

CHAPTER 3A

INTEGRITY WOOD-ULTREX INSERT DOUBLE HUNG

| | |
|--|-------|
| Unit Features | 3A.2 |
| Minimum and Maximum Guidelines | 3A.3 |
| Certified Sizes | 3A.4 |
| Egress Measurement / Egress Formula | 3A.5 |
| Conversions | 3A.6 |
| Measurement Conversions: Field Measurement | 3A.7 |
| Mulling Guidelines | 3A.8 |
| Section Details - Operating - Interior Install | 3A.9 |
| Section Details - Operating - Exterior Install | 3A.10 |
| Section Details - Transoms / Pictures - Interior Install | 3A.11 |
| Section Details - Transoms / Pictures - Exterior Install | 3A.12 |
| Section Details - Mullions | 3A.13 |
| Section Details - Frame Expander | 3A.14 |
| Divided Lite Options | 3A.15 |
| Available Divided Lite Patterns | 3A.16 |

ATTENTION:

- Specifications and technical data are subject to change without notice.
- Dimensions in parenthesis are in millimeters or square meters
- Allow 1/16" (2) tolerance on all measurements.
- Interior mullion trim are shipped loose for field installation.
- For answers to technical questions about Integrity products you may call our Integrity Support Line: 1-800-587-2712.
- Website: www.marvin.com

UNIT FEATURES

FRAME AND SASH:

The frame and sash exteriors are made of Ultrex[®], an advanced fiber reinforced material that is resistant to thermal conductance. Ultrex patented coating system meets all the requirements of AAMA 624-10. Exterior colors: Stone White, Pebble Gray, Bronze, Evergreen, Cashmere, or Ebony. The interior is non finger-jointed pine, kiln dried to a moisture content of 6- 12% at time of fabrication. Water-repellant, preservative treated in accordance with WDMA I.S.4. Interior wood is available as Pine bare wood or factory- applied white interior finish.

Frame:

Composite frame thickness is 1 13/16" (46). Frame width of 3 1/4" (83). Ultrex is .080" (2) thick. Includes an exterior accessory kerf and snap-in wood sill liner.

Sash:

Composite sash thickness of 1 17/32" (39). Ultrex is .070" (2) thick. Sash can be replaced but cannot be re- glazed.

HARDWARE:

The balance system is a coil spring block and tackle system, with nylon shoe and zinc locking clutch. Both sash tilt into the room for cleaning or removal for painting without removing the screen. High pressure zinc die cast checkrail lock and keeper. Lock employs a cam- lock mechanism. Color: Almond Frost or White. Optional Bright Brass, Oil Rubbed Bronze, and Satin Nickel available. Each sash employs spring loaded tilt latches to allow for easy tilting of sash. On units widths > 42 3/32" (1069) and wider, two locks are mounted. Optional factory applied Window Opening Control Device is available on all sizes. A system consisting of an acetal lever housed in an acetal shell on each stile of the top sash. Finish: White, Beige. This device works in accordance to ASTM F2090- 10 standard specification for window fall prevention devices with emergency escape. Optional field applied flush mounted sash lift. The material is zinc die cast and available in Almond Frost, White, Bright Brass, Satin Nickel, and Oil Rubbed Bronze finishes.

INSTALLATION:

Operator: Secure the jambs with minimum of two #8 x 3" pan head screws. Maximum spacing of jambs not to exceed 3/16". Secure the head jamb with either zero or two #8 x 3" pan head screws. Picture: Secure the jambs with minimum of two #8 x 3" pan head screws. Maximum spacing of jambs not to exceed 3/16". Secure the head jamb with two #8 x 3" pan head screws.

GLAZING:

All units are manufactured with an 11/16" (17) IG with Low E2, E3 or E1 coating including argon gas fill. Tempered glass and/or obscure, and California Fire glass (annealed exterior and tempered interior glazing configuration) glass are available as an option. All glass is of a select quality complying with ASTM C 1036. Insulating glass is manufactured and tested to pass level ASTM E 2190 and is IGCC certified. The glazing seal is a silicone bedding on both interior and exterior surfaces utilized in a sandwich style sash. STC/OITC values are available for 3.1/3.1 standard glass. Optional 3.1/4.7 STC/OITC Upgrade glass is available. STC and OITC ratings are tested in accordance with ASTM E 90-09. See the Product Performance chapter for values.

WEATHER STRIP:

All weather strip is beige in color. Jamb weather strip is a robust fabric covered foam weather strip that is inserted into a rigid vinyl jamb carrier and used to seal sash to jambs. An additional jamb weather strip is inserted into Ultrex/wood and seals bottom sash to jamb. Parting stop is vinyl with a flexible leaf seal to seal between the header and the upper sash. Check rail weather strip is a hollow bulb. Bottom sash weather strip is attached to the sash and interfaces against the Ultrex sill and jamb weather strip. Picture and transom units is a hollow bulb weather strip that is inserted into rigid vinyl jamb carrier and head jamb carrier to seal sash.

SCREEN:

Roll formed aluminum frame with corner key construction, color to match exterior frame color. Charcoal color fiberglass (non- corrosive) screen cloth. Spring loaded pins for installation.

REMOVABLE INTERIOR GRILLES:

Bar: Pine wood, 3/4" (19) Available in pine bare wood or factory applied white finish. Pattern: Standard rectangular pattern.

