

**CITY OF SAINT PAUL
HERITAGE PRESERVATION COMMISSION STAFF REPORT**

FILE NAME: 711 Dayton Avenue
DATE OF APPLICATION: May 29, 2015
APPLICANT: Bryan Horton, Renewal by Andersen
OWNER: William and Sonja Moore
DATE OF PUBLIC HEARING: June 25, 2014
HPC SITE/DISTRICT: Historic Hill Heritage Preservation District
CATEGORY: Contributing
CLASSIFICATION: Building Permit
STAFF INVESTIGATION AND REPORT: Christine Boulware
DATE: June 18, 2015

A. SITE DESCRIPTION: The residence at 711 Dayton Avenue is a two-story, neo-classical style residence designed by architect Louis Lockwood and constructed in 1908. The intersecting dormers project from the steeply-pitched, hip-roof with tall, flush chimneys on the east and west elevations. The home is clad with narrow, lap-siding with mitred corners. The front porch spans the whole façade with round columns and decorative balustrade. The central entry is flanked by sidelights. The first floor and landing windows are a combination of stained and lead glass in several window styles. The second and third floor windows are double-hung with several divided-light patterns in both cottage-style and equal sash configurations. The property is categorized as contributing to the character of the Historic Hill Heritage Preservation District.

B. PROPOSED CHANGES: The applicant proposes to replace twenty-seven (27), wood, double-hung windows throughout the house. Four of the windows are located on the first floor and are not original to the house, but were reviewed and approved by the HPC in 1999; the remaining windows are historic and located in the second and third floors. The replacements would be installed within the existing frames to retain the window trim/casings. The proposal includes the removal of the contemporary wood storm windows and replacement with flush-mount screens with mid-rails to match the window configurations.

C. GUIDELINE CITATIONS:

Historic Hill District Design Review Guidelines

Sec. 74.64. - Restoration and rehabilitation.

(a)General Principles:

1. *Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.*
2. *The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.*
3. *All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.*
4. *Changes which may have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.*
5. *Distinctive stylistic features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.*
6. *Deteriorated architectural features shall be repaired rather than replaced, whenever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or*

replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.

7. *The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.*
8. *Every reasonable effort shall be made to protect and preserve archaeological resources affected by, or adjacent to any project.*
9. *Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural or cultural material, and such design is compatible with the size, scale, color, material, and character of the property, neighborhood, or environment.*
10. *Wherever possible, new additions or alterations to structures shall be done in such a manner that if such alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.*

(e) *Windows and Doors:*

- (1) *Existing window and door openings should be retained. New window and door openings should not be introduced into principal elevations. Enlarging or reducing window or door openings to fit stock window sash or new stock door sizes should not be done. The size of window panes or sash should not be altered. Such changes destroy the scale and proportion of the building.*
- (2) *Window sash, glass, lintels, sills, architraves, doors, pediments, hoods, steps and all hardware should be retained. Discarding original doors and door hardware, when they can be repaired and reused in place, should be avoided.*
- (3) *The stylistic period(s) a building represents should be respected. If replacement of window sash or doors is necessary, the replacement should duplicate the material, design and hardware of the older window sash or door. Inappropriate new window and door features such as aluminum storm and screen window combinations, plastic or metal strip awnings, or fake shutters that disturb the character and appearance of the building should not be used. Combination storm windows should have wood frames or be painted to match trim colors.*

D. FINDINGS:

1. On April 2, 1991, the most recent expansion Historic Hill Heritage Preservation District was established under Ordinance No. 17815, § 3(II). The Heritage Preservation Commission shall protect the architectural character of heritage preservation sites through review and approval or denial of applications for city permits for exterior work within designated heritage preservation sites §73.04.(4).
2. The property at 711 Dayton Avenue is categorized as contributing to the character of the Historic Hill Heritage Preservation District.
3. The four windows proposed for replacement in the first floor kitchen nook at the north (rear) of the property are Marvin, wood, one-over-one, double-hung with 50/50 sash configuration; they were reviewed and approved by the HPC in 1999 – HPC File# 3514 and have contemporary wood screen/storm windows. (See attachments 6 & 7)
4. The twenty-three windows at the second and third floors are original/historic, wood, and double-hung with varying divided-light patterns and sash configurations. These windows also have contemporary wood screen/storm windows. (See attachments 6 & 7)

5. Staff conducted a site visit on June 15, 2015 and visually and physically examined the windows at 711 Dayton Avenue with one of the owners. It is staff's professional opinion that replacement of the historic wood windows is not justified and that repair is the appropriate action. A repair estimate was provided by the owner. Staff indicated to the owner that the estimate was much higher than typical estimates for window repair. Staff provided the owner a list of several local contractors who specialize in historic window repair and requested that an additional estimate be obtained and submitted.
6. At the site visit, HPC staff observed and advised that the original, historic double-hung, wood windows are in a condition that could be repaired. The proposal to replace these windows does not comply with Legislative Code Sec. 74.64.(e)(2) which states, "*Window sash, glass, lintels, sills, architraves, doors, pediments, hoods, steps and all hardware should be retained.*" Discarding original windows when they can be repaired should be avoided.
7. The Legislative Code Sec. 74.64.(a)(2) states, "*The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.*" The original windows are a distinguishing original quality of the residence and are character defining features that contribute to the significance of the residence and the surrounding heritage preservation district. The removal and replacement of the windows does not comply with the guideline.
8. The proposed new windows are constructed of Fibrex®, a mix of wood fiber and thermoplastic polymer, and do not match the material, hardware, and proportions of the historic windows. The frame of the Renewal by Andersen windows is installed in the existing window frame, thus reducing the total width of the glazing by 1 ½-inches; the bottom rail is ½-inch shorter than historic, and the meeting rail is ½-inch taller than historic. Shop drawings were not provided to compare the profile, size, and patterns of the muntins. The new windows would not comply with Sec. 74.64.(e)(3) of the Legislative Code which states, "*The stylistic period(s) a building represents should be respected. If replacement of window sash or doors is necessary, the replacement should duplicate the material, design and hardware of the older window sash or door.*"
9. Staff does not have all of the dimensions for the four, Marvin, double-hung windows in the first floor kitchen nook on the north (rear) side of the house. The bottom rail of the existing window is 3 ½-inches tall compared to 3-inches for the historic and 2 ½-inches for the Renewal by Anderson model. There is a 1-inch difference in the height of the bottom rail between the existing and proposed window and the material and hardware of the proposed window does not match that of the older sash in the residence, thus the proposal does not comply with Sec. 74.64.(e)(3).
10. The proposal to replace twenty-seven windows at 711 Dayton Avenue will adversely affect the Program for the Preservation and architectural control of the Historic Hill Heritage Preservation District (Leg. Code §73.06 (e)).

E. STAFF RECOMMENDATIONS:

Based on the findings staff recommends denial of the proposal to replace the twenty-seven wood, double-hung windows at 711 Dayton Avenue.

HPC staff could administratively review and approve applications to repair the historic windows, replace the four windows on the first floor with wood, double-hung windows that more closely match the historic windows in size and profile, and install new full-frame, flush-mount screen/storm windows with configurations that correspond to the interior sash and comply with the Hill Heritage Preservation District guidelines. The installation of screen/storm windows with a better fit in the window casing would improve the thermal performance and protect the historic windows.

F. ATTACHMENTS:

1. HPC Application
2. Applicant's project description
3. Letter from the owners
4. Renewal by Anderson window specs (28 pages)
5. Renewal by Anderson installation procedure (54 pages)
6. Repair estimate – CCRC, June 4, 2015
7. HPC staff photos – June 15, 2015 site visit
8. HPC staff window table based on site visit observations



Saint Paul Heritage Preservation Commission
Department of Planning and Economic Development
25 Fourth Street West, Suite 1400
Saint Paul, MN 55102
Phone: (651) 266-9078

HERITAGE PRESERVATION COMMISSION DESIGN REVIEW APPLICATION

This application must be completed in addition to the appropriate city permit application if the affected property is an individually designated landmark or located within an historic district. For applications that must be reviewed by the Heritage Preservation Commission refer to the HPC Meeting schedule for meeting dates and deadlines.

1. CATEGORY

Please check the category that best describes the proposed work

- | | | |
|--|---|--|
| ☐ Repair/Rehabilitation | ☐ Sign/Awning | ☐ New Construction/Addition/ |
| ☐ Moving | ☐ Fence/Retaining Wall | Alteration |
| ☐ Demolition | ☐ Other _____ | ☐ Pre-Application Review Only |

2. PROJECT ADDRESS

Street and number: 711 Dayton Ave Zip Code: 55104

3. APPLICANT INFORMATION

Name of contact person: Bryan Horton

Company: Renewal by Andersen

Street and number: 1920 County Rd C West

City: Roseville State: MN Zip Code: 55113

Phone number: (651) 264-4088 e-mail: bryan.horton@andersencorp.com

4. PROPERTY OWNER(S) INFORMATION (If different from applicant)

Name: Bill and Senja Moore

Street and number: 711 Dayton Avenue

City: St. Paul State: MN Zip Code: 55104

Phone number: (612) 708-6237 e-mail: wmoore@accla-ii.com

5. PROJECT ARCHITECT (If applicable)

Contact person: _____

Company: _____

Street and number: _____

City: _____ State: _____ Zip Code: _____

Phone number: (____) _____ e-mail: _____

6. PROJECT DESCRIPTION

Completely describe ALL exterior changes being proposed for the property. Include changes to architectural details such as windows, doors, siding, railings, steps, trim, roof, foundation or porches. Attach specifications for doors, windows, lighting and other features, if applicable, including color and material samples.

Replacement window proposal to replace 27 windows within existing openings throughout the 2nd and 3rd Elevation due to safety hazards, inefficiency and overall poor function of the windows. All units have exterior storm (appear non-historic) based on glass and screen mechanisms. New units will have flushmount screen with mid rail bar to match window configuration. Proposed replacement to be installed within the existing frames to keep historic trim. Additional details located in Powerpoint presentation.

Attach additional sheets if necessary

7. ATTACHMENTS

Refer to the *Design Review Process sheet* for required information or attachments.

****INCOMPLETE APPLICATIONS WILL BE RETURNED****

ARE THE NECESSARY ATTACHMENTS AND INFORMATION INCLUDED?

☒ YES

Will any federal money be used in this project?

YES _____ NO X

Are you applying for the Investment Tax Credits?

YES _____ NO X

I, the undersigned, understand that the Design Review Application is limited to the aforementioned work to the affected property. I further understand that any additional exterior work to be done under my ownership must be submitted by application to the St. Paul Heritage Preservation Commission. Any unauthorized work will be required to be removed.

Signature of applicant: _____

Date: _____

Signature of owner: _____

Date: _____

FOR HPC OFFICE USE ONLY

Date received: _____

FILE NO. _____

District: _____/Individual Site: _____

Contributing/Non-contributing/Pivotal/Supportive/:

Type of work: Minor/Moderate/Major

____ Requires staff review

Supporting data: YES NO
Complete application: YES NO

The following condition(s) must be met in order for application to conform to preservation program:

It has been determined that the work to be performed pursuant to the application does not adversely affect the program for preservation and architectural control of the heritage preservation district or site (Ch.73.06).

HPC staff approval _____

Date _____

____ Requires Commission review

Submitted:

- ☐ 3 Sets of Plans
- ☐ 15 Sets of Plans reduced to 8 1/2" by 11" or 11" by 17"
- ☐ Photographs
- ☐ City Permit Application
- ☐ Complete HPC Design Review application

Hearing Date set for: _____

City Permit # _____ - _____

Renewal
by Andersen®

WINDOW REPLACEMENT



an Andersen Company

711 Dayton Avenue Window Replacement Proposal

Submitted by: Bryan Horton
6/19/2015

711 Dayton Avenue



Project Description

Replacement window proposal to replace 27 windows within existing openings throughout the 2nd and 3rd elevations due to safety hazards, inefficiency and overall poor function of the windows. Lead based paint has been found on all components of the windows, replacement will also ensure a reduction in the amount lead exposure which the children living in the home are most susceptible to.

Brief Window description:

- 20 windows are single hung configuration.
- 7 are double hung configuration.
- 11 windows are cottage style 2:3 sash ratio.
- 16 windows are equal sash ratio.
- 5 windows on the 3rd elevation have a 3 over 1 Full divided lite pattern.
- 12 windows on the 2nd and 3rd elevation on the front and left sides have a custom Full divided lite pattern.
- 10 windows on the 2nd elevation on the left, right and back sides have no grille pattern.

All units have a full exterior wood storm (appear non historic based on glass and screen mechanisms). The property owner would like to remove these storms as part of the proposal. New units will have flushmount full insect screen with midrail bar to match double hung configuration (Pictured on slide 9).

Proposed replacement installation will retain existing frame, sill and interior/exterior trim. Existing sash and frame measurements are included with this proposal. Proposed replacement windows will closely match sash configurations of the existing windows as well as the previously replaced windows that appear to be 1980 vintage.

Front of home

*7 windows-
2nd and 3rd Elevation*

Renewal
by Andersen®

WINDOW REPLACEMENT an Andersen Company



Back of Home

10 windows

3rd (3wds), 2nd (3wds), 1st (4wds) Elevations

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1 unit located
within porch

Right Side

7 windows

2nd and 3rd Elevation

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Left side of Home

3 windows

2nd(1 wd) and 3rd (2wds) Elevations

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by Andersen®

WINDOW REPLACEMENT an Andersen Company



Existing Measurements (Top) vs. *Proposed Measurements (Bottom)*



Exterior Example



Insert Double hung replacement example. Note: This project was completed in 2014 at 400 Summit Ave.

Exterior flushmount full insect screen example. Note: wrapping of exterior is not being proposed on this project.



3rd Elevation Front of Home



Cottage style single hung with custom full divided lite grille pattern. Lower sash of middle window severely damaged, moves freely in/out of frame (major safety concern), will not operate. Right side of sash severely gouged and is duct-taped in place.



2nd Elevation (Left) Front of Home



Cottage style single hung with custom full divided lite grille pattern. Sashes gouged at meeting rail, Dark mold/rot at meeting rail. Sashes do not move freely within the frame (major operational safety concern). Broken lock. Lower portion of frame missing (damage detailed on following slide)

Damage Assessment



Pictured Left: Portion of frame missing on left side of frame. Exposure of weight pocket (safety concern).



Pictured Right: Uneven sash. Lock mechanism broken, screws stripped from sash, screw holes deteriorated and damaged.

2nd Elevation (Right) Front of Home



Cottage style single hung with custom full divided lite grille pattern.
Right side window not pictured but is a duplicate of window pictured on left.

2nd Elevation

Right side of Home



Equal ratio single-hung with clear glass.

2nd Elevation

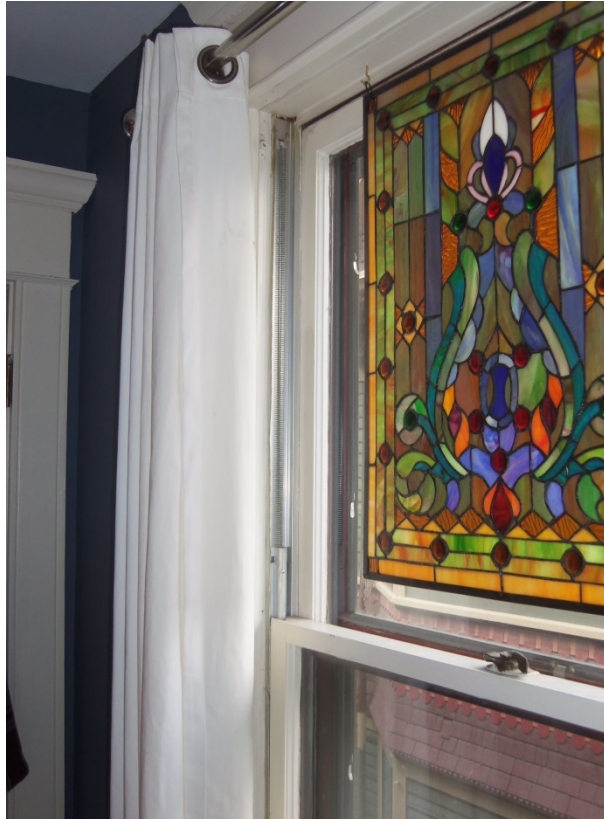
Right side of Home



Equal ratio single-hung with clear glass. Cracked pane of glass on upper sash of right side window (safety hazard).

2nd Elevation

Left side of Home



Equal ratio single-hung with clear glass. Upper sash dropping down ¼" from top of frame. This unit has been previously replaced. Indicated by compression metal jamb liners on either side of sash. Newer lock mechanism, single pull to operate sash.

3rd Elevation Left side of Home



Cottage style single-hung with custom Full divided lite grille pattern. Poor operation.
Mold/rot at meeting rail on right side.

3rd Elevation Back of Home



Set of 3 Equal ratio single-hung with 3 over 1 Full divided lite grille pattern. Previously replaced, different lock mechanism. No in-set handles on bottom sashes.



2nd Elevation Back of Home (Left)



Equal ratio single-hung with clear glass.

2nd Elevation

Back of Home (Middle)



Equal ratio single-hung with clear glass.

2nd Elevation Back of Home (Right)



Equal ratio single-hung with clear glass. This unit has been previously replaced. Indicated by compression metal jamb liners on either side of sash. Newer lock mechanism, single pull to operate sash. Lower sash also within 18" of floor without tempered glass (safety hazard).



Back Porch

Renewal
by Andersen®
WINDOW REPLACEMENT



an Andersen Company



Equal ratio double hung. Appear to be 90's vintage. Metal jamb mechanisms, newer lock mechanisms. Double handle pulls on all. Lower sash to glass measurement 3-1/2", other windows in home have 3" sash to glass measurement.

May 29, 2015

Dear Members of the Historic Preservation Council:

Recently we contracted with Renewal by Andersen Windows to replace the windows on our second and third floors in our home which is located at 711 Dayton. We are also replacing the kitchen windows on the first floor. The kitchen windows were installed at the time a new kitchen addition was built and are substandard. They are single paned and completely inefficient in the winter, which causes our kitchen to remain 45-52 degrees-- WITH additional heaters installed—during the coldest days.

We chose Andersen because of their ability to customize our windows so that the original window design will be duplicated exactly and will seamlessly match the first floor windows which are all original to the house, in reasonable condition and therefore will not be replaced. The windows on the first floor will be repaired and preserved.

Unfortunately, previous owners installed modern, single pane, factory-produced windows in several bedrooms on the second floor. These must be replaced as they are broken (we are unable to open several of them), they are ill-fitted (the gaps are terrible since the sizes of the factory-produced storm windows do not correspond to the actual window holes which are all slightly different sizes) and they are single-paned. The single paned glass is not heat efficient, and in my 10 yr old daughter's room, it is a serious safety concern. Her windows are nearly floor to ceiling in height and if she leaned on the glass, it's possible that she would fall through the window.

There are also some original windows on the upper floors, but the sashes are broken, the wood frames are rotted and many windows have cracked glass. We would like to replace all the windows on those two floors with high-quality, custom designed windows so that everything matches and everything is fixed for the long-term. Personally, we find it very unfortunate that the original windows were not repaired over the years, as our preference would have been to keep the historic windows intact.

Our annual heat bill is \$5,600 per year. Our house is three stories high and is 3,400 square feet. The reason our bill is so high is largely due to the amount of heat that escapes through the poor quality, ill-fitting windows that previous owners installed as well as the original, rotted windows. In order to rectify this, we are asking Andersen to custom design, to exact specifications using correct paint colors and exact design components for the leaded glass top windows, so that our home will be safer, more energy efficient and vastly improved for the long-term. (Please note that we can't add any additional insulation to our attic or walls because of knob and tube wiring.)

We very much care about maintaining and restoring the historical integrity of the home, which is why we purchased a home of this era in a historical neighborhood in St. Paul. Please know that we will ensure that the new windows will maintain the character of our beautiful, historic home.

Sonja and William Moore

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DOUBLE-HUNG WINDOW

ADVANTAGES AND APPLICATIONS

A double-hung window consists of two vertically sliding sash in a single frame. Both sash are counterbalanced by a spring-powered block-and-tackle balance mounted on the side of each sash. Tilt latches for each sash allow inward tilting for easy cleaning. Upper and lower sash are securely closed by use of a cam-type sash lock. An insect screen is installed into the outside track.



*Double-Hung
Replacement Windows*

ADVANTAGES

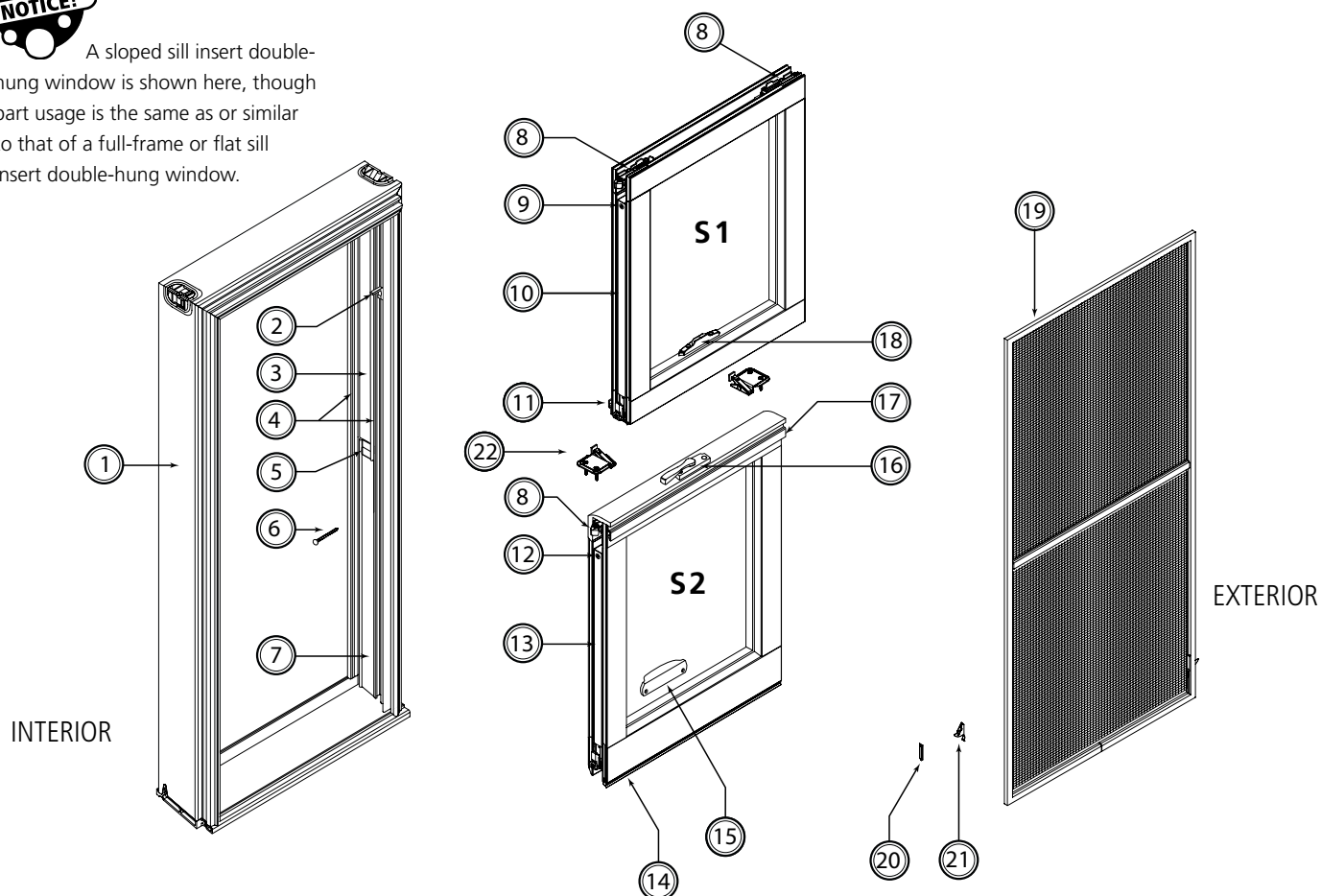
- Both sash can be operated for ventilation at top and bottom of window.
- Both sash can be tilted inward for easy cleaning.
- Patented Fibrex® material is stronger than vinyl, providing greater durability.
- Fibrex material with low-maintenance capstock gives a rich, low-luster finish to sash and frame, similar to painted wood.
- Smooth radius surfaces on the frame and sash are pleasing to the eye and easier to clean.
- Mortise-and-tenon appearance on the interior and exterior sash corners gives a traditional, hand-crafted look.
- Full-perimeter weatherstrip provides superior weathertightness while still allowing easy sash operation.
- Sash are counterbalanced by a spring-powered block-and-tackle balance mounted on the side and matched to the weight of each individual sash.

APPLICATIONS

- Excellent choice for homes and condominiums where traditional styling is important; appropriate for many restoration projects.
- Suitable in areas facing walkways, decks and other traffic areas because sash do not project outward.
- Convenient in areas where the sash need to be cleaned from the interior.
- Visually compatible with other Renewal by Andersen® products.

EXPLODED VIEW**DOUBLE-HUNG WINDOW**

A sloped sill insert double-hung window is shown here, though part usage is the same as or similar to that of a full-frame or flat sill insert double-hung window.

**DOUBLE-HUNG COMPONENTS**

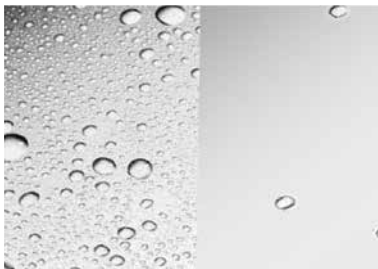
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|--|--|--|
| 1. Frame (insert) | 8. Tilt latch | 16. Sash lock |
| 2. Wash assist | 9. Upper balance screw | 17. Interior sash interlock (lower sash) |
| 3. Side jamb liner weatherstrip (upper) | 10. Balance (upper sash) | 18. Sash keeper |
| 4. Side jamb liner (interior and exterior sash tracks) | 11. Exterior sash interlock (upper sash) | 19. Insect screen |
| 5. Side cover check rail weatherstrip | 12. Lower balance screw | 20. Universal insect screen latch retainer |
| 6. Balance end clip screw | 13. Balance (lower sash) | 21. Insect screen latch |
| 7. Side jamb liner weatherstrip (lower) with integrated fin pile | 14. Bottom rail weatherstrip | 22. Child safety opening control device (optional) |
| | 15. Sash lift (optional) | |

STANDARD FEATURES

DOUBLE-HUNG WINDOW



A sloped sill insert double-hung window corner section is shown here, though **standard features are the same as for flat sill insert or full-frame** double-hung windows.

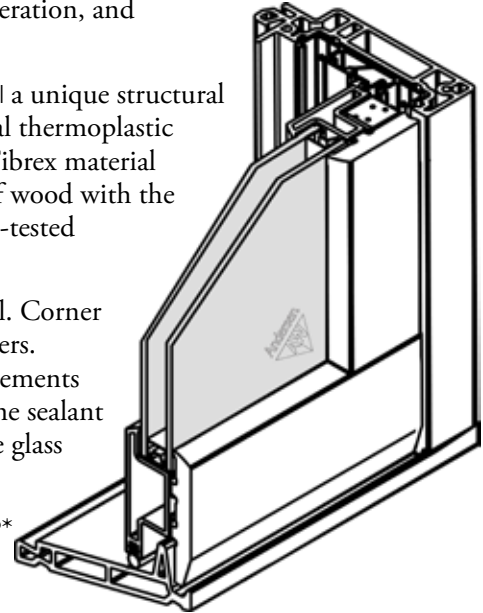


Regular Glass

High-Performance[™]
Low-E4[™] Glass

Described below are features that contribute to the double-hung window's low maintenance, energy efficiency, ease of operation, and pleasing appearance.

- **Frame** – Made of rigid Fibrex[®] material a unique structural composite of wood fibers and a special thermoplastic polymer. Developed by Andersen[®], Fibrex material combines the strength and stability of wood with the low-maintenance features of our time-tested Perma-Shield[®] cladding.
- **Sash** – Constructed of Fibrex material. Corner keys provide durable, watertight corners. The mortise and tenon joinery complements the frame. A high-performance silicone sealant provides a watertight seal between the glass and sash.
- **Glazing** – High-Performance[™] LoE⁴^{®*} glass with an inert, energy-efficient gas, is standard for every window. See Options on page 3-6 for other glass choices.



*LoE⁴ is a registered trademark of Cardinal IG Company.

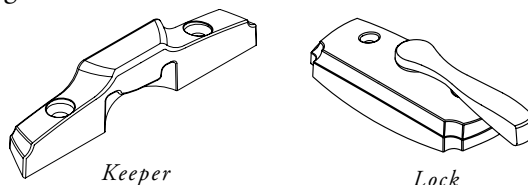
- **Glass spacer** – The patented low-conductivity spacer is made of stainless steel and resists heat transfer four to five times better than aluminum spacers used by many other manufacturers.
- **Low-maintenance exterior coating** – A highly durable microscopic coating of titanium dioxide (TiO₂) is applied to the exterior glass surface during the glass manufacturing process. High-Performance Low-E4[™] glass is self-activating by exposure to sunlight. When activated by sunlight, it loosens dirt, dust and organic material which are then washed away by rain. The glass dries faster and reduces water spotting by up to 99%. (See photo on this page.)

The unique exterior coating works similarly to a rechargeable battery. Once the coating is activated or “charged,” it will hold its activation for some time. The more sunlight it receives, the better the activation. When re-exposed to sunlight, the coating will recharge after periods of lower sunlight levels.

STANDARD FEATURES, cont.

DOUBLE-HUNG WINDOW

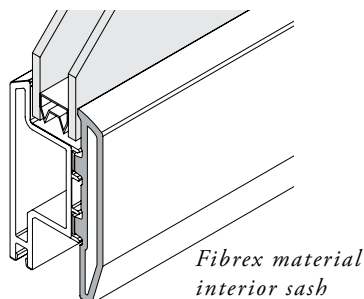
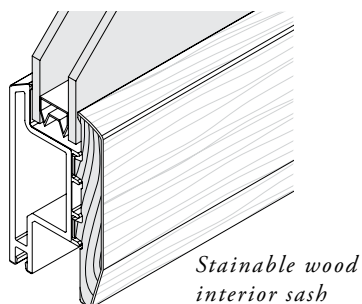
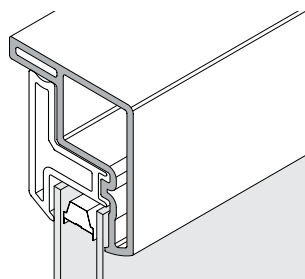
- **Removable protective film** – Packaging features a clear protective film that is factory applied to both the interior and exterior glass surfaces to help protect the glass from shipping and installation damage.
- **Weatherstrip** – A dual system of a foam-filled bulb applied to the sash frame and a constant-force low-friction weatherstrip applied to the frame provide a tight seal.



- **Sash Lock and Keeper** – The zinc die cast dual cam-type sash lock, mounted at center of the meeting rail on the interior sash, engages easily into the keeper mounted on the center of the meeting rail on the exterior sash. The Double-hung Window Component Color Combination Chart on page 3-11 shows the hardware color for each window color combination.

OPTIONS

DOUBLE-HUNG WINDOW

*Fibrex material interior sash**Stainable wood interior sash**Traditional Fibrex Material Square Check Rail*

The following options are available for all Renewal by Andersen® double-hung windows:

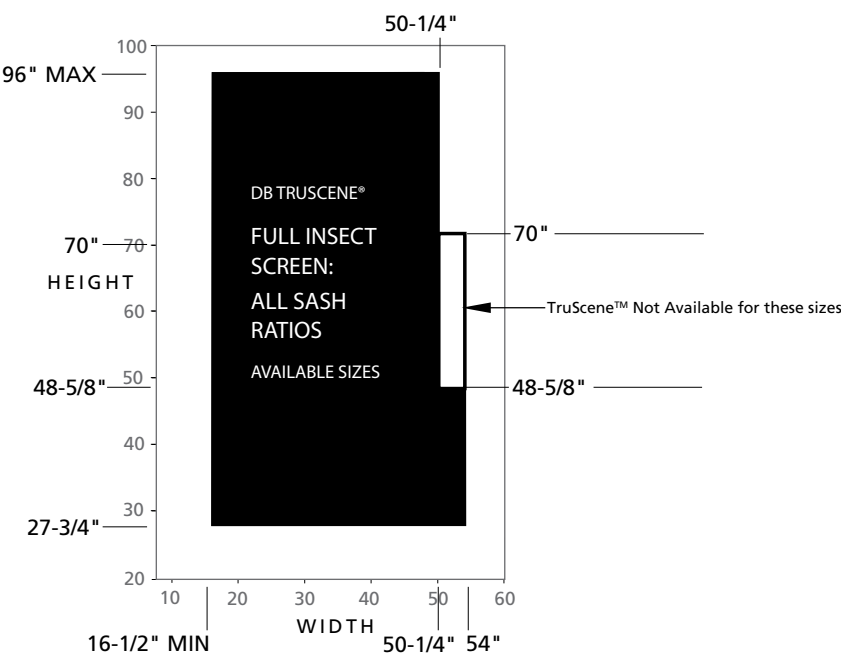
- **Dual-Colors and Stainable Wood Interior Veneers** – Dual-color windows are available that have different interior and exterior colors. Stainable wood interior veneers are also available in oak, maple, and engineered pine. The Double-Hung Window Component Color Combination Chart on page 3-11 shows available color combinations and the default color of individual components for these combinations. Alternative component (e.g., insect screens, grilles, hardware, side jams) color combinations are available upon request.

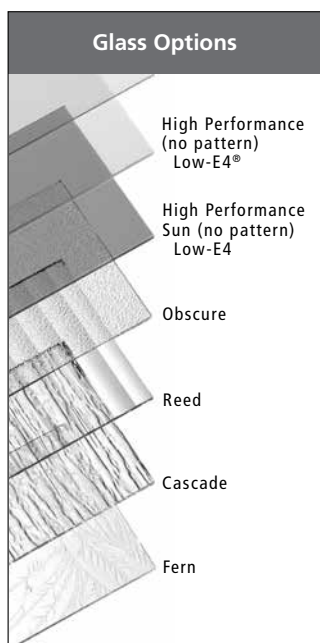
Painting and staining guidelines for Fibrex® material and stainable wood interiors are available in this manual, the *Product Installation Manual* and in the *Care and Maintenance Guide*.

- **Traditional Square Check Rail** – Optional square-shaped check rail available in oak, maple, engineered pine veneer and Fibrex material interior finishes offers a classic flat surface appearance. These classic lines create the old world look, using the advanced technology of today. This option can be used with any other double-hung lock components or grille accessories.
- **Rounded Contemporary Check Rail** – Original rounded contemporary check rail is still available (as an option) in same color and wood species.
- **TruScene® Insect Screen** – Micro-fine stainless steel mesh (25 x 25 per inch mesh) that provides over 50% more clarity than standard Andersen insect screens.

OPTIONS, cont.

