application. The stainless steel egress hinge allows a full 90 degree rotation opening. The standard hinge is zinc-plated steel with a sliding brass shoe, which is tension adjustable and is completely concealed when the window is in a closed position. Each vent uses two hinges.

## WEATHERSTRIPPING

For Casements and Awnings, a dual durometer vinyl bulb seal surrounds the entire perimeter of the vent frame, creating a positive, weather tight seal.

## LOCKING ASSEMBLY

Friction Hardware— Hand-operated push out latch located on the vent which secures against a polyester strike plate and provides a positive lock and tight seal.

Rotary hardware not available in the Northwest.

Note: Casements over 36" in height two handles are utilized to ensure a tight seal.

## SCREEN

Screen frames are aluminum, finished with three coats of color matched baked polyester for long-term durability. The screen material is an attractive, low maintenance black fiberglass mesh. Screens are installed on the inside of Casement and Awning windows using four screw-mounted vinyl L-clips that secure through pre-drilled holes in the window frame. A wicket may be inset into the screen, giving access to the lock for vent operation.

## Options

### GRIDS

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

### WARM EDGE SPACER

Spacers are available in a standard clear finish.

A gray or bronze foam box spacer is available as an option in the Texas market only.

### EGRESS HINGES

Available upon request.

### TRUE DIVIDED LITE

True divided lite configurations are available, subject to production approval.

### 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.*

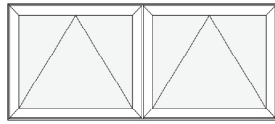


# Awning & Casement Windows

## Configurations



Full Awning



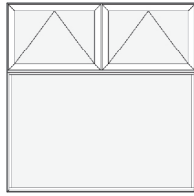
Double Awning



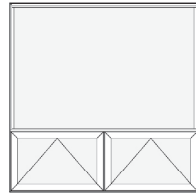
Top Awning



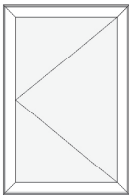
Bottom Awning



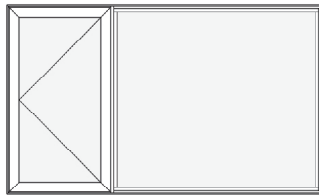
Double Awning Top



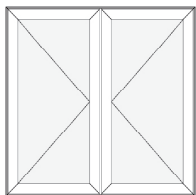
Double Awning Bottom



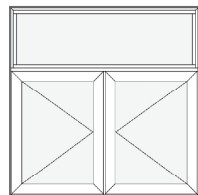
Full Casement



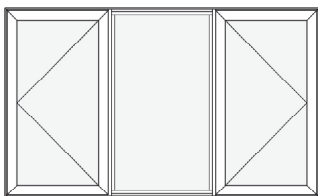
Single Casement



Double Casement



Double bottom Casement



Double Casement with Picture

## Minimum/Maximum Sizes

### FULL AWNING

- Min 1<sup>6</sup>1<sup>6</sup> Max 4<sup>0</sup>3<sup>0</sup>

### DOUBLE AWNING

- Min 3<sup>0</sup>1<sup>6</sup> Max 8<sup>0</sup>3<sup>0</sup>

### BOTTOM AWNING

- Min 1<sup>6</sup>2<sup>0</sup> Max 5<sup>0</sup>8<sup>0</sup>

### FULL CASEMENT

- Min 1<sup>6</sup>1<sup>6</sup> Max 3<sup>0</sup>6<sup>0</sup>

### DOUBLE CASEMENT

- Min 3<sup>0</sup>1<sup>6</sup> Max 6<sup>0</sup>6<sup>0</sup>

### SINGLE CASEMENT

- Min 2<sup>0</sup>1<sup>6</sup> Max 8<sup>0</sup>5<sup>0</sup>

### DOUBLE CASEMENT WITH PICTURE

- Min 3<sup>0</sup>1<sup>6</sup> Max 10<sup>0</sup>5<sup>0</sup>

## Available Frame Styles

- 1-3/8" Setback
- No Fin (Block Frame)

*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

## Awning Window

- 11—1-5/16" Nailfin Setback
- 12—Block Frame
- 13—1-5/16" Nailfin Setback - Bottom Awning
- 14—1-5/16" Nailfin Setback with hinged screen
- 15—Block Frame - Top Awning

## Casement Window

- 16—1-5/16" Nailfin Setback with hinged screen
- 17—1-5/16" Nailfin Setback Single Casement with hinged screen

Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

Thermally Improved Aluminum | A250

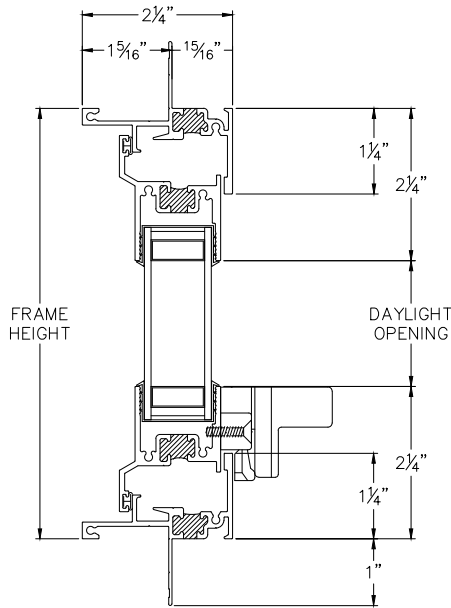
# Awning Window

1-5/16" Nailfin Setback

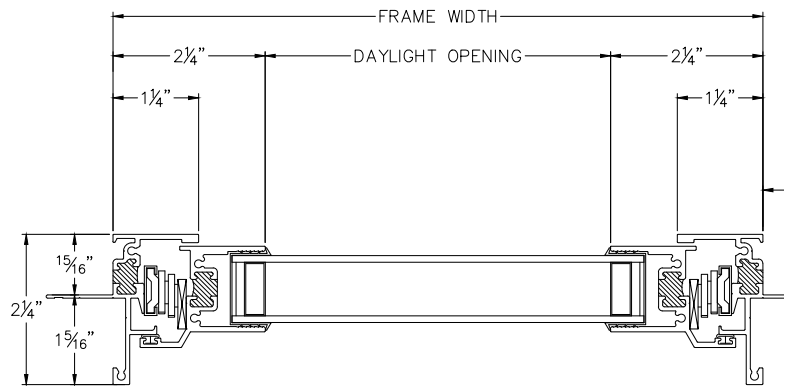
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NTS	Horizontal & Vertical	Aluminum_TIE_920_FA_1.313in	Inch

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## CASEMENT SERIES 920



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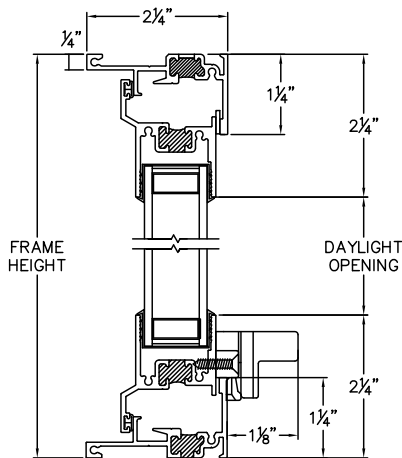
# Awning Window

Block Frame

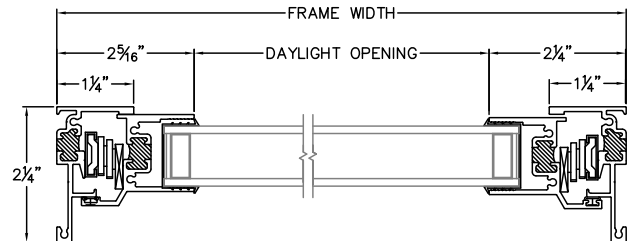
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_920_FA_Block	Inch

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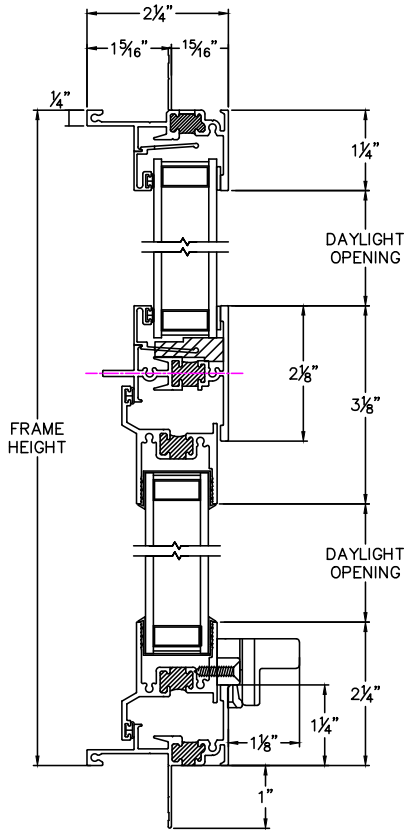
# Awning Window