INTERIOR / EXTERIOR SIMULATED DIVIDED LITES (SDL):

Interior bar: 7/8" (22) wide bars. Pine bare wood or white interior finish. Exterior bar: Ultrex, 7/8" (22) wide bars, finish to match exterior. Available with or without aluminum interior spacer bar in airspace. Patterns available: rectangle, Cottage style cut, 9 lite Prairie cut or 6 lite Prairie for top sash, bottom sash, or both. ITIDHP Only: Simulated check rail option: 2 11/32" (60). Pattern available: simulated rail in standard center or customer specified location with 7/8" (22) patterns above, below or both in patterns of rectangular equal lite or prairie lite cut.

GRILLES- BETWEEN- THE- GLASS (GBG):

23/32" (18) contoured aluminum bar placed between two panes of glass. Pattern: Standard rectangular pattern, 6 or 9 lite Prairie cut, or Cottage style cut. Exterior colors: Stone White, Pebble Gray, Bronze, Evergreen, Cashmere, or Ebony. Interior colors: White or Bronze.

NOTE: NFRC Values are now located on www.marvin.com

MINIMUM AND MAXIMUM GUIDELINES

| Minimum and Maximum IO Guidelines | | | | | | | | | | |
|-----------------------------------|--------------|-------|---------------|-------|--------------|--------|---------------|--------|------------|------------|
| Unit Type | Min IO Width | | Min IO Height | | Max IO Width | | Max IO Height | | Glass Size | |
| | in | mm | in | mm | in | mm | in | mm | Sq. Feet | Sq. Meters |
| ITIDH | 18 3/8 | (467) | 28 1/8 | (714) | 54 3/8 | (1381) | 84 1/4 | (2140) | 26 1/64 | 2.417 |
| ITIDHT | 18 3/8 | (467) | 16 1/8 | (410) | 62 3/8 | (1584) | 24 1/4 | (616) | 7 3/16 | 0.668 |
| ITIDHP | 18 3/8 | (467) | 23 5/8 | (600) | 58 3/8 | (1483) | 84 1/4 | (2140) | 28 41/64 | 2.661 |
| ITIDHP | 18 3/8 | (467) | 23 5/8 | (600) | 62 3/8 | (1584) | 80 1/4 | (2038) | 29 1/4 | 2.717 |
| ITIDH- C* | 18 3/8 | (467) | 36 1/8 | (918) | 54 3/8 | (1381) | 68 1/4 | (1734) | 23 11/32 | 2.169 |
| ITIDH- RC** | 18 3/8 | (467) | 36 1/8 | (918) | 54 3/8 | (1381) | 68 1/4 | (1734) | 23 11/32 | 2.169 |

Note: Special Size Cottage and Reverse Cottage Style ITIDH Units are available in frame sizes; width of 18 to 54 and height of 36.5 to 68.5 . The Height Ratio being .402/.598 (*Cottage Style) or .598/.402 (**Reverse Cottage Style)

WOOD- ULTREX INSERT DOUBLE HUNG COLLECTION:

Wood- Ultrex Insert Double Hung: ITIDH

Wood- Ultrex Insert Double Hung Transom: ITIDHT

Wood- Ultrex Insert Double Hung Picture: ITIDHP

Wood- Ultrex Insert Double Hung Cottage: ITIDH- C

Wood- Ultrex Insert Double Hung Reverse Cottage: ITIDH- RC

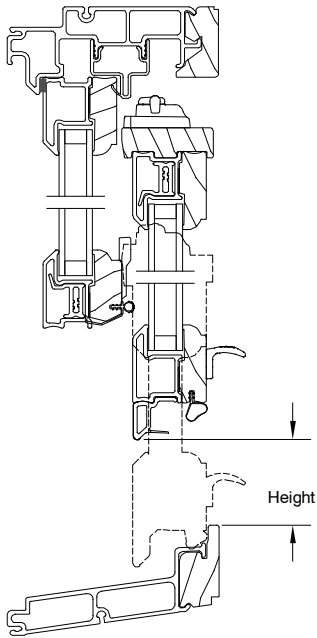
NOTE: Special sizes are available in 1/64" (.40) increments, not to exceed the frame size measurement maximum or minimum in the table above.

CERTIFIED SIZES

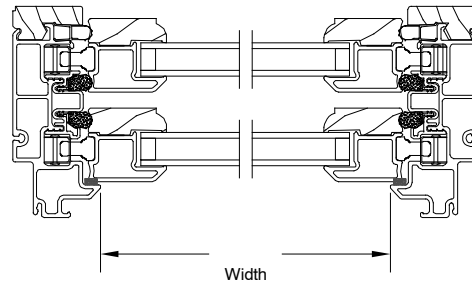
| Product | Air Tested to psf | Water Tested to psf | Certification Rating | Design Pressure (DP) | Max Overall Width | | Max Overall Height | |
|------------|-------------------|---------------------|----------------------|----------------------|-------------------|--------|--------------------|--------|
| | | | | | in | mm | in | mm |
| ITIDH | 1.57 | 6.06 | LC-PG40-H | DP40 | 42.093 | (1069) | 84 | (2134) |
| ITIDH | 1.57 | 5.30 | LC-PG35-H | DP35 | 54 | (1372) | 84 | (2134) |
| ITIDHT | 1.57 | 6.06 | LC-PG40-FW | DP40 | 62 | (1575) | 24.5 | (622) |
| ITIDHP | 1.57 | 6.06 | LC-PG40-FW | DP40 | 58 | (1473) | 84 | (2134) |
| ITIDH | 1.57 | 6.06 | LC-PG40-H | DP40 | 42.093 | (1069) | 84 | (2134) |
| ITIDH-C* | 1.57 | 6.06 | LC-PG40-H | DP40 | 42.093 | (1069) | 68.5 | (1740) |
| ITIDH-C* | 1.57 | 5.30 | LC-PG35-H | DP35 | 54 | (1372) | 68.5 | (1740) |
| ITIDH-RC** | 1.57 | 6.06 | LC-PG40-H | DP40 | 42.093 | (1069) | 68.5 | (1740) |
| ITIDH-RC** | 1.57 | 5.30 | LC-PG35-H | DP35 | 54 | (1372) | 68.5 | (1740) |