DOUBLE-HUNG WINDOW

Double-Hung Window	Full Insect Screen	All sash ratios	Restrictions
			All heights available for unit widths less than or equal to 50-1/4". All widths available for unit heights less than or equal to 48-5/8".
 NOTE: Equal Sash Ratio DB min/max chart shown here; screen dimensions apply to all sash ratios.			
Double-Hung Window	Half Insect Screen	All sash ratios	All sizes available, no restrictions



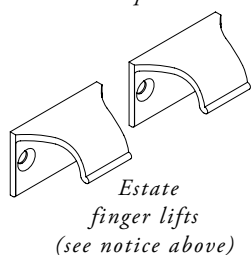
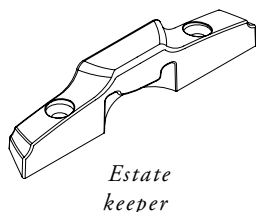
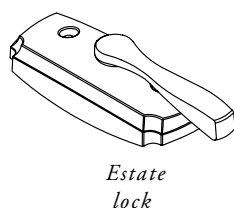
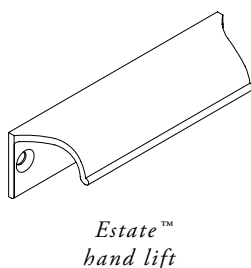
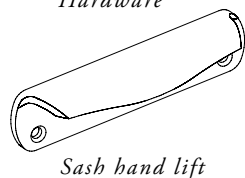
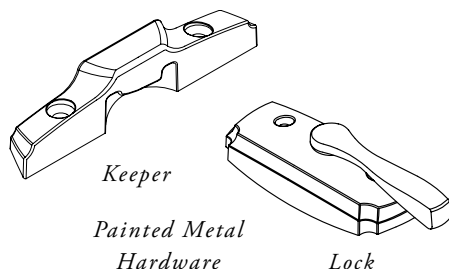
- **Aluminum Insect Screen Cloth** – Durable aluminum screen cloth (18 x 16 per inch mesh) in a glare-resistant charcoal gray.
- **Half Insect Screen** – A half insect screen is available that only covers the lower sash. The half screen does not impede the operation of the upper sash.
- **Decorative Glass Patterns** – Standard windows have no textured glass pattern whatsoever. Optional textured patterns are as follows:
 - Obscure (not available on double-hung windows taller than 86")
 - Reed
 - Cascade
 - Fern (not available on double-hung windows wider than 50-5/16")
- **Glass Coating** – High-Performance™ Low-E4™ coating is standard with all windows. Optional glazings are as follows:
 - Clear (no coating)
 - SmartSun™
 - High-Performance Low-E4 Sun™ tinted coating
- **Tempered Glass** – Tempering is an option for all available glass options. Untempered glass is standard.

OPTIONS, cont.

DOUBLE-HUNG WINDOW



When finger lifts are desired, order the window with **no** lifts. Finger lifts are then installed in the field after the window installation.



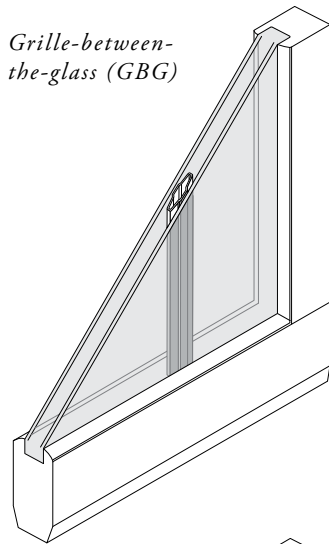
- **Glass Breather Tubes** – Breather tubes are available for glass intended for high-altitude installations. It is important to note that breather tubes will decrease the thermal performance of the unit. Refer to the Technical Data (Section 8) in this Spec and Tech Manual for altitude specifics.
- **Sash Lock** – A single zinc-cast metal lock is available in White, Stone and Canvas colors. Units narrower than 22-13/16" have a single lock. For units 22-13/16" wide or wider, a second lock is available as an option. For units wider than 45-9/16", a second lock is required.
- **Sash Lift** – One or two sash lifts may be mounted to the bottom rail of the lower sash. Can be specified, available in white, stone, or canvas colors or Estate™ finishes.
- **Estate™ Finish Hardware** – Estate finish hardware is available for all operating windows and is available in high performance bright brass, antique brass, high performance satin nickel, distressed nickel, brushed chrome, polished chrome, distressed bronze and oil-rubbed bronze. Hardware in each of the finishes is electroplated and/or modified to obtain the desired look. The Estate hardware components for double-hung windows are listed below:
 - **Lock and Keeper** – The zinc cast, plated lock and keeper provide elegant Estate styling that beautifully complements not only the window, but matches any Estate hardware found on Andersen® patio doors.
 - **Hand Lift** – Similar to the standard lift, the Estate hand lift provides an easy gripping surface with which to operate the window.
 - **Finger Lifts** – These smaller, more traditional looking lifts provide a different aesthetic option for a grasp to operate the window. These lifts are typically used in pairs.

OPTIONS, cont.

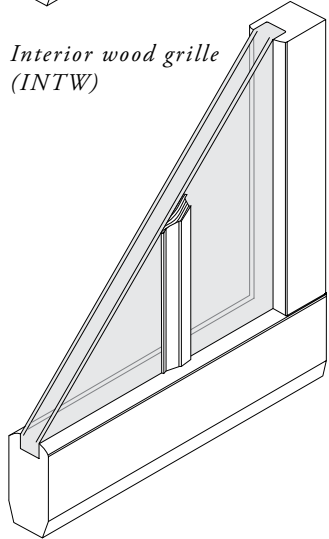
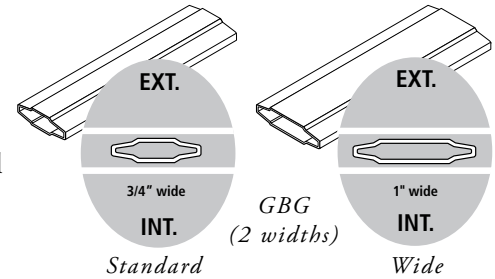
DOUBLE-HUNG WINDOW

Available Grille Types

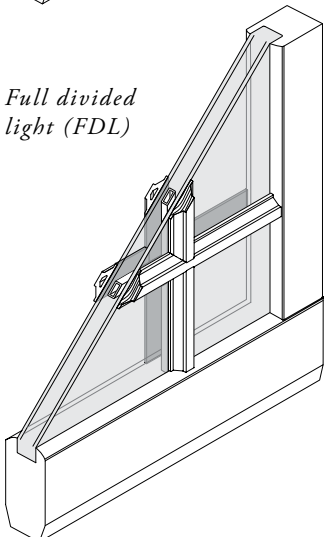
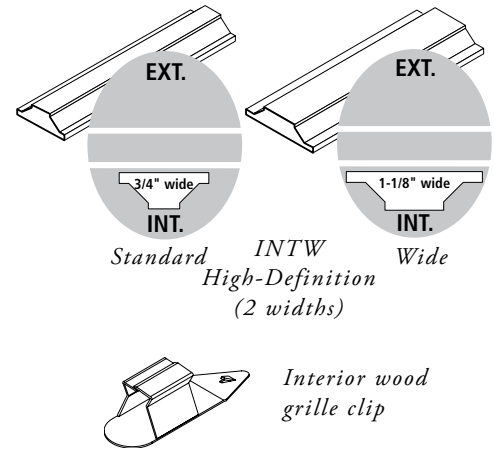
Three grille types are available. The interior and exterior sides of the grilles are color-coordinated with each side of the window frame. Consult the color combination charts in each window product section for detailed color information.

**Grille-Between-the-Glass (GBG)**

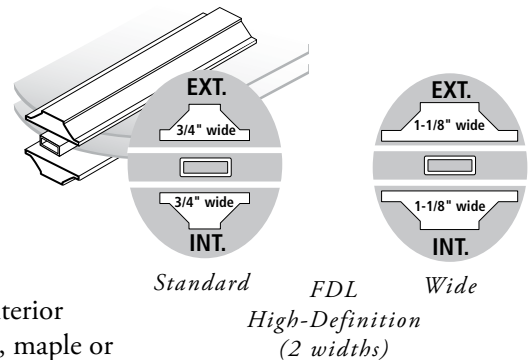
Sculpted aluminum grille members are manufactured between the glass panes, and are available in two widths. Enamel finish replicates interior and exterior face of window. If wood interior, interior facing surface will be gray.

**Interior Wood Grille (INTW)**

With the option of hardwood maple or oak, these grilles snap into clips placed around the interior side of the sash and may be removed to clean the glass. These high-definition interior wood grilles are available in two different widths.

**Full Divided Light (FDL) Grille**

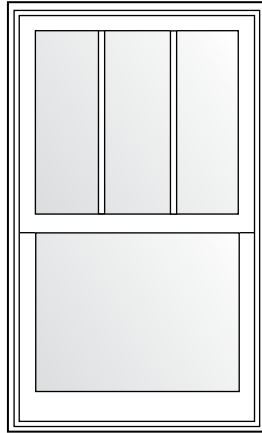
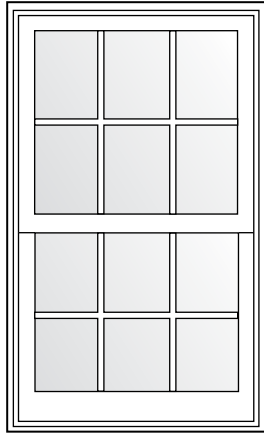
FDL grilles provide the classic look of a true divided light window. The high-definition exterior grille is made from Fibrex® material and is available in two different widths. Between the glass panes, an aluminum spacer stands slightly away from each pane to maintain thermal performance. The high-definition interior wood grille is available in hardwood, maple or oak and in two different widths, and may be permanently applied or removable.



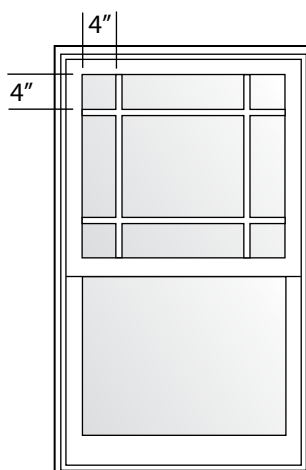
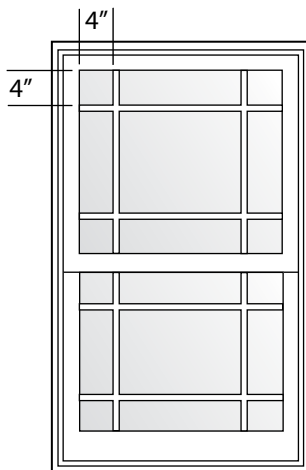
OPTIONS, cont.

DOUBLE-HUNG WINDOW

- Available Grille Patterns – Grille pattern options include colonial, prairie, and modified prairie.

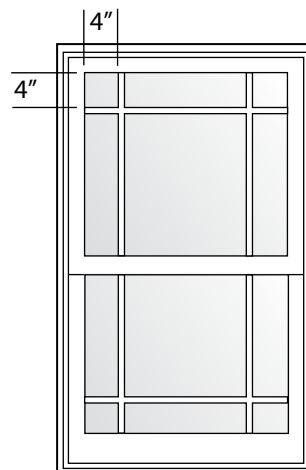
**COLONIAL**

Refer to colonial pattern grilles by pattern name and “grille lites wide by grille lites high” for each sash. For the examples shown, the left window would be “colonial pattern, 3 by 2, upper and lower sash”. For the example to the right, “colonial pattern, 3 by 1 on the upper sash, no grille on the lower sash”.

**PRAIRIE**

Regardless of sash size, all prairie grilles intersect to form 4" squares of visible glass in the corners of the sash. Prairie grilles are available on one or both sash.

The prairie grille pattern is not available on double-hung windows narrower than 20".

**MODIFIED PRAIRIE**

Regardless of sash size, all modified prairie grilles intersect to form 4" squares of visible glass. Modified prairie grilles are available for one or both sash.

The modified prairie grille pattern is not available on double-hung windows narrower than 20".

OPTIONS, cont.

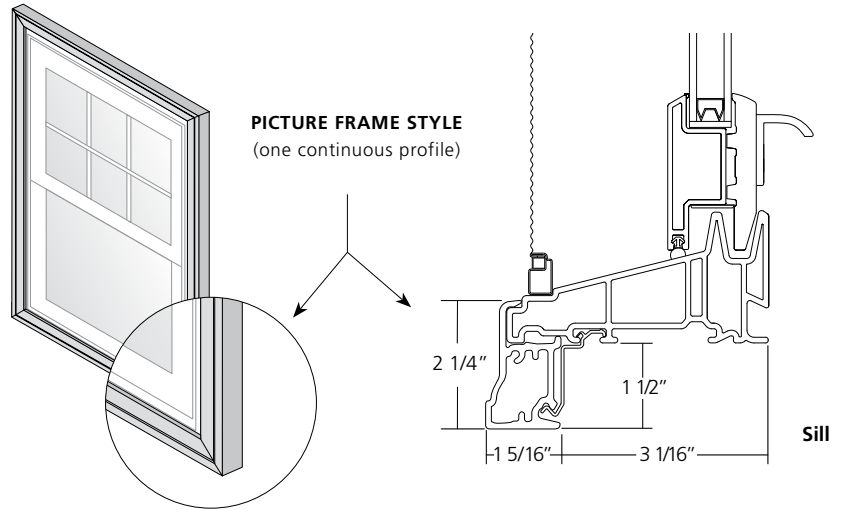
DOUBLE-HUNG WINDOW

- **Exterior brick mould** – Fibrex® material brick mould is available in two configurations, picture frame and traditional style, as an exterior trim option for full-frame windows. Brick mould is available on insert frame windows in picture frame style only.
- **Overfit brick mould** – Fibrex material is available as an exterior trim option for insert flat sill only windows in picture frame style.

FULL-FRAME BRICK MOULD

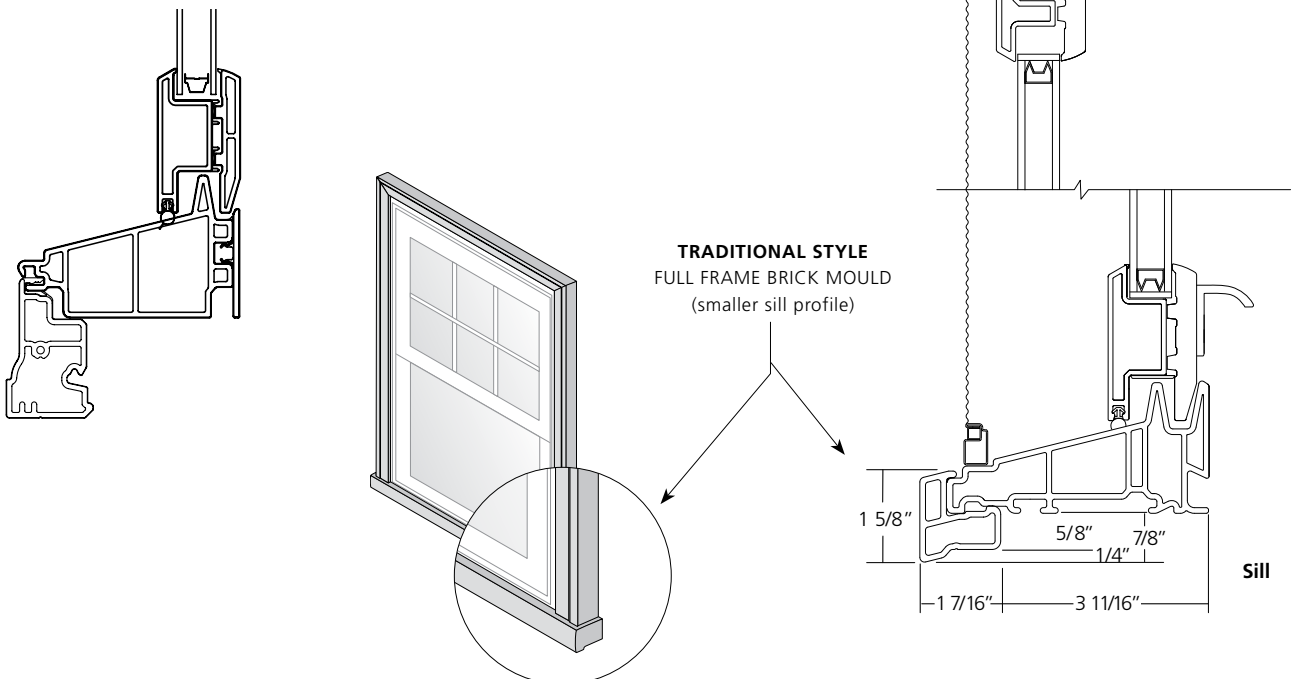
Full-frame brick mould is available in two configurations:

- **Picture Frame Style** – The same brick mould profile is used all the way around the window.
- **Traditional Style** – A thinner sill profile that runs completely under the side brick mould pieces is used reminiscent of old, traditional window installations.



INSERT-FRAME BRICK MOULD

- **Overfit Brick Mould** – Fibrex material overfit brick mould is available as an exterior trim option for insert (flat sill only) window in picture frame style.



WINDOW COMPONENT COLOR COMBINATION CHART

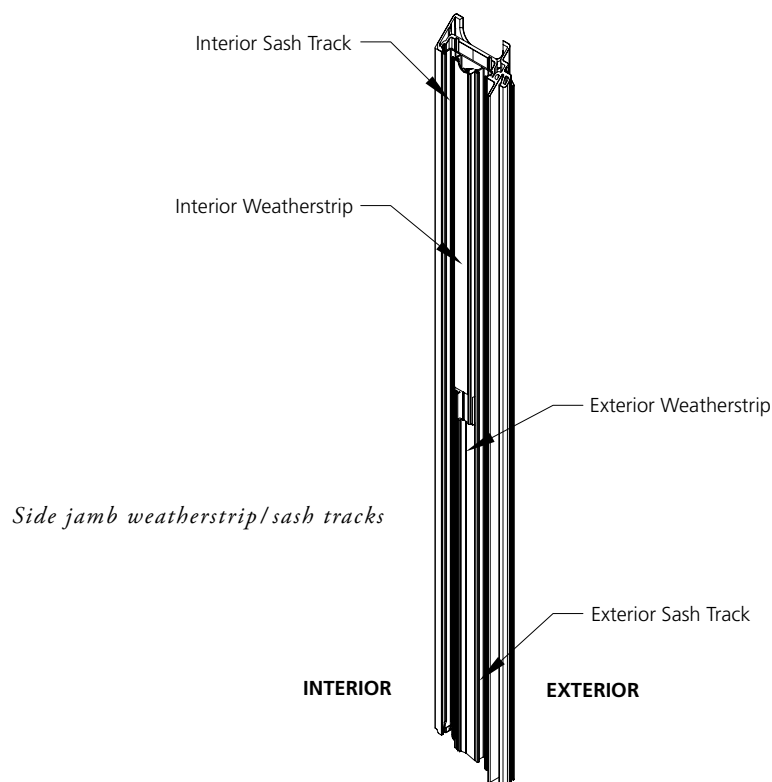
DOUBLE-HUNG WINDOW

	Window Color		Components		Grille Between Glass		Interior Wood & Full Divided Light		Headliner		Side Jamb Components	
	Exterior	Interior	Insect Screen Frame	Hardware	Exterior	Interior	Exterior	Interior	Exterior	Interior	Lower Exterior	Upper Interior
Single Color	White	White	White	White	White	White	White	White	White	White	White/White	White/White
	Canvas	Canvas	Canvas	Canvas	Canvas	Canvas	Canvas	Canvas	White	White	White/White	White/White
	Sandtone	Sandtone	Sandtone	Stone	Sandtone	Sandtone	Sandtone	Sandtone	Gray	Gray	Gray/Gray	Gray/Gray
	Terratone	Terratone	Terratone	Stone	Terratone	Terratone	Terratone	Terratone	Gray	Gray	Gray/Gray	Gray/Gray
Dual Color	Canvas	White	Canvas	White	Canvas	White	Canvas	White	White	White	White/White	White/White
	Sandtone	↓	Sandtone	↓	Sandtone	↓	Sandtone	↓	↓	↓	Gray/Gray	Gray/White
	Terratone	↓	Terratone	↓	Terratone	↓	Terratone	↓	↓	↓	White/White	↓
	Cocoa Bean	↓	Cocoa Bean	↓	Cocoa Bean	↓	Cocoa Bean	↓	↓	↓	Gray/Gray	↓
	Dark Bronze	↓	Dark Bronze	↓	Dark Bronze	↓	Dark Bronze	↓	↓	↓	Gray/Gray	↓
	Forest Green	↓	Forest Green	↓	Forest Green	↓	Forest Green	↓	↓	↓	Gray/Gray	↓
	Black	↓	Black	↓	Black	↓	Black	↓	↓	↓	Gray/Gray	↓
	White	Canvas	White	Canvas	White	Canvas	White	Canvas	Canvas	White	White/White	White/White
	Sandtone	↓	Sandtone	↓	Sandtone	↓	Sandtone	↓	Canvas	↓	White/White	↓
	Terratone	↓	Terratone	↓	Terratone	↓	Terratone	↓	Canvas	↓	Gray/Gray	↓
	Cocoa Bean	↓	Cocoa Bean	↓	Cocoa Bean	↓	Cocoa Bean	↓	White	↓	↓	↓
	Dark Bronze	↓	Dark Bronze	↓	Dark Bronze	↓	Dark Bronze	↓	White	↓	↓	↓
	Forest Green	↓	Forest Green	↓	Forest Green	↓	Forest Green	↓	White	↓	↓	↓
	Black	↓	Black	↓	Black	↓	Black	↓	White	↓	↓	↓
	Red Rock	↓	Red Rock	↓	Red Rock	↓	Red Rock	↓	↓	↓	Red Rock	Red Rock
Stainable Wood Interiors	White	Wood*	White	Stone	White	Sandtone	White	Wood**	Gray	Wood	White/White	Wood/White
	Canvas	↓	Canvas	↓	Canvas	↓	Canvas	↓	↓	↓	White/White	Wood/White
	Sandtone	↓	Sandtone	↓	Sandtone	↓	Sandtone	↓	↓	↓	Gray/Gray	Wood/Gray
	Terratone	↓	Terratone	↓	Terratone	↓	Terratone	↓	↓	↓	↓	↓
	Cocoa Bean	↓	Cocoa Bean	↓	Cocoa Bean	↓	Cocoa Bean	↓	↓	↓	↓	↓
	Dark Bronze	↓	Dark Bronze	↓	Dark Bronze	↓	Dark Bronze	↓	↓	↓	↓	↓
	Forest Green	↓	Forest Green	↓	Forest Green	↓	Forest Green	↓	↓	↓	↓	↓
	Black	↓	Black	↓	Black	↓	Black	↓	↓	↓	↓	↓
	Red Rock	↓	Red Rock	↓	Red Rock	↓	Red Rock	↓	↓	↓	↓	↓

Alternative component and grille color combinations for each frame/sash color are available upon request

* Wood interiors available in: pine, maple and oak

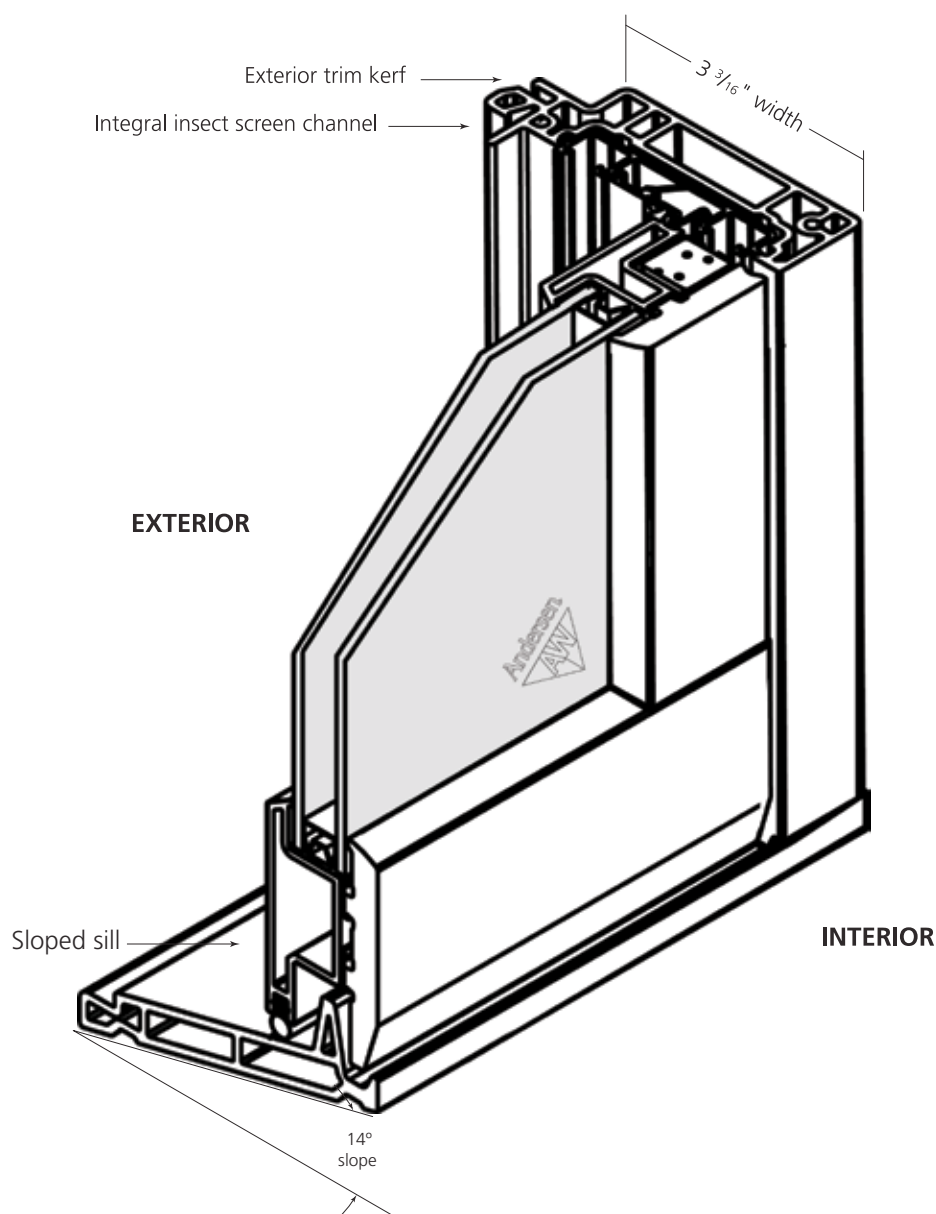
** Pine and maple interiors will use maple species interior grilles. Oak interiors will use oak species interior grilles



SLOPED-SILL INSERT DOUBLE-HUNG WINDOW

When the old window frame is solid and/or interior or exterior trim needs to be saved, an insert window installation is appropriate. These installations are also typically less disruptive to the home. A typical installation requires removing the old sash and any interfering hardware or trim from the existing window frame.

The insert frame has an exterior trim kerf to facilitate the use of exterior trim or aluminum coil stock. The 14° sill angle and 3-3/16" frame width fit within the 3-1/4" pocket that many old window frames have.



MIN / MAX SIZES

DOUBLE-HUNG WINDOW

SLOPED SILL INSERT



Certain window sizes may have limited sash travel. Refer to the charts on the following page, or call a customer service associate, or see the RbA Extranet for detailed information on limited sash travel and egress conformity in specific window applications.



Custom check rail heights may be specified to achieve different visible sash ratios, via NSPR.

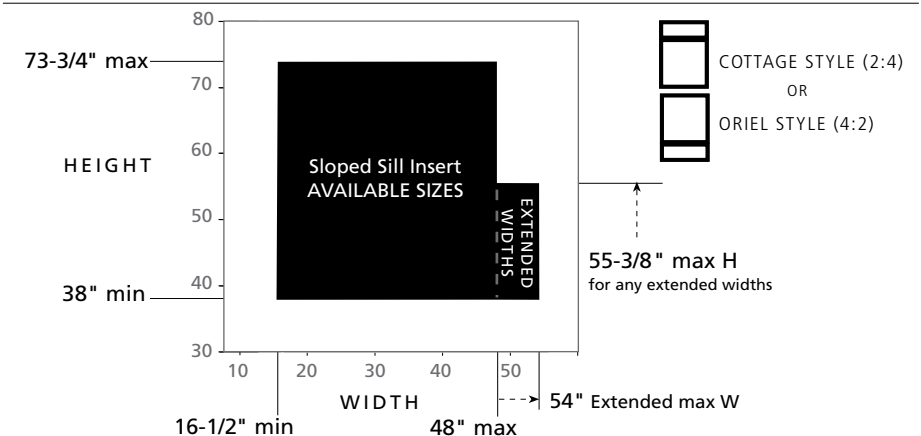
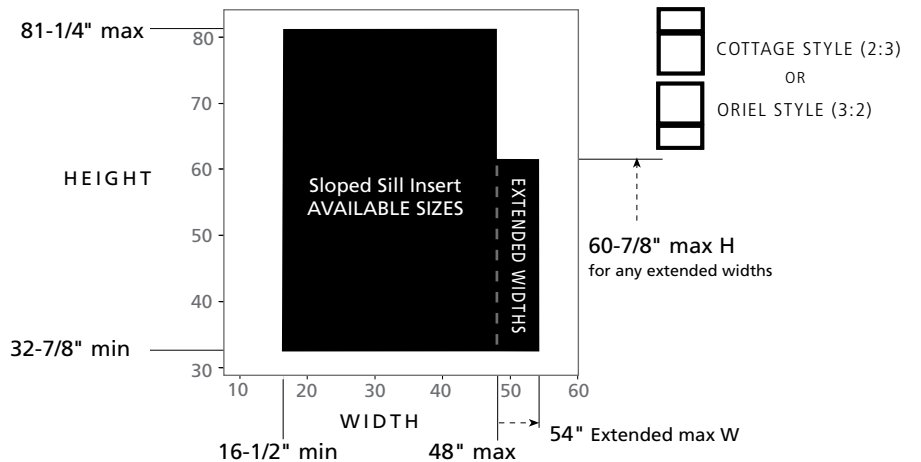
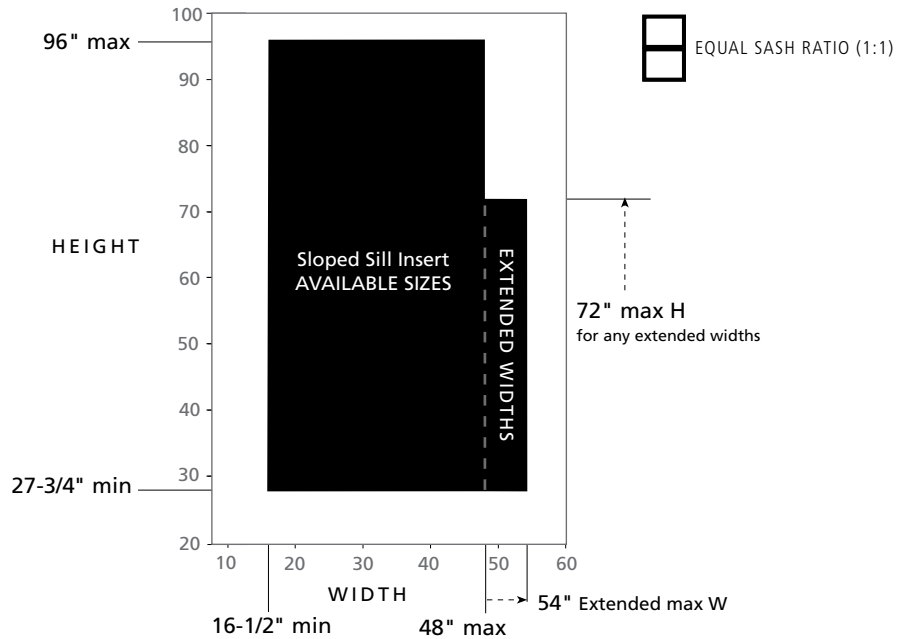
Do not confuse sash ratio and colonial grille pattern designations. Sash ratio refers to the size relationship between upper and lower sash. Grille pattern refers to the number of lites in a colonial pattern grille.

* **Two locks required on units greater than or equal to 45-9/16"**

** **Two locks not available on units narrower than 22-13/16"**

*** **A second lock is available as an option for units greater than 22-13/16"**

MIN / MAX SIZES



LIMITED SASH TRAVEL AND EGRESS CONFORMITY

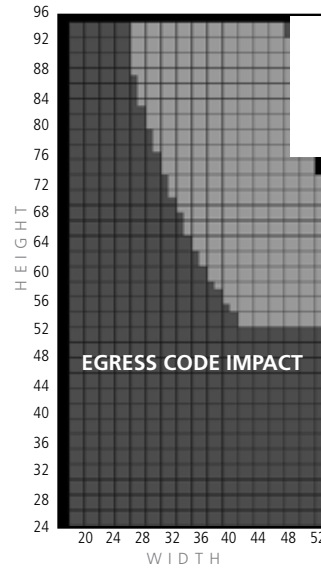
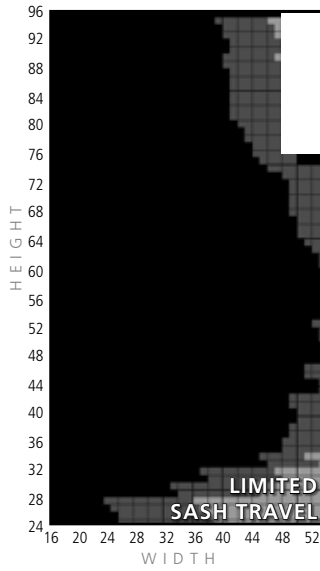
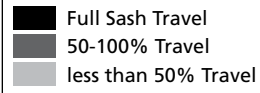
DOUBLE-HUNG WINDOW

SLOPED SILL INSERT

Use the charts in the left column to determine if unit will have limited sash travel (lower sash only).

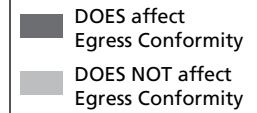
**EQUAL (1:1)
Sash Ratio**

SASH TRAVEL IMPACT



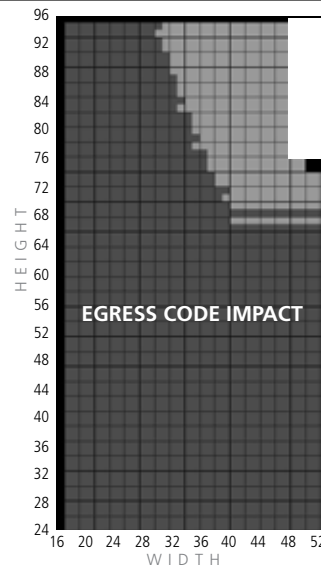
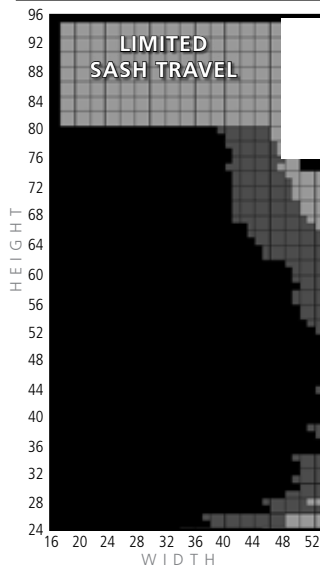
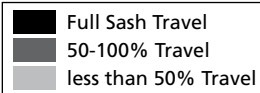
**EQUAL (1:1)
Sash Ratio**

EGRESS CONFORMITY IMPACT



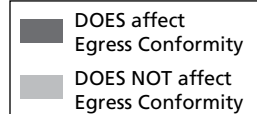
**2:3 or 3:2 Sash Ratio
COTTAGE or ORIEL**

SASH TRAVEL IMPACT



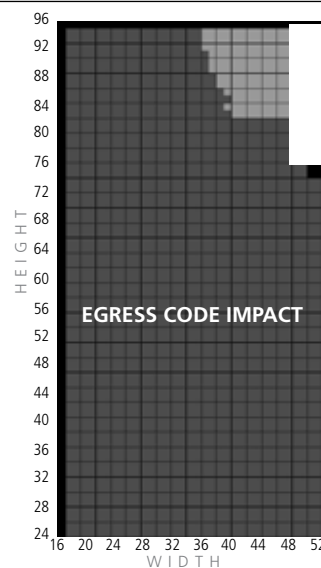
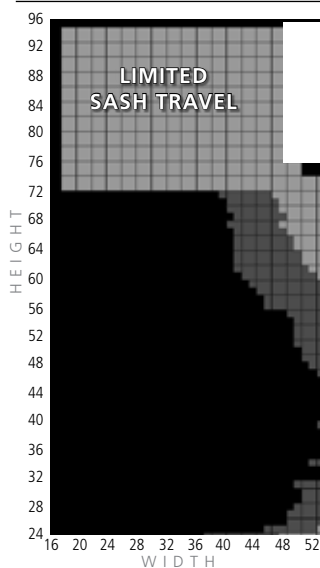
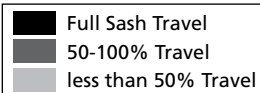
**2:3 or 3:2 Sash Ratio
COTTAGE or ORIEL**

EGRESS CODE IMPACT



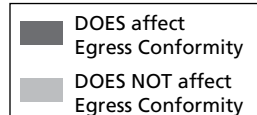
**2:4 or 4:2 Sash Ratio
COTTAGE or ORIEL**

SASH TRAVEL IMPACT



**2:4 or 4:2 Sash Ratio
COTTAGE or ORIEL**

EGRESS CODE IMPACT



CLEAR OPENING AND CLEAR GLASS DIMENSIONS

DOUBLE-HUNG WINDOW

SLOPED SILL INSERT

To determine the clear opening dimensions or clear glass size of either sash, follow the steps below.