1-5/16" Nailfin Setback - Bottom Awning

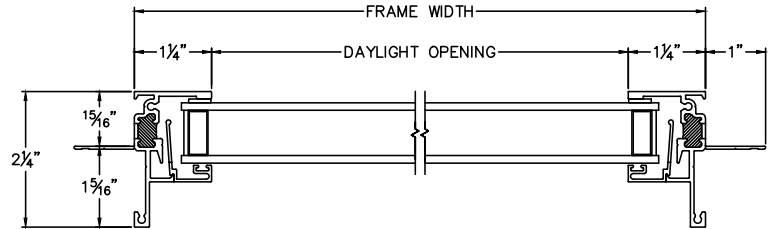
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_920C_BA_1.3125in	Inch

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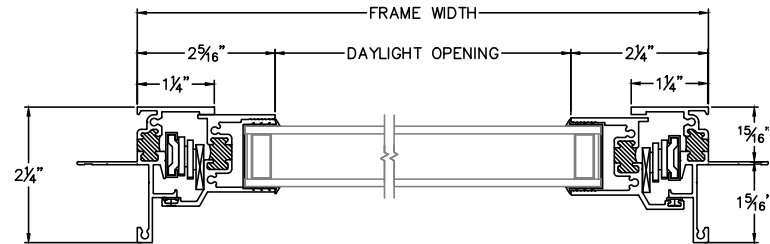
## AWNING SERIES 920C



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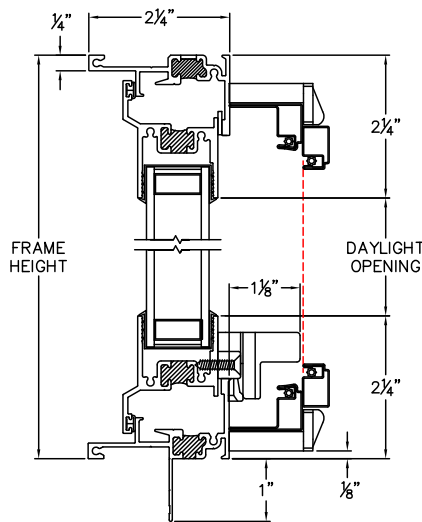
# Awning Window

1-5/16" Nailfin Setback with hinged screen

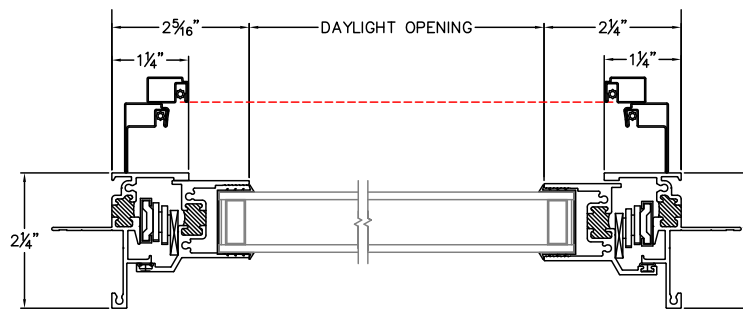
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NTS	Horizontal & Vertical	Aluminum_TIE_920C_FA_1in_W_Hinged Screen	Inch

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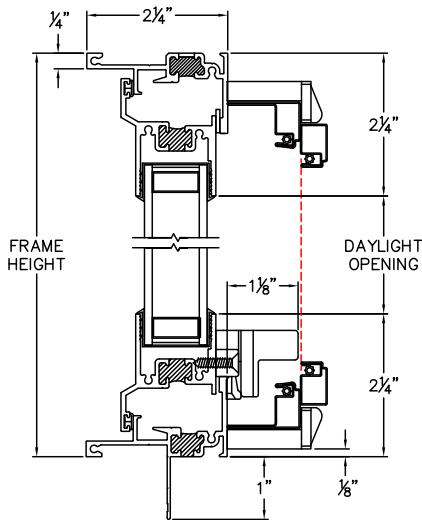
# Awning Window

Block Frame - Top Awning

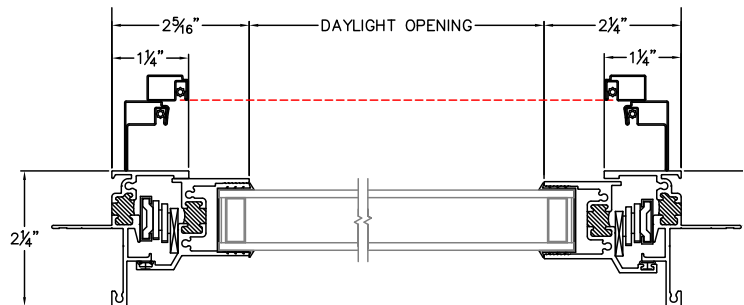
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NTS	Horizontal & Vertical	Aluminum_TIE_920C_FA_1in_W_Hinged Screen	Inch

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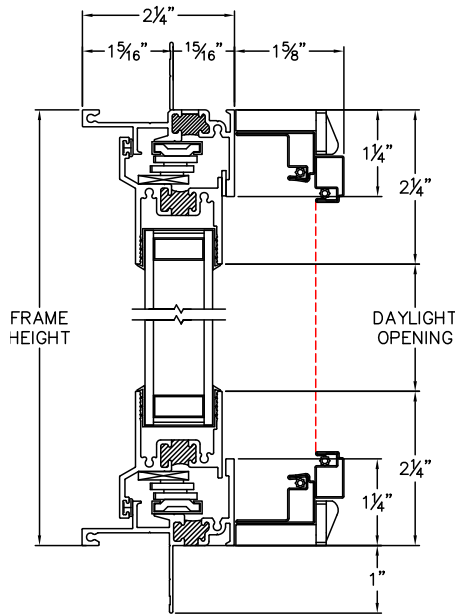
# Casement Window

1-5/16" Nailfin Setback with hinged screen

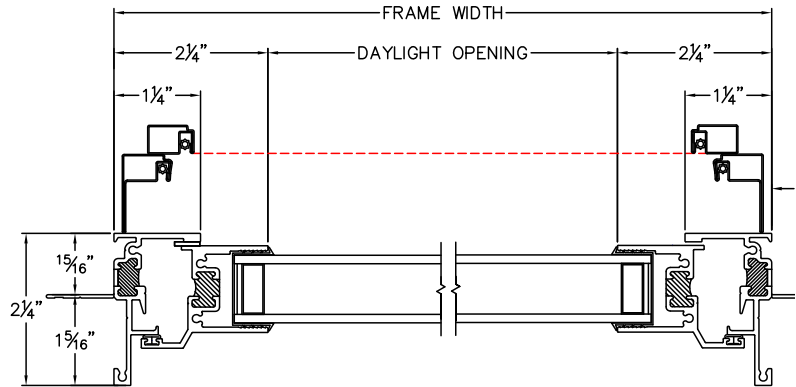
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_920_FC_1in_hinged-screen	Inch