EGRESS MEASUREMENT / EGRESS FORMULA

| Integrity Insert Double Hung Egress Unit Minimum Opening Conversion From Frame Size | | |
|--|--------------------------------|--|
| Minimum Value for Net Clear Opening | Desired Dimension | Formula |
| 20 Inches | Egress Opening Width (Inches) | = Frame OM Width – 3.656 |
| 24 Inches | Egress Opening Height (Inches) | = (Frame OM Height/2) – 5.188 |
| 5.7 Square Feet | Egress Opening Area (SQFT) | = (Egress Width x Egress Height) / 144 |



Head Jamb and Sill



Jamb

CONVERSIONS

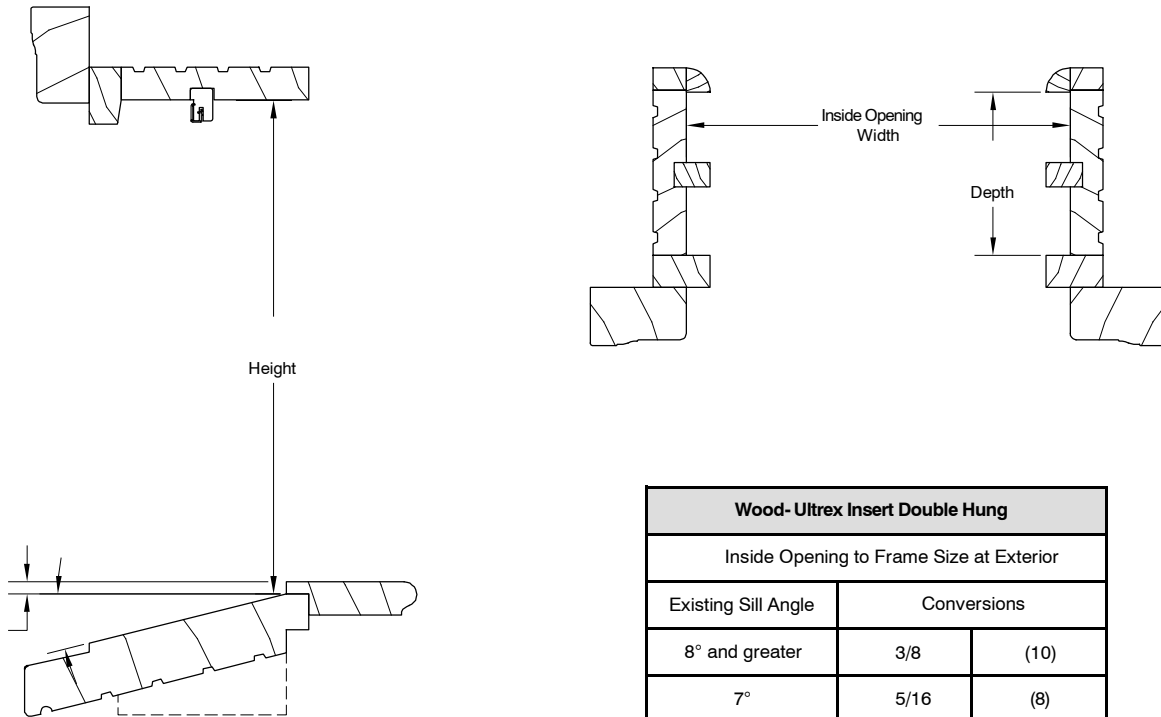
| Wood-Ultrex Insert Double Hung Operating Unit- 8 Degree Sill | | | | | | |
|--|---------------------|--------------|-----------|--------------|-----------|-----------|
| Unit Measurements | | Width | | Height | | |
| From | To | | | | | |
| Daylight Opening | | in | mm | | in | mm |
| Daylight Opening | Bottom Sash OM | + 3 1/4 | (83) | | + 3 1/4 | (83) |
| Daylight Opening | Top Sash OM | + 3 1/4 | (83) | | + 3 1/4 | (83) |
| Daylight Opening | Glass OM | + 1 1/16 | (27) | | + 1 1/16 | (27) |
| Daylight Opening | Screen OM | + 3 7/8 | (98) | X 2 | + 7 9/32 | (185) |
| Daylight Opening Bottom Sash | Half Screen OM | + 3 7/8 | (98) | | + 4 1/32 | (102) |
| Daylight Opening | Grille | order by DLO | | order by DLO | | |
| Daylight Opening | Frame OM @ Exterior | + 6 13/32 | (163) | X 2 | + 9 1/8 | (232) |
| Inside Opening | | in | mm | | in | mm |
| Inside Opening | Bottom Sash OM | - 3 17/32 | (90) | + 2 | - 1 1/8 | (29) |
| Inside Opening | Top Sash OM | - 3 17/32 | (90) | + 2 | - 1 1/8 | (29) |
| Inside Opening | Daylight Opening | - 6 25/32 | (172) | + 2 | - 4 3/8 | (111) |
| Inside Opening | Glass OM | - 5 23/32 | (145) | + 2 | - 3 5/16 | (84) |
| Inside Opening | Screen OM | - 2 29/32 | (74) | | - 1 15/32 | (37) |
| Inside Opening | Half Screen OM | - 2 29/32 | (74) | + 2 | - 11/32 | (09) |
| Inside Opening | Frame OM @ Interior | - 3/8 | (10) | | - 1/4 | (06) |
| Inside Opening | Frame OM @ Exterior | - 3/8 | (10) | | + 3/8 | (10) |