1. Determine Unit Width (W) and Unit Height (H).



2. Determine the appropriate Check Rail Height (CRH):

Sloped Sill Double-Hung Check Rail Height (CRH)		
	EQUAL (1:1) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height}}{2}\right) - 0.874$
	COTTAGE (2:3) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 2}{5}\right) - 0.25$
	COTTAGE (2:4) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height}}{3}\right) + 0.161$
	ORIEL (3:2) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 3}{5}\right) - 1.5$
	ORIEL (4:2) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 2}{3}\right) - 1.94$



Custom check rail heights are available upon request.

For most areas, **egress opening codes** dictate minimum clear opening width, height, and square feet. Check with your local code officials to determine the precise egress codes for each home.

3. Using the Check Rail Height (CRH) found in Step 2, calculate Clear Opening and/or Clear Glass dimensions:

Determining Clear Opening Dimensions (to assess egress code compliance)	
CLEAR OPENING WIDTH (inches)	= Width - 3.188
CLEAR OPENING HEIGHT (inches)	$\left. \begin{array}{l} \text{EQUAL (1:1) Sash Ratio} \\ \text{COTTAGE (2:3 or 2:4) Sash Ratio} \end{array} \right\} = \text{Check Rail Height} - 2.875$
	ORIEL (3:2 or 4:2) Sash Ratio = Height - Check Rail Height - 2.75
CLEAR OPENING AREA (ft²)	= $\frac{\text{Clear Opening Width} \times \text{Clear Opening Height}}{144}$

Clear Opening Widths are often called **"Egress Opening"** Dimensions.

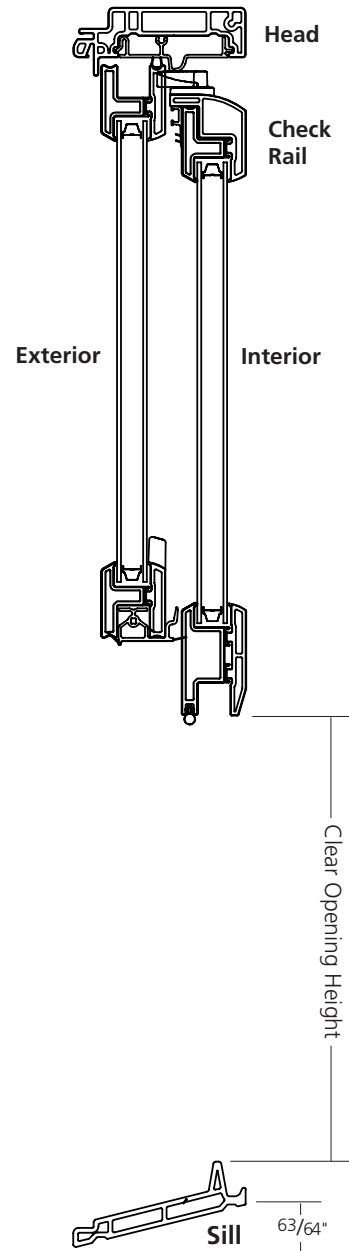
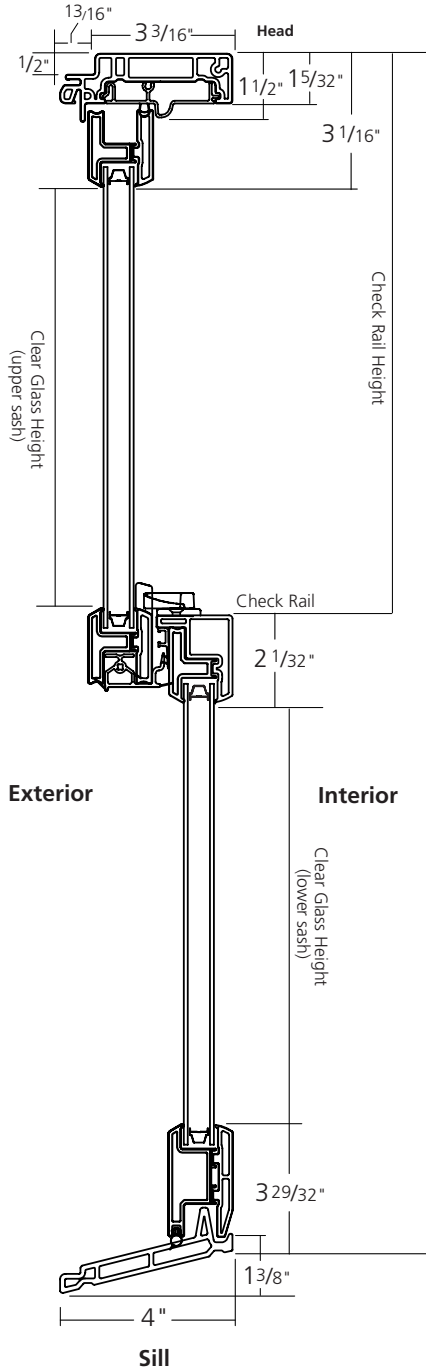
For detailed information on limited sash travel and egress conformity in specific window applications, refer to the charts on the previous page, or call a customer service associate, or see the RbA Extranet.

Determining Clear Glass Dimensions	
CLEAR GLASS WIDTH (inches)	= Width - 6.0
CLEAR GLASS HEIGHT (Upper sash, inches)	= Check Rail Height - 3.188
CLEAR GLASS HEIGHT (Lower sash, inches)	= Height - Check Rail Height - 4.938

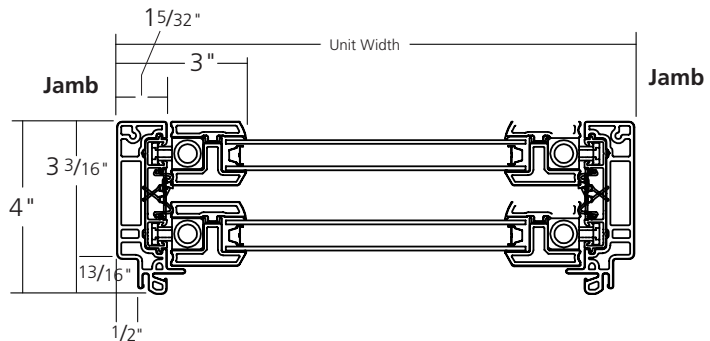
CLEAR OPENING AND CLEAR GLASS DIMENSIONS, cont.

DOUBLE-HUNG WINDOW

SLOPED SILL INSERT



Window profiles shown for measurement purposes.



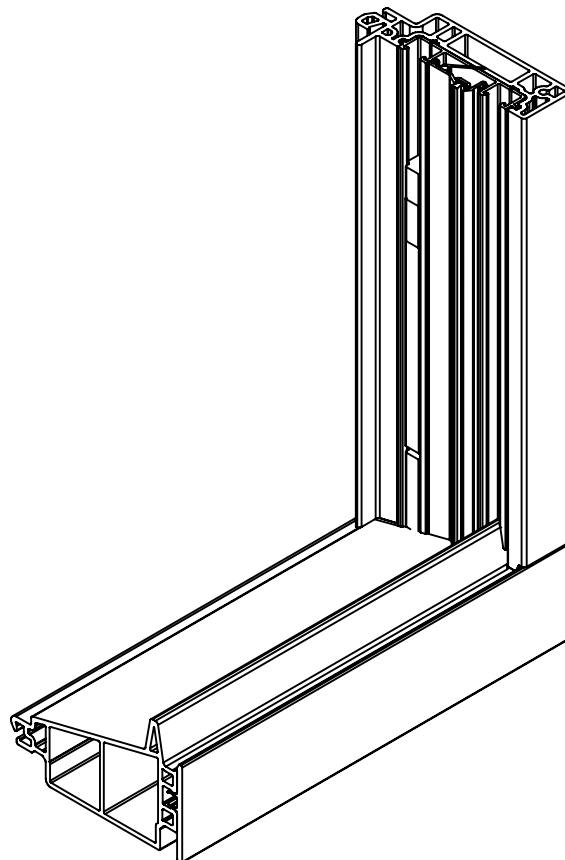
FLAT SILL INSERT DOUBLE-HUNG WINDOW

The flat sill insert double-hung window frame option is recommended when replacing existing windows that have a sill angle less than 8 degrees, when specifying an insert window frame that needs to have a flat sill to seat correctly in the opening, or when mulling multiple double-hung insert windows in an opening. It is also the window used in angle bay frames. The 3-3/16" frame width is also consistent with other insert windows to fit in a 3-3/4" pocket.

Existing window pockets must be flat. If they are not, materials must be added so that the pocket offers full support of the window frame.

As with other flat sill insert windows, the flat sill design of the insert frame double-hung window features an exterior trim kerf on all four sides of the frame, allowing for exterior Fibrex® material trim or aluminum coil stock to return to the window frame. This also facilitates mulling to other flat sill insert windows.

For measuring information, please see the *Technical Measurement Manual*. For installation methods, please see the *Product Installation Manual*.



MIN/MAX SIZES

DOUBLE-HUNG WINDOW

FLAT SILL INSERT



Certain window sizes may have limited sash travel. Refer to the charts on the following page, or call a customer service associate, or see the RbA Extranet for detailed information on limited sash travel and egress conformity in specific window applications.



Custom check rail heights can be specified to achieve different visible sash ratios. Contact the factory to confirm availability and ordering procedure.

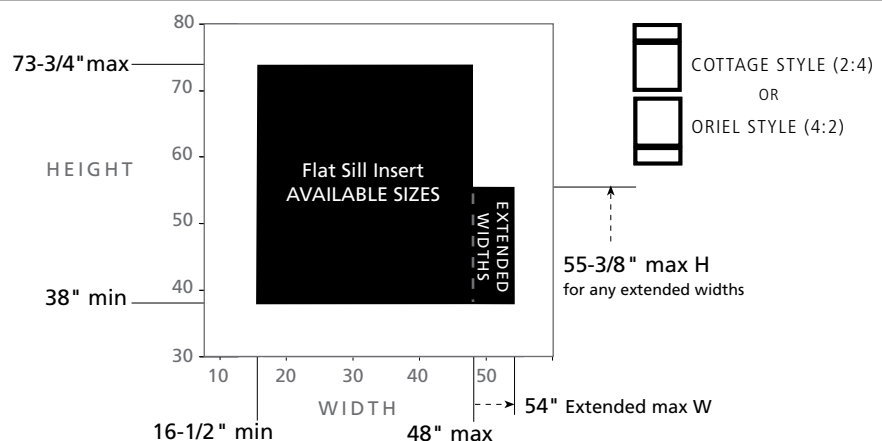
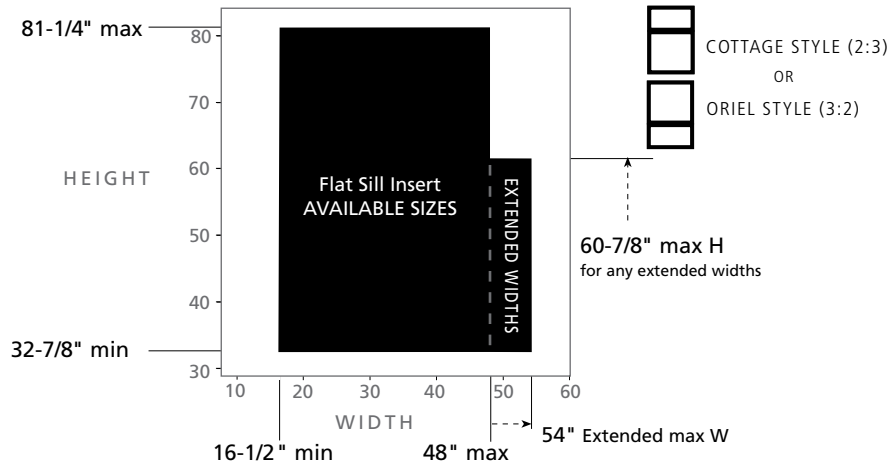
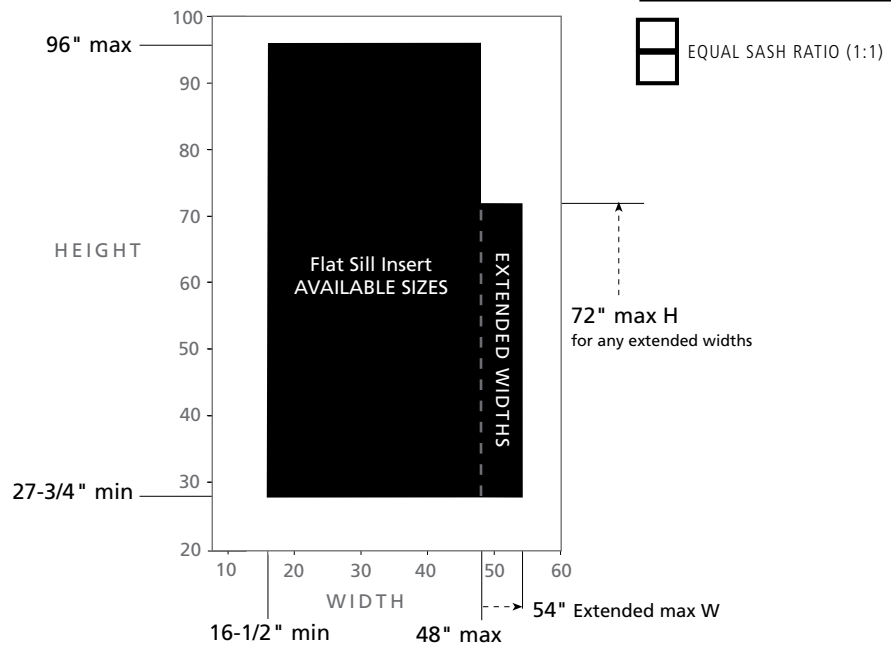
Do not confuse sash ratio and colonial grille pattern designations. Sash ratio refers to the size relationship between upper and lower sash. Grille pattern refers to the number of lites in a colonial pattern grille.

* **Two locks required on units greater than or equal to 45-9/16"**

** **Two locks not available on units narrower than 22-13/16"**

*** **A second lock is available as an option for units greater than 22-13/16"**

MIN / MAX SIZES



LIMITED SASH TRAVEL AND EGRESS CONFORMITY

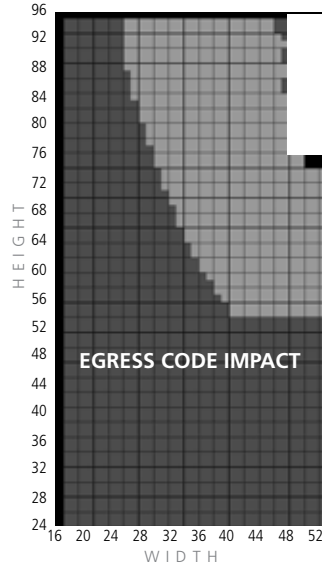
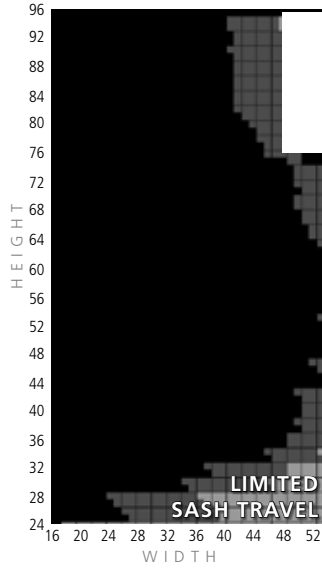
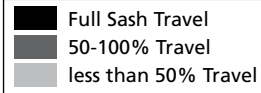
DOUBLE-HUNG WINDOW

FLAT SILL INSERT

Use the charts in the left column to determine if unit will have limited sash travel (lower sash only).

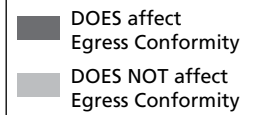
**EQUAL (1:1)
Sash Ratio**

SASH TRAVEL IMPACT



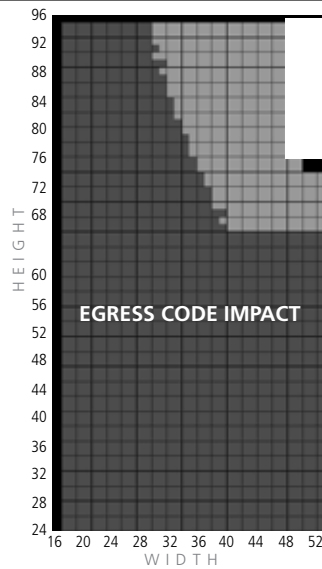
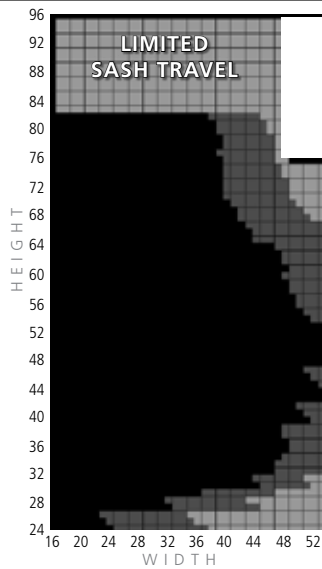
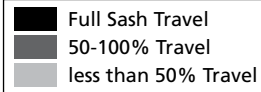
**EQUAL (1:1)
Sash Ratio**

EGRESS CONFORMITY IMPACT



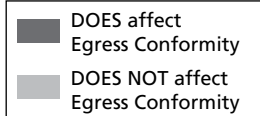
**2:3 or 3:2 Sash Ratio
COTTAGE or ORIEL**

SASH TRAVEL IMPACT



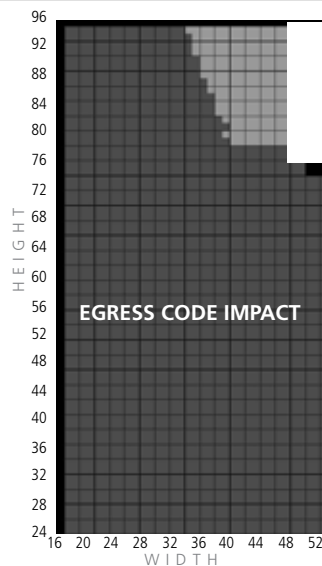
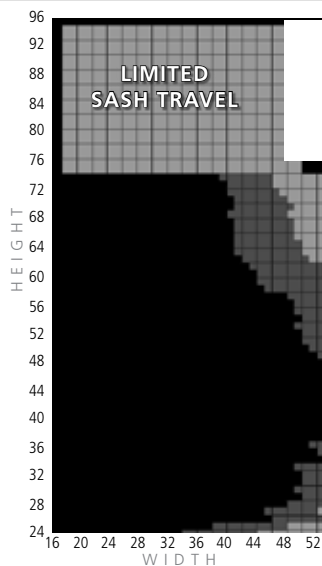
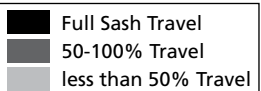
**2:3 or 3:2 Sash Ratio
COTTAGE or ORIEL**

EGRESS CODE IMPACT



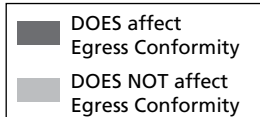
**2:4 or 4:2 Sash Ratio
COTTAGE or ORIEL**

SASH TRAVEL IMPACT



**2:4 or 4:2 Sash Ratio
COTTAGE or ORIEL**

EGRESS CODE IMPACT



CLEAR OPENING AND CLEAR GLASS DIMENSIONS

DOUBLE-HUNG WINDOW

FLAT SILL INSERT

To determine the clear opening dimensions or clear glass size of either sash, follow the steps below.

1. Determine **Unit Width (W)** and **Unit Height (H)**.

2. Determine the appropriate **Check Rail Height (CRH)**:

SEE
ILLUSTRATIONS
on next page

Flat Sill Insert Double-Hung Check Rail Height (CRH)		
	EQUAL (1:1) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height}}{2}\right) - 1.663$
	COTTAGE (2:3) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 2}{5}\right) - 0.878$
	COTTAGE (2:4) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height}}{3}\right) - .365$
	ORIEL (3:2) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 3}{5}\right) - 2.449$
	ORIEL (4:2) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 2}{3}\right) - 2.992$



Custom check rail heights are available upon request.

For most areas, **egress opening codes** dictate minimum clear opening width, height, and square feet. Check with your local code officials to determine the precise egress codes for each home.

3. Using the Check Rail Height (CRH) found in Step 2, calculate **Clear Opening** and/or **Clear Glass** dimensions:

Determining Clear Opening Dimensions (to assess egress code compliance)	
CLEAR OPENING WIDTH (inches)	= Width - 3.188
CLEAR OPENING HEIGHT (inches)	$\left. \begin{array}{l} \text{EQUAL (1:1) Sash Ratio} \\ \text{COTTAGE (2:3 or 2:4) Sash Ratio} \end{array} \right\} = \text{Check Rail Height} - 2.875$
	ORIEL (3:2 or 4:2) Sash Ratio = Height - Check Rail Height - 4.375
CLEAR OPENING AREA (ft²)	= $\frac{\text{Clear Opening Width} \times \text{Clear Opening Height}}{144}$

Clear Opening Widths are often called **"Egress Opening"** Dimensions.

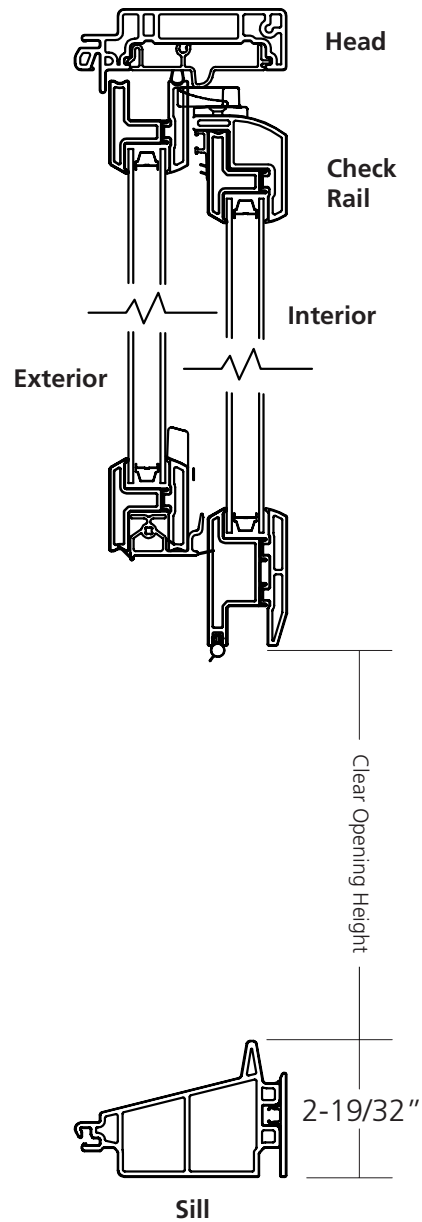
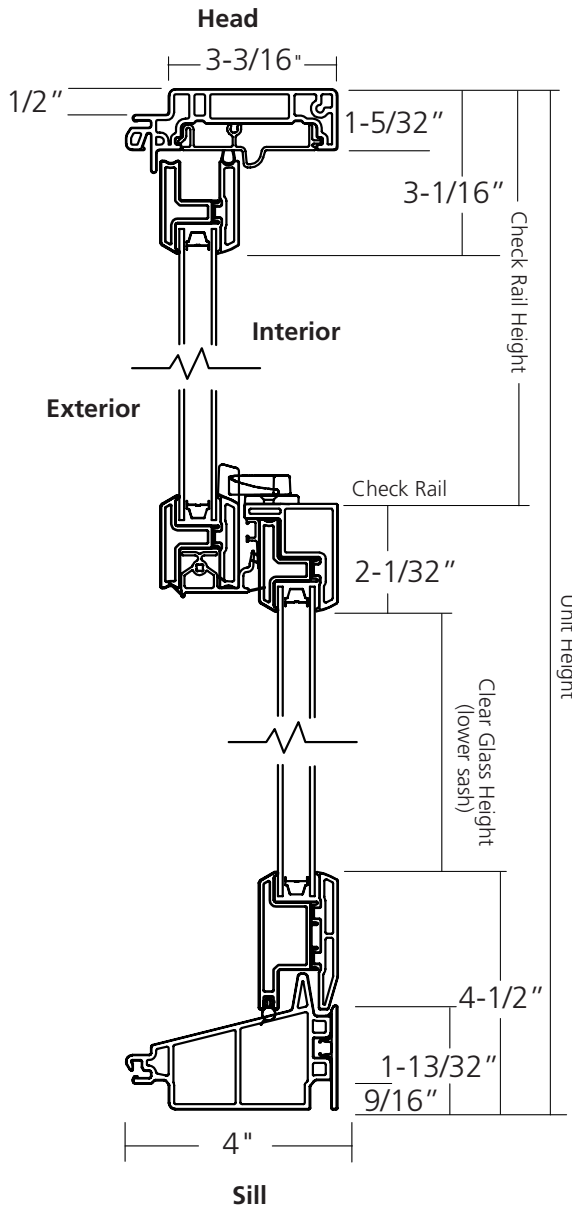
For detailed information on limited sash travel and egress conformity in specific window applications, refer to the charts on the previous page, or call a customer service associate, or see the RbA Extranet.

Determining Clear Glass Dimensions	
CLEAR GLASS WIDTH (inches)	= Width - 6.0
CLEAR GLASS HEIGHT (Upper sash, inches)	= Check Rail Height - 3.188
CLEAR GLASS HEIGHT (Lower sash, inches)	= Height - Check Rail Height - 6.521

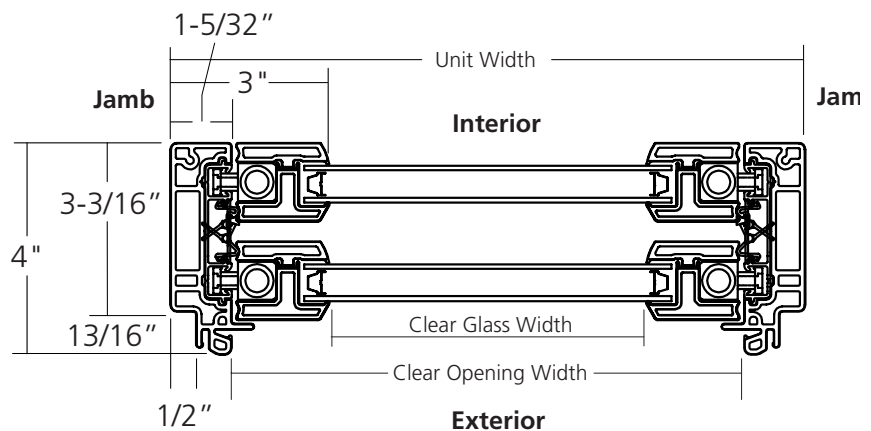
CLEAR OPENING AND CLEAR GLASS DIMENSIONS, cont.

DOUBLE-HUNG WINDOW

FLAT SILL INSERT

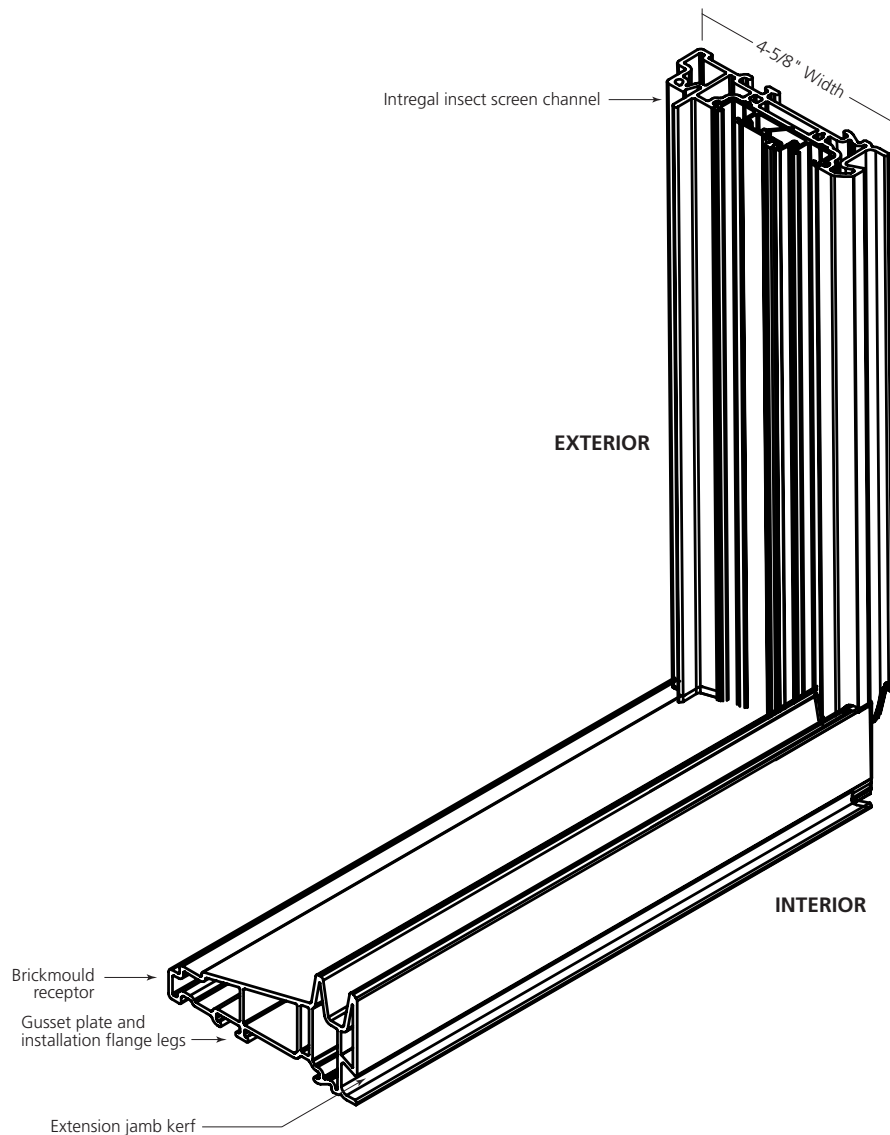


Window profiles shown for measurement purposes.



FULL-FRAME DOUBLE-HUNG WINDOW

The full-frame double-hung window is a complete window that includes a full frame and sash. It works well in replacement situations where the old window frame is deteriorated beyond repair or when the existing window frame doesn't allow for a double-hung insert window to be installed, such as old wood casement or metal frames. Frame will also accommodate exterior and interior trim options. See page 3-10.



MIN / MAX SIZES

DOUBLE-HUNG WINDOW

FULL FRAME



Certain window sizes may have limited sash travel. Refer to the charts on the following page, or call a customer service associate, or see the RbA Extranet for detailed information on limited sash travel and egress conformity in specific window applications.



Custom check rail heights can be specified to achieve different visible sash ratios. Contact the factory to confirm availability and ordering procedure.

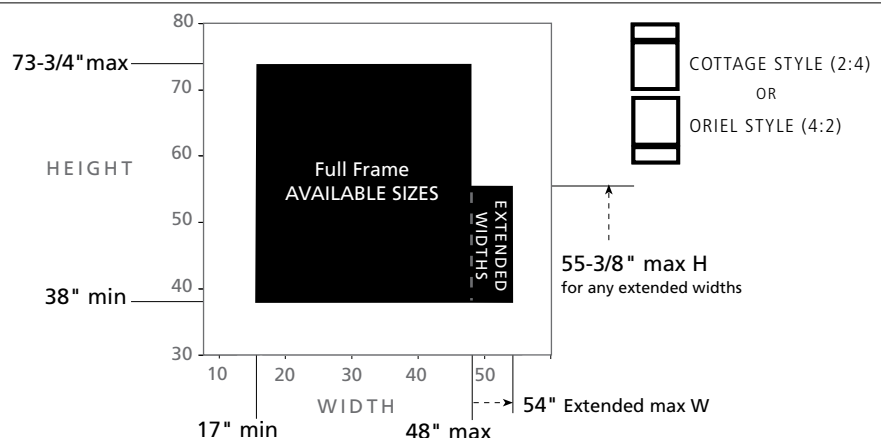
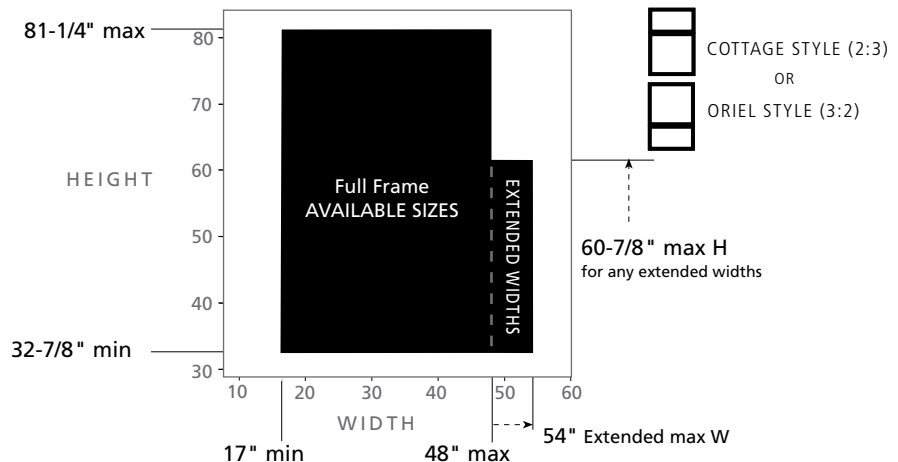
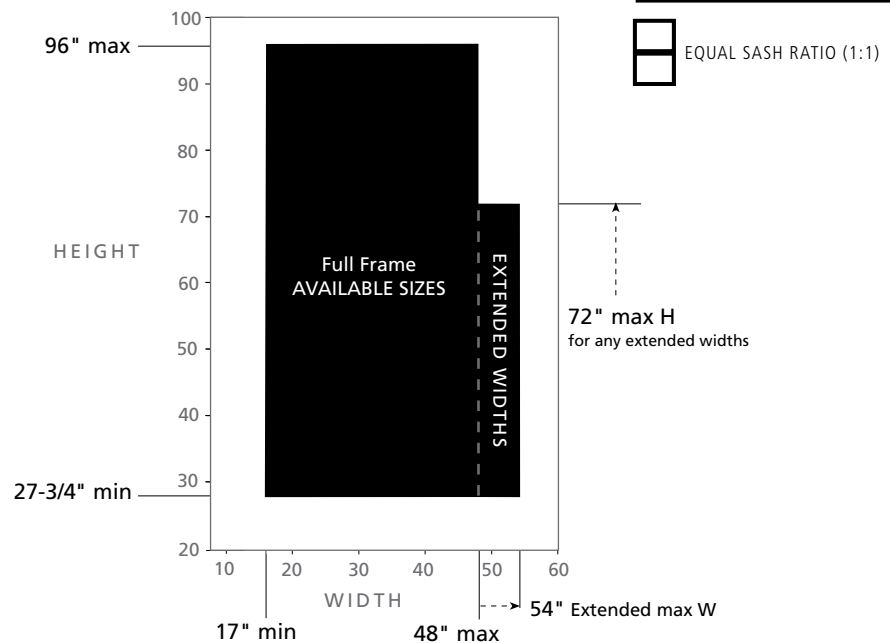
Do not confuse sash ratio and colonial grille pattern designations. Sash ratio refers to the size relationship between upper and lower sash. Grille pattern refers to the number of lites in a colonial pattern grille.