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# Casement Window

1-5/16" Nailfin Setback Single Casement with hinged screen

CAD File Scale  
NTS

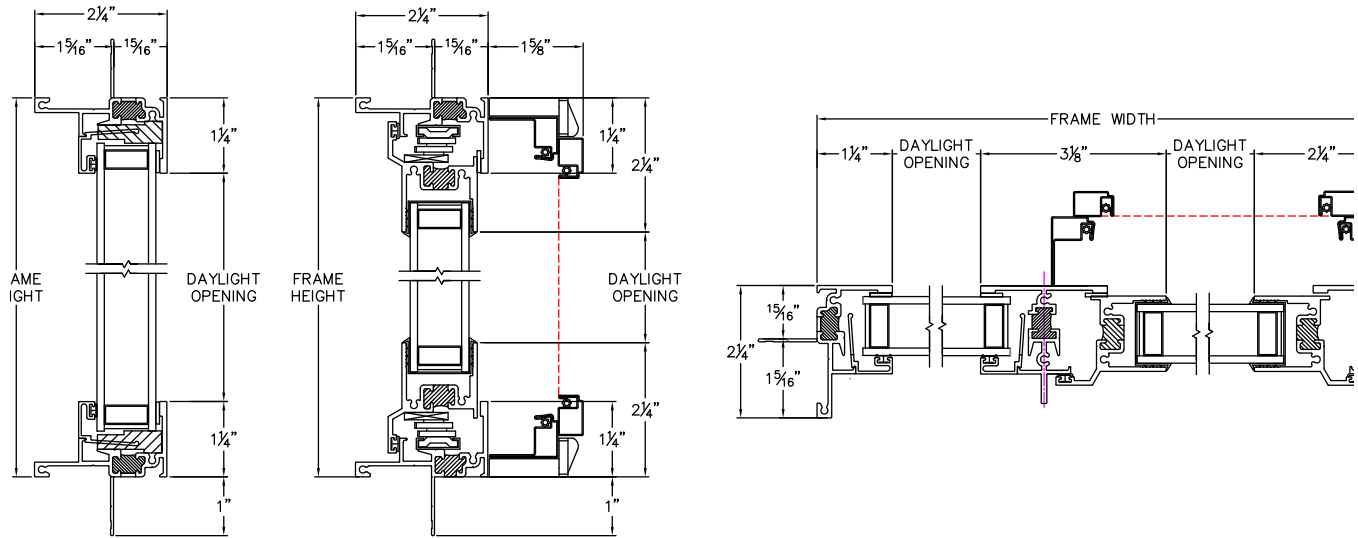
view  
Horizontal & Vertical

File Name  
Aluminum\_TIE\_920\_SC\_1in\_hinged-screen

Units  
Inch

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# Horizontal Sliding Windows

*Please also see:*

[TI Aluminum | A250 Options](#)

[Lifetime Limited Warranty](#)

## Overview

The 1120 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. Horizontal Sliders can be used alone or combined with picture, gable or radius windows for vent below and vent above options.

## Components

### FRAME

Frame components are made from 6063-T5 aluminum alloy with a structural wall thickness of .060”, and non-structural wall thickness of .050”. The 1120 Series utilizes a thermal break for added insulation value. The poured in polyurethane insulator is approximately 1/4” wide at the most narrow point and is used in all frame members. The frame is available in clear and bronze anodized finishes with a standard .4” mil coating thickness.

The 1120 Series is designed for clean lines and high visual appeal with maximum glass exposure. Wide screw spacing on the mechanically joined corners ensure a rigid connection with a consistent dimension. Corners are sealed for added protection from the weather. The standard frame is 2-5/8” in width.

### NAIL-ON FIN

An integral nailing fin extends 1” around the perimeter of the standard frame and is used to attach the window into the rough opening. The fin is scored for complete removal for retrofit/wood stop installations. The fin is setback 1-5/16” from the exterior edge of the frame.

### WEEP SYSTEM

Split sill construction and baffled, hidden weep holes drain water from the track. The unique sill design greatly reduces the occurrence of “blow back”, or water seeping to the inside caused by a combination of wind and rain.

### GLAZING MATERIAL

AAMA approved glazing tape adheres glass to the fixed and vent frame and seals and cushions the glass. Rigid vinyl setting blocks are used to support the unit above the sill, preventing glass slippage and glass-to-metal contact. Extruded vinyl glazing (snap-in) bead is applied around the exterior edge. The vent panel utilizes a “Ushaped” vinyl channel designed to seal the unit and cushion the glass from the frame.

### GLASS

Glass options are available in 1” overall insulating units in clear, tinted, reflective, obscure, Low-E, and safety glass. Other specialty glass is available upon request.

## VENT PANEL

The vent is engineered for the thickness and weight of insulating glass. It's roller assembly rides on a monorail track for easy operation and durability. This raised track in the frame sill helps keep the vent operation free from interference by foreign particles that may collect in the sill.

## 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 entire perimeter of the vent panel.

## ROLLER ASSEMBLY

Self-lubricating, wear resistant, dual nylon rollers provide flexible, freewheeling, smooth and silent operation. Rollers are engineered for reduction of friction and elimination of torque on the vent frame. Prevention of metal-to-metal contact eliminates unsightly wear marks on the monorail track. Roller housings without rollers are installed in the vent top to serve as guides.

## LOCKING ASSEMBLY

An automatic, spring-loaded, positive lock is located on the vent lock stile and secures to the vertical meeting rail. The aluminum handle is adjustable to any desired height. When the window is fully closed it will lock automatically.

## SCREEN

Screen frames are aluminum, finished with three coats of color matched baked polyester for long term durability. Tension springs are integrated in the screen frame for a secure fit and easy installation

from inside or outside. The screen material is an attractive, low maintenance black fiberglass mesh.

## Options

Available options include:

### GRIDS

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

### SPACER

Spacer available in a standard clear finish or optional bronze or champagne finish in the airspace of the insulating glass units. PGG Intercept™ warm-edge steel spacer available in certain regions. Contact your Milgard Representative for spacers used in your area.

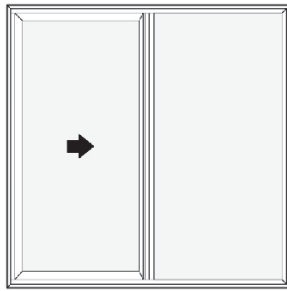
### TEST STANDARDS

Contact your Milgard Representative for specific test data.

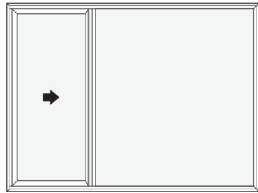
*CAUTION: The use of petroleum based fuels or solvents as release agents in stucco wall installations or glass cleaning will chemically attack materials used in seals and other components, and voids the Milgard Full Lifetime Warranty. The use of wax based release agents is recommended. Expanding foam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

# Horizontal Sliding Windows

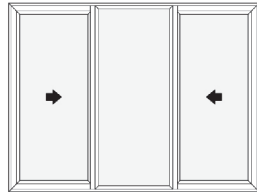
## Configurations



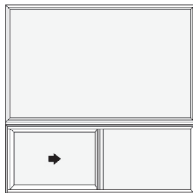
Half Vent



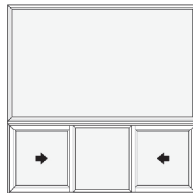
Single Vent



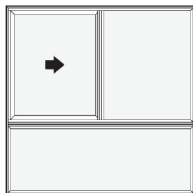
Double Vent



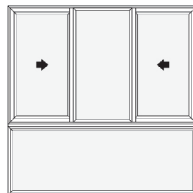
Half Vent below



Double Vent below



Half Vent above



Double Vent above

## Minimum/Maximum Sizes

### HALF VENT

- Min 2<sup>0</sup>1<sup>0</sup>      Max 6<sup>0</sup>6<sup>0</sup>

### DOUBLE VENT

- Min 4<sup>0</sup>1<sup>0</sup>      Max 10<sup>0</sup>6<sup>0</sup>

### HALF VENT (BELOW/ABOVE)

- Min 2<sup>0</sup>2<sup>0</sup>      Max 6<sup>0</sup>7<sup>0</sup>

### DOUBLE VENT (BELOW/ABOVE)

- Min 4<sup>0</sup>2<sup>0</sup>      Max 8<sup>0</sup>7<sup>0</sup>

## Available Frame Styles

- 1-3/8" Setback
- No Fin (Block Frame)

*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

## Horizontal Sliding Window

- 11—1-1/16" Nailfin Setback
- 12—1-3/8" Nailfin Setback
- 13—Block Frame
- 14—1-1/16" Nailfin Setback - Half Vent Above
- 15—1-1/16" Nailfin Setback - Half Vent Below
- 16—1-3/8" Nailfin Setback - Half Vent Below
- 17—1-1/16" Nailfin Setback - Double Vent
- 18—1" Nailfin Setback - Half Vent Picture Window
- 19—Z-bar
- 20—Sloped Sill - Half Vent Above

Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

Thermally Improved Aluminum | A250

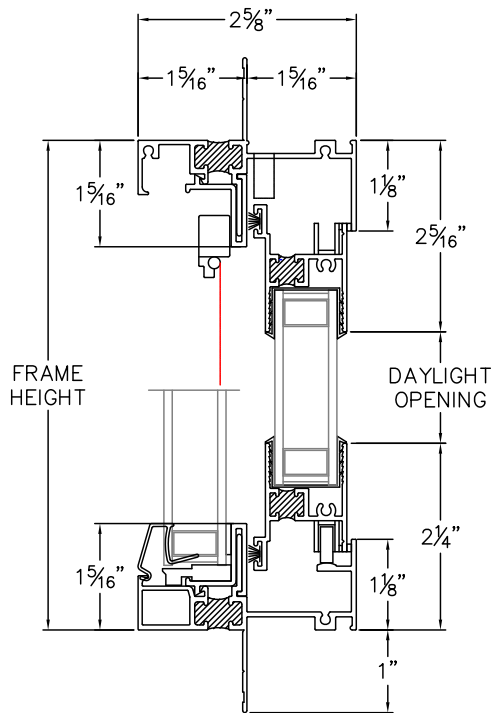
# Horizontal Sliding Window

1-3/8" Nailfin Setback

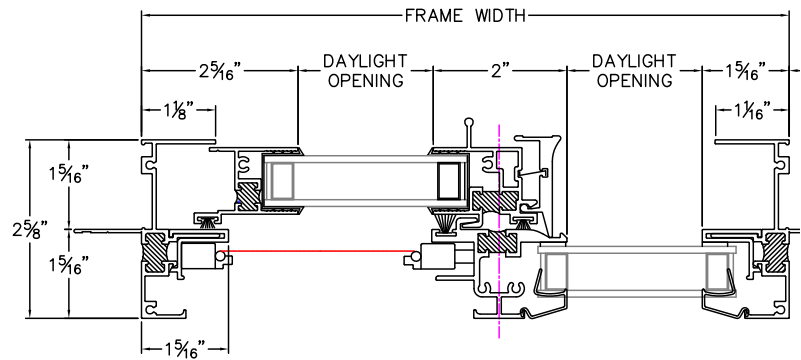
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_1120_HV_1.375in	Inch

More Technical Documents can be found at [milgard.com/professionals](http://milgard.com/professionals)  
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## HORIZONTAL SLIDER SERIES 1120



HEAD & SILL



JAMBS

Revit, SketchUp, .PDF and .DWG files can be accessed at [milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)

Thermally Improved Aluminum | A250

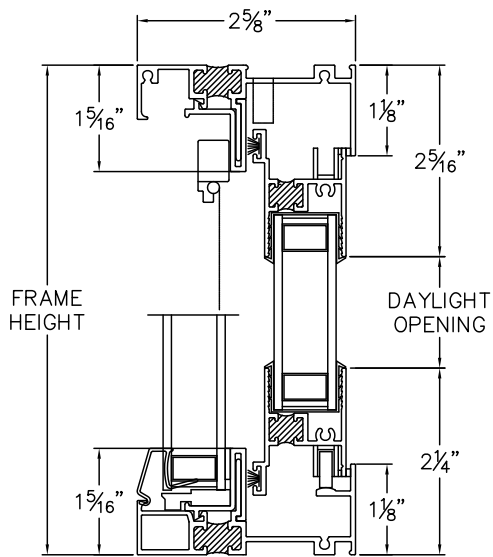
# Horizontal Sliding Window

Block Frame

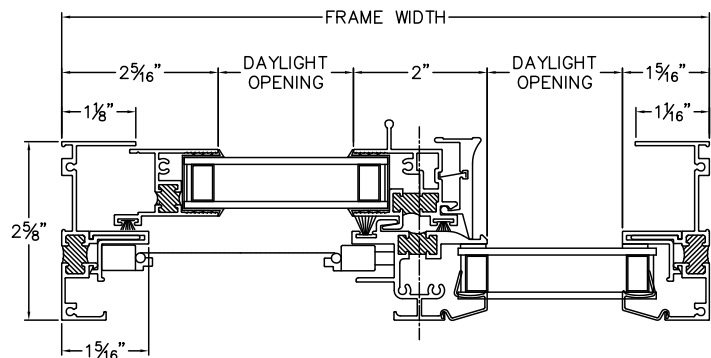
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_1120_HV_Block	Inch

More Technical Documents can be found at [milgard.com/professionals](http://milgard.com/professionals)  
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## HORIZONTAL SLIDER SERIES 1120



HEAD & SILL



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Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)





Thermally Improved Aluminum | A250

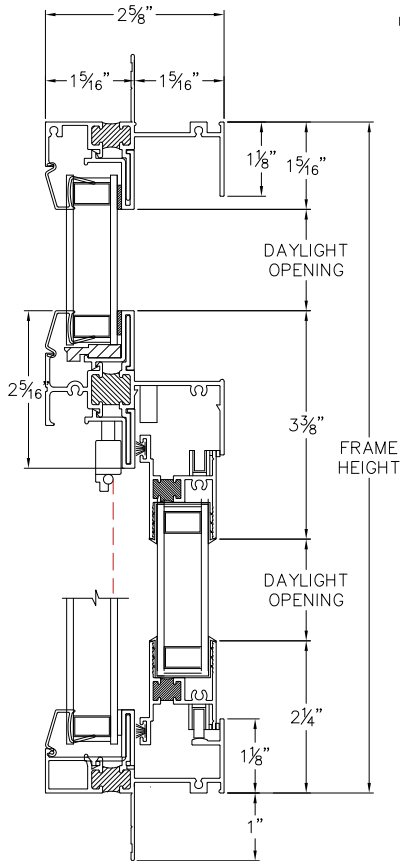
# Horizontal Sliding Window

1-3/8" Nailfin Setback - Half Vent Below

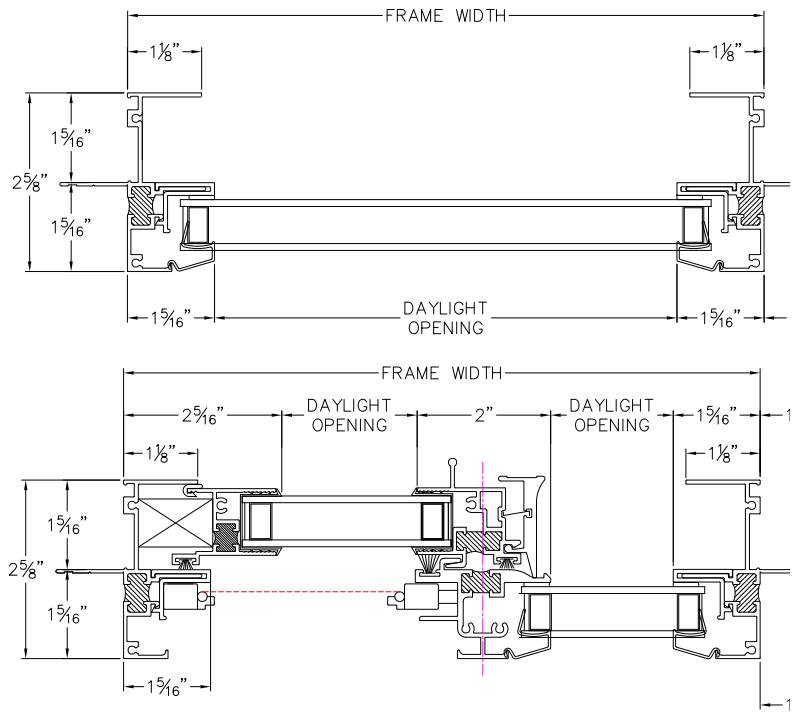
CAD File Scale	View	File Name	Units	Revis
NTS	Horizontal & Vertical	Aluminum_TIE_1120_HVB_1.375in	Inch	6/20

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## HALF VENT BELOW SERIES 1120



HEAD & SILL



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Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)

Thermally Improved Aluminum | A250

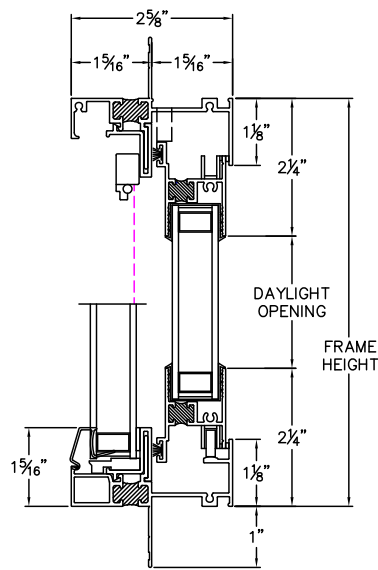
# Horizontal Sliding Window

1-5/16" Nailfin Setback - Double Vent

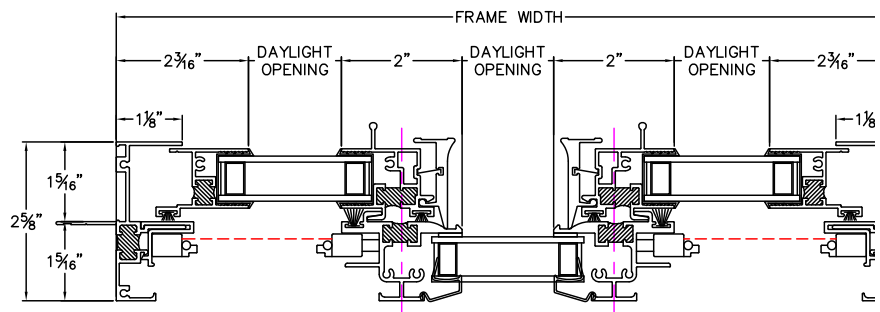
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_1120_DV_1.375in	Inch

More Technical Documents can be found at [milgard.com/professionals](http://milgard.com/professionals)  
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## DOUBLE VENT SERIES 1120



HEAD & SILL



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Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)

# Picture Windows

*Please also see:*

[TI Aluminum | A250 Options](#)

[Lifetime Limited Warranty](#)

## Overview

All 920 Series Casement and Awning windows are available in both standard and custom sizes to match virtually any design, either new or retrofit.