| Wood-Ultrex Insert Double Hung Transoms / Picture - 8 Degree Sill | | | | | |
|---|---------------------|--------------|-----------|--------------|-----------|
| Unit Measurements | | Width | | Height | |
| From | To | | | | |
| Daylight Opening | | in | mm | in | mm |
| Daylight Opening | Sash OM | + 3 1/4 | (83) | + 3 1/4 | (83) |
| Daylight Opening | Glass OM | + 1 1/16 | (27) | + 1 1/16 | (27) |
| Daylight Opening | Grille | Order by DLO | | Order by DLO | |
| Daylight Opening | Frame OM @ Exterior | + 6 11/32 | (161) | + 6 13/16 | (173) |
| Inside Opening | | in | mm | in | mm |
| Inside Opening | Sash OM | - 3 15/32 | (88) | - 3 3/16 | (81) |
| Inside Opening | Daylight Opening | - 6 23/32 | (171) | - 6 7/16 | (163) |
| Inside Opening | Glass OM | - 5 21/32 | (144) | - 5 3/8 | (137) |
| Inside Opening | Frame OM @ Interior | - 3/8 | (10) | - 1/4 | (06) |
| Inside Opening | Frame OM @ Exterior | - 3/8 | (10) | + 3/8 | (10) |

NOTE: All conversions are based off an existing 8+ degree sill. Please refer to page 3A.7 for additional existing angle inside opening to frame size height conversions.

MEASUREMENT CONVERSIONS - FIELD MEASUREMENT

| Conversion from Field Measurement to Frame OM | | |
|---|---|---|
| Width | | |
| Condition | Formula | |
| If blind stop width is 1/2 inch or less | ITIDH frame OM width = inside opening width - 0.375 | |
| Height | | |
| Condition | Type of Sill | Formula |
| If old sill angle is 8 degrees or more but less than 14 degrees | 8 degree sill | ITIDH frame OM height = inside opening height + 0.375 |



| Wood-Ultrex Insert Double Hung | | |
|--|-------------|------|
| Inside Opening to Frame Size at Exterior | | |
| Existing Sill Angle | Conversions | |
| 8° and greater | 3/8 | (10) |
| 7° | 5/16 | (8) |
| 6° | 3/16 | (5) |
| 5° | 1/8 | (3) |
| 4° | 1/16 | (2) |
| 3° | 0 | (0) |
| 2° | - 1/8 | (3) |
| 1° | - 3/16 | (5) |
| 0° | - 1/4 | (6) |

MULLING GUIDELINES

Multiple assemblies can be factory mullled: up to 5 units wide by 1 unit high

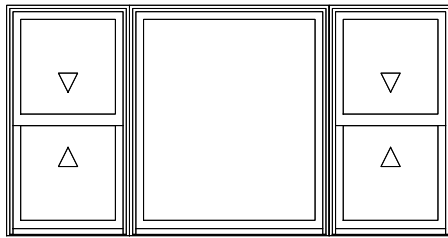
MAXIMUM INSIDE OPENING not to exceed 112 7/8" (2867) X 84 1/4" (2140)

NOTE: Field mulling beyond the above limitations is not recommended

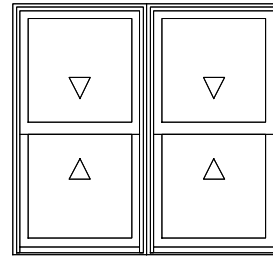
Calculating Total Inside Opening for Assemblies

WIDTH: ADD Frame Widths + 3/8" (10)

Tolerance = 3/16" (5) from frame to Inside Opening at left and right jamb.