* **Two locks required on units greater than or equal to 45-9/16"**

** **Two locks not available on units narrower than 22-13/16"**

*** **A second lock is available as an option for units greater than 22-13/16"**

MIN / MAX SIZES



LIMITED SASH TRAVEL AND EGRESS CONFORMITY

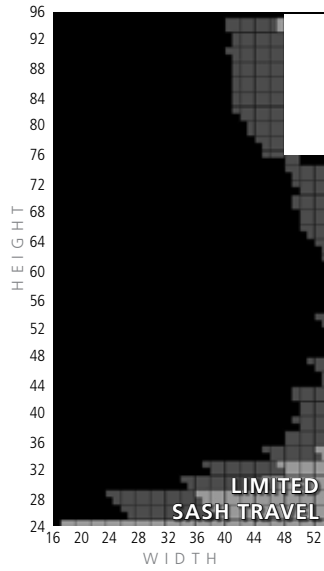
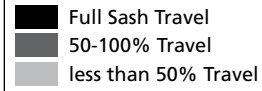
DOUBLE-HUNG WINDOW

FULL FRAME

Use the charts in the left column to determine if unit will have limited sash travel (lower sash only).

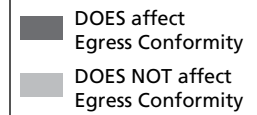
**EQUAL (1:1)
Sash Ratio**

SASH TRAVEL IMPACT



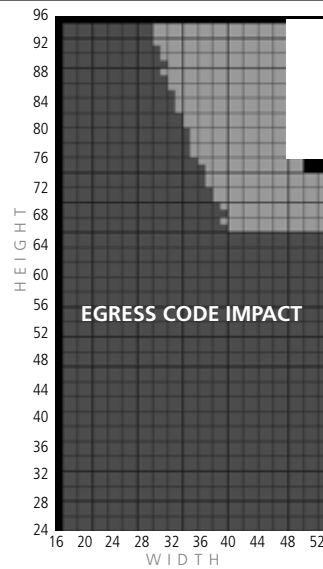
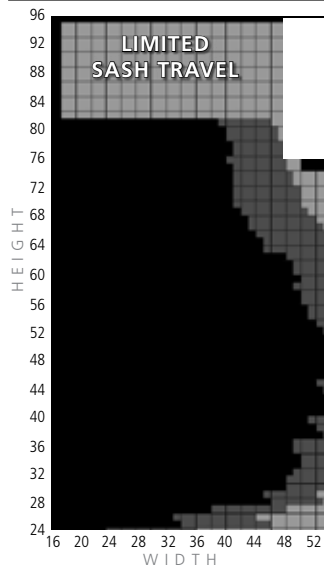
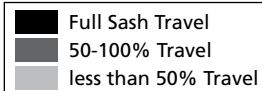
**EQUAL (1:1)
Sash Ratio**

EGRESS CONFORMITY IMPACT



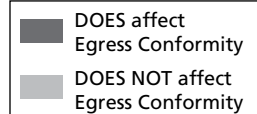
**2:3 or 3:2 Sash Ratio
COTTAGE or ORIEL**

SASH TRAVEL IMPACT



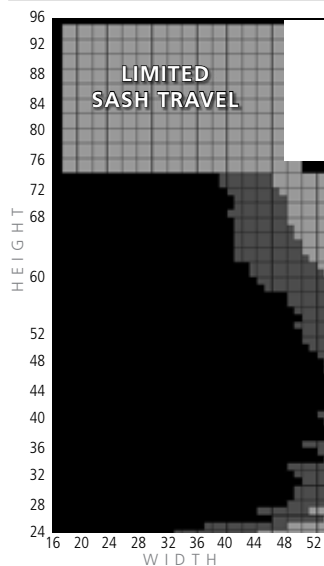
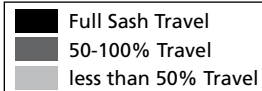
**2:3 or 3:2 Sash Ratio
COTTAGE or ORIEL**

EGRESS CODE IMPACT



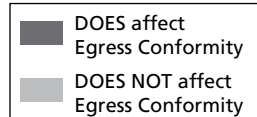
**2:4 or 4:2 Sash Ratio
COTTAGE or ORIEL**

SASH TRAVEL IMPACT



**2:4 or 4:2 Sash Ratio
COTTAGE or ORIEL**

EGRESS CODE IMPACT



CLEAR OPENING AND CLEAR GLASS DIMENSIONS

DOUBLE-HUNG WINDOW

FULL FRAME

To determine the clear opening dimensions or clear glass size of either sash, follow the steps below.

1. Determine **Unit Width (W)** and **Unit Height (H)**.



2. Determine the appropriate **Check Rail Height (CRH)**:

Full Frame Double-Hung Check Rail Height (CRH)		
	EQUAL (1:1) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height}}{2}\right) - 1.536$
	COTTAGE (2:3) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 2}{5}\right) - 0.776$
	COTTAGE (2:4) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height}}{3}\right) - .276$
	ORIEL (3:2) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 3}{5}\right) - 2.295$
	ORIEL (4:2) Sash Ratio	Check Rail Height = $\left(\frac{\text{Height} \times 2}{3}\right) - 2.815$



Custom check rail heights are available upon request.

For most areas, **egress opening codes** dictate minimum clear opening width, height, and square feet. Check with your local code officials to determine the precise egress codes for each home.

3. Using the Check Rail Height (CRH) found in Step 2, calculate **Clear Opening** and/or **Clear Glass** dimensions:

Determining Clear Opening Dimensions (to assess egress code compliance)	
CLEAR OPENING WIDTH (inches)	= Width – 3.188
CLEAR OPENING HEIGHT (inches)	$\left. \begin{array}{l} \text{EQUAL (1:1) Sash Ratio} \\ \text{COTTAGE (2:3 or 2:4) Sash Ratio} \end{array} \right\} = \text{Check Rail Height} - 2.875$
	ORIEL (3:2 or 4:2) Sash Ratio = Height – Check Rail Height – 4.125
CLEAR OPENING AREA (ft²)	= $\frac{\text{Clear Opening Width} \times \text{Clear Opening Height}}{144}$

Clear Opening Widths are often called **"Egress Opening"** Dimensions.

For detailed information on limited sash travel and egress conformity in specific window applications, refer to the charts on the previous page, or call a customer service associate, or see the RbA Extranet.

Determining Clear Glass Dimensions	
CLEAR GLASS WIDTH (inches)	= Width – 6.0
CLEAR GLASS HEIGHT (Upper sash, inches)	= Check Rail Height – 3.188
CLEAR GLASS HEIGHT (Lower sash, inches)	= Height – Check Rail Height – 6.266

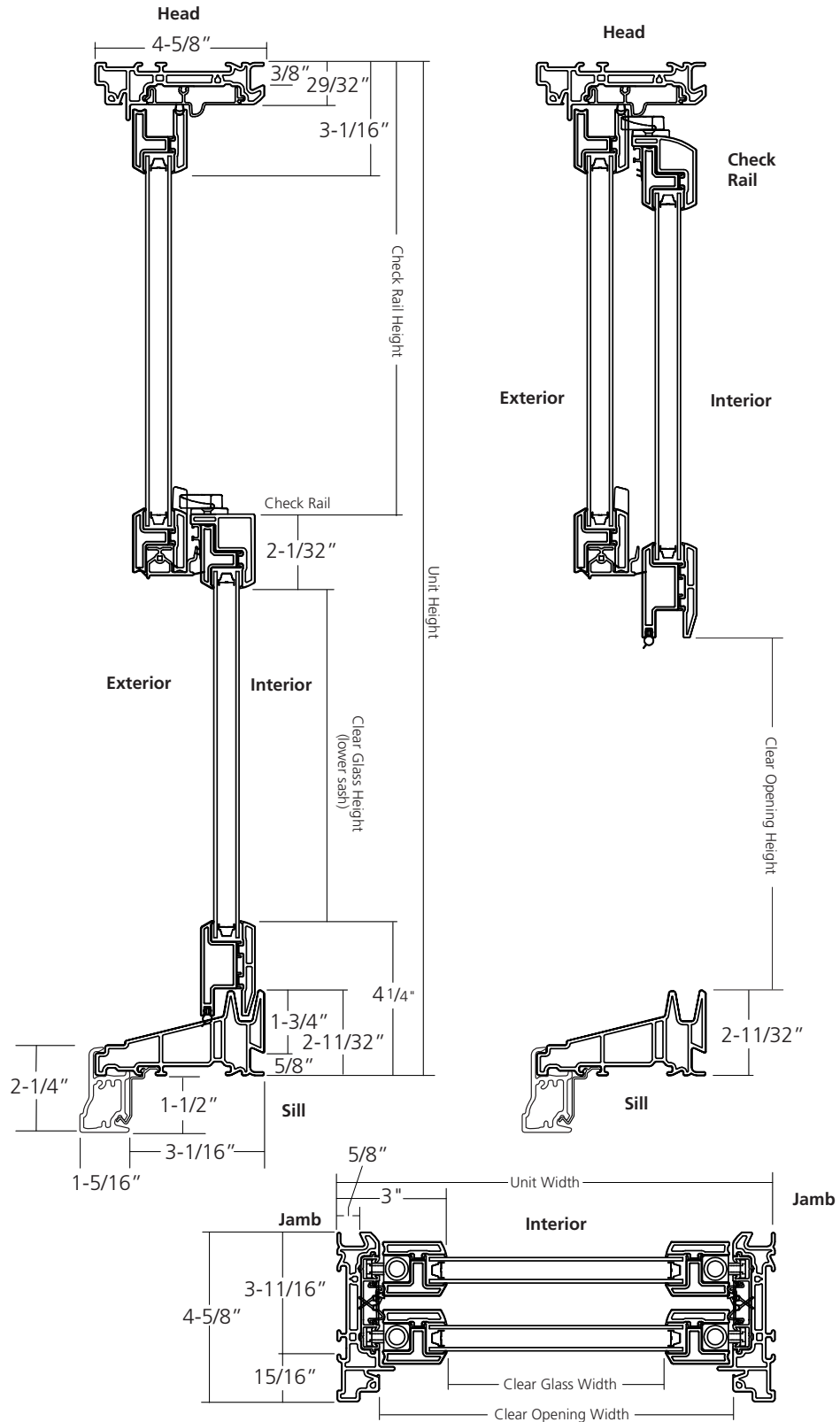
CLEAR OPENING AND CLEAR GLASS DIMENSIONS, cont.

DOUBLE-HUNG WINDOW

FULL FRAME



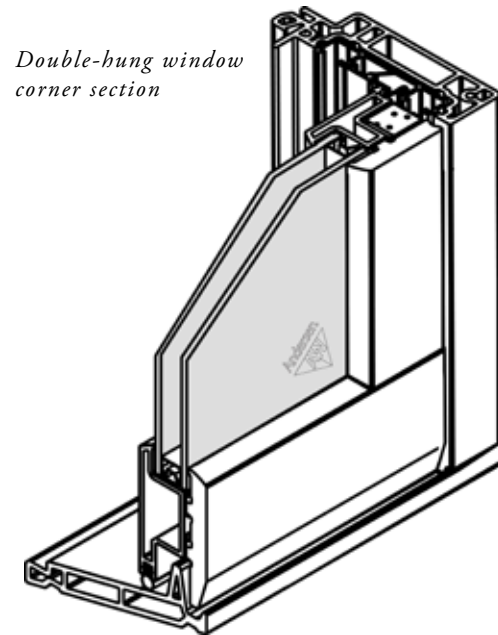
Brickmould and window profiles shown for measurement purposes.



DOUBLE-HUNG WINDOW AND RELATED PATENTSDOUBLE-HUNG WINDOW

- Double-Hung Window - U.S. Patent Number: Des. 394,115

The ornamental design for a double-hung window.



DOUBLE-HUNG WINDOW AND RELATED PATENTS, cont.

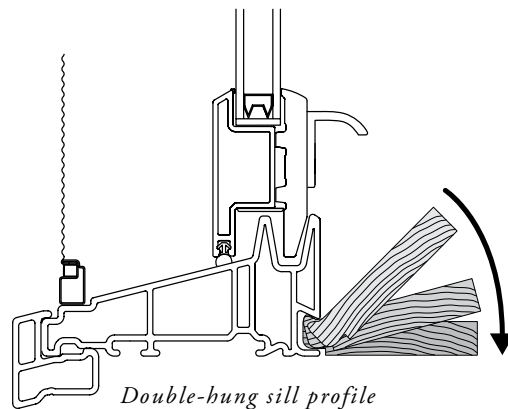
DOUBLE-HUNG WINDOW

- Extension Jamb – U.S. Patent Number: Des. 5,555,684

An extension jamb extends the depth of a frame to accept a replacement window. Our patented design improves the standard method of securing the jambs to the window frame with glue or nails, which is the method used by many manufacturers.

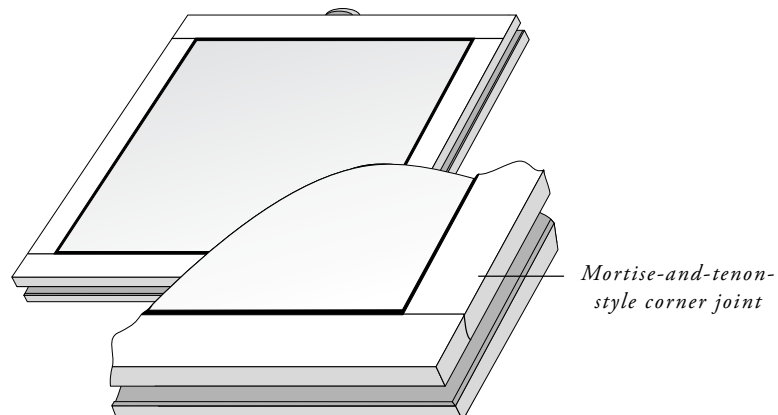
The design creates a snap-in fit of the extension jamb into the window frame. This is aesthetically more pleasing and eliminates problems with staining and finishing that may occur with glue or nail holes.

Installing an extension jamb



- Joint Structure (Mortise/Tenon) – U.S. Patent Number: Des. 5,603,585

Renewal by Andersen® has a patented design and manufacturing method to make a welded corner with the appearance of a traditional, hand-crafted mortise-and-tenon joint. By end-cutting the sash members in a unique way, we provide a welded corner on the exterior surface of the sash that provides strength and excellent weathertight construction, while the interior portion of the sash parts are joined to create a mortise-and-tenon-style corner joint. This marriage of function and traditional window style is unique in the window replacement industry.



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Warnings and Cautions

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.

Messages are included throughout this manual to alert you to potentially hazardous situations. “**Warning**” indicates possible personal injury. “**Caution**” indicates possible damage to products or other materials.

The messages below apply to every installation. Others throughout the manual apply to specific situations you may encounter.

Always read and follow the directions in these messages for a safe and effective installation.

CAUTION

Unless specifically ordered, Renewal by Andersen® windows are not equipped with safety glass, and if broken, could fragment causing injury. Many laws and building codes require safety glass in locations adjacent to or near doors. Renewal by Andersen windows are available with safety glass that may reduce the likelihood of injury when broken. Information on safety glass is available from your sales representative.

Do not apply any type of film to glass. Thermal stress conditions resulting in glass damage could occur.

The use of movable insulating materials such as window coverings, shutters, and other shading devices may damage glass and/or vinyl. In addition, excessive condensation may result causing deterioration of window unit.

WARNING

Before, during, and after installation, place all tools as well as any casing or window parts on a drop cloth or in a location that will not pose a hazard to installers, customers, or property.

During cutting, flying particles can cause personal injury and damage to glass. Wear safety glasses when cutting.

Do not leave the opening unattended. Always have someone present. Personal injury or death could result.

WARNING

Improper use of hand or power tools could result in personal injury and/or product damage. Follow equipment manufacturer’s instructions for safe operation. Always wear safety glasses.

WARNING

Use of ladders and/or scaffolding and working at elevated levels may be hazardous. Follow equipment manufacturer’s instructions for safe operation. Use extreme caution when working around window and door openings. Personal injury and/or falls could occur.

WARNING

Weight of window and door unit(s) and accessories will vary. Use a reasonable number of people with sufficient strength to lift, carry and install window and door unit(s) and accessories. Always use appropriate lifting techniques.

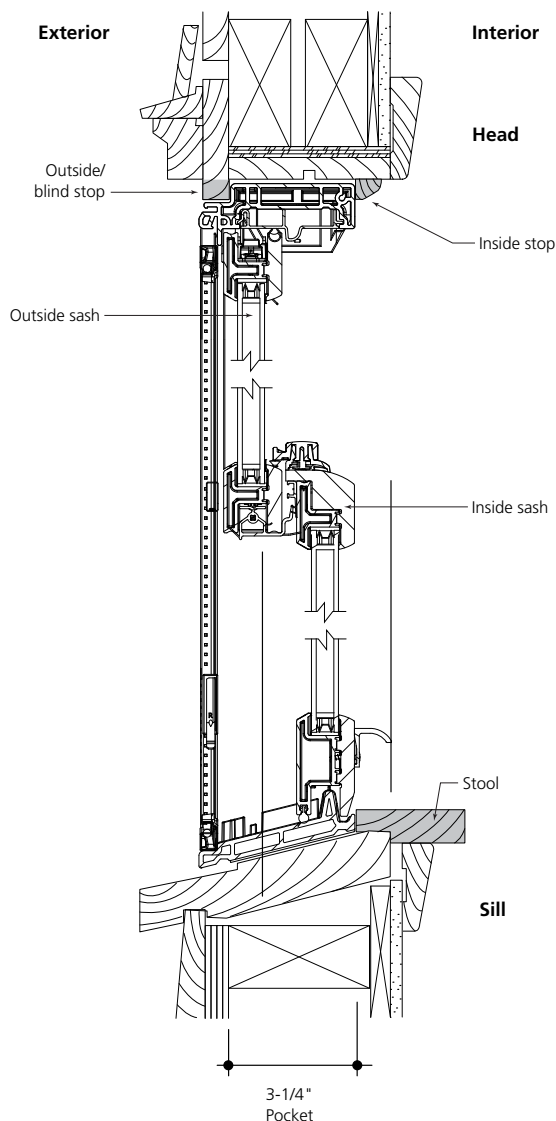


Figure 1. Head/Sill View with an Insert Window



Measure both opening and new window to ensure window is correct size.

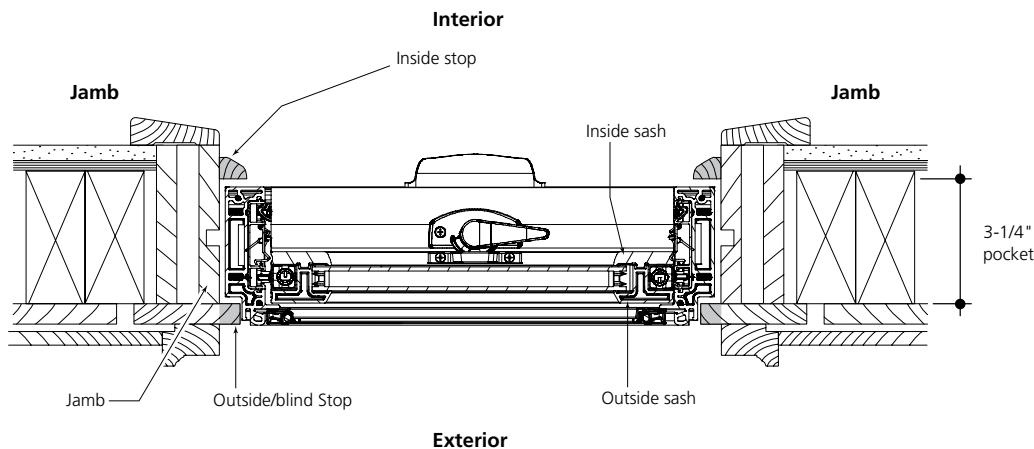


Figure 2. Jamb View with an Insert Window

Insert Windows-General Description

“Insert” is the name that identifies this Renewal by Andersen® installation method. Insert replacement windows are custom-sized and manufactured to fit between the inside and outside stops of an old window frame that has been stripped of its sash. (Figures 1 and 2)

The window openings shown throughout this manual are generic and will vary somewhat from openings encountered in the field. However, the following basic installation principles will apply to all Renewal by Andersen® insert window installations:

1. The opening will be prepared to provide structural support for the new insert window.
2. The opening will include continuous interior and exterior stop.
3. Each installed insert window is to be properly shimmed, insulated, sealed, trimmed, and cleaned.

Insert Windows-Installation Approaches

There are two basic approaches for installing Renewal by Andersen® insert windows: Interior and Exterior. The desired approach is determined by the sales and measuring personnel and specified on the Sales Agreement and in the *Install Job Packet*.

INTERIOR INSTALL

Used most commonly for old double-hung, gliding, and picture windows. It is specified whenever it appears that the inside stops can be removed and reinstalled without causing damage to any of the interior trim, paint, or finish.

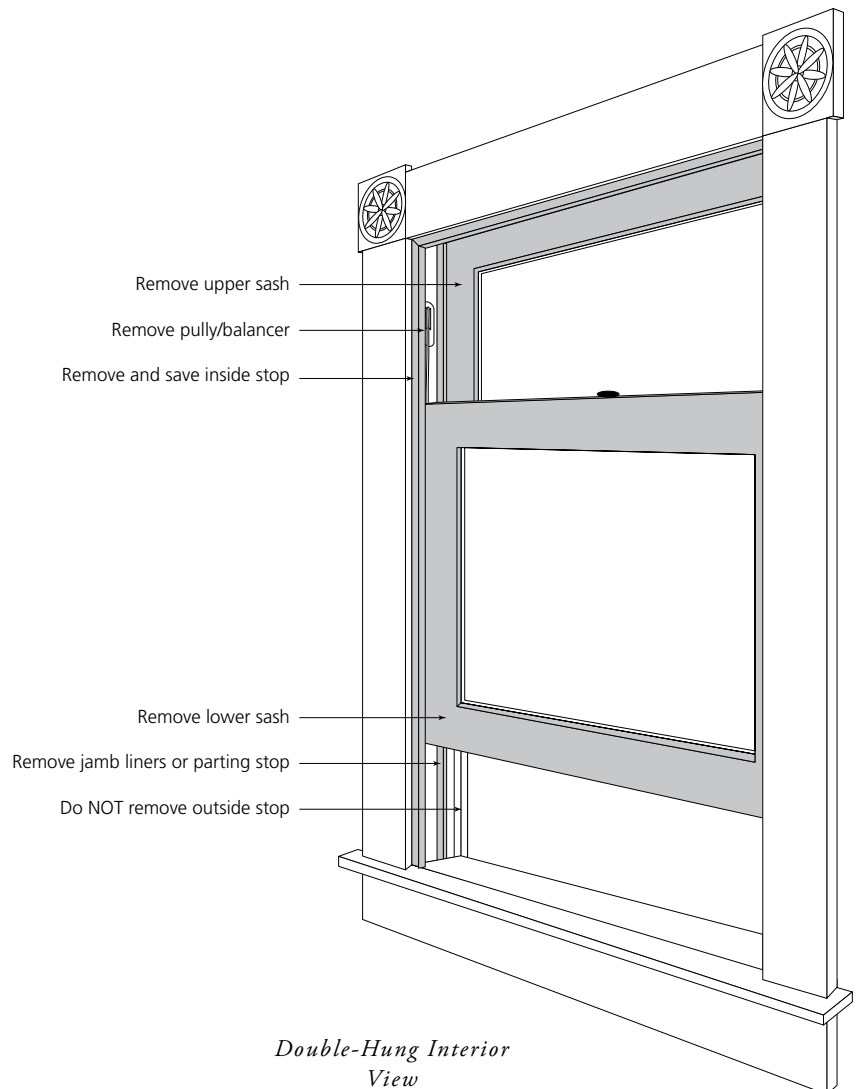
The basic interior installation procedure is as follows:

1. Remove storm window and/or insect screen.
2. Carefully remove the inside stops from the jambs.
3. Set the new window into the opening from the interior side following standard Renewal by Andersen method.
4. Install new outside stops.

Sill Angle Unit Reduction Chart

Based on the sill angle, the unit has been downsized according to this chart.

Sill Angle	Deduction from unit height
14°	0"
13°	1/16"
12°	1/8"
11°	3/16"
10°	1/4"
9°	5/16"
8°	3/8"
7°	7/16"
6°	9/16"
5°	5/8"
4°	11/16"
3°	3/4"
2°	13/16"
1°	7/8"
0°	15/16"
FS	N/A - window is built with the flat sill profile rather than sloped sill profile



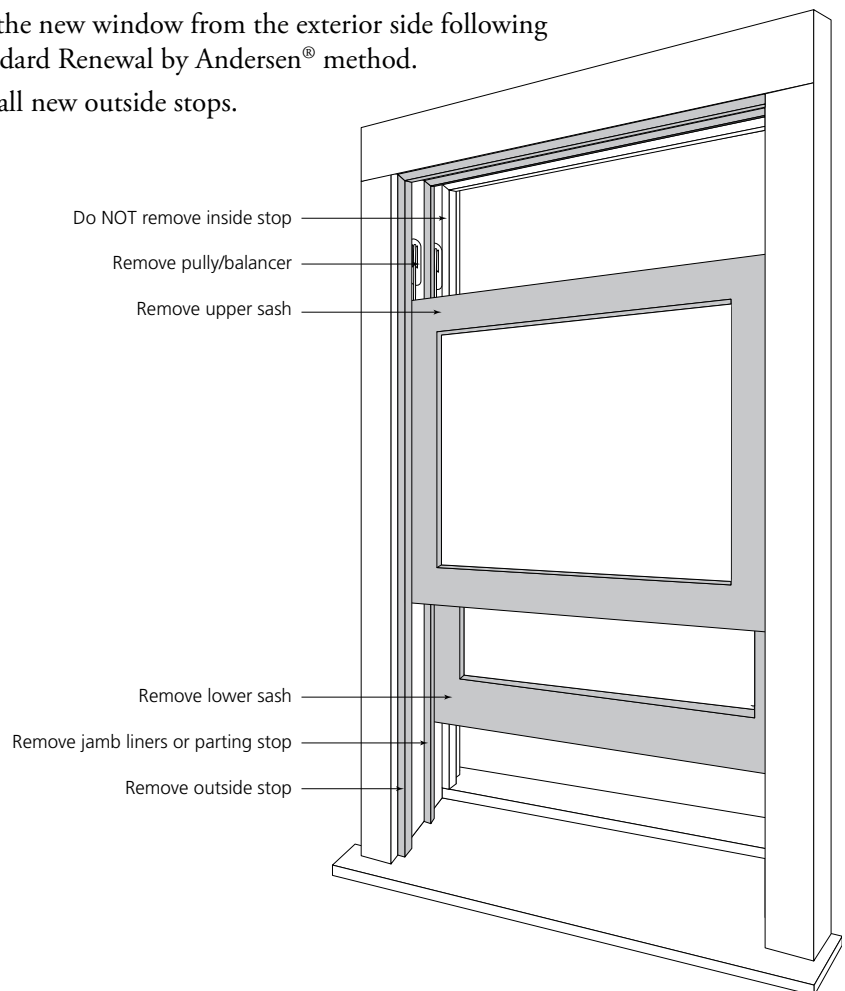
EXTERIOR INSTALL

Used most commonly for old double-hung, gliding, and picture windows. This method is specified when one of the following conditions exist:

1. The inside stops are not removable. For example, the stops project behind the casing or they are milled into the window jamb.
2. Removal of the inside stops could potentially damage the casing, jambs or stops, or the paint finish on any of these parts.
3. If the existing pocket depth is less than 3-1/4", the outside stops may need to be moved outward or replaced with a new stop of lesser depth. Because the outside stops are being removed, an exterior install is more appropriate.
4. If the existing pocket depth is greater than 3-1/4", the new window can be pushed tight to the inside stops from the exterior side and new outside stops installed.

The basic exterior installation procedure is as follows:

1. Remove storm window and/or insect screen.
2. Saw or chisel out the existing outside stops.
3. Set the new window from the exterior side following standard Renewal by Andersen® method.
4. Install new outside stops.



*Double Hung Exterior
View*

Insert Window-Preparing the Opening

Successful installation of a Renewal by Andersen® window depends on a properly prepared opening. This section gives directions for preparing a variety of wood and metal openings. Always check the Install Job Packet for the recommended installation approach. The openings encountered in the field may vary significantly from the examples shown. Use the following standards, guidelines, and procedures to prepare the opening.

PREPARING AN EXISTING WOOD DOUBLE-HUNG OPENING

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.



Stationary sash removal may require extracting and/or cutting additional stops and/or hardware.

1. Interior Installation

Remove Stops and Sash

- Score the paint or varnish with a utility knife at the intersection of the stop and the jamb to minimize the finish from cracking or shattering.
- Remove the inside stops by removing the stop screws (if they are present) or, more commonly, by prying the stops off the jambs. When prying the stops loose, work the tool (putty knife or flat bar) under the back side of the stop to prevent marring the visible surfaces of the stop. (Figure 3)
- Remove inside sash.
- Remove parting stops from the head and side jambs, and discard.
- Remove outside sash.

Exterior Installation

- Remove the outside stops in one of two ways: when the exterior trim will be wrapped with aluminum after the installation, use a reciprocating saw; when the exterior trim is to remain exposed, use a chisel to prevent marring the surface of exterior trim. (Figure 4)
- Remove outside sash.
- Remove parting stops from the head and side jambs, and discard.
- Remove inside sash.

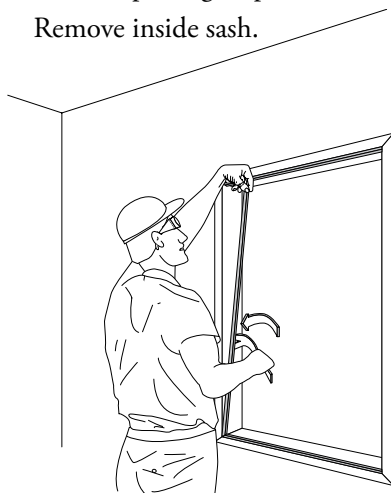


Figure 3. Remove inside stops.
Interior Installation

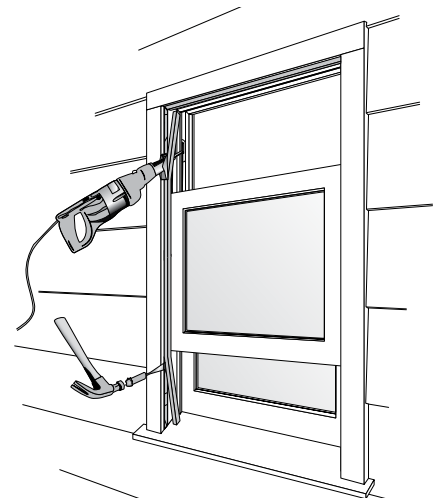


Figure 4. Remove outside stops.
Exterior Installation

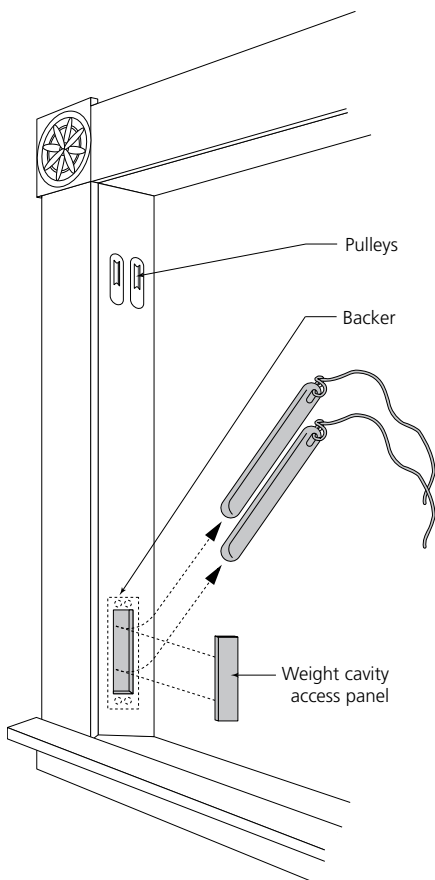


Fig 5. Remove balancing system.

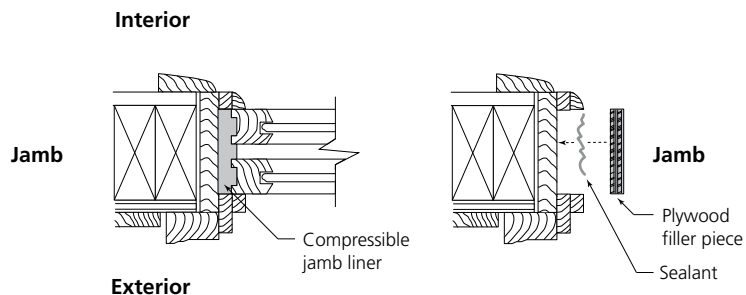
2. Remove Balancing System (Figure 5)

3. Weight and Pulley System

- Remove and save the weight cavity access panels.
- Remove and discard the weights and pulleys from the cavities.
- Insulate the weight cavities by pushing fiberglass batting material or spray foam in through the access holes. Be sure to fill the cavities completely, leaving no voids. Tall windows may require additional access holes to be cut through each side jamb, near the top of the opening. After insulation is placed, reinstall the access panels into the jambs.
- If access panels are located where the install screws are to go, anchor a piece of 1/2" plywood to the backside of the jamb as a "backer". Use drywall screws to anchor the backer and the access panel.

4. Compressible Jamb Liner

- Remove the compressible jamb liner from the jamb.
- Cut a piece of 1/2" x 3-1/4" plywood to length. Apply sealant to the back side of the plywood filler piece and install into the compressible jamb liner pocket using 1-5/8" wood screws.



5. Remove all Obstructions

- Remove any obstructions from the opening that may hinder proper installation such as other hardware, paint ridges, sealant lines, and weather stripping.

6. Inspect for Rot and Damaged Wood

- Repair or replace damaged material to facilitate a sound installation of the new replacement window. If the sill or other portions of the exterior trim are being replaced, wrap the exterior trim with aluminum for weather protection and a uniform appearance. This should be done in accordance with the contract, or by use of change order.