## Components

### FRAME

Frame components are made from 6063-T5 aluminum alloy with a structural wall thickness of .078", and non-structural wall thickness of .062". The 920 Series utilizes a thermal break for added insulation value. The poured in polyurethane insulator is approximately 1/4" wide at the most narrow point and is used in all frame members. The frame is available in clear and bronze anodized finishes with a standard .4" mil coating thickness. Wide screw spacing on the mechanically joined corners ensure a rigid connection with a consistent dimension. Corners are sealed for added protection from the weather.

The 920 Series is available with either a standard frame with nail-on fin. The standard frame is 2-1/4" in width. Both types utilize 1" overall glazing for either fixed or vented sections.

### NAIL-ON FIN

An integral nailing fin extends 1" around the perimeter of the standard frame and is used to attach the window into the rough opening. The fin is scored for complete removal for retrofit/wood stop installations. The fin is set back 1-5/16" from the exterior edge of the frame.

### WEEP SYSTEM

The rectangular weep holes are located in the frame sill for effective drainage and moisture control.

### GLAZING MATERIAL

AAMA approved glazing tape adheres glass to the fixed and vent frame and seals and cushions the glass. Rigid vinyl setting blocks are used to support the glass-unit, preventing glass slip-page and glass-to-metal contact.

### GLASS

Glass options are available in 1" overall insulating units in clear, tinted, reflective, obscure, Low-E, and safety glass. Other specialty glass is available upon request.

## Options

### GRIDS

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

### WARM EDGE SPACER

Spacer available in a standard clear finish or optional bronze or champagne finish in the airspace of the insulating glass units. PGG Intercept™ warm-edge steel spacer available in certain regions (standard in some areas.) Contact your Milgard Representative for spacers used in your area.

### TRUE DIVIDED LITE

True divided lite configurations are available, subject to production approval.

### 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.*

# Radius Windows

*Please also see:*

[TI Aluminum | A250 Options](#)

[Lifetime Limited Warranty](#)

## Overview

The R-20 Series features a frame designed to blend well architecturally with other Milgard windows. One extrusion is used for all radius and round windows. Attaching bars are used to join the radius tops with other variations. Please refer to the appropriate product description for examples of vents, weeping system, and other detailed information. The R-20 is attached to the 920 with a stacking bar by mechanical joining, pop riveting, or welded connections depending on the type of application. The minimum diameter for the R-20 Series is 2'6".

## Components

### FRAME

Frame components are made from 6063-T5 aluminum alloy with a structural wall thickness of .060" and a non-structural wall thickness of .050". The R-20 Series utilizes a thermal break for added insulation value. The poured in polyurethane insulator is approximately 1/4" wide at the most narrow point and is used in all frame members. The frame is available in clear and bronze anodized finishes with a standard .4" mil coating thickness. The R-20 Series is designed for clean lines and high visual appeal with maximum glass exposure.

Wide screw spacing on the mechanically joined corners ensure a rigid connection with a consistent dimension. Corners are sealed for added protection from the weather. The standard frame is 2-1/4" in width.

### NAIL-ON FIN

An integral nailing fin extends 1" around the perimeter of the standard frame and is used to attach the window into the rough opening. The fin is scored for complete removal for retrofit/wood stop installations. The fin is setback 1-5/16" from the exterior edge of the frame.

### GLAZING MATERIAL

AAMA approved glazing tape adheres the glass to the frame members glazing leg. The bedding seals and cushions the glass. Rigid vinyl setting blocks are used to support the unit above the frame sill, preventing glass slippage and glass-to-metal contact. Anodized bead 3/4" x 3/4", with a wall thickness of .050" is fastened down into the perimeter frame member on all radius sections.

### GLASS

Glass options are available in 1" overall insulating units in clear, tinted, reflective, obscure, Low-E, and safety glass. Other specialty glass is available upon request.

## TOLERANCE

Due to unique material properties and manufacturing processes, tolerances on R-15 windows are  $\pm 1/4"$  on full round windows; partial rounds may vary  $\pm 1/8"$  in width and  $\pm 1/4"$  in height.

## Options

### GRIDS

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

### SPACER

Spacer available in a standard clear finish or optional bronze or champagne finish in the airspace of the insulating glass units. PGG Intercept™ warm-edge steel spacer available in certain regions. Contact your Milgard representative for spacers used in your area.

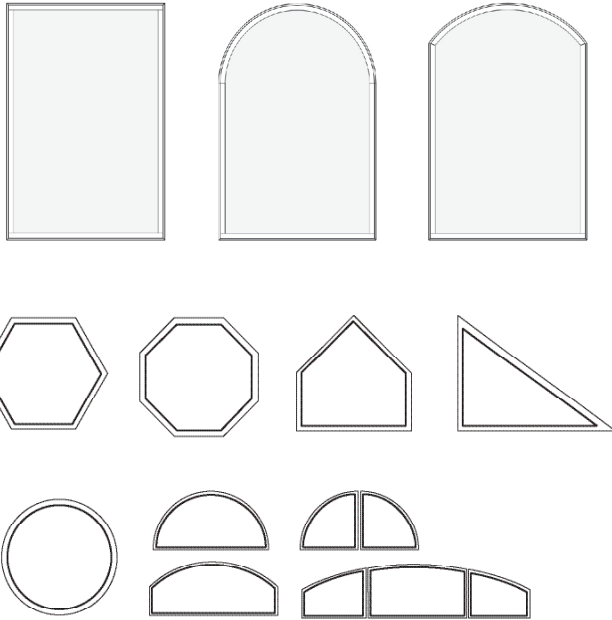
### TEST STANDARDS

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.*

# Picture & Radius Windows

## Configurations



## Minimum/Maximum Sizes

### PICTURE

- Min 1<sup>0</sup>1<sup>0</sup> Max 8<sup>0</sup>6<sup>0</sup>

### PICTURE - OCTAGON

- Min 2<sup>0</sup>2<sup>0</sup> Max 6<sup>0</sup>6<sup>0</sup>

### PICTURE - FULL ROUND

- Min 2<sup>6</sup>2<sup>6</sup> Max 6<sup>0</sup>6<sup>0</sup>

### PICTURE - HALF ROUND

- Min 2<sup>6</sup>1<sup>3</sup> Max 8<sup>0</sup>4<sup>0</sup>

### PICTURE - QUARTER ROUND

- Min 1<sup>3</sup>1<sup>3</sup> Max 6<sup>0</sup>6<sup>0</sup>

## Available Frame Styles

- 1-3/8" Setback
- No Fin (Block Frame)

*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

## Picture Window

35—1-5/16" Nailfin Setback

36—Block Frame

## Radius Window

37—1-5/16" Nailfin Setback

Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)



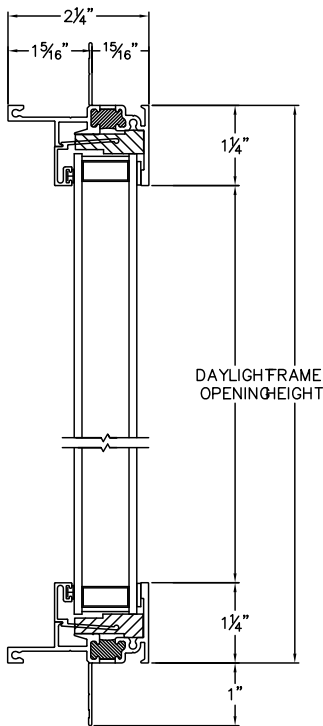
Thermally Improved Aluminum | A250  
**Picture Window**