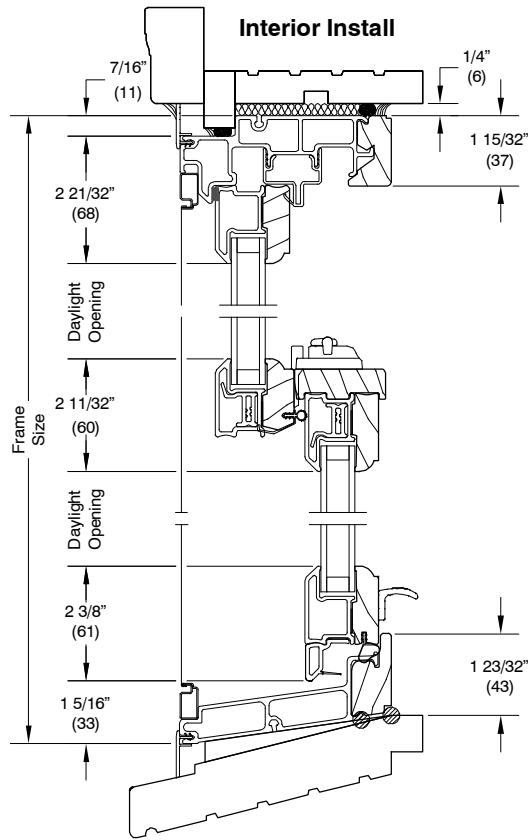


3 Units Wide 1 Unit High

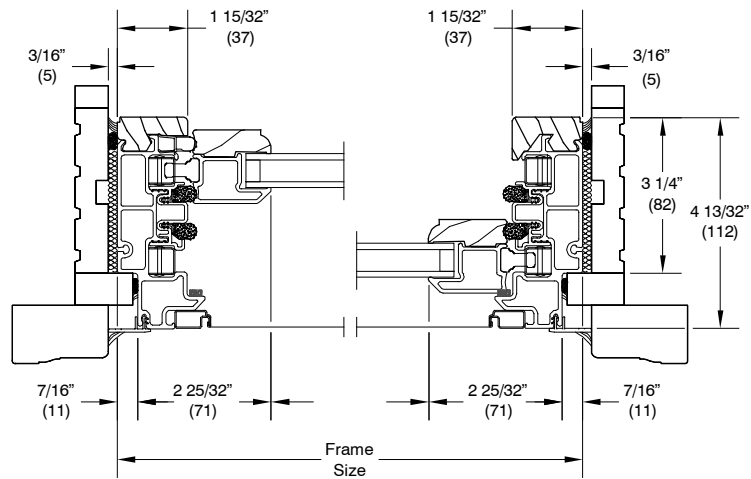


2 Units Wide 1 Unit High

SECTION DETAILS: OPERATING SCALE: 3" = 1'0"

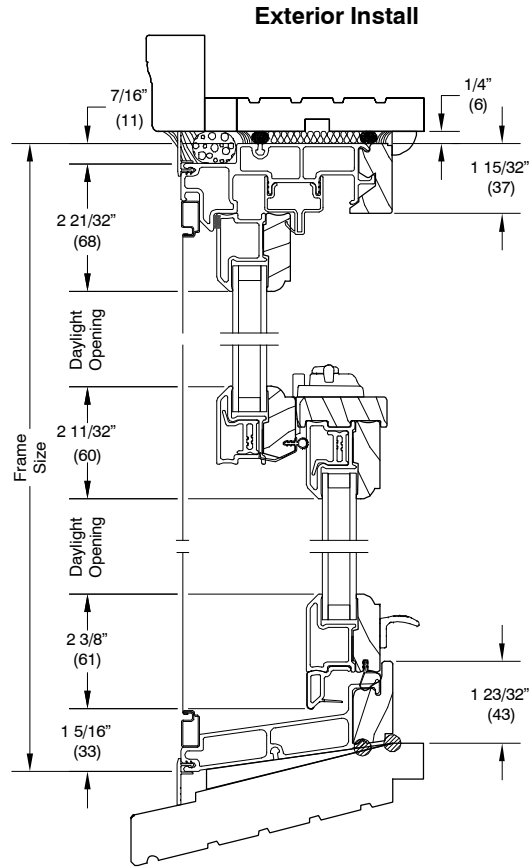


Head Jamb and Sill
8 Degree Bevel Sill
Installed in Existing Frame

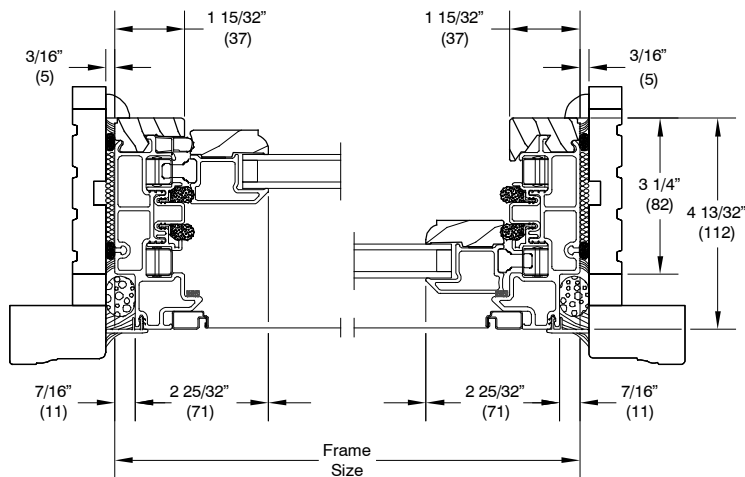


Jamb
Installed in Existing Frame

SECTION DETAILS: OPERATING SCALE: 3" = 1'0"

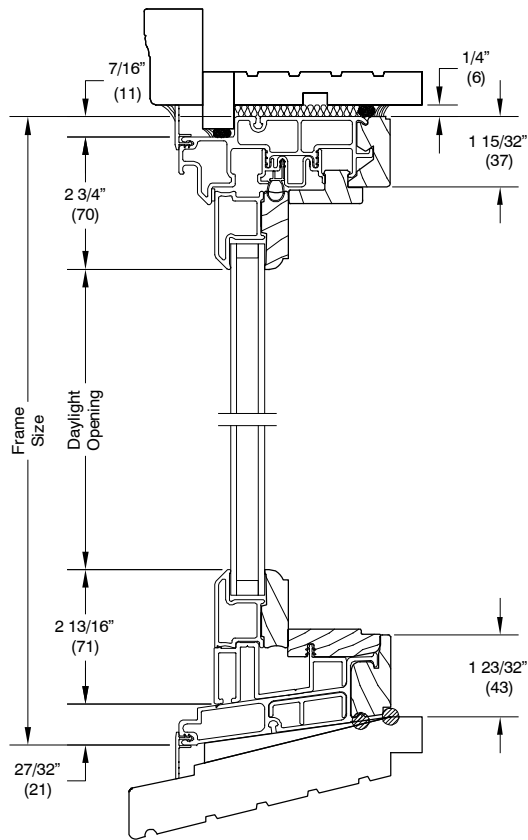


Head Jamb and Sill
8 Degree Bevel Sill
Installed in Existing Frame

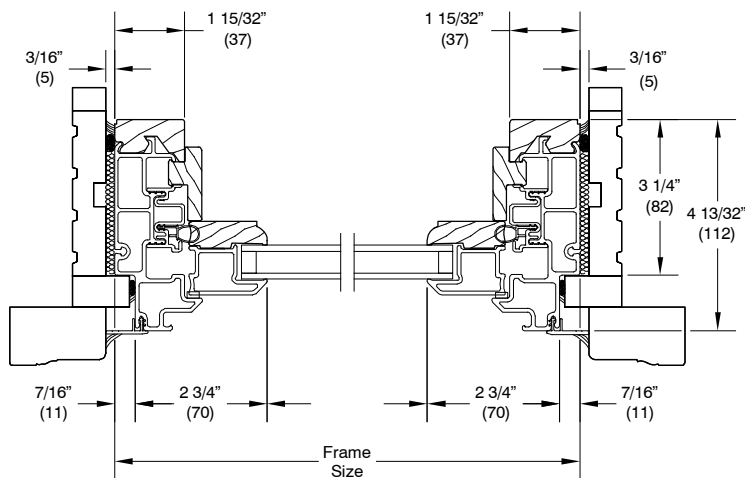


Jamb
Installed in Existing Frame

Interior Install

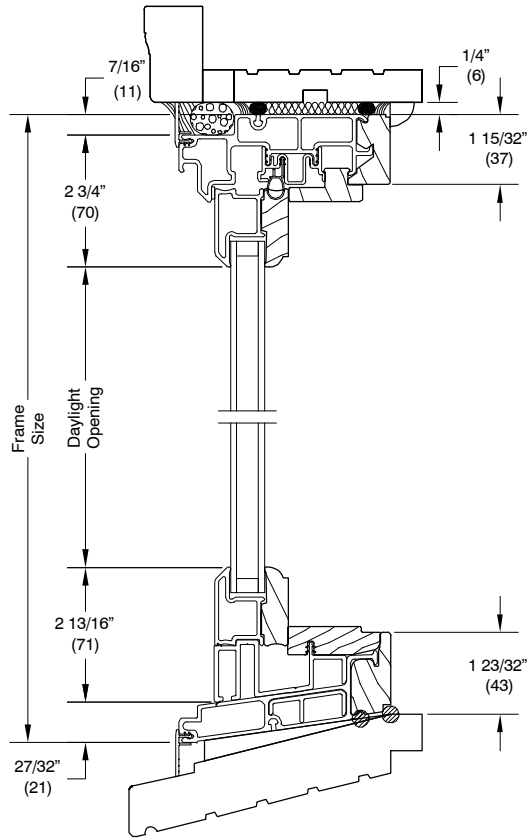


Head Jamb and Sill
8 Degree Bevel Sill
Installed in Existing Frame

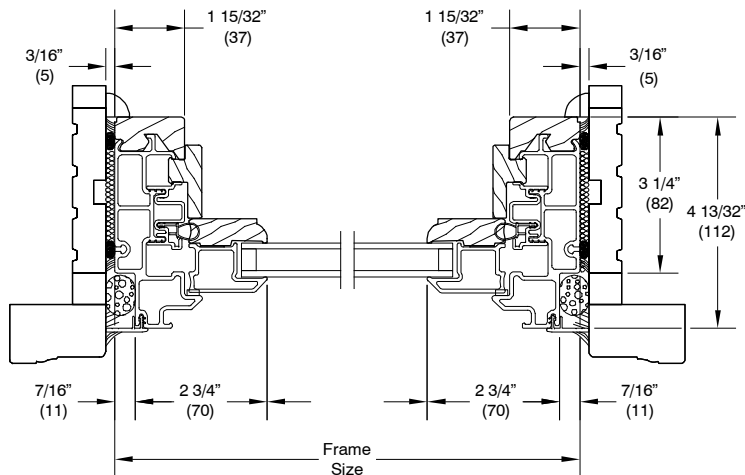


Jamb
Installed in Existing Frame

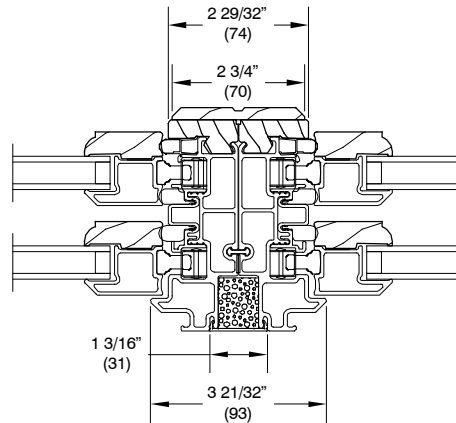
Exterior Install



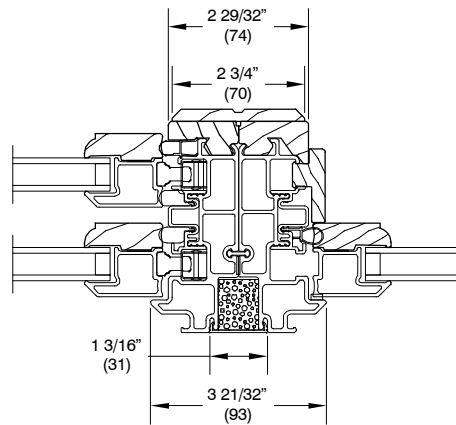
Head Jamb and Sill
8 Degree Bevel Sill
Installed in Existing Frame



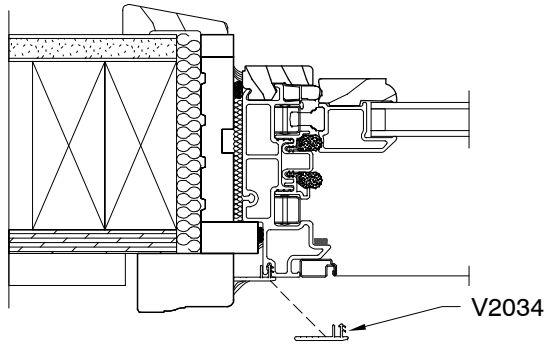
Jamb
Installed in Existing Frame