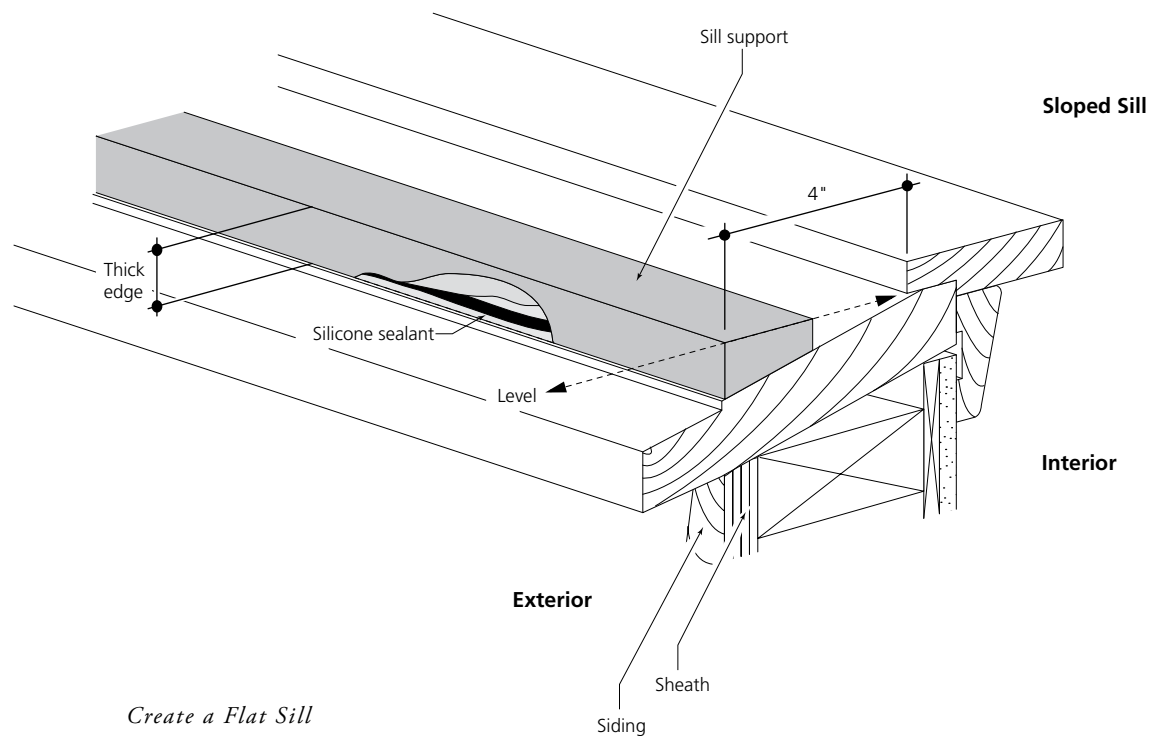
7. Clean the Opening

- Thoroughly brush and vacuum the opening to remove all debris.

SPECIAL NOTE ON PREPARATION

If the new window to be installed has a flat sill (casement, awning, glider, flat sill double-hung, or picture window), the existing opening will need to be further prepared by installing a sill support onto the existing sloped sill. This sill support will properly support the insert window and provide a backer for the new exterior trim. It will also provide a level surface on which to mount the insert mulling anchor if multiple units are to be joined in this opening. Follow these steps:

- Determine the angle of the existing sill using a Beuel gauge.
- From the top of the sill just behind the stool, level out to the outside face of the outside stops. From this point, measure down to the sill to determine the “thick edge” height of the new sill support.
- Using the angle and thickness measurements, rip a sill support from a length of 2" x 4" treated stock. Cut the sill support to length so it fits tight between the existing side jambs or side stops.
- Apply a small bead of sealant along the beveled side of the new sill support. Place the support, bevel side down, on the sill so that the thick edge is plumb and flush with the outside face of the outside stops (usually 4" from stool).



Create a Flat Sill

PREPARING AN EXISTING WOOD GLIDING OPENING

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.



Stationary sash removal may require extracting and/or cutting additional stops and/or hardware.

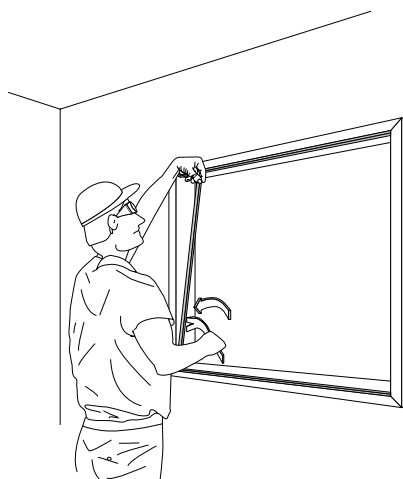


Figure 6. Remove stops.



Figure 7. Remove head and sill tracks.

1. Remove Sash

- If an interior installation is to be done, lift out the sash and discard. (If one sash is stationary, remove the anchoring hardware first.)

2. Remove Stops (Figure 6)

Interior Installation

- With a utility knife, score the paint or varnish at the intersection of the stop and jamb to help prevent cracking or shattering the finish.
- Pry off the inside stops, working the pry bar under the stop from the back side to prevent marring visible surfaces. Remove nails from stops and retain stops for reuse.

Exterior Installation

- Remove the outside stops in one of two ways: if the exterior trim is to be wrapped with aluminum, use a reciprocating saw; if the exterior trim is to remain exposed, use a chisel to prevent marring the surface of exterior casing.

3. Remove the Parting Stops and Discard

4. Remove the Head and Sill Tracks (Figure 7)

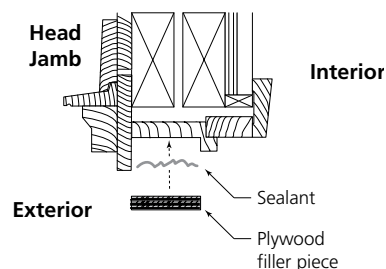
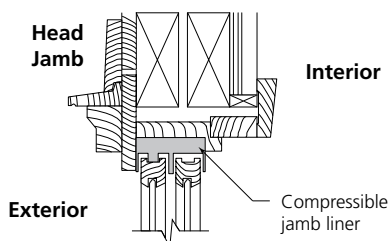
- Remove the head and sill tracks from the window frame. Some tracks are detached by removing the mounting screws, while others can be pried loose from the opening.
- Clear all miscellaneous track mounting hardware from the opening.

5. Remove Any Obstructions

- Remove any obstructions from the opening, e.g. hardware, paint ridges, sealant lines, and weatherstripping.

6. Fill Head Jamb (if applicable)

- If a compressible jamb liner has been removed from the head jamb, cut a piece of 1/2" x 3-1/4" plywood to length. Apply sealant to the back side of the plywood filler piece and install into the compressible jamb liner pocket using 1-5/8" wood screws.



7. Inspect for Rot and Damaged Wood

- Inspect the opening for rotted or damaged wood.
- Repair or replace the damaged materials as required to ensure a solid installation base.
- If the sill or exterior trim is to be replaced, wrap with aluminum to provide weather protection and a uniform appearance. Follow exterior trimming steps after the window is installed.

8. Clean the Opening

- Thoroughly brush and vacuum the opening to remove all debris.

PREPARING AN EXISTING WOOD CASEMENT/AWNING/FIXED OPENING

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.



Stationary sash removal may require extracting and/or cutting additional stops and/or hardware.

Casement and awning windows always require removing stops. Check the Install Job Packet to verify installation strategy.

1. Remove Sash

- Disassemble the mounting hardware from the frame, as required, to remove the existing sash.

2. Remove Sill Stop

- Use a pry bar to remove the sill stop.

3. Remove Hardware

- Remove all hardware from the sash, including the frame lock(s) and hinge-operator mechanisms.

4. Cut Existing Mull Post (if applicable)

CAUTION

Do not remove existing support mulls and then install narrow mulled insert windows without consulting an architect or structural engineer. Leave existing support mull in place, then install individual inserts into openings.

Removing existing support mulls may result in structural damage to building and/or window unit.

- If a casement double, casement triple, awning, or fixed window with a continuous sill and head jamb is being replaced by a single unit such as a gliding or picture window, install 3" screws through jamb and into the wall framing on either side of mull post.
- Use a reciprocating saw to cut the existing mull posts flush to the head jamb and sill on a casement, or to the side jambs on an awning.

5. Remove Stops

- Remove the existing stops from head and side jambs using a pry bar. If the stops are milled into the jambs, cut flush to the jamb with a reciprocating saw or chisel.

6. Inspect for Rot and Damaged Wood

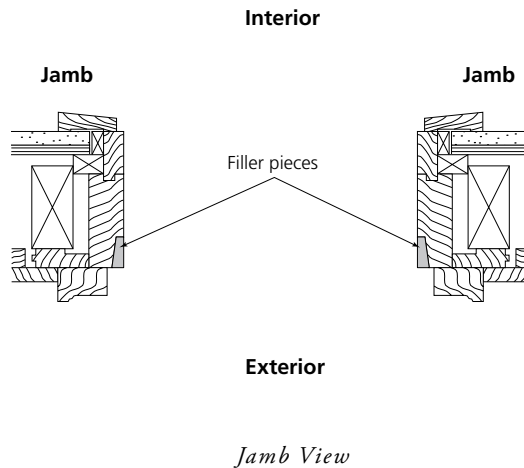
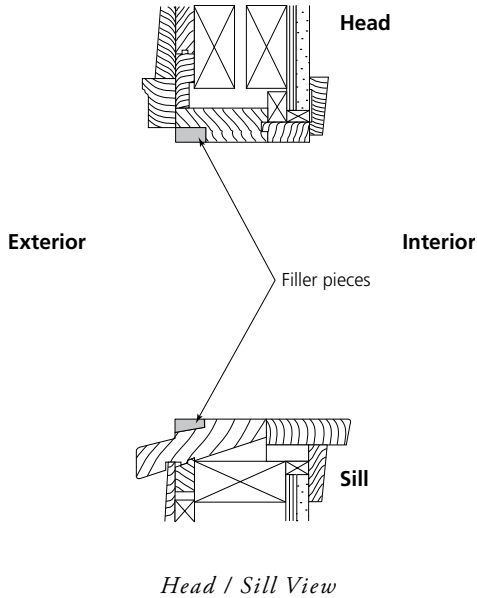
- Repair or replace damaged material to facilitate a sound installation of the new replacement window. If the sill or other portions of the exterior trim are being replaced, wrap the exterior trim with aluminum for weather protection and a uniform appearance.

7. Clean the Opening

- Thoroughly brush and vacuum the opening to remove all debris.

8. Install New Filler Pieces

- Apply filler pieces if necessary to support the full depth of the new window.
- Make sure there is a sufficient flat surface to support the unit.



When replacing metal frame windows with an insert window, the existing extension jambs, plaster returns and stools, and marble sills are typically left in place to serve as the rough opening.

PREPARING AN EXISTING METAL FRAME OPENING

! CAUTION

Never pry against a marble stool, ceramic tile, or interior wall surface. Undistributed force may damage surface.

Use a 1/8" x 4" scrap piece of hardwood to protect surface while prying and/or cutting a metal window frame.



NOTICE! Stationary sash removal may require extracting and/or cutting additional stops and/or hardware.

1. Remove Sash and Frame

- Remove the existing sash from the metal frame. If screws are holding the frame to the rough opening, remove them by backing out. If backing out is not feasible, grind off the screw heads.
- Using a knife, cut the exterior sealant line between the existing window and the siding material.
- Using a pry bar, hammer, and reciprocating saw, cut and collapse the window frame into the opening. Always use wood blocks to prevent damage to the interior and exterior finish materials that will remain in place.

2. Remove any Obstructions

- Remove any additional hardware and/or scrape out old sealant or putty that may be in the opening.
- Brush and vacuum the opening to remove all loose debris.

3. Provide Support

- Make sure there is a continuous, solid flat surface on all four sides of the opening to support the full 4" depth of the new insert window. If such a surface is not present, cut and install wood filler pieces as required.



As repair materials are added to the opening make sure to place a bead of sealant between repair material and the existing structure to prevent air infiltration.

4. Interior and Exterior Installation

- Verify the installation plan in the Install Job Packet.
- Measure how far the window will be set back from the inside wall surface and mark this dimension on the side jambs/returns.

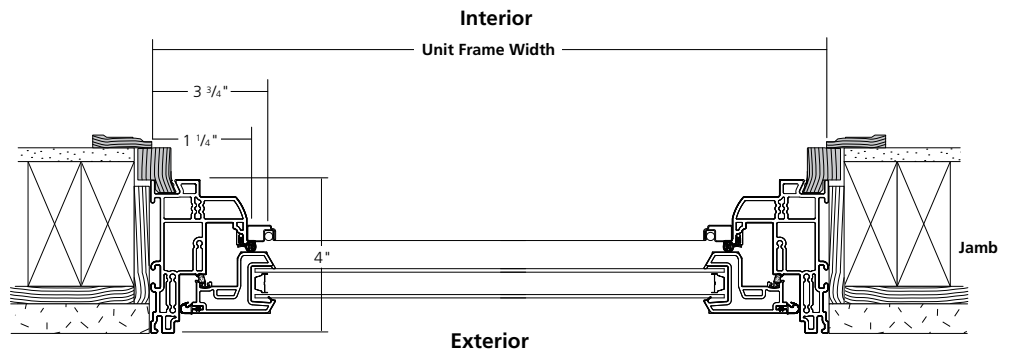
5. Clean the Opening

- Thoroughly brush and vacuum the opening to remove all debris.

The examples shown are possible solutions to metal window replacement.

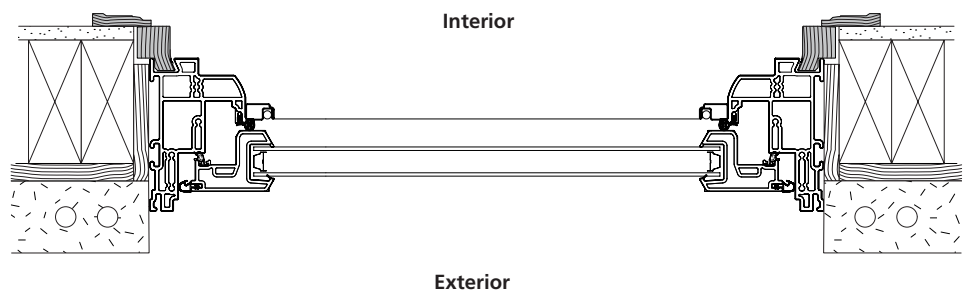
Example 1 shows a common method of trimming the interior with a stop. The window in some cases may need to be moved outward to accommodate existing interior blinds.

Metal Window Replacement Solution



Example 2 shows the use of extension jambs and casing to trim the interior of a new insert window with extension jamb frame. The window may be moved inward or outward to better accommodate existing conditions.

Metal Window Replacement Solution



Installing Double-Hung Insert Sloped Sill Windows

Use the following standards, guidelines, and procedures to install Renewal by Andersen® double-hung sloped sill insert windows.

UNPACKING



Mark the floor plan opening number on the side jamb of the window units after opening.

CAUTION

Store insect screen in a safe location during window installation.

Double-hung sloped sill insert windows are shipped with four corner protectors (cardboard) installed, the sash unlocked, a cardboard “mousetrap” between the two sashes (designed to keep the sash from moving during transit), fully encased in a cardboard box. Observe the following guidelines when unpacking the unit:

- The window sash lift, if ordered as an option, is packed inside the cardboard “mousetrap.” If so, be careful not to discard when you remove and discard the mousetrap.
- Do not remove the spacers between the sash and side jamb at this time.
- The insect screen is shipped attached to the window. Be sure to remove the insect screen before handling or moving the unit. To remove the insect screen, raise the lower sash, pull insect screen latches in (near the lower corners of the insect screen), push out on the bottom, and slide the insect screen out of the retainer kerf at the head of the window. Store the insect screen in a safe location during window installation.
- Recycle packing material.

HANDLING TIPS

Observe these guidelines when handling double-hung insert windows:

- Always close the sash and lock it before carrying the unit.
- Use a firm grip on both side jambs when picking up and carrying this unit. Set it down so the weight is evenly distributed on the sill and not just on one corner.
- Always carry double-hung insert units upright. Do not set the unit down on headjamb or side.
- Do not rest sill on foot or raised support to avoid damage or bowing.

GENERAL INSTALLATION STANDARDS

Be sure to observe the following Renewal by Andersen standards during the installation process.

- Install windows using screws and other fastening devices specified by Renewal by Andersen.
- Each window frame will be squared and shimmed properly at each screw as well as other appropriate locations.
- Each frame will be checked for sash alignment and squareness before trim is installed.
- Each window will be properly insulated and sealed before trim is applied.
- All necessary outside stops will be applied before trimming the exterior.
- All exterior primary and finish sealant will be applied.

DOUBLE-HUNG INSERT SLOPED SILL INSTALLATION PROCEDURE

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.

This procedure outlines the steps that must be performed to install a Renewal by Andersen® double-hung insert window. (If you are installing a double-hung insert into a flat-sill opening, see the next topic.)

1. Move Unit to Installation Area

- Carefully move the unit to the installation area. Make sure that the unit is locked and secured to prevent opening or movement.
- Check the factory identification tag on the side of the window frame package against the floor plan and specifications for the job to ensure that the proper unit is being installed in its designated opening. Also measure unit and opening to verify unit is the correct size to fit into the opening.

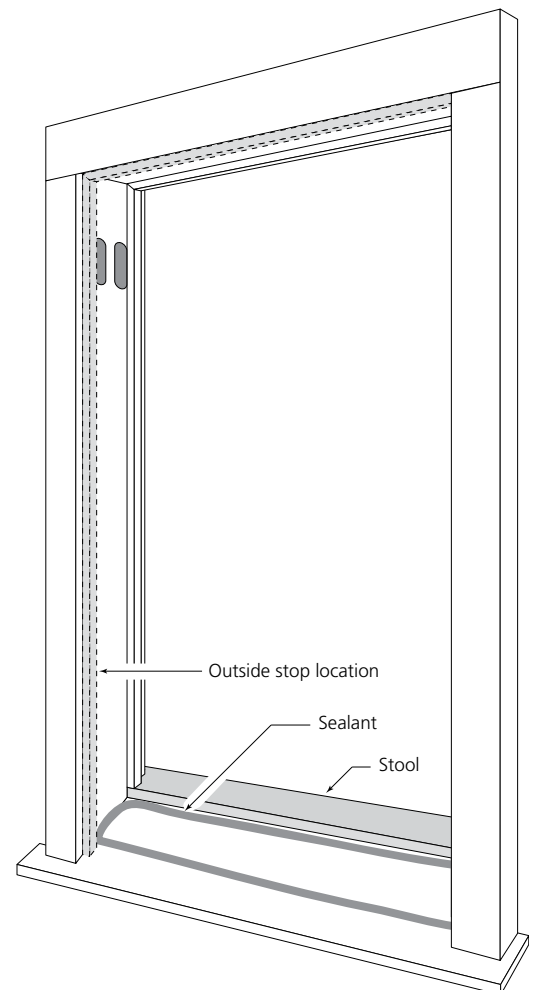
2. Apply Sealant to Sill

Interior Installation

- Apply a continuous bead of sealant across the sill even with the inside edge of the outside stops, and one along the outer edge of the stool. Apply beads along joint between sill and side jamb. Each of these (2) beads should project down the sill even with exterior edge of outside (blind) stop.

3. Place Window in Opening

- Place the new window into the opening, making sure it is firmly seated with the sealant bead at the sill.

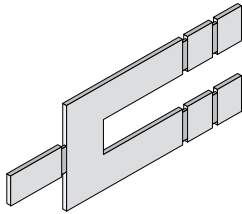


Apply sealant to sill

! CAUTION

Over-shimming the side jambs will result in difficult sash operation. Do not over-shim by using side jamb spaces provided on window.

Do not over-tighten installation screws. Over-tightening will result in the screw head pulling through the jamb.



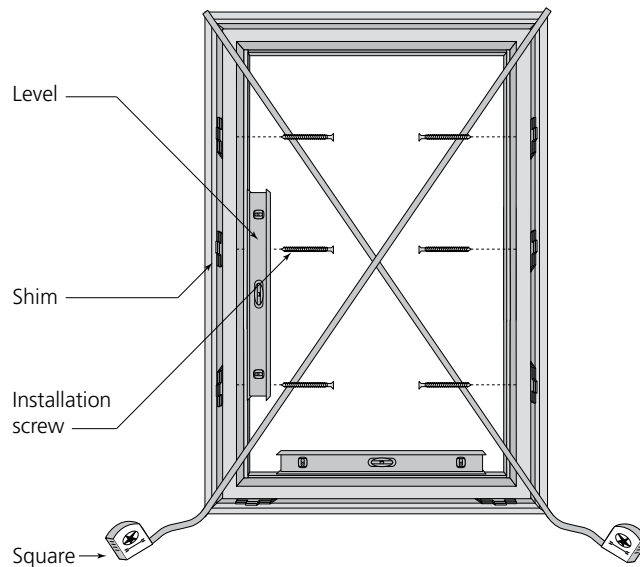
Only flat shims should be used with Renewal by Andersen® products: 1/16" and 1/32" thick for fine adjustments.

4. Set the Sill

- Center the window.
- Press the sill into place.
- Shim under the sill/side jamb corner to level the unit and straighten sill.
- Place shims under the ends of the sill just below the side jambs as needed (approved shims are flat, u-shaped plastic).
- Place a #8 x 2" pan-head screw through each pre-drilled installation hole in the side jambs. Start the screws into the jambs, but do not tighten at this time.

5. Square the Unit

- Move and shim the side jambs as needed to square the unit. The double-hung unit must be set square to within 1/16" to achieve optimum performance for air/water infiltration and operation.



6. Straighten the Side Jambs

- Straighten the side jambs to within 1/16" by placing the approved shims behind the side jambs at each install screw.
- At the middle screw (at the check rail), place enough shims to just snug the side jamb liners up to the installation spacers. Use the gray spacer as a guide.

7. Secure the Unit

- Secure the unit to the opening by tightening the installation screws.

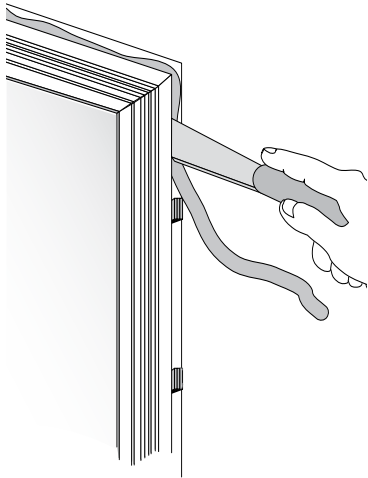
8. Remove Installation Spacers

- Remove shipping spacers from between side jamb and sash.
- Confirm the squareness and the sash-to-jamb clearances.
- Raise, lower, and tilt the sash to verify smooth operation. Make sure the reveals are equal and parallel. Re-shim to adjust the jambs if needed.

⚠ CAUTION

DO NOT over-pack insulation and/or over-apply spray foam. Bowed jambs can result affecting unit performance.

Over-packing fiber insulation also reduces insulating value of product.



Use a putty knife to lightly pack fiber insulation between frame and rough opening.



Make sure that the bead used to seal the perimeter gap around the sides and head of the double-hung insert window connects with the bead already applied under sill at each lower corner. The result should be one continuous seal around all four sides of the insert window.

9. Insulate the Perimeter Gap

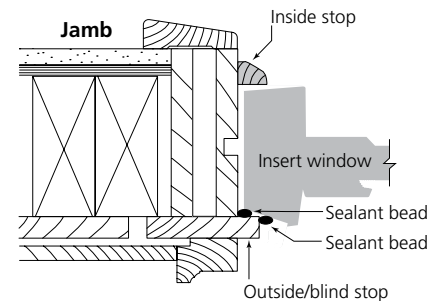
- Trim off protruding shim tails with a chisel or pliers.
- Insulate the perimeter gap between the insert window frame and the opening by placing strips of fiberglass or plastic fiber insulation or spray foam insulation into the gap with a putty knife. If the gap is too narrow to apply insulation, seal the gap with a bead of approved sealant.
- Seal exposed edge of shim stack with approved exterior sealant to prevent air infiltration.

10. Seal the Perimeter Gap

Interior Installation

- Seal the gap between the existing outside stop and the exterior edge of the new window with a continuous bead of approved sealant at sides and head as shown.

Interior

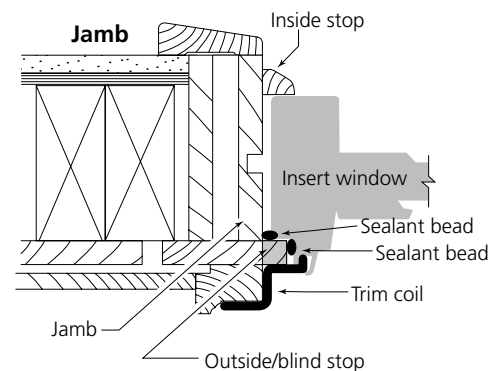


Interior Installation

Exterior Installation

- Seal the gap between the existing jamb and exterior edge of new window with a continuous bead of approved sealant at sides and head as shown.
- Apply outside stops around the opening to provide backing for the exterior trim. Outside stops typically are 1/2" x 3/4" pine installed around the sides and head of the double-hung window. They are positioned tight to the insert frame and fastened to the jambs of the original opening with a finish nailer.

Interior



Exterior

Exterior Installation

OPERATIONAL CHECKLIST

! CAUTION

If the grille is not set snug against the glass on the upper sash, it could catch and break when the lower sash is raised.

Raise and lower sash using sash lift only. Raising or lowering sash using meeting rails when grilles are installed could pinch fingers.

! CAUTION

Weatherstrip may be tight for the first few days of operation, which results in the lock being tight. Do not force the lock.

FINISHING AND CLEANUP

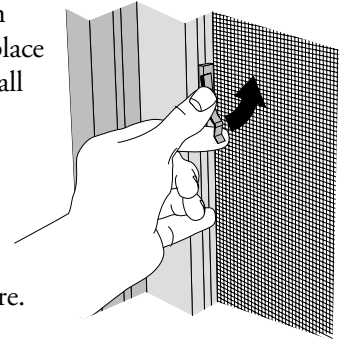
! CAUTION

Avoid exposing unfinished wood veneer to high moisture conditions, excessive heat, or humidity. Remind homeowner to finish interior wood veneer surfaces immediately after installation or discoloration, bowing, or splitting could occur.

Perform these checks before you apply trim

1. Check Insect Screen

- Position the insect screen within the insect screen channel at the top of the window and secure in place with screen latches. The insect screen should install smoothly with no binding or forcing.



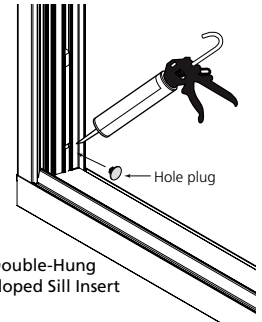
2. Check Window Operation

- Slide sash up and down.
- Check the double-hung window tilt-wash feature.

Perform these tasks after you have checked the operation of an installed unit

1. Apply Hole Plugs

- Apply approved exterior sealant to the installation screw heads. Hole plugs are not necessary.



2. Trim Interior and Exterior (see Interior/Exterior Trimming section)

3. Clean Glass

- Remove interior grilles.
- Remove stickers from the window and wash both the interior and exterior window surfaces. Place the NFRC sticker in the Homeowner Kit.
- Remove glass protective film.

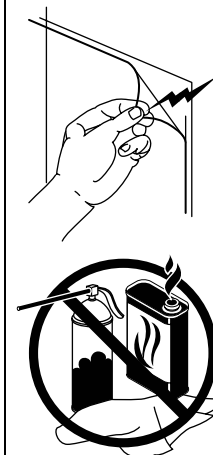
4. Reinstall Grilles

- Place each grille against the glass and press firmly into the grille clips. Make sure the grille fits snugly against the glass when clipped.

5. Clean Work Area

- Remove old windows and all debris from the work area.
- Remove drop cloths and vacuum and/or sweep the area as required.

! WARNING



Static created when removing film can ignite flammable materials or cause a shock.

See warning label on glass.

Installing Double-Hung Insert Flat Sill Windows

Use the following standards, guidelines, and procedures to install Renewal by Andersen® double-hung flat sill insert windows.

UNPACKING



Mark the floor plan opening number on the side jamb of the window units after opening.



CAUTION

Store insect screen in a safe location during window installation.

Double-hung flat sill insert windows are shipped with four corner protectors (cardboard) installed, the sash unlocked, a cardboard “mousetrap” between the two sashes (designed to keep the sash from moving during transit), fully encased in a cardboard box. Observe the following guidelines when unpacking the unit:

- The window sash lift, if ordered as an option, is packed inside the cardboard “mousetrap.” If so, be careful not to discard when you remove and discard the mousetrap.
- When you remove the stretch wrap, cut along the Fibrex® material side jambs to avoid cutting the insect screen or marring the finished cap surface of the window.
- Do not remove the spacer block between the sash and frame at this time.
- The insect screen is shipped attached to the window. Be sure to remove the insect screen before handling or moving the unit. To remove the insect screen, raise the lower sash, pull insect screen latches in (near the lower corners of the insect screen), push out on the bottom, and slide the insect screen out of the retainer kerf at the head of the window. Store the insect screen in a safe location during window installation.
- Recycle packing material.

HANDLING TIPS

Observe these guidelines when handling double-hung insert windows:

- Always close the sash and lock it before carrying the unit.
- Use a firm grip on both side jambs when picking up and carrying this unit. Set it down so the weight is evenly distributed on the sill and not just on one corner.
- Always carry double-hung insert units upright. Do not lay the unit down on its side; sash pivot pins can come out if jambs are spread. If the sash is not locked, it is extremely important to keep the unit upright because of spring tension on the balancers.

GENERAL INSTALLATION STANDARDS

Be sure to observe the following Renewal by Andersen standards during the installation process.

- Install windows using screws and other fastening devices specified by Renewal by Andersen.
- Each window frame will be squared and shimmed properly at each screw as well as other appropriate locations.
- Each frame will be checked for sash alignment and squareness before trim is installed.
- Each window will be properly insulated and sealed before trim is applied.
- All necessary outside stops will be applied before trimming the exterior.
- All exterior primary and finish sealant steps will be followed.

**DOUBLE-HUNG INSERT FLAT SILL
INSTALLATION PROCEDURE**

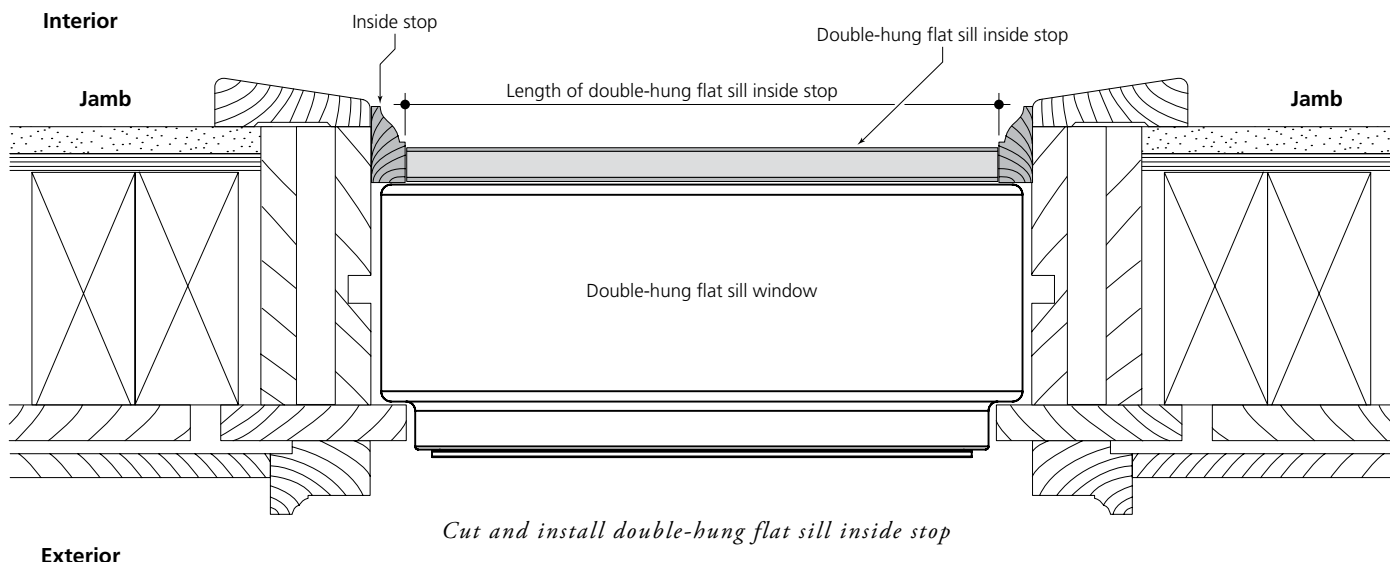
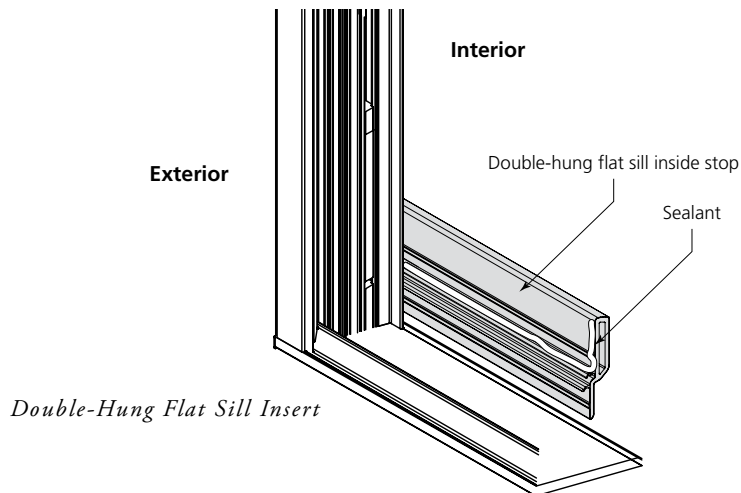
This procedure outlines the steps that must be performed to install a Renewal by Andersen® double-hung flat sill insert window.

1. Move Unit to Installation Area

- Make sure that the unit is locked and secured to prevent opening or movement during transport.
- Check the factory identification tag on the side of the window frame against the floor plan and the specifications for the job to ensure that the correct unit is being installed in its designated opening.

2. Set Interior Sill Stop

- Measure the distance between interior stops on left and right sides of the opening. Then cut the double-hung flat sill inside stop to fit tight between the interior stops.
- Apply sealant to the inside sill stop as shown. Then snap the sill stop into place on the interior side of the double-hung sill. Make sure that interior sill



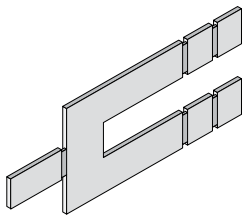
! CAUTION

Over-shimming the side jambs will result in difficult sash operation. Do not over-shim.

Do not over-tighten installation screws. Over-tightening will result in the screw head pulling through the Fibrex® material jamb.



Plastic spacers are located at each end of the check rail on the lower sash and clipped to the insect screen retainer at each end of the check rail on the upper sash. Their placement helps maintain the proper clearance between the sash and side jamb liners during installation. This clearance is critical to the performance level of the window.



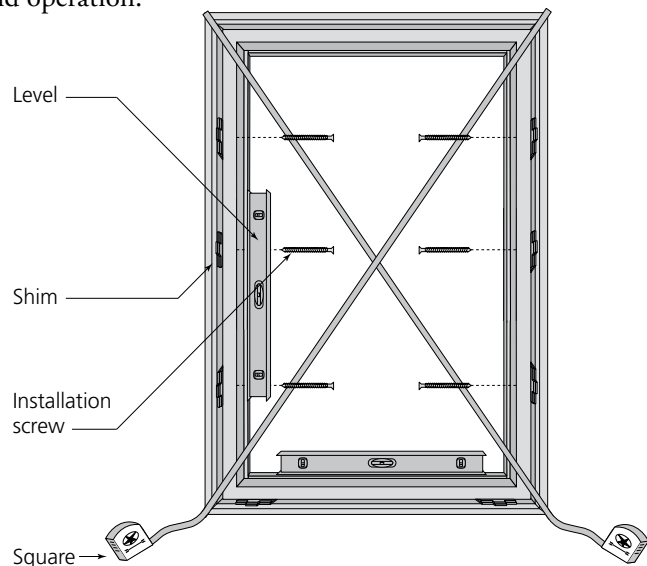
Only flat shims should be used with Renewal by Andersen® products: 1/16" and 1/32" thick for fine adjustments.