1-5/16" Nailfin Setback

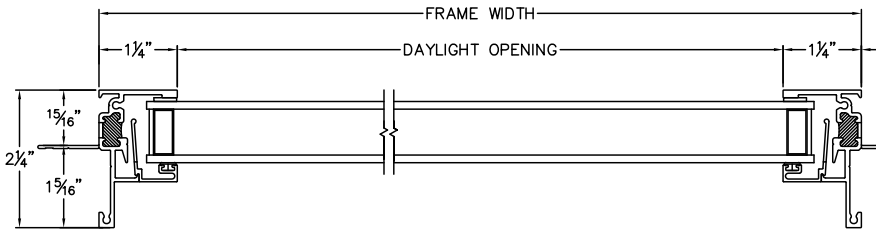
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_920C_PW_1in	Inch

More Technical Documents can be found at [milgard.com/professionals](http://milgard.com/professionals)  
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**PICTURE WINDOW  
 SERIES 920C**



**HEAD & SILL**



**JAMBS**

Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)

Thermally Improved Aluminum | A250

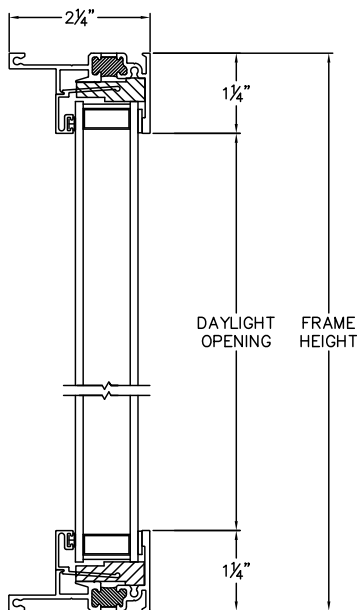
# Picture Window

Block Frame

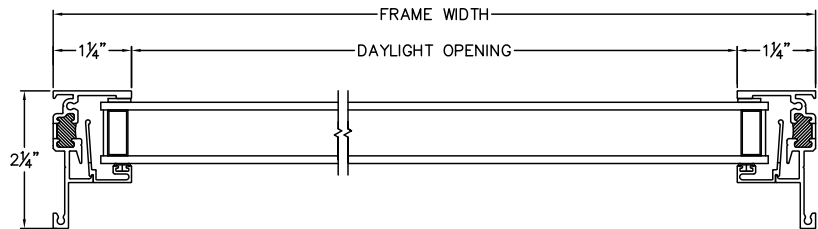
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_920_PW_Block	Inch

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## PICTURE WINDOW SERIES 920



HEAD & SILL



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Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)

Thermally Improved Aluminum | A250

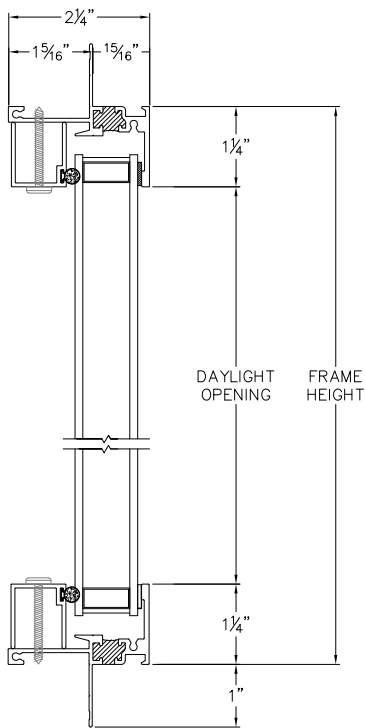
# Radius Window

1-5/16" Nailfin Setback

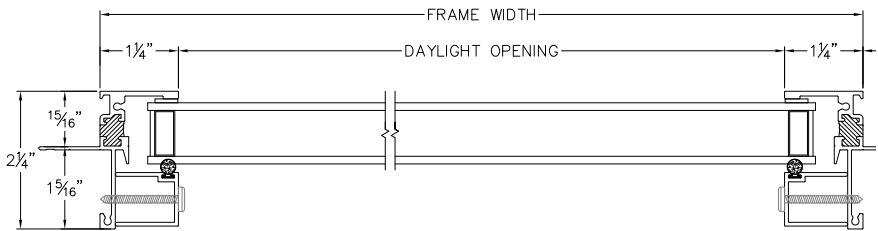
CAD File Scale	View	File Name	Units	Revision
NTS	Horizontal & Vertical	Aluminum_TIE_R-20_PW_1.313in	Inch	8/2016

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## ARCHED PICTURE WINDOW SERIES R-20



HEAD & SILL



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Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

[Go back to Quick Links](#)

# Single Hung Windows

*Please also see:*

[TI Aluminum | A250 Options](#)

[Lifetime Limited Warranty](#)

## Overview

The 1520 Series is designed as an inside slider (the bottom 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. Single Hung Windows can be used alone or combined with picture, gable or radius windows or in tandem for multiple window installations.

## Components

### FRAME

Frame components are made from 6063-T5 aluminum alloy with a structural wall thickness of .060”. The 1520 Series utilizes a thermal break for added insulation value. The poured in polyurethane insulator is approximately 1/4” wide at the most narrow point and is used in all frame members. The frame is available in clear and bronze anodized finishes with a standard .4” mil coating thickness.

The 1520 Series is designed for clean lines and high visual appeal with maximum glass exposure. Wide screw spacing on the mechanically joined corners ensure a rigid connection with a consistent dimension. Corners are sealed for added protection from the weather. The standard frame is 2-5/8” in width.

### NAIL-ON FIN

An integral nailing fin extends 1” around the perimeter of the standard frame and is used to attach the window into the rough opening. The fin is scored for complete removal for retrofit/wood stop installations. The fin is setback 1-5/16” from the exterior edge of the frame.

### WEEP SYSTEM

Hollow sill construction and offset weep holes drain water from the track and greatly reduce the occurrence of blow back, or water seeping to the inside caused by a combination of wind and rain.

### GLAZING MATERIAL

AAMA approved glazing tape adheres glass to the fixed and vent frame and seals and cushions the glass. Rigid vinyl setting blocks are used to support the glass unit, preventing glass slip-page and glass-to-metal contact. Extruded vinyl glazing (snapin) bead is applied around the exterior edge. The vent panel utilizes a “U-shaped” vinyl channel designed to seal the unit and cushion the glass from the frame.

### GLASS

Glass options are available in 1” overall insulating units in clear, tinted, reflective, obscure, Low-E, and safety glass. Other specialty glass is available upon request.

## VENT PANEL

The vent has an “L” shaped lip that fully interlocks with the horizontal meeting rail, adding security and preventing weather penetration. Both the lift rail and the lock rail have legs that project inward 7/16” for ease in operating the vent from the interior. The vent panel may be removed for ease of cleaning and maintenance.

## 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 entire perimeter of the vent panel.

## BALANCER SYSTEM

The vent operates on concealed block and tackle balancers, allowing the vent to remain open in any position. The balancer system is installed in the jamb on each side of the window.

## LOCKING ASSEMBLY

An automatic, spring-loaded, positive lock is located on the vent lock rail and secures to the horizontal meeting rail. The aluminum handle is adjustable and will lock automatically when the window is fully closed.

## SCREEN

Screen frames are aluminum, finished with three coats of color matched baked polyester for long term durability. Tension springs are integrated in the screen frame for a secure fit and easy installation

from inside or outside. The screen material is an attractive, low maintenance black fiberglass mesh.

## Options

Available options include:

### GRIDS

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

### SPACER

Spacer available in a standard clear finish or optional bronze or champagne finish in the airspace of the insulating glass units. PGG Intercept™ warm-edge steel spacer available in certain regions. Contact your Milgard manufacturing representative for spacers used in your area.

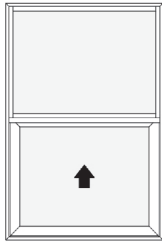
### TEST STANDARDS

Contact your Milgard Representative for specific test data.