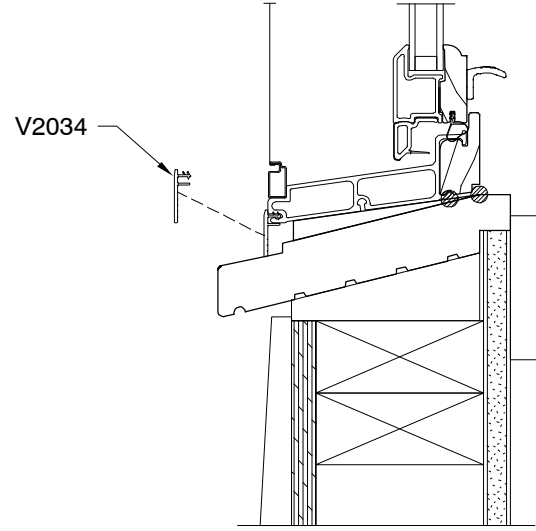
Operator/Operator
Wood Ultrex Insert Double Hung



Operator/Picture
Wood Ultrex Insert Double Hung

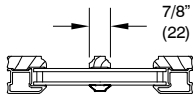


Jamb Frame Expander

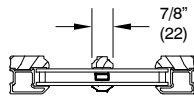


Sill Frame Expander

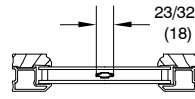
DIVIDED LITE OPTIONS Not to Scale



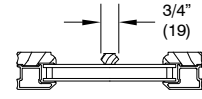
Wood Simulated
Divided Lite



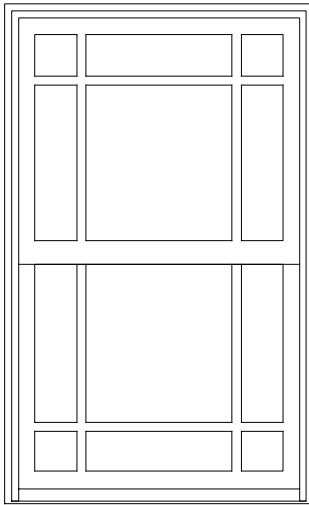
Wood Simulated Divided
Lite w/Spacer Bar



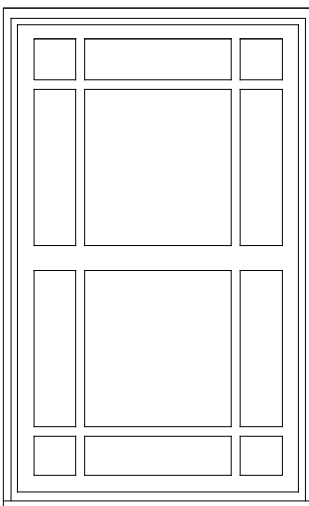
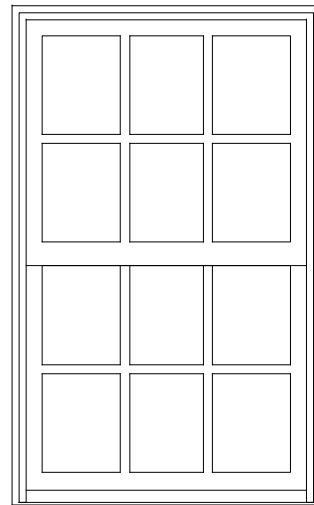
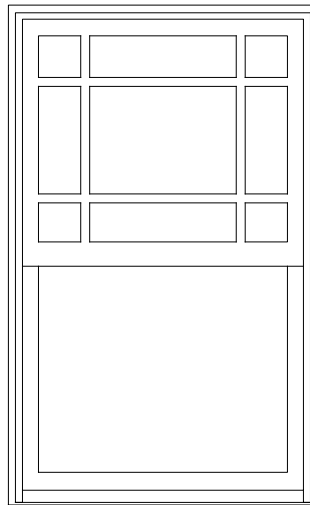
Aluminum Grille Between
Glass



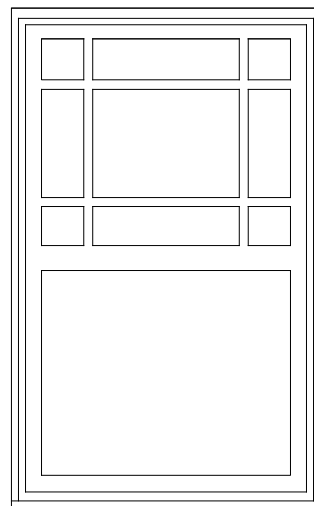
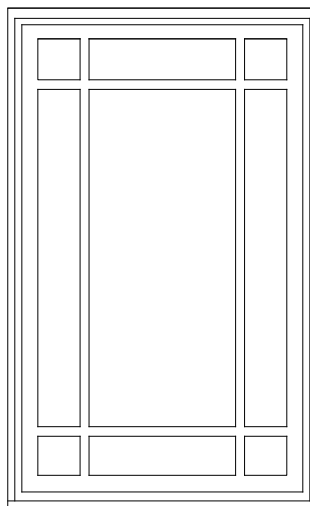
Wood Removable Grill



* Optional 6 lite Prairie cut for GBG or SDL.



* Optional 9 lite Prairie cut for GBG or SDL.



NOTE: 4" (102) DLO lite cut minimum for 7/8" (22) pattern

DIVIDED LITE OPTIONS

| Insert Double Hung SDL, GBG, Grille Equal Lite Cut | | | | | | |
|--|-------------|--------|------------------|--------------|--------|------------------|
| Product | Width | | | Height | | |
| | Frame Width | | Lite Cut Pattern | Frame Height | | Lite Cut Pattern |
| | in | mm | | in | mm | |
| ITIDH | 18 | (457) | 2W | 28 1/2 | (724) | 2H |
| | 26 3/32 | (663) | 3W | 72 1/2 | (1842) | 3H |
| | 38 3/32 | (968) | 4W | | | |
| | 50 3/32 | (1272) | 5W | | | |
| ITIDHP | 18 | (457) | 2W | 16 1/2 | (419) | 1H |
| | 26 3/32 | (663) | 3W | 24 1/2 | (622) | 2H |
| | 38 3/32 | (968) | 4W | 28 1/2 | (724) | 4H |
| | 50 3/32 | (1272) | 5W | 72 1/2 | (1842) | 6H |
| ITIDH- C* | 18 | (457) | 2W | TOP SASH | | 2H |
| | 26 3/32 | (663) | 3W | | | |
| | 38 3/32 | (968) | 4W | BOTTOM SASH | | 3H |
| | 50 3/32 | (1272) | 5W | | | |
| ITIDH- RC** | 18 | (457) | 2W | TOP SASH | | 3H |
| | 26 3/32 | (663) | 3W | | | |
| | 38 3/32 | (968) | 4W | BOTTOM SASH | | 2H |
| | 50 3/32 | (1272) | 5W | | | |

*ITIDH- C (Cottage Style) and **ITIDH- RC (Reverse Cottage Style) units are available in frame heights of 36 1/2" to 68 1/2" only. Sash ratio is .402/.598 for Cottage Style Units and .598/.402 for Reverse Cottage Style Units.

NOTE:

- * When frame width or height are between two sizes, refer to the smaller size shown for the default lite cut pattern.
- * Wood Grilles for special size units will default to the next smaller standard size lite pattern. Wood Grilles are not available in lite patterns other than the Wood Grille patterns.
- * Rectangle GBGs for special size units will default to the next smaller standard size lite pattern. Also available will be Prairie patterns, Cottage patterns, and customer specified equal rectangular lite patterns.
- * Rectangular SDL for special size units will default to the next smaller standard size lite pattern. Also available will be Prairie patterns, Cottage patterns, and customer specified equal rectangular lite patterns.
- * Prairie GBG and SDL available in 9 lite and 6 lite top, bottom, left, and right patterns.
- * Cottage GBGs and SDL for special sizes units will default to the next smaller standard size lite pattern. Cottage GBGs and SDL are also available in customer selected lite patterns.
- * Maximum number of lites wide and high for equal lite SDL option is 11 lites.
- * Minimum DLO measurement for equal lite SDL option is 4" (102) and will be validated by OMS.
- * Minimum DLO measurement for equal lite GBG option is 3" (76) and will be validated by OMS.
- * Standard DLO measurement for Prairie GBG and SDL options is 4" (102). Special DLO corners are n/a.
- * Standard DLO height measurement for Cottage SDL option is 10" (254). Minimum DLO height is 8" (203) for one high pattern. Minimum DLO height is 4" (102) for two high pattern.
- * Standard DLO height measurement for Cottage GBG option is 10" (254). Minimum DLO height is 3" (76) for both one and two high patterns.
- * Simulated Rail: Rectangular, Prairie 6- Lite and 9- Lite SDL patterns are available with Simulated Rail.
- * Simulated Rail: Custom ratio and specified DLO are available with Simulated Rail and will be validated by OMS.