3. Place Unit in Opening and Set the Sill

- Place the new window into the prepared opening.
- Center the unit in the opening.
- Set the sill level, using shims under the ends of the side jambs if needed (approved shims are flat, u-shaped plastic).
- Place a #8 x 2" pan-head installation screw through each pre-drilled installation hole in the side jambs. Start the screws into the jambs, but do not tighten at this time.

4. Square the Unit

- Move and shim the side jambs as needed. The double-hung unit must be set square to within 1/16" to achieve optimum performance for air/water infiltration and operation.



5. Straighten the Side Jambs

- Straighten the side jambs to within 1/16" by placing the approved shims behind the side jambs at each install screw.
- At the middle screw (at the check rail), place enough shims to just snug the side jamb liners up to the installation spacers.

6. Secure the Unit

- Secure the unit to the opening by tightening the installation screws. Do not over-tighten installation screws. Over-tightening will result in the screw head pulling through the Fibrex® material jamb.

7. Remove Installation Spacers

- Remove installation spacers from the lower sash and the insect screen retainers.
- Confirm the squareness and the sash-to-jamb clearances.
- Raise, lower, and tilt the sash to verify smooth operation. Make sure the reveals are equal and parallel. Re-shim to adjust the jambs if needed.

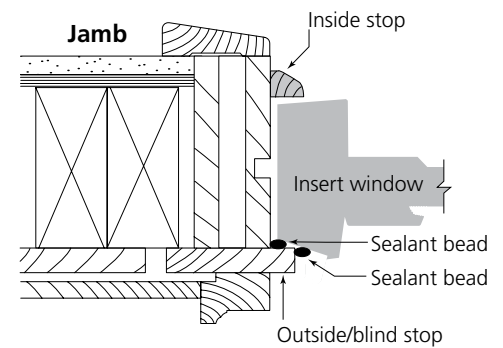
CAUTION

When insulating between unit frame and rough opening or between units when joining, DO NOT overpack fiber insulation or overfill with foam insulation. Bowed jambs will result affecting product performance and/or proper operation of unit.

8. Insulate the Perimeter Gap

- Trim off protruding shim tails with a chisel or pliers.
- Seal exposed edge of shim stack with approved exterior sealant to prevent air infiltration.
- Insulate the perimeter gap between the insert window frame and the opening by placing strips of fiberglass or plastic fiber insulation into the gap with a putty knife. If the gap is too narrow to apply insulation, seal the gap with a bead of approved sealant.

Interior

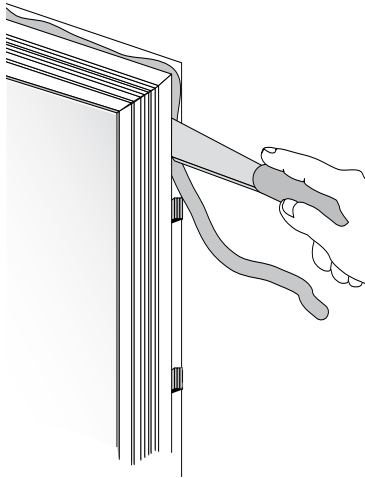


Interior Installation

9. Seal the Perimeter Gap

Interior Installation

- Seal the gap between the existing outside stop and the exterior edge of the new window with a continuous bead of approved sealant at sides, sill, and head as shown.

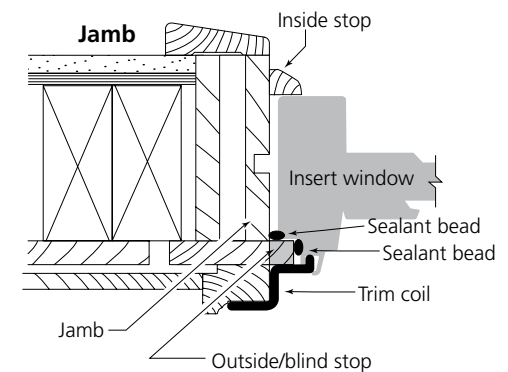


Use a putty knife to lightly pack fiber insulation between frame and rough opening.

Exterior Installation

- Seal the gap between the existing jamb and exterior edge of new window with a continuous bead of approved sealant at sides, sill, and head as shown.
- Apply outside stops around the opening to provide backing for the exterior trim. Outside stops typically are 1/2" x 3/4" pine installed around the sides and head of the double-hung window. They are positioned tight to the insert frame and fastened to the jambs of the original opening with a finish nailer.

Interior



Exterior

Exterior Installation

OPERATIONAL CHECKLIST

⚠ CAUTION

If the grille is not set snug against the glass on the upper sash, it could catch and break when the lower sash is raised.

Raise and lower sash using sash lift only. Raising or lowering sash using meeting rails when grilles are installed could pinch fingers.

⚠ CAUTION

Weatherstrip may be tight for the first few days of operation, which results in the lock being tight. Do not force the lock.

FINISHING AND CLEANUP

⚠ CAUTION

Avoid exposing unfinished wood veneer to high moisture conditions, excessive heat, or humidity. Remind homeowner to finish interior wood veneer surfaces immediately after installation or discoloration, bowing, or splitting could occur.

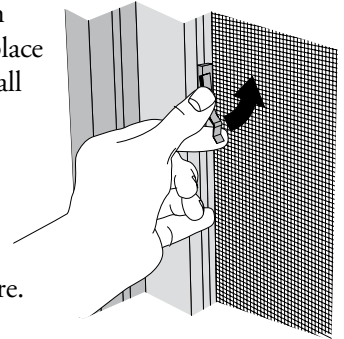
⚠ CAUTION

Use a nylon knife or sharp razor blade to scrape off silicone. When scraping, keep blade edge flat against glass at all times and apply liberal amounts of window cleaner to keep area lubricated.

Perform these checks before you apply trim

1. Check Insect Screen

- Position the insect screen within the insect screen channel at the top of the window and secure in place with screen latches. The insect screen should install smoothly with no binding or forcing.



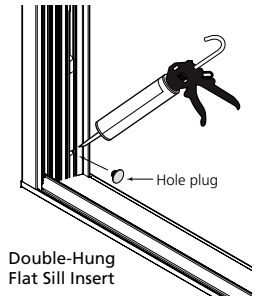
2. Check Window Operation

- Slide sash up and down.
- Check the double-hung window tilt-wash feature.

Perform these tasks after you have checked the operation of an installed unit

1. Apply Hole Plugs

- Apply approved exterior sealant to the installation screw head. Hole plugs are not necessary.



2. Trim Interior and Exterior (see Interior/Exterior Trimming section)

3. Clean Glass

- Remove interior grilles.
- Remove stickers from the window and wash both the interior and exterior window surfaces. Place the NFRC sticker in the Homeowner Kit.
- Remove glass protective film.

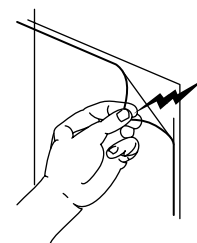
4. Reinstall Grilles

- Place each grille against the glass and press firmly into the grille clips. Make sure the grille fits snugly against the glass when clipped.

5. Clean Work Area

- Remove old windows and all debris from the work area.
- Remove drop cloths and vacuum and/or sweep the area as required.

⚠ WARNING



Static created when removing film can ignite flammable materials or cause a shock.

See warning label on glass.



Installing Casement/Awning/Fixed Windows - Insert Application

Use the following standards, guidelines, and procedures to install Renewal by Andersen® casement/awning insert windows.

UNPACKING

CAUTION

Store insect screen in a safe location during window installation.

Casement, awning and fixed windows are shipped with four corner protectors (cardboard) installed and the sash and frame locked. The unit is fully encased in a cardboard box.

- The insect screen is shipped attached to the window. Be sure to remove the insect screen before handling or moving the unit. To remove the insect screen: Flip two screen latches toward the inside of the window, then pull out on the insect screen and it will pop out. Store the insect screen in a safe location during window installation.

HANDLING TIPS

Observe these guidelines when handling casement/awning/fixed insert windows:

- Always carry these units locked.
- It is not crucial that you carry these units upright, but be careful not to twist or rack the frame.
- Always set these units down flat on the sill.

GENERAL INSTALLATION STANDARDS

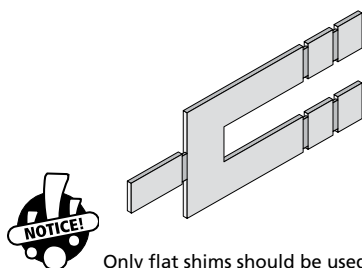
Be sure to observe the following Renewal by Andersen standards during the installation process.

- Install windows using screws and other fastening devices specified by Renewal by Andersen.
- Each window frame will be squared and shimmed properly at each screw as well as other appropriate locations.
- Each frame will be checked for sash alignment and squareness before trim is installed.
- Each window will be properly insulated and sealed before trim is applied.
- All necessary outside stops will be applied prior to trimming the exterior.
- All exterior primary and finish sealant will be applied.

CASEMENT/AWNING WINDOW INSTALLATION PROCEDURE

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.



Only flat shims should be used with Renewal by Andersen products: 1/16" x 1/32" thick for fine adjustments.

CAUTION

Over-shimming the side jambs will result in difficult sash operation. Do not over-shim.

Do not over-tighten installation screws. Over-tightening will result in the screw head pulling through the Fibrex® material jamb.

This procedure outlines the steps that must be performed to install a Renewal by Andersen® casement, awning and fixed insert window.

1. Move Unit to Installation Area

- Make sure that the unit is locked and secured to prevent opening or movement during transport.
- Check the factory identification tag on the side of the window frame against the floor plan and the specifications for the job to ensure that the correct unit is being installed in its designated opening.

2. Place Unit in Opening and Set the Sill

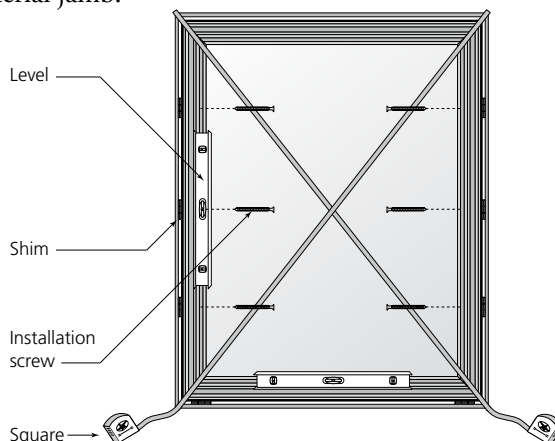
- Apply a continuous bead of sealant to the old window frame stops and sill prior to setting the unit.
- Place the new window into the opening.
- Center the unit in the opening.
- Set the sill level, using shims under the ends of the side jambs if needed (approved shims are flat, u-shaped vinyl).
- Open the sash and place a #8 x 2" inch pan-head installation screw through each pre-drilled installation hole in the side jambs. Start the screws into the jambs, but do not tighten at this time.

3. Square the Unit

- Move and shim the side jambs as required.
- Place shims around each installation screw, making sure the side jambs remain straight to within 1/16". The squareness of the frame when measured diagonally should be within 1/8".

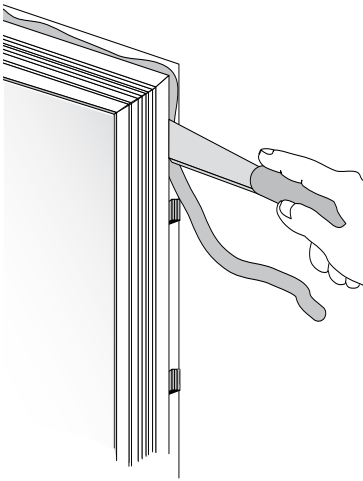
4. Secure the Unit

- When the unit is set square, jambs are straight, and shims are in place, tighten the installation screws. Do not over-tighten installation screws. Over-tightening will result in the screw head pulling through the Fibrex® material jamb.



! CAUTION

When insulating between unit frame and rough opening or between units when joining, DO NOT overpack fiber insulation or overfill with foam insulation. Bowed jambs will result affecting product performance and/or proper operation of unit.



Use a putty knife to lightly pack fiber insulation between frame and rough opening.

5. Check Reveals and Clearances

- Close, open, and lock the sash several times to check for proper operation.
- Visually check the reveals between the sash and frame to make sure they are equal and parallel.
- If necessary, re-shim to adjust the jambs as needed to correct operation and/or the reveals.

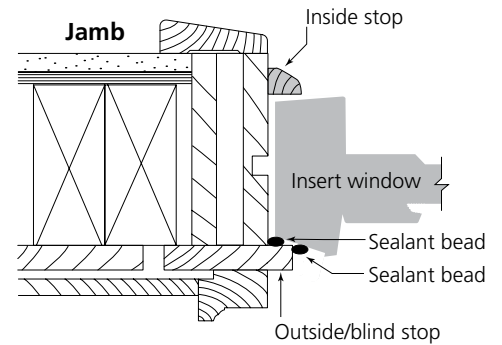
6. Insulate the Perimeter Gap

- Trim off protruding shim tails with a chisel or pliers.
- Seal exposed edge of shim stack with approved exterior sealant to prevent air infiltration.
- Insulate the perimeter gap between the insert window frame and the opening by placing strips of fiberglass or plastic fiber insulation or spray foam insulation into the gap with a putty knife. If the gap is too narrow to apply insulation, seal the gap with a bead of approved silicone sealant.

7. Seal the Perimeter Gap

Interior Installation

- Seal the gap between the existing jamb backer rod and the exterior edge of the new window with a continuous bead of approved sealant at sides, sill, and head as shown.

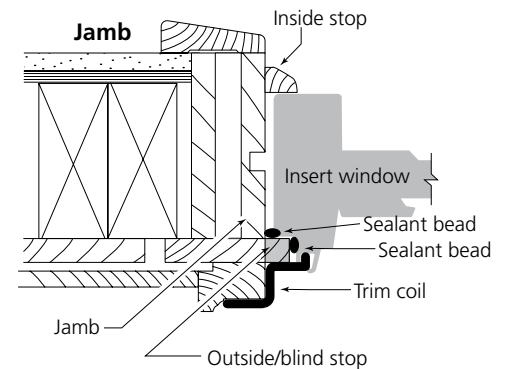


Interior Installation

Exterior Installation

- Seal the gap between the existing jamb backer rod and exterior edge of new window with a continuous bead of approved sealant at sides, sill, and head as shown.

Interior



Exterior

Exterior Installation

OPERATIONAL CHECKLIST

Perform these checks before you apply trim.

1. Check Operator Handle

- Make sure that the operator handle is seated properly with the set screw. Also make sure that the handle is slightly above the cover to avoid scraping during operation.

FINISHING AND CLEANUP

Perform these tasks after you have checked the operation of an installed unit.

1. Apply Hole Plugs into Installation Screw Holes

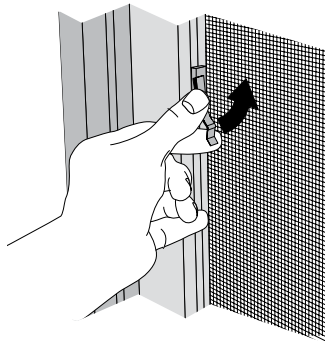
2. Trim Interior and Exterior (see Interior/Exterior Trimming section)

3. Clean Glass

- Remove interior grilles.
- Remove stickers from the window and wash both the interior and exterior window surfaces. Place the NFRC sticker in the Homeowner Kit.
- Remove glass protective film.

4. Reinstall Grilles and Insect Screen

- Place each grille against the glass and press firmly into the grille clips. Make sure the grille fits snugly against the glass when clipped.
- Place insect screen into position in the frame and secure it in place with screen latches. It should install smoothly with no binding or forcing.



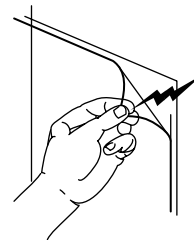
CAUTION

Avoid exposing unfinished wood veneer to high moisture conditions, excessive heat, or humidity. Remind homeowner to finish interior wood veneer surfaces immediately after installation or discoloration, bowing, or splitting could occur.

5. Clean Work Area

- Remove old windows and all debris from the work area.
- Remove drop cloths and vacuum and/or sweep the area as required.

WARNING



Static created when removing film can ignite flammable materials or cause a shock.

See warning label on glass.



Installing Gliding Insert Windows

Use the following standards, guidelines, and procedures to install Renewal by Andersen® gliding insert windows.

UNPACKING

Gliding insert windows are shipped with four corner protectors (cardboard) installed, the sash unlocked, and a foam plug used to hold the sash in position during transit. The unit is fully encased in a cardboard box. Observe the following guidelines when unpacking the unit:

CAUTION

Store insect screen in a safe location during window installation.

- The insect screen is shipped attached to the window. Be sure to remove the insect screen before handling or moving the unit. To remove the insect screen, open the sash (away from the jamb), pull two screen latches in (near the lower corners), push out on the bottom, and slide the insect screen out of the retainer kerf at the head of the window.

HANDLING TIPS

Observe these guidelines when handling gliding insert windows:

- Always carry the gliding window upright with the sash locked.
- Set this unit down so the weight is evenly distributed on the sill, and not just on one corner.

GENERAL INSTALLATION STANDARDS

Be sure to observe the following Renewal by Andersen standards during the installation process.

- Install windows using screws and other fastening devices specified by Renewal by Andersen.
- Each window frame will be squared and shimmed properly at each screw, as well as other appropriate locations.
- Each frame will be checked for sash alignment and squareness before trim is installed.
- Each window will be properly insulated and sealed before trim is applied.
- All necessary outside stops will be applied prior to trimming the exterior.
- All exterior primary and finish sealant will be applied.

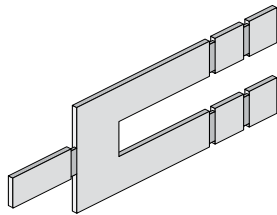
GLIDING WINDOW INSTALLATION PROCEDURE

WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.



Only flat shims should be used with Renewal by Andersen products: 1/16" x 1/32" thick for fine adjustments.



CAUTION

Do not over-tighten installation screws. Over-tightening can result in the screw head pulling through the Fibrex® material jamb.

This procedure outlines the steps that must be performed to install a Renewal by Andersen® gliding insert window.

1. Move the Unit to the Installation Area

- Carefully move the unit to the installation area. Make sure that the unit is locked and secured to prevent sash movement during handling.
- Check the factory identification tag on the side of the window frame against the floor plan and the specifications for the job to ensure that the correct unit is being installed in its designated opening.

2. Place Window in Opening and Set the Sill

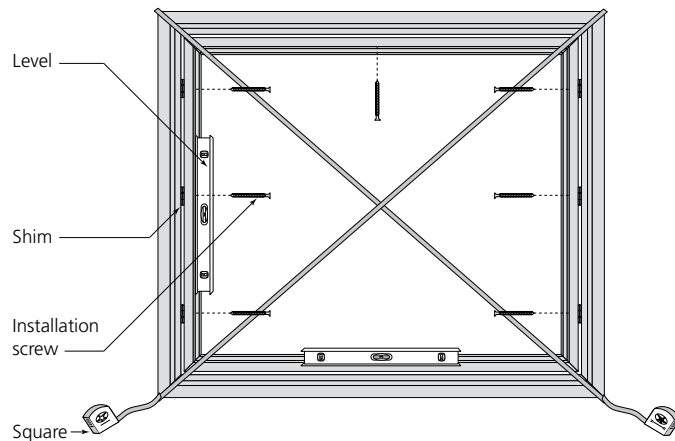
- Apply a continuous bead of sealant to the old window frame stops and sill prior to setting the unit.
- Place the new window into the opening.
- Center the insert window.
- Set the sill straight to within 1/16". If shims are needed to square the unit or strengthen the sill, place shims under the sill at the side jambs and meeting stiles if needed.
- Place a #8 x 2" pan-head installation screw through each pre-drilled hole in the side jambs. Start the screws into the jambs but do not tighten at this time.

3. Square the Unit

- Square the frame by moving and shimming the side jambs as needed. The side jambs should be straightened to within 1/16" to achieve optimum performance. The overall squareness of the unit measured diagonally should be within 1/8".
- Check the sash-to-frame reveals at each side jamb. Make adjustments as required by reshimming.

4. Secure the Unit

- Secure the unit to the opening by tightening the installation screws into side jambs. Always shim center at meeting stiles if raised above existing sill.



5. Straighten the Head Jamb

- Secure the head jamb position by placing a #8 x 2" pan-head installation screw into the pre-drilled hole and tighten. Head jamb should be straight to within 1/16". Do not shim head jamb.

6. Check Reveals and Clearances

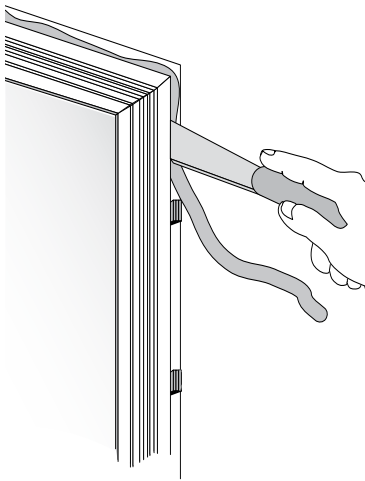
- Double check the squareness of the frame by operating the sash. Make sure the reveals between sash and frame are parallel at the side jambs.
- Remove and reinstall sash in the frame, checking for any interference.
- Re-shim and adjust frame if required.

7. Insulate the Perimeter Gap

- Trim off protruding shim tails with a chisel or knife.
- Seal exposed edge of shim stack with approved exterior sealant to prevent air infiltration.
- Insulate the perimeter gap between the insert window frame and the opening by placing strips of fiberglass or plastic fiber insulation or spray foam insulation into the gap with a putty knife. If the gap is too narrow to apply insulation, seal the gap with a bead of approved silicone sealant.

CAUTION

When insulating between unit frame and rough opening or between units when joining, DO NOT overpack fiber insulation or overfill with foam insulation. Bowed jambs will result affecting product performance and/or proper operation of unit.



Use a putty knife to lightly pack fiber insulation between frame and rough opening.

8. Seal the Perimeter Gap

Interior Installation

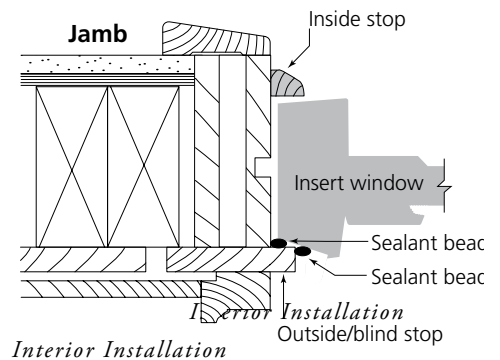
- Seal the gap between the existing outside stop and the exterior edge of the new window with a continuous bead of approved sealant at sides, sill, and head as shown.

Exterior Installation

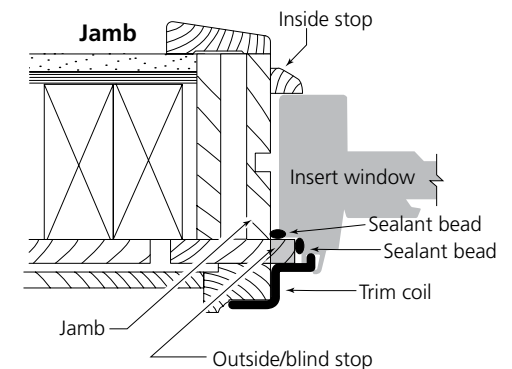
- Seal the gap between the existing jamb and exterior edge of new window with a continuous bead of approved sealant at sides, sill, and head as shown.

Apply outside stops around the opening to provide backing for the exterior trim. Outside stops typically are 1/3" x 3/4" pine installed around the sides and head of the double-hung window. They are positioned tight to the insert frame and fastened to the jambs of the original opening with a finish nailer.

Interior



Interior



Exterior

Exterior Installation

OPERATIONAL CHECKLIST

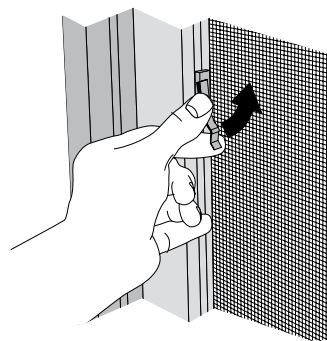
CAUTION

If the grille is not set snug against the glass on the outer sash, it could catch and break when the sash is moved.

Perform these checks before you apply trim.

1. Check Insect Screen

- Position the insect screen within the insect screen channel and secure in place with screen latches. The insect screen should install smoothly with no binding or forcing.



2. Check Window Operation

- Slide both sashes to check for smooth operation.
- Check the sash lock for proper operation. Install lock and keeper shims if necessary.

FINISHING AND CLEANUP

CAUTION

Avoid exposing unfinished wood veneer to high moisture conditions, excessive heat, or humidity. Remind homeowner to finish interior wood veneer surfaces immediately after installation or discoloration, bowing, or splitting could occur.

Perform these tasks after you have checked the operation of an installed unit.

1. Apply Hole Plugs into Installation Screw Holes

2. Trim Interior and Exterior (see Interior/Exterior Trimming section)

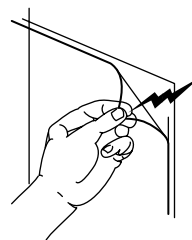
3. Clean Glass

- Remove interior grilles.
- Remove stickers from the window and wash both the interior and exterior window surfaces. Place the NFRC sticker in the Homeowner Kit.
- Remove glass protective film.

4. Reinstall Grilles

- Place each grille against the glass and press firmly into the grille clips. Make sure the grille fits snugly against the glass.
- Operate the sash to make sure the grille on the outer sash does not interfere with inner sash.

WARNING



Static created when removing film can ignite flammable materials or cause a shock.

See warning label on glass.



UNPACKING

Installing Picture Insert Windows

Use the following standards, guidelines, and procedures to install Renewal by Andersen® picture insert windows.

Picture insert windows are shipped with four corner protectors (cardboard) installed, and are fully encased in a cardboard box.

HANDLING TIPS

Observe these guidelines when handling picture insert windows:

- Set this unit down so the weight is evenly distributed on the sill and not just on one corner.

GENERAL INSTALLATION STANDARDS

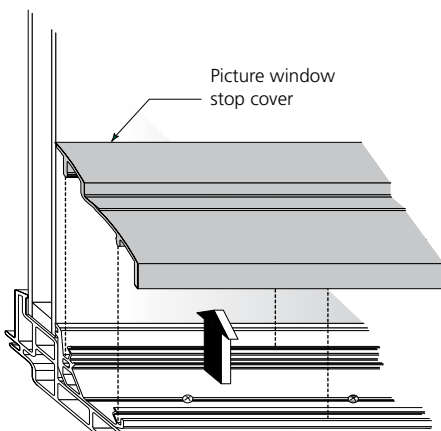
Be sure to observe the following Renewal by Andersen standards during the installation process.

- Install windows using screws and other fastening devices specified by Renewal by Andersen.
- Each window frame will be shimmed properly under the sill and at each screw.
- Each frame will be checked for glass stop alignment and fit before trim is installed.
- Each window will be properly insulated and sealed before trim is applied.
- All necessary exterior stops will be applied prior to trimming the exterior.
- All exterior primary and finish sealant will be applied.

PICTURE WINDOW INSTALLATION PROCEDURE

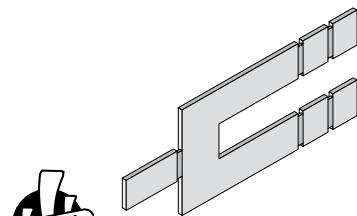
WARNING

Do not leave the window opening unattended, especially when small children are present. A fall from the window opening could cause death or serious injury.



CAUTION

Do not over-tighten installation screws. Over-tightening can result in the screw head pulling through the Fibrex® material jamb.



NOTICE! Only flat shims should be used with Renewal by Andersen products: 1/16" x 1/32" thick for fine adjustments.

This procedure outlines the steps that must be performed to install a Renewal by Andersen® picture insert window.

1. Move the Unit to the Installation Area

- Check the factory identification tag on the side of the window frame against the floor plan and the specifications for the job to ensure that the correct unit is being installed in its designated opening.

2. Remove Glass Stop Covers

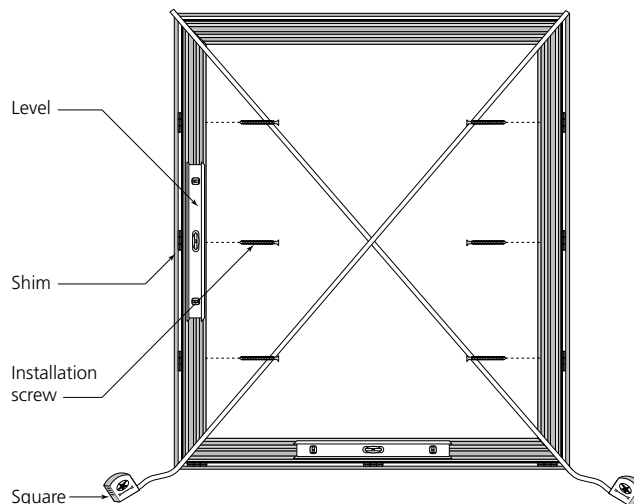
- Pull on the plastic ring at the side covers to remove the side covers.
- When the side covers are removed, pull the plastic ring at the head and sill covers away from the frame.

3. Set the Window

- Place the new window into the opening.
- Set the window level and plumb, placing approved shims under the sill at each end and approximately every 16" across the sill as needed. (Approved shims are flat, u-shaped vinyl). Do not shim the head jamb.
- Apply a #8 x 2" pan head installation screw through the pre-drilled installation holes in each side jamb. Start the screws but do not tighten at this time.
- Shim the side jambs by placing enough shims at each installation screw to hold the unit plumb and snug to the opening.

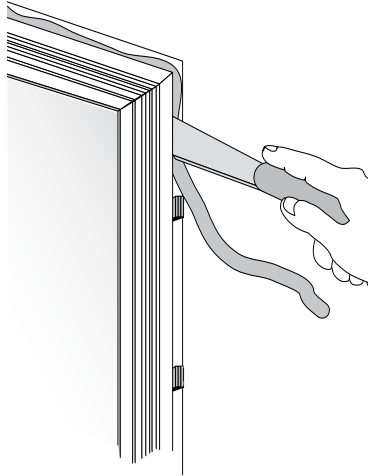
4. Secure the Unit

- When the unit is level, plumb, and shimmed, tighten the installation screws.



CAUTION

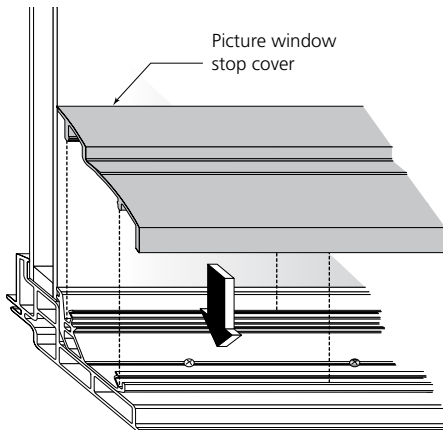
When insulating between unit frame and rough opening or between units when joining, DO NOT overpack fiber insulation or overfill with foam insulation. Bowed jambs will result affecting product performance and/or proper operation of unit.



Use a putty knife to lightly pack fiber insulation between frame and rough opening.



Make sure that the bead used to seal the perimeter gap around the sides and head of the picture insert window connects with the bead already applied under sill at each lower corner. The result should be one continuous seal around all four sides of the insert window.



5. Insulate the Perimeter Gap

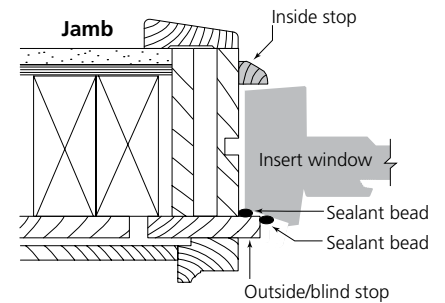
- Trim off protruding shim tails with a chisel or pliers.
- Seal exposed edge of shim stack with approved exterior sealant to prevent air infiltration.
- Insulate the perimeter gap between the insert window frame and the opening by placing strips of fiberglass or plastic fiber insulation or spray foam insulation into the gap with a putty knife. If the gap is too narrow to apply insulation, seal the gap with a bead of approved silicone sealant.

6. Seal the Perimeter Gap

Interior Installation

- Seal the gap between the existing outside stop and the exterior edge of the new window with a continuous bead of approved sealant at sides, sill, and head as shown.

Interior

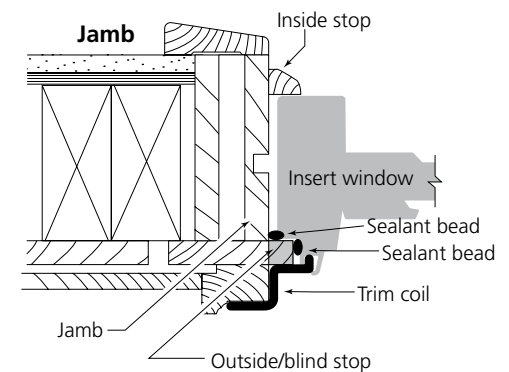


Exterior Interior Installation

Exterior Installation

- Seal the gap between the existing jamb and exterior edge of new window with a continuous bead of approved sealant at sides, sill, and head as shown.
- Apply outside stops around the opening to provide backing for the exterior trim. Outside stops typically are 1/2" x 3/4" pine installed around all four sides of the picture window. They are positioned tight to the insert frame and fastened to the jambs of the original opening with a finish nailer.

Interior



Exterior

Exterior Installation

7. Reinstall Glass Stop Covers

- Seal heads of install screws.
- Press in the head and sill covers, then press the two coped side covers into place.
- Apply beads of sealant.

FINISHING AND CLEANUP

CAUTION

Avoid exposing unfinished wood veneer to high moisture conditions, excessive heat, or humidity. Remind homeowner to finish interior wood veneer surfaces immediately after installation or discoloration, bowing, or splitting could occur.

1. Trim Interior and Exterior (see Interior/Exterior Trimming section)

2. Clean Glass

- Remove stickers from the window and wash both the interior and exterior window surfaces. Place the NFRC sticker in the Homeowner Kit.
- Remove glass protective film.

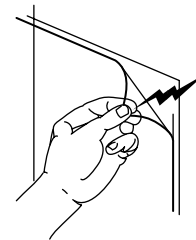
3. Re-install Grilles

- Re-apply grille clips under glass stop covers.
- Place grille against the glass and press it firmly into grille clips. Make sure the grille fits snugly against glass.

4. Clean Work Area

- Remove old windows and all debris from the work area.
- Remove drop cloths and vacuum and/or sweep the area as required.

WARNING



Static created when removing film can ignite flammable materials or cause a shock.

See warning label on glass.



STANDARDS



New install screw holes (and counter bores, if required) are to be drilled into the head jambs and sills of windows to be joined. See diagram (page 2-38).

CAUTION

Failure to provide adequate structural support could lead to window performance problems.

CAUTION

Window units joined over patio doors should not rest on the door's head jamb.

CAUTION

Do not remove existing support mullions and then install narrow mullied insert windows without consulting an architect or structural engineer. Leave existing support mull in place, then install individual insert windows into openings.

Removing existing support mullions may weaken opening resulting in structural damage to building and/or window unit(s).

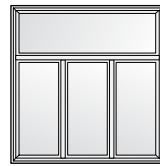
Units come from the factory with pre-drilled holes in the side jambs. Additional installation holes must be drilled for head-to-sill joining. See table below for proper size and location. Side jamb joining usually requires no additional holes.