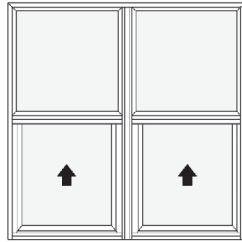
*CAUTION: The use of petroleum based fuels or solvents as release agents in stucco wall installations or glass cleaning will chemically attack materials used in seals and other components, and voids the Milgard Full Lifetime Warranty. The use of wax based release agents is recommended. Expanding foam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

# Single Hung Windows

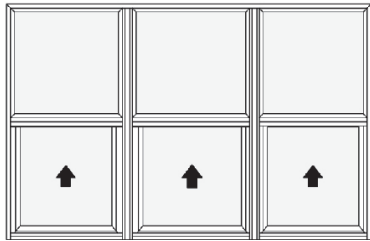
## Configurations



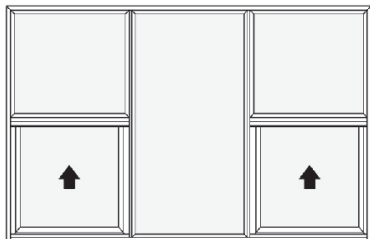
Single Hung



Double Single Hung



Triple Single Hung



Double Single Hung with Picture

## Minimum/Maximum Sizes

### SINGLE HUNG

- Min 1<sup>6</sup>2<sup>6</sup>      Max 4<sup>6</sup>7<sup>6</sup>

### DOUBLE SINGLE HUNG

- Min 3<sup>0</sup>2<sup>6</sup>      Max 8<sup>0</sup>7<sup>6</sup>

### TRIPLE SINGLE HUNG

- Min 4<sup>6</sup>2<sup>6</sup>      Max 12<sup>0</sup>7<sup>6</sup>

## Available Frame Styles

- 1-3/8" Setback
- No Fin (Block Frame)

*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

## Single Hung Window

11—1-5/16" Nailfin Setback

12—1-3/8" Nailfin Setback - next to Picture

13—1-3/8" Nailfin Setback - Triple Single Hung

Revit, SketchUp, .PDF and .DWG files can be accessed at  
[milgard.com/professionals/technical-resources](http://milgard.com/professionals/technical-resources)

Thermally Improved Aluminum | A250

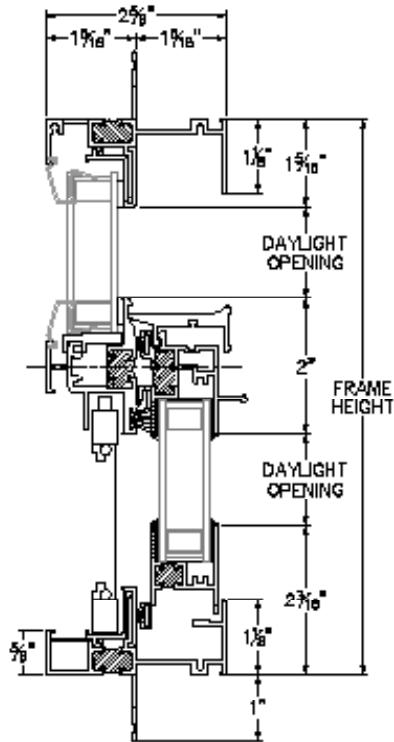
# Single Hung Window

1-5/16" Nailfin Setback

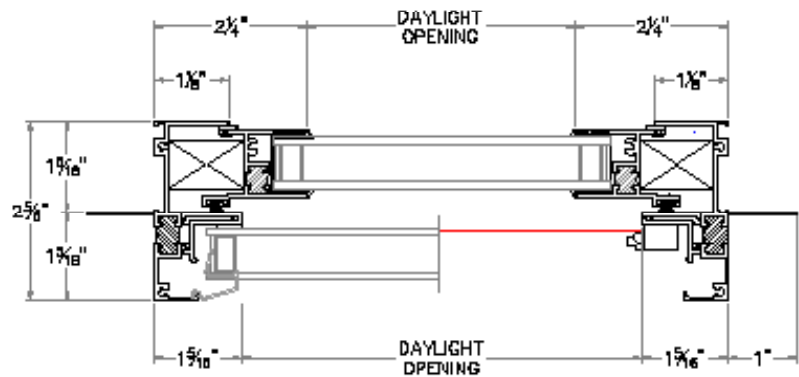
CAD File Scale	View	File Name	Units	R
NTS	Horizontal & Vertical	Aluminum_TIE_1520_SH_1.375in	Inch	4

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## SINGLE HUNG SERIES 1520



**HEAD & SILL**



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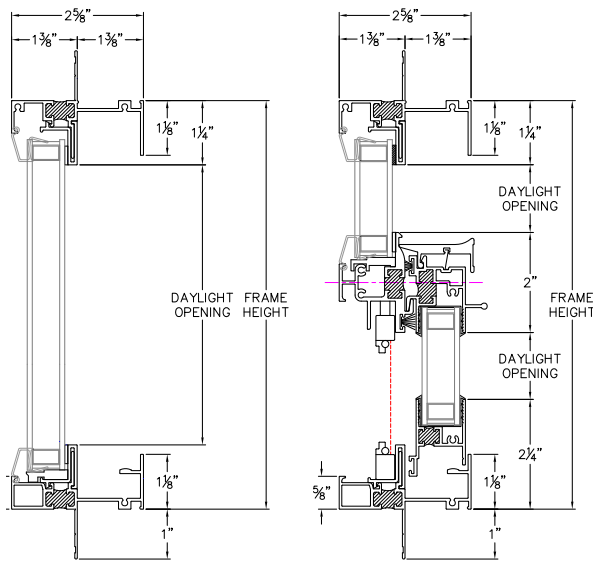
# Single Hung Window

1-3/8" Nailfin Setback - next to Picture

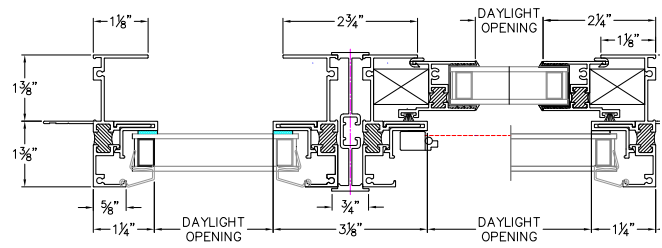
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_1520_SH_NEXT_TO_PW	Inch

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## SINGLE HUNG SERIES 1520



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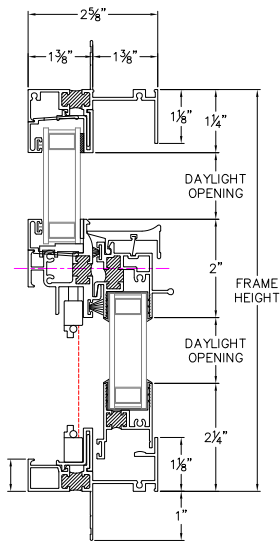
# Single Hung Window

1-3/8" Nailfin Setback - Triple Single Hung

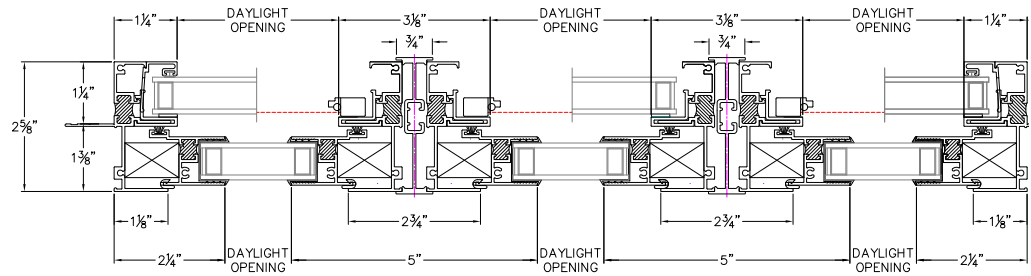
CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum TIE 1520 Triple SH	Inch

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## SINGLE HUNG SERIES 1520



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# Sliding Patio Door

*Please also see:*

[TI Aluminum | A250 Options](#)

[Lifetime Limited Warranty](#)

## Overview

The 420 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 420 Series utilizes a thermal break for added insulation value. The poured in polyurethane insulator is approximately 1/4” wide at the most narrow point and is used in all frame members. The frame is available in clear and bronze anodized finishes with a standard .4” mil coating thickness.

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 -1/4” 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 1/8” 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-E 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.

### 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.*

## INSTALLATION

All 420 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.

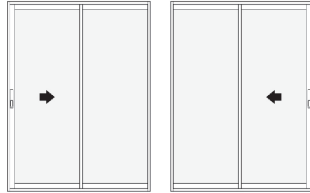
### CONCRETE/MORTAR:

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.

