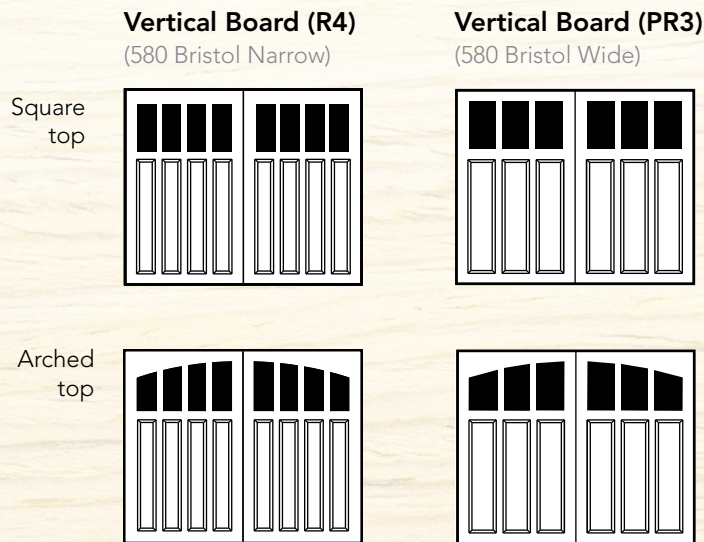