HEAD JAMB LENGTH	NUMBER OF REQUIRED INSTALL HOLES	LOCATION
Up to 14"	1	Center
14" up to 28"	2	6" from each end
28" up to 44"	3	6" from each end and center
44" up to 72"	4	6" from each end and evenly spaced

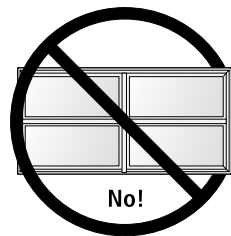
Installing Insert Window Mulls

Observe these standards for Renewal by Andersen® insert window mull installation:

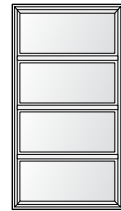
- Renewal by Andersen insert mullion joints are assembled in the opening. They are not shop-assembled with gusset plates.
- A mullion joint is assembled with a piece of 1/2" x 4" plywood applied between the window units. Each plywood joining piece is to be one continuous (full-length) piece throughout the mull joint and secured at both ends with insert mullion anchors. Renewal insert frames are not designed to be joined with steel.
- All joints should be vertical or horizontal. There cannot be a horizontal and a vertical mull joint in the same opening.



Yes!



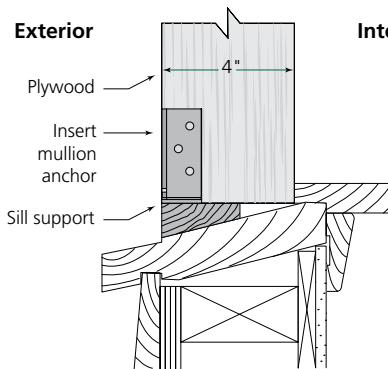
No!



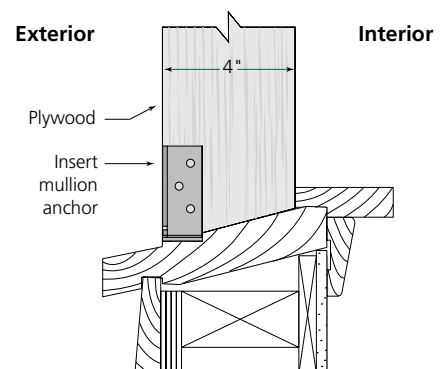
Yes!

- Verify that the mullion combination will meet the windload requirements of your area. Use the Design Windload Chart in the *Specification and Technical Manual* to determine the windload resistance of a given mull combination.
- Openings for mullied assemblies are to be prepared as described in the *Opening Preparation* section of this manual. If the opening has a sloped sill, it is important that a wood sill support be ripped and installed as shown below and in the *Opening Preparation* section of this manual. **The level surface provided by the sill support is necessary to hold the insert mullion anchor in a vertical position.** For this reason, mulling sloped sill double-hung units is not recommended.

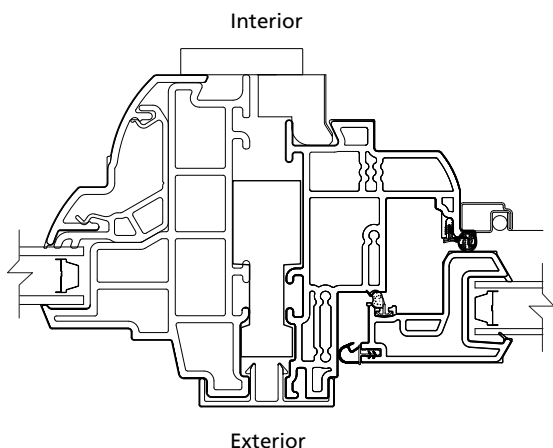
If joining a double-hung sloped sill insert is required it may be necessary to mortise the mullion anchor into the sill of the opening as shown below to maintain a vertical position.



Insert mullion anchor installation for use with flat sill insert windows

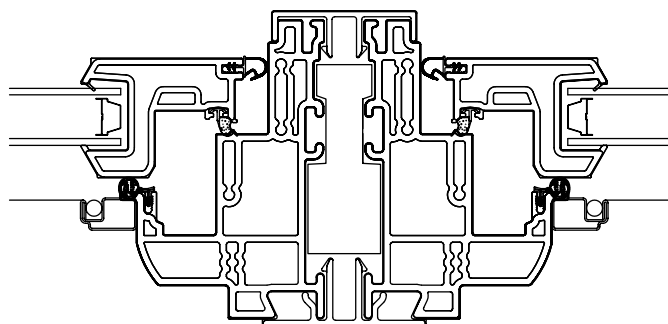


Insert mullion anchor installation for use with sloped sill double-hung insert windows



Picture Window / Fixed - Casement-Awning Window

For picture window, 3/16" holes through the jambs are pre-drilled.

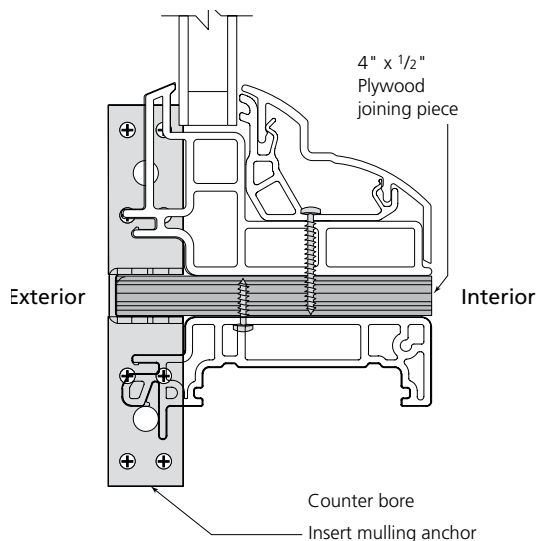


Casement-Awning Window - Casement-Awning Window

For casement or awning window, drill 3/16" hole through window frame (11/32" counter bore through first wall of Fibrex® material).

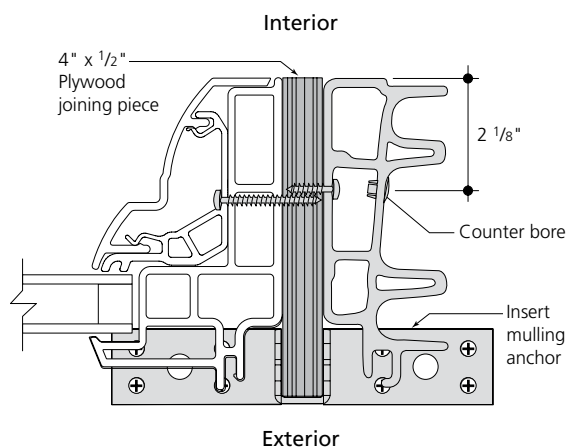


Use pre-drilled holes to mull units together. Drill additional installation holes as required. See table on 2-37.



Picture Window / Double-Hung

For double-hung window, drill 3/16" hole through window frame (11/32" counter bore through first wall of Fibrex material). When mulling unit to side of double hung use pre-drilled holes.

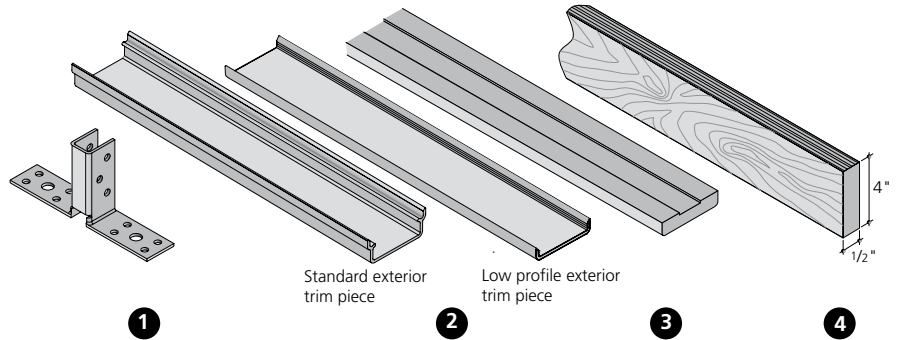


Picture Window / Gliding Window

For gliding window, drill 3/16" hole through window frame (11/32" counter bore through first wall of Fibrex material).

COMPONENT IDENTIFICATION

1. **Insert mullion anchor** (see *Parts and Accessories Catalog* for ordering information)
2. **Exterior trim piece** (see *Parts and Accessories Catalog* for ordering information)
3. **Interior trim piece** (see *Parts and Accessories Catalog* for ordering information)
4. **Plywood joining piece** (1/2" thick x 4" wide)

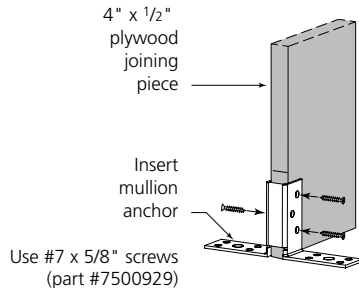


MULL INSTALLATION PROCEDURE

Use the following guidelines to install insert window mullions with all types of Renewal by Andersen® insert windows.

1. Cut Plywood Joining Piece

- Cut a 4" x 1/2" thick plywood joining piece to the full height of the opening for vertical mulls or the full width of the opening for horizontal mulls.



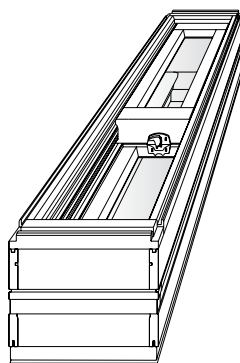
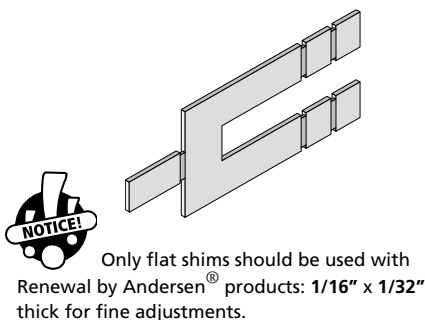
Apply anchor to mull screws

2. Attach Insert Mullion Anchors

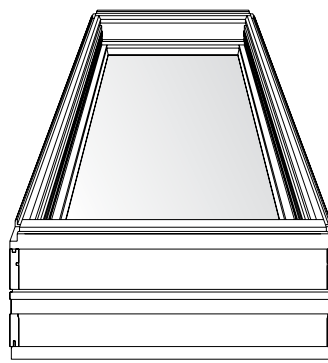
- Attach an insert mullion anchor to each end of the plywood joining piece with three screws as shown. Use the screws provided. Install each anchor flush to the end of the plywood.

3. Set First Unit in Opening

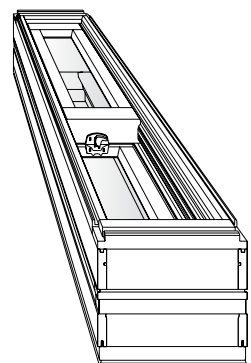
- Set the first unit into the opening. Square and shim the unit into place. Secure the unit to one side of the opening with installation screws. Do not fully seat installation screws.



Left Unit



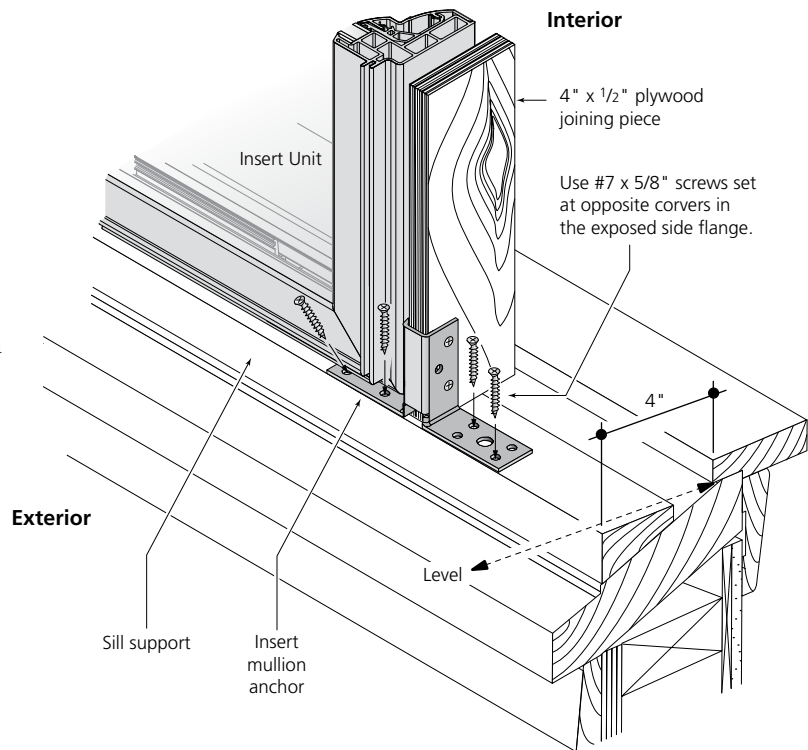
Center Unit



Right Unit

4. Place Mull Joining Assembly

- Place the mull joining assembly into the opening, up against the open side of the first window unit. Secure the exposed flanges of the insert mullion anchors with two installation screws placed in opposite corners of the flange. Then secure the flange of each insert mullion anchor that is under the first window unit by running two installation screws in at an angle through the insert mullion anchor into the jamb or sill of the opening. If possible, the first window can be temporarily pushed inward to allow better access to the screw holes in the insert mullion anchor.



Insert mullion anchor to sill installation

5. Set Next Window Unit

- Set the next window unit into the opening, tight to the plywood joining piece. Square and shim the unit into position.

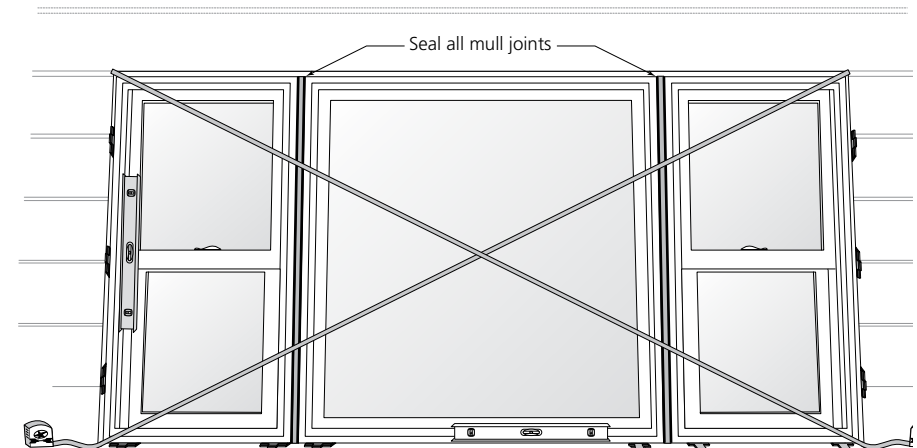
Refer to the illustrations on page 2-38 for correct installation hole locations before securing window units to the plywood joining piece. The following screws should be used for this procedure:

Use Correct Screws

Unit	Screw
CA/AW/FW/GW	#7 x 1-5/8"
DB	#8 x 1"
PW	#8 x 1-1/4"

6. Set Third Window Unit (if necessary)

- If there is a third window in the mull combination, repeat steps 4 and 5.



Check for square and position before tightening screws.

7. Make Adjustments and Tighten Screws

- Double-check the position, squareness, and operation of all windows in the mull combination. Make adjustments as required and tighten all installation screws.
- Apply sealant to all mull joints.

CAUTION

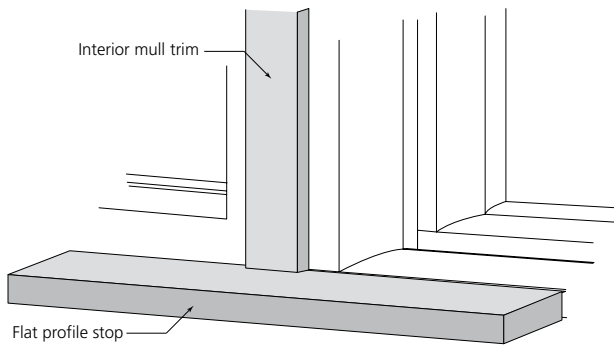
Do not over-tighten installation screws. Over-tightening can result in the screw head pulling through the Fibrex® material jamb.

CAUTION

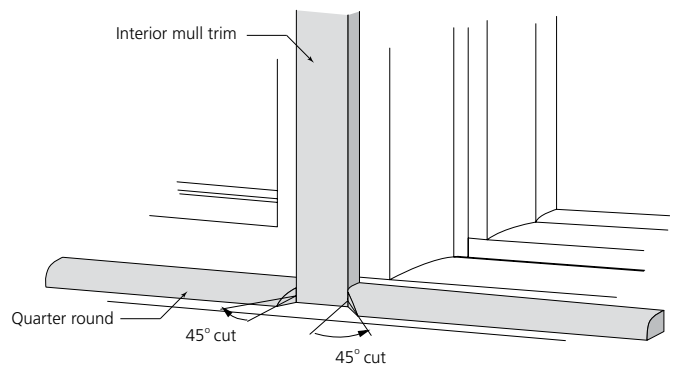
When insulating between unit frame and rough opening or between units when joining, DO NOT overpack fiber insulation or overfill with foam insulation. Bowed jambs will result affecting product performance and/or proper operation of unit.



Stops such as quarter round will terminate at the mull trim. A flat profile will run under the mull trim as per illustration below.



Interior Trim With Flat Profile Stop



Interior Trim With Quarter Round Profile Stop

8. Insulate the Perimeter Gap

- Place fiber insulation or spray foam insulation into the gap. If the gap is too narrow to apply insulation, seal the gap with a bead of silicone sealant.

9. Apply Interior Mull Trim

- Using a miter saw, cut wood interior mull trim strip(s) to length.
- Center the mull trim strip(s) over each mull joint. Fasten by driving finish nails into the plywood joining piece.

10. Cut and Apply Interior Stops

- Cut and apply stops according to the Insert Windows - Interior/Exterior Trimming section on page 2-42 and 2-43.

FINISHING AND CLEANUP



Cut the exterior mull cover to run the full length of the opening. Make sure the bottom ends are cut at an angle to ensure a tight fit against the sill. When a mull cover is to terminate at a sill that is to be wrapped with aluminum, be sure to maintain a 1/16" clearance under the cover.

When trimming a double-hung mull, the bottom end of the mull cover must be notched to fit around assembly screws in the exterior trim kerfs.

11. Install Exterior Mull Cover

- Apply a bead of silicone sealant to each coil stock return kerf.
- Cut the exterior mull cover to length and snap it into the coil stock return kerfs on each side of the mull joint.

12. Apply Exterior Trim

- See procedures outlined in the Insert Window-Interior/Exterior Trimming section of this manual.
- Apply a finish bead of silicone sealant all around the cover after the balance of the window is trimmed and sealed.



Inside stops can be used as extension jambs as shown in preparing an existing metal frame opening section of this manual. This is commonly done when the customer has specified new casing to be included with the window replacement job.

Interior Trimming

Use the following standards, guidelines and procedures to install interior and exterior trim for Renewal by Andersen® insert windows. Renewal by Andersen recommends using our foamed Fibrex® material stops, although off-the-shelf stops may be used.

If you reapply the original inside stops follow these steps:

- Scrape and clean old trim before reinstalling.
- Remove old nails from the back sides of old trim.
- Reinstall old trim using new nails only.
- Set nail heads using a nail set.

If you need to install new inside stops, proceed as follows:

- Clean any obstructions from the surface, including old paint and nails.
- Cut new stops to length. Cope or miter the joints for a tighter fit.
- Use appropriate finish nails to fasten. Make sure all nail heads are set.
- Double-check for cracks or splits. Replace if necessary.

Exterior Trimming

The two methods used to trim out the exterior of an insert window opening are described below. Installation steps are listed in this section.

OUTSIDE STOP COVERS

The gap between the window frame and the edge of the window opening is covered and sealed with aluminum coil stock which is bent to an “L” shape profile or Fibrex® material trim and cut to length. The trim piece is positioned around the window with one leg in the exterior trim kerf and the other leg projecting outward over the face of the outside stop to a natural termination point, such as the edge of the exterior casing.

Outside stop covers typically are held in place at their termination point with silicone sealant, however, there will be situations when nailing is required. Always use steel nails, colored to match the coil stock. Nail sparingly and in inconspicuous locations.

EXTERIOR WRAP

The gap around the new window and the exterior trim of the original window frame is covered with aluminum coil stock. Commonly used for wood-framed windows, this procedure includes wrapping the wood sill and the exterior casing.

Fasten exterior wrap with steel nails, colored to match the coil stock wrap. Nail sparingly on the inside and outside edges of the trim. Avoid nailing on the front face of any trim piece whenever possible. Never nail into Fibrex material.

Note: Wrapping the exterior can be a good solution to providing a low-maintenance exterior for the customer. However, care should be taken so that the wrap directs the water away from the structure, not into the structure. At corners where two wrap profiles meet, the upper wrap should lap over the lower wrap in a shingle fashion. A wrap profile should also always terminate behind siding or up against a surface that will allow it to be sealed with a good sized fillet bead. Never terminate the aluminum coil stock on a surface where it could catch water instead of shed water.

Also, when wrapping existing wood drip caps, the top edge of the new coil stock must tuck up under the siding to provide a shingled configuration. In some cases, this may require the existing wood drip cap to be removed in order to effectively place the new aluminum coil stock behind the siding.

See the illustrations on pages 2-45 to 2-54.

Applying Aluminium Outside Stop Covers or Fibrex® Material Trim on Double-Hung Windows (Refer to illustration on page 2-45)

Note: When applying sealant to any joint, make sure that both surfaces are clean and dry.

When applying sealant into the exterior trim kerf, keep in mind that this is a weather seal. As the trim is applied around the window, care should be taken to ensure that this bead of sealant is continuous and large enough to be free of voids.

1. Measure Side Stop Cover Profile

- At the two side jambs, measure the distance from the exterior trim kerf to the inside edge of the brick mould or exterior trim (A).
- Measure the distance from the inside of the exterior trim kerf to the outer face of the outside stop (B).

2. Bend Outside Stop Covers

- Use the dimensions from Step 1 to bend the outside stop covers for the two side jambs to an “L” shape, using aluminum coil stock (C).
- Hem both edges of the coil stock.

3. Cut Side Jamb Stop Covers to Length

- Measure the exterior edge of the outside stop from sill to head brick mould.
- Cut the outside stop covers to this measurement, making sure both ends are square.
- Notch the top end to fit around the head blind stop and the bottom end to fit around the assembly screw (E).

4. Place Side Stop Covers

- Apply a bead of exterior sealant to the exterior surface of the outside stops and in the exterior trim kerfs (D).
- Set the aluminum covers into place.

5. Measure and Bend an Outside Stop Cover for the Head

- Repeat Steps 1 and 3 (F).

6. Cut Head Stop Cover to Length

- Measure the distance between the exterior casings on the window sides and cut the outside stop cover to length.
- Cut each end of the stop cover at an angle to fit into the exterior trim kerf and simulate a mitered joint (G).

7. Place Head Stop Cover

- Apply a bead of exterior sealant to the exterior surface of the outside head stop and in the exterior trim kerf (D).
- Set the cover into place (F).

8. Apply Sealant

- With the three stop covers in place, apply an exterior finish bead of sealant (D).
- Seal the joint between the aluminum stop cover and the edge of the exterior casing or brick.

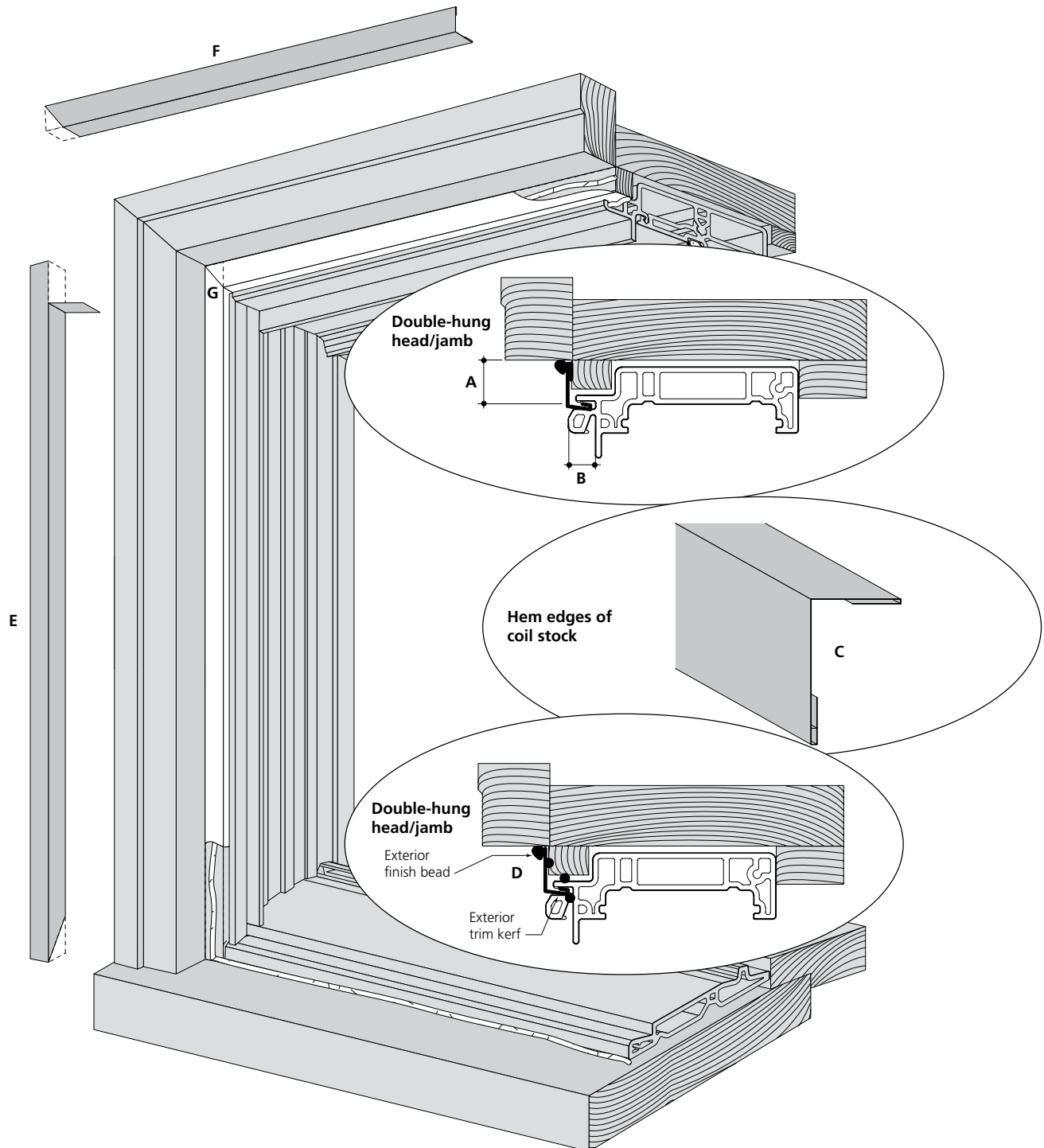


Illustration for Applying Outside Stop Covers on Double-Hung Windows

Applying Aluminum Outside Stop Covers or Fibrex® Material Trim on Gliding and Picture Windows (Refer to illustration on page 2-47)

Note: When applying sealant to any joint, make sure that both surfaces are clean and dry.

When applying sealant into the exterior trim kerf, keep in mind that this is a weather seal. As the trim is applied around the window, care should be taken to ensure that this bead of sealant is continuous and large enough to be free of voids.

1. Measure Sill Stop Profile

- Measure the distance from the exterior trim kerf on the new window to the bottom edge of the sill stop or sill support (A).
- Measure from the inside of the exterior trim kerf to the outer face of the outside stop or sill support (B).

2. Bend Sill Stop Cover to Length

- Using dimension from Step 1, bend the outside stop cover for the sill. Hem both edges (C).

3. Cut Sill Stop Cover

- Measure the distance between the two sides of the opening at the sill (between the exterior casing, brick-to-brick, or wherever the exterior trim terminates).
- Cut the sill stop cover to length, making sure both ends are square. Notch it to fit around the outside stops at each side (G).

4. Place Sill Stop Cover

- Apply a small bead of sealant to the outside face of the sill stop (or sill support) and in the exterior trim kerf (D). Set the outside stop cover into place.

5. Measure Side Stop Cover Profiles

- At the two side jambs, measure from the exterior trim kerf on the new window to the inside edge of the brick mould or exterior trim (A).
- Measure from the inside of the exterior trim kerf to the outer face of the outside stop (B).
- Using dimension from Step 1, bend the outside stop cover for the side jamb.

6. Cut Side Stop Covers to Length

- Measure the outside edge of the outside stop from the sill to the head brick mould, and cut the outside stop covers to length. Be sure the top ends are cut square and notched to fit around the head stop (E).
- Notch the bottom ends to fit into the exterior trim kerfs (E).
- Cut bottom end at an angle to overlap the sill stop cover and simulate mitered joints (H).

7. Place Side Stop Covers

- Apply a bead of exterior sealant to the exterior surface of the outside stops and in the exterior trim kerfs (D). Set the aluminum covers into place (E).

8. Measure Head Stop Cover Profile

- Measure and bend an outside stop cover for the head of the window (F) as described in Step 2.

9. Cut Head Stop Cover to Length

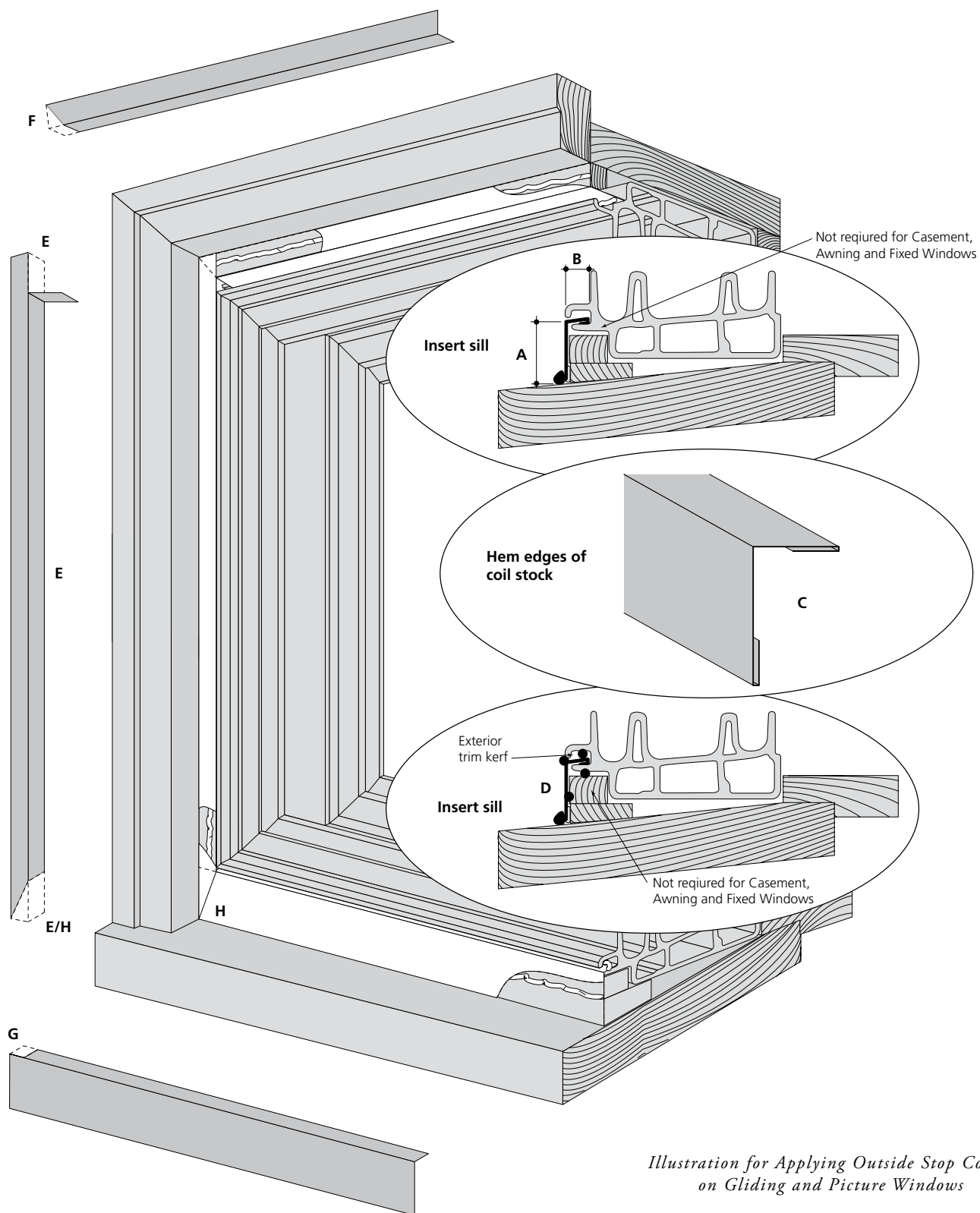
- Measure between the exterior casings on the sides of the window and cut the outside stop cover to length.
- Cut each end at an angle to fit into the exterior trim kerf, simulating a mitered joint (F).

10. Place Head Stop Cover

- Apply a bead of exterior sealant onto the exterior surface of the outside head stop and in the exterior trim kerf (D). Set the aluminum cover into place (I).

11. Apply Sealant (D)

- With the four stop covers in place, apply exterior finish bead of sealant.
- Seal the joint between the aluminum stop cover and the edge of the exterior casing, brick, or sill. Bead is to be continuous around opening.



*Illustration for Applying Outside Stop Covers
on Gliding and Picture Windows*

Applying Exterior Wrap on Double-Hung Windows in a Wood Opening (Refer to illustrations on page 2-49)

Note: When applying sealant to any joint, make sure that both surfaces are clean and dry.

When applying sealant into the exterior trim kerf, keep in mind that this is a weather seal. As the trim is applied around the window, care should be taken to ensure that this bead of sealant is continuous and large enough to be free of voids.

1. Fabricate Sill Wrap

Note: Sills should be wrapped before double-hung window is set.

- Measure the profile dimensions of the wood sill and add at least a 1" allowance to extend the aluminum wrap under the sill of the new unit. Cut a piece of aluminum to these dimensions and bend to fit the profile of the existing sill as closely as possible (A).
- With tin snips, make end cuts in the aluminum sill wrap so you can fold it around the ends of the sill. Notch the top side to fit between the side jambs (B).

2. Place Sill Wrap

- With a reciprocating saw, cut a kerf between the bottom end of each casing and the top side of the sill so you can slide the aluminum under the casing (L).
- Slide the sill wrap under the side casings and tightly around the sill. Fold top tab tightly over the side tab at sill ends (B). The bottom edge of aluminum should fit tightly to the bottom side of the sill and tuck between siding and casing if possible, or butt up to the surface of the siding.

3. Fabricate Side Wraps

- Take three measurements: At the two side jambs, measure from inside the exterior trim kerf to the outer face of the outside stop (C); measure from the exterior trim kerf on the new window to the inside edge of the exterior casing (D); and measure the profile of the exterior casing (E).
- Use these dimensions to size and bend the two side-wrap profiles, fitting the outside stop and casing as closely as possible. (F) The outer edges of the aluminum wrap should fit between the siding and the casing. (Do not terminate at the surface. You may need to cut a kerf between the siding and the casing to accomplish this.)
- Hem the inner edge of the wrap (G).
- Measure from the top of the casing to the bottom of the sill and cut two side-wraps to length.
- Notch the top ends to fit under the head casing and into the exterior trim kerf. Notch the bottom ends to fit tightly to the top and end of the sill (H).

4. Place Side Wraps

- Apply a bead of sealant into the exterior trim kerf on each side of the insert window (See "Double-hung Head/Jamb" inset, page 2-49).
- Place the side wraps tightly over the outside stop and exterior casing. Make sure the outside edge fits between the siding and the exterior casing (F).

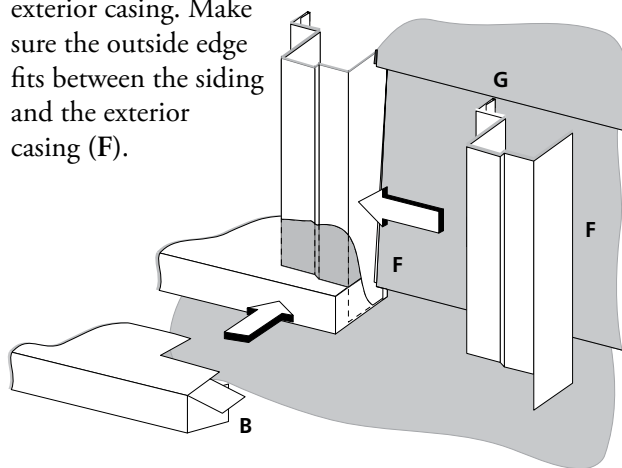


Illustration for Applying Exterior Wrap on Sill Corner of Double-Hung Windows in a Wood Opening

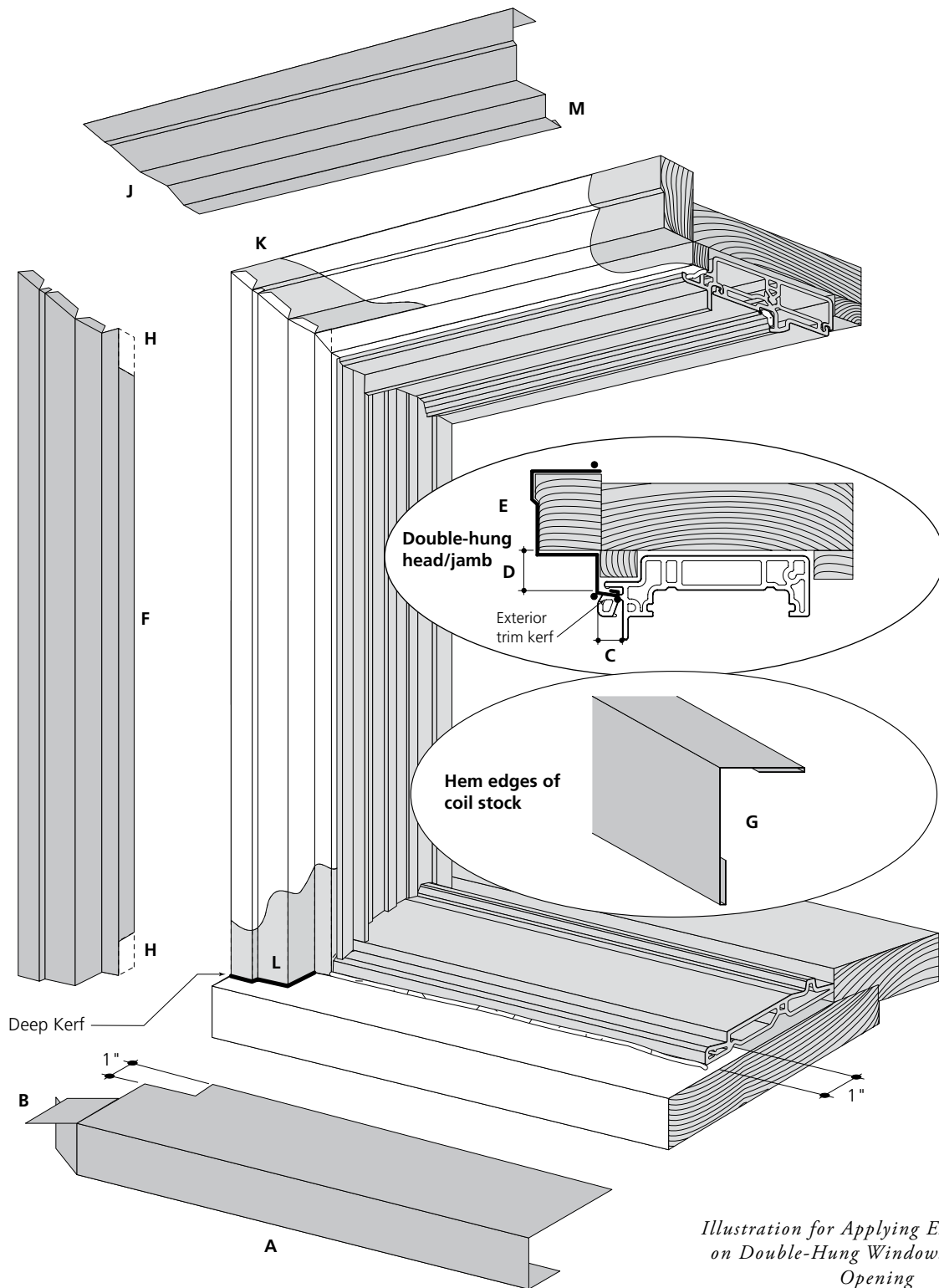


Illustration for Applying Exterior Wrap on Double-Hung Windows in a Wood Opening

5. Fabricate Head Wrap

- Measure and bend the aluminum wrap for the head of the window following the directions in Step 3. Hem the inside edge and cut to fit into the exterior trim kerf (M).
- Using a tin snips, cut the head wrap to length. Cut each end at an angle up to the top corners of the exterior casing to simulate a mitered joint (J).

6. Apply Head Wrap

- Apply a bead of exterior sealant in the exterior trim kerf at the head of the window (See “Double-hung Head / Jamb” inset, page 2-46).
- Apply a bead of sealant to the old window frame.
- Set the aluminum wrap into place so that the two ends lap over the top ends of the side casing wraps (K).

7. Apply Silicone Sealant (See “Double-hung Head / Jamb” inset D, page 2-45).

- Apply the exterior finish beads of sealant in the following areas:

Seal the gap between the aluminum wrap and the edge of the siding. Do not apply sealant to the edge of the aluminum under the sill.

Seal the bottom end of the side casing wrap where it contacts the sill wrap.

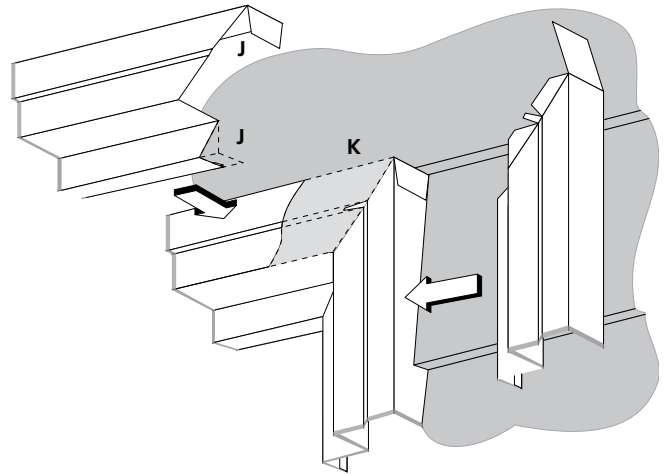


Illustration for Applying Exterior Wrap on Upper Corner of Double-Hung Windows in a Wood Opening

Applying Exterior Wrap on Casement, Awning, Fixed, Gliding and Picture Windows in a Wood Opening (Refer to illustrations on pages 2-52, and 2-53)

Note: When applying sealant to any joint, make sure that both surfaces are clean and dry.

When applying sealant into the exterior trim kerf, keep in mind that this is a weather seal. As the trim is applied around the window, care should be taken to ensure that this bead of sealant is continuous and large enough to be free of voids.

1. Fabricate Sill Wrap

- Take three measurements: the vertical distance from the exterior trim kerf at the bottom of the window to the top surface of the sill (A); the depth from the exterior trim kerf to the outer surface of the sill stop (B); and the profile dimensions of the exposed wood sill (C).
- Bend the aluminum for the sill wrap to these dimensions, fitting it as tightly as possible.
- With tin snips, cut and notch the upper corners of the wrap profile so the upper legs fit into the kerf on the window and between the side casing. The sill surface wrap passes under the bottom ends of the exterior casings. Make end cuts in the sill wrap so you will be able to fold it around the ends of the sill (D).

2. Place Sill Wrap

- Using a reciprocating saw, cut a kerf between the bottom end of each casing and the top side of the sill (H).
- Position the sill wrap around the sill, sliding the end tabs under the side casings and the top into the exterior trim kerf. Fold the end tabs tightly into place over the ends of the sill. Fit the bottom edge of the wrap tightly to the bottom side of the sill and butt it to the siding (D).

3. Fabricate Side Wrap

- Take three measurements: the distance from the inside of the exterior trim kerf to the outer face of the outside stop (E); the distance from the exterior trim kerf to the inside edge of the exterior casing (F); the profile of the exterior casing (G).
- Use these dimensions to size and bend the two side-wrap profiles, fitting the outside stop and casing as closely as possible (H). The outer edges of the aluminum wrap should fit between the siding and the casing. (Do not terminate at the surface. You may need to cut a kerf between the siding and the casing to accomplish this.)
- Hem the inner edge of the wrap (I).
- Measure from the top of the casing to the bottom of the sill and cut two side wraps to length.
- Notch the top ends to fit under the head casing and into the exterior trim kerf (J).
- Notch the bottom ends so they fit tightly to the top of the sill (K). Notch the inside leg to fit into the exterior trim kerf (L). Cut diagonally across the stop from the top to the bottom of the profile. Simulate a mitered joint by lapping the side wrap over the sill stop wrap (L).

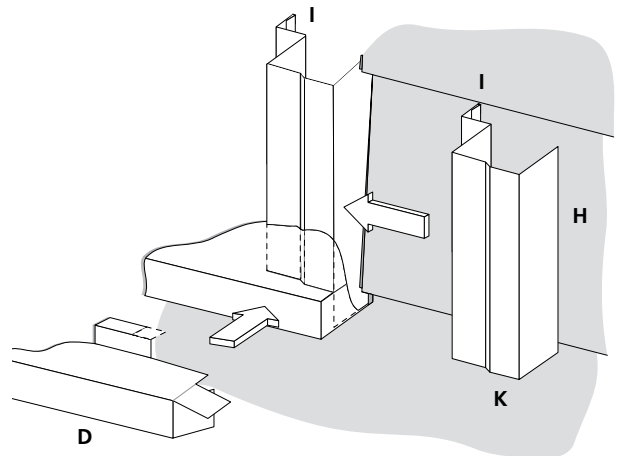
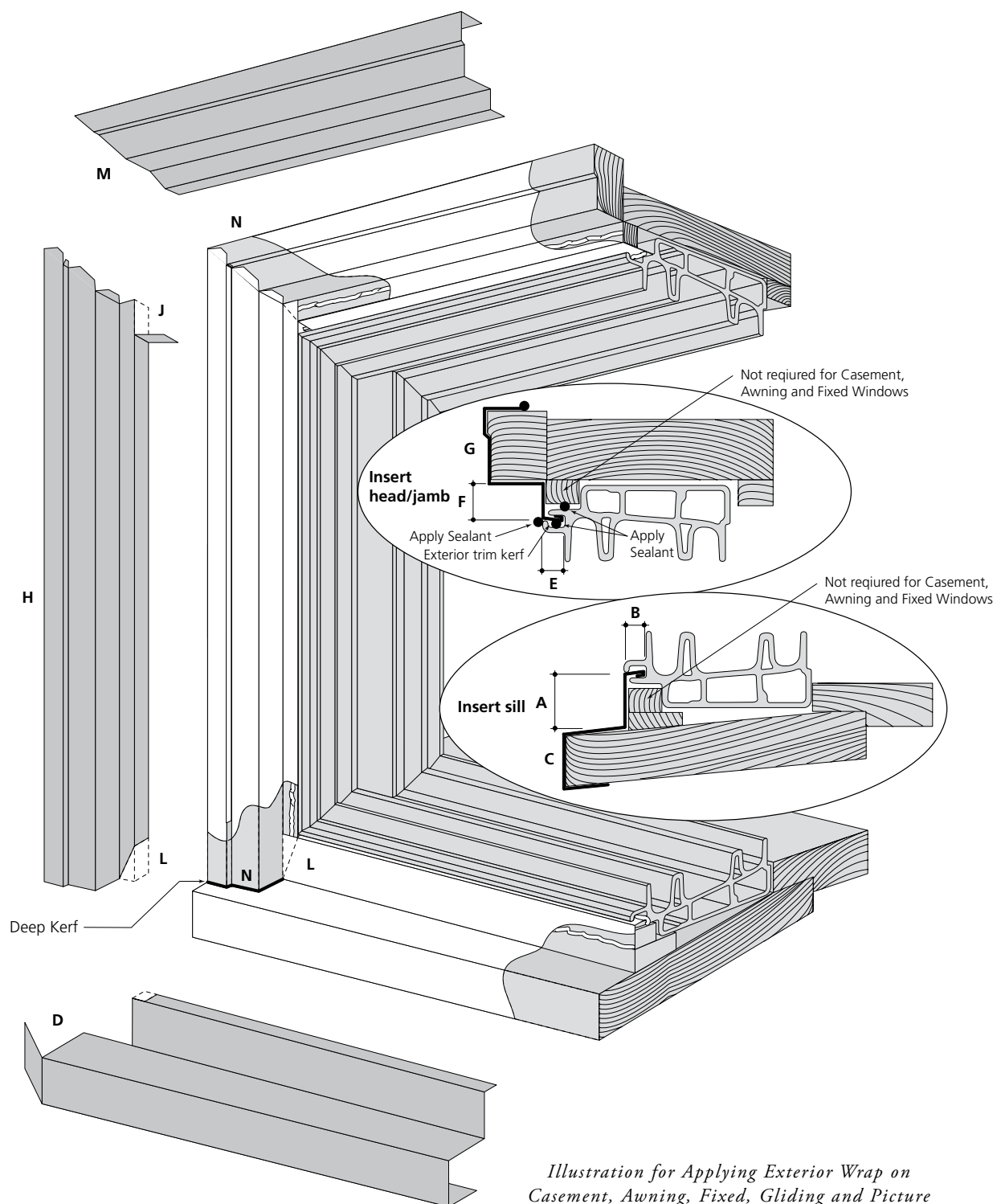


Illustration for Applying Exterior Wrap on Upper Corner of Casement, Awning, Fixed, Gliding and Picture Windows in a Wood Opening



4. Place Side Wrap

- Apply a bead of sealant into the exterior trim kerf on each side of the insert window (See “Insert Head / Jamb” inset, page 2-47 or 2-52).
- Place the side wraps tightly over the outside stop and exterior casing. Make sure the outside edge fits between the siding and the exterior casing (H).

5. Fabricate Head Wrap

- Measure and bend the aluminum wrap for the head of the window following the directions in Step 3.
- Using tin snips, cut the head wrap to length. Hem the inside edge and cut to fit into the exterior trim kerf. Cut each end at an angle up to the top corners of the exterior casing to simulate a mitered joint (M).

6. Apply Head Wrap

- Apply a small bead of exterior sealant in the exterior trim kerf at the head of the window (See “Insert Head / Jamb” inset, page 2-47 or 2-52).
- Apply a bead of sealant to the old window frame.
- Set the aluminum wrap into place so that the two ends lap over the top ends of the side casing wraps (N).

7. Apply Sealant (See “Insert Head / Jamb” inset, page 2-47 or 2-52).

- Apply the exterior finish beads of sealant in the following areas:

Seal the gap between the aluminum wrap and the edge of the siding. Do not apply sealant to the edge of the aluminum under the sill.

Seal the bottom end of the side casing wraps to the sill wrap.

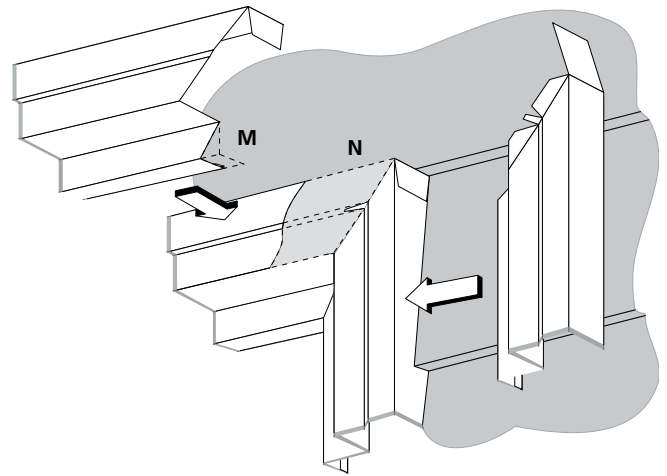
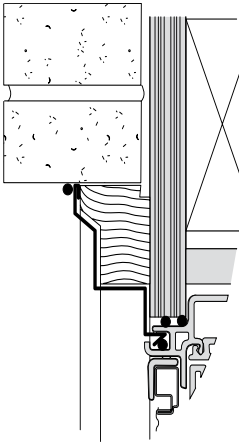


Illustration for Applying Exterior Wrap on Upper Corner of Casement, Awning, Gliding and Picture Windows in a Wood Opening

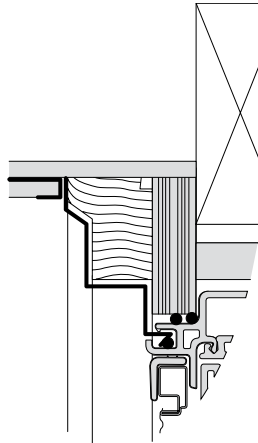
Drip Cap Options

Various conditions influence the fabrication and installation of aluminum wrap at the head of a window opening. Some examples of conditions and solutions shown below. Dots indicate silicone sealant locations.

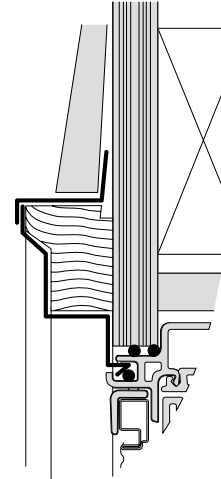
Note: When applying sealant to any joint, make sure that both surfaces are clean and dry.



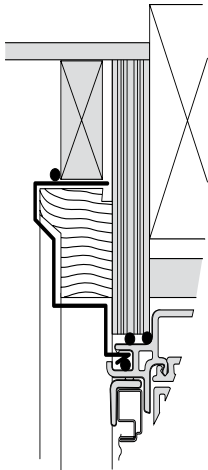
Head casing is tight to a soffit or masonry opening. Hem the top edge of the wrap and terminate it tight to the soffit or masonry opening.



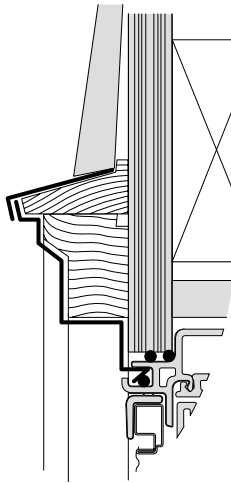
Head casing is surrounded with aluminum soffit / J-channel. Fit the top edge of the aluminum between the face of the casing and the J-channel.



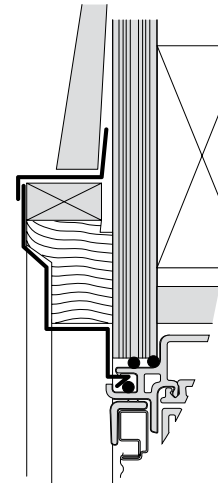
Head casing is under a metal drip cap. Tuck the aluminum wrap under the existing drip cap if it is in good condition, or replace the cap.



Head casing is close to a soffit with no drip cap. Wrap the head casing the same way as side casings. The outer edge of the wrap must fit between the siding and the head casing.



Head casing is under a wood drip cap. Carefully evaluate the siding and drip cap. Wrap it if the aluminum can be bent around the cap and tucked under the siding in a watershed configuration. *(Simply sealing the top edge of the wrap is not an acceptable alternative.)* If this is not possible, do not wrap the drip cap.



Remove old wood drip cap. Cut out the old wood cap, bend and install a new metal cap. Install a wood filler, if possible.

REMODELING CONTRACT

CCRC
5227 Beaver Street
White Bear Lake Township, MN 55110
(651) 592-9722 Fax No.: 651-536-7994

 Construction
 Fire & Flood
 Restoration
 Remodeling
 Storm Damage Repairs

License # BC627517

CUSTOMER NAME: __William and Sonja Moore__ ADDRESS: __711 DAYTON AVE__
CITY: SAINT PAUL , STATE: __MN__ ZIP: __55104__ HOME PHONE: () _____ - _____
WORK PHONE: () _____ CELL PHONE: __651-260-3701__

“This Agreement (“Agreement”) is made this 4th day of June, 2015. Between **Custom Carpentry - Remodeling & Construction, LLC** (“Contractor”), and William and Sonja Moore, (“Owners”), owning the residence at the address above, (“the Property”). Contractor agrees to furnish labor, materials and services for the improvement of the Property in exchange for good and valuable consideration as follows (“the Work”):

GENERAL DESCRIPTION OF WORK, MATERIALS OR LABOR
Re-build 22 historic windows on second and third floor per the following specifications:
Lead prep per RRP requirements
Remove all stops and sashes and complete necessary repairs
Repair/replace rotted sill, jambs and exterior trim to match existing profiles
Repair and replace ropes, chains and weights as necessary
Replace any broken glass with historic salvaged glass, and re-putty all sashes necessary
Install weather stripping on outside edges of window sashes(between stops) to reduce air infiltration
Repair and/or replace broken locks and sash lift handles with historically accurate hardware
Paint interior and exterior to match existing colors scheme
Total Contract: \$54,250
Plans and Specifications are attached hereto and incorporated herein by reference as Exhibit A

Payment Terms

Down Payment due at signing	Payment due upon starting project	Payment due upon completion of project
\$18,083.00	\$18,083.00	\$18,083.00

Owner accepts the terms and conditions contained herein and acknowledges receipt of a true and correct copy of this contract. Owner acknowledges reading the contents of this Agreement (**INCLUDING THE CONDITIONS ON THE FOLLOWING PAGES**); Owner also acknowledges that this Agreement is the entire agreement and that no other agreement, whether verbal or written, is binding upon the parties hereto. Finally, Contractor incorporates herein by reference *Minnesota Statutory Warranties* §§ 327A.01 through 327A.08. Owner acknowledges receiving from Contractor a full copy of such warranties.

WITNESS our hand on this 4th day of June 2015.

CONDITIONS

(A) ANY PERSON OR COMPANY SUPPLYING LABOR OR MATERIALS FOR THIS IMPROVEMENT TO YOUR PROPERTY MAY FILE A LIEN AGAINST YOUR PROPERTY IF THAT PERSON OR COMPANY IS NOT PAID FOR THE CONTRIBUTIONS.

(B) UNDER MINNESOTA LAW, YOU HAVE THE RIGHT TO PAY PERSONS WHO SUPPLIED LABOR OR MATERIALS FOR THIS IMPROVEMENT DIRECTLY AND DEDUCT THIS AMOUNT FROM OUR CONTRACT PRICE, OR WITHHOLD THE AMOUNTS DUE THEM FROM US UNTIL 120 DAYS AFTER COMPLETION OF THE IMPROVEMENT UNLESS WE GIVE YOU A LIEN WAIVER SIGNED BY PERSONS WHO SUPPLIED ANY LABOR OR MATERIAL FOR THE IMPROVEMENT AND WHO GAVE YOU TIMELY NOTICE.

1. CHANGE ORDER

Any alteration or deviation from contract specifications will require the execution of a Change Order. It is agreed that all terms and conditions of this Contract shall apply equally to additional work added to this Contract in the form of a Change Order. No repair work or alterations shall be done, except as specified and expressly agreed to by Contractor and Owner in writing. Work required under a Change Order will not begin until full payment of the Change Order is made by Owner. Further, if Contractor encounters any unforeseen conditions during the course of the Work, it shall promptly notify Owner and Changes in the Work, if any, shall be made by Change Order.

2. OWNER RESPONSIBILITIES

Unless otherwise specified, Contractor's price is based upon Owner's representation that there are no conditions preventing Contractor from proceeding with the usual installation procedures for the materials required under the Contract. Owner represents that personal effects, personal property and plants will be relocated or trimmed prior to the beginning of work so that Contractor has free access to free portions of the premises where work is to be done. Owner authorizes Contractor to use Owner's electricity for work to be completed under this contract. Owner further understands that as a precautionary measure all pictures and wall accessories that are not securely fastened should be removed until all work has been completed. Owner shall carry premises liability insurance. If necessary for the work, Owner shall secure permission to work on or over adjoining property at no cost to Contractor. Owner agrees be responsible and to hold Contractor harmless and accepted any risks resulting from access through adjacent properties. Owner grants to Contractor and its employees the right to perform contracted services during daylight hours from Monday thru Saturday between 7 a.m., and 9 p.m., unless otherwise specified by Owner.

3. NON-RESPONSIBILITY

Contractor shall not be responsible for any damage occasioned by the Owner or their agents, rain, windstorm, Acts of God or other causes beyond the control of Contractor. Contractor is not liable for any act of negligence or misuse by the Owner or any other party. Contractor shall not be responsible for damage to existing, shrubs, lawns, trees, clothes lines, personal property, telephone and electric lines, doorbells, cable-TV or light fixtures unless otherwise specified in the contract. Contractor is not responsible for delays caused by strikes, weather, accidents, or other events beyond Contractor's control. Except through negligence, Contractor is not liable for damages to interior fixtures, drywall, plaster wall construction, decorations, or to other parts of premises or its contents. Contractor shall have no responsibility for correcting any existing defects which may be recognized during the course of the work or hidden or latent conditions of the property. Contractor is not responsible for work done by others, existing structural defects, materials furnished by Owner, dry rot, or existing code violations.

4. ADVERTISING

Owner grants Contractor the right to display advertising signs on the premise from the date of contracting through thirty (30) days following completion of work. Owner further gives Contractor permission to take pictures or video of premises before and after completion of the project for use in Contractor advertising. Owner grants to Contractor the right to use any correspondence directed to Contractor concerning the work in Contractor's advertising promotion.

5. PAYMENTS

Contractor shall be entitled to prompt payment in accordance with this agreement. If, after Contractor has declared the work to be satisfactorily performed but Owner claims that work still remains to be done, Owner agrees to make prompt payment of the Contract amount, less only an amount needed to complete the work claimed yet to be done. Upon completion of the remaining work, Contractor must immediately be paid the remaining balance due. Nonetheless, Contractor shall have the right to stop work and keep the job idle if any payment in accordance with this agreement are not made. In the event Owner does not pay Contractor according to the terms of this agreement, Contractor may add a monthly service charge of 1.5% (Annual Rate of 18%), or in accordance with the prevailing rate allowable by law, to the balance owed.

6. DISPUTES

It is specifically understood and agreed between the parties hereto that an event of a dispute over any of the terms, conditions or clauses contained herein the Minnesota District Courts shall have full and exclusive jurisdiction over the matter. Owner agrees that if Contractor shall prevail in an action against Owner, Owner shall be responsible for any collection costs and attorney fees incurred by Contractor. Owner warrants that this contract is signed without any reliance upon any representations or promises by Contractor, or its agents except as is specifically written in this contract, and that no such promises or representations have been offered as inducement for signing.

7. PROJECT TIMING

Contractor agrees to diligently endeavor to complete the work promptly. However, Owner acknowledges, however, that this date is only an estimate, and is subject to change due to many factors including, but not limited to: (i) changes in the work requested by Owner; (ii) delays in receiving materials specified; (iii) delays resulting from acts of God or adverse weather conditions; (iv) delays caused by shortages of labor, materials or equipment; and (v) other causes reasonably beyond Contractor's control. Owner agrees that the schedule for completing the Improvements represents Contractor's good faith estimate, and Contractor will not be liable to Owner for delays in completion of the work under this agreement.

8. LIQUIDATED DAMAGES

Owner understands that Contractor provided time and expertise in the preparation of the plans and specifications contained herein. As such, Owner understands that in the event Owner cancels or refuses to perform under this agreement before commencement of work, Owner agrees that Contractor may retain 25% of the total contract sum as a reasonable amount of liquidated damages for breach of this agreement. Owner understands that this amount is a reasonable measure of actual damages suffered by Contractor for such cancellation. In the event that a court of competent jurisdiction deems this amount unreasonable, Owner agrees that the Contractor is then entitled to the unpaid contract price less the amount it would have cost to complete the work under this agreement. In the event of any breach of this agreement, Owner agrees to pay for any reasonable attorney's fees, legal expenses and costs of collection which may result.

9. MATERIALS

All products are warranted upon delivery or installation against defects in material and workmanship and no other warranties or guaranties, expressed or implied are authorized unless in accordance with a standard written manufacturer's warranty held by purchaser. Materials listed above that are special ordered or custom made for the work under this agreement cannot be changed, cancelled, modified or discharged in whole or in part by the Owner once orders for such materials are placed. Owner agrees to be responsible for any costs associated with the return or re-ordering of such event. Any materials not used in the performance of this Agreement remain the property of Contractor, whether or not delivered to the job site.

711 Dayton

2nd floor bath North



2nd floor bath Northeast



711 Dayton

2nd Floor NE1

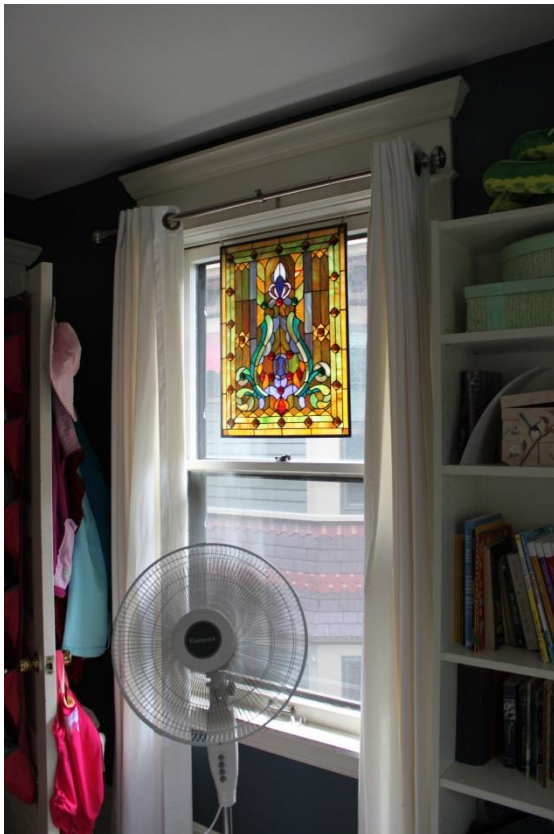


2nd Floor NE2

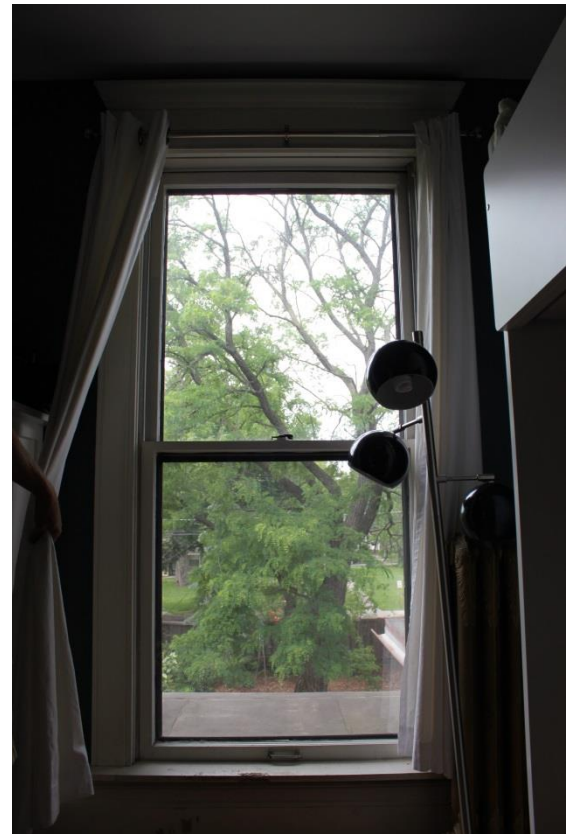


711 Dayton

2nd Floor NW



2nd Floor NW1

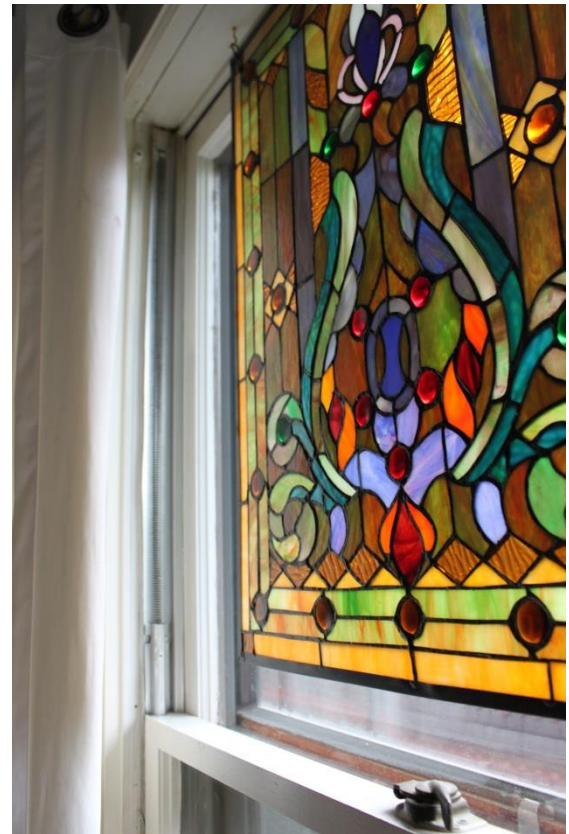


711 Dayton

2nd Floor NW2



2nd Floor NW3



711 Dayton

2nd Floor SE



2nd Floor SE1



711 Dayton

2nd Floor SW



2nd Floor SW1



711 Dayton

2nd – 3rd Floor Stairway



3rd Floor East



711 Dayton

3rd Floor E1



3rd Floor North Bath



711 Dayton

3rd Floor N



3rd Floor S



711 Dayton

3rd Floor S1



3rd Floor S2



711 Dayton

3rd Floor S3

Kitchen Nook 1



711 Dayton

Kitchen Nook 2



Kitchen Nook 3



Window #	Location	Elevation(s)	Style	Sash Configuration	Divided-Lights	Storm	Original Historic?
1-4	1 st Floor – Kitchen Nook	2- North 1- East 1- West	Double-Hung	50/50	1-over-1	Yes	1999
5-6	2 nd Floor –SW Bedroom	South	Double-Hung	Cottage Style 30/60	5-over-1 with arch panes	Yes	Yes
7-9	2 nd Floor – SE Bedroom	2- South 1- East	Double-Hung	Cottage Style 30/60	5-over-1 with arch panes	Yes	Yes
10-13	2 nd Floor – NE Bedroom	1- North 3- East Bay	Double-Hung	50/50	1-over-1	Yes	Yes
14	2 nd Floor – Bath	North	Double-Hung	50/50	1-over-1	Yes	Yes
15-16	2 nd Floor – NW Bedroom	1- North Step-Through 1- West	Double-Hung	50/50	1-over-1	Yes	Yes
17-18	2 nd -3 rd Floor Landing	West	Double-Hung	Cottage Style 30/60	1-over-1	Yes	Yes
19	3 rd Floor Bath	North	Double-Hung	50/50	3-over-1	Yes	Yes
20-21	3 rd Floor N Room	North	Double-Hung	50/50	3-over-1	Yes	Yes
22-23	3 rd Floor E Office	East	Double-Hung	Cottage Style 30/60	4-over-1	Yes	Yes
24-26	3 rd Floor S Bedroom	South	Double-Hung	Cottage Style 30/60	5-over-1 with arch panes	Yes	Yes
27- per owner, not proposed for replacement	2 nd Floor E closet	East	Double-Hung	50/50	1-over-1	Yes	Yes