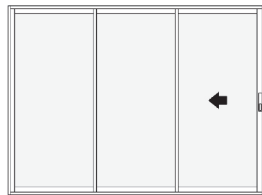
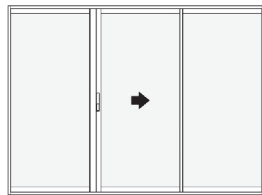
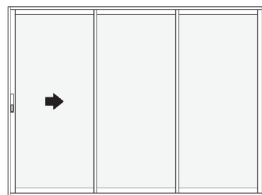
# Sliding Door

## Configurations

### 2 PANEL

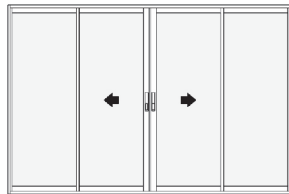


### 3 PANEL



### 4 PANEL

Passive/Active or Active/Passive



## Minimum/Maximum Sizes

### 2-PANEL

- Min 5'0" x 6'8" Max 8'0" x 8'0"

### 3-PANEL

- Min 9'0" x 6'8" Max 12'0" x 6'10"

### 4-PANEL

- Min 10'0" x 6'8" Max 16'0" x 6'10"

## Available Frame Styles

- 1-3/8" Setback
- No Fin (Block Frame)

*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

12—1-1/8" Nailfin Setback

## Sliding Door

13—Block Frame

## Sliding Door

14—1-1/8" Nailfin Setback - XOO

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# Sliding Door

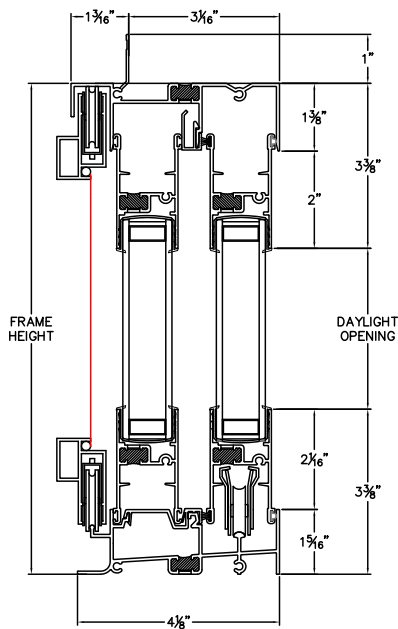
1-1/8" Nailfin Setback

CAD File Scale	View	File Name	Units
NTS	Horizontal & Vertical	Aluminum_TIE_420_SGD_AP_1125in	Inch

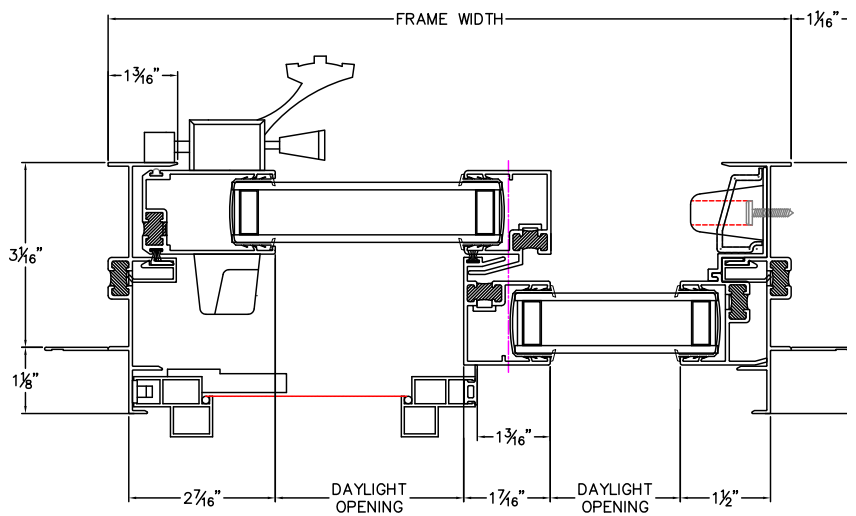
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## SLIDING DOOR SERIES 420

XO CONFIGURATION SHOWN  
 OX CONFIGURATION ALSO AVAILABLE



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# Sliding Door

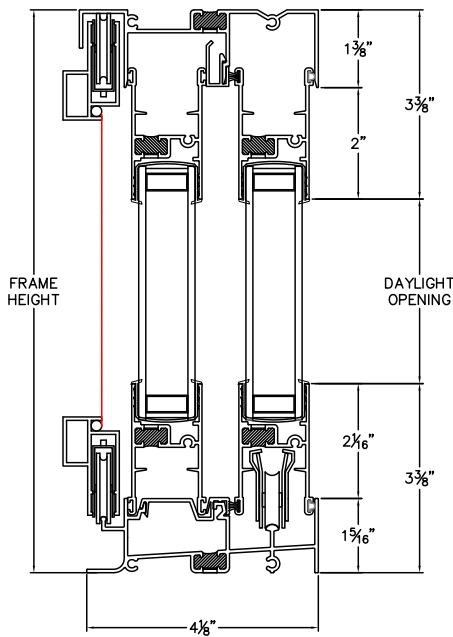
Block Frame

CAD File Scale	View	File Name	Units
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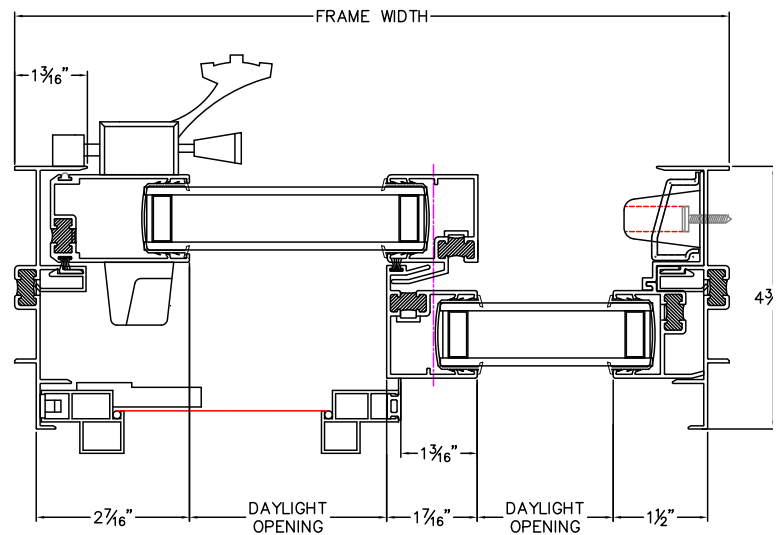
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## SLIDING DOOR SERIES 420

AP CONFIGURATION SHOWN  
PA CONFIGURATION ALSO AVAILABLE



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# Sliding Door

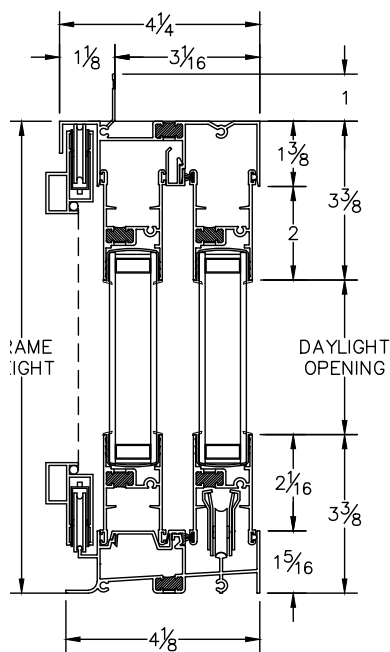
1-1/8" Nailfin Setback - XO0

CAD FILE SCALE	VIEW	FILE NAME	UNITS	REVISION
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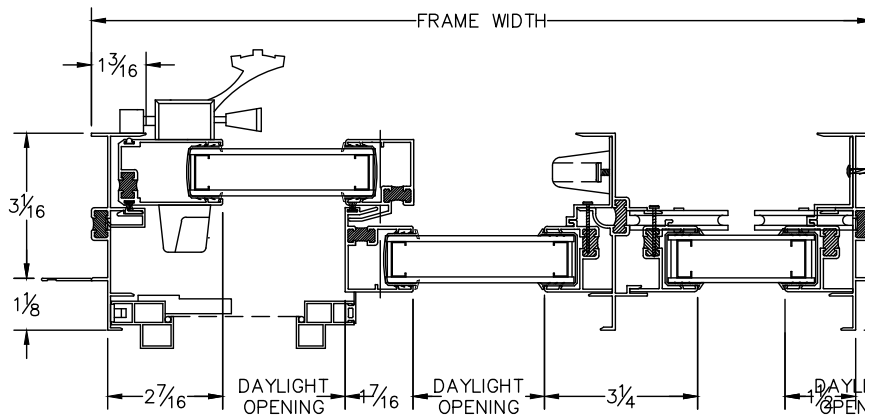
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## SLIDING DOOR SERIES 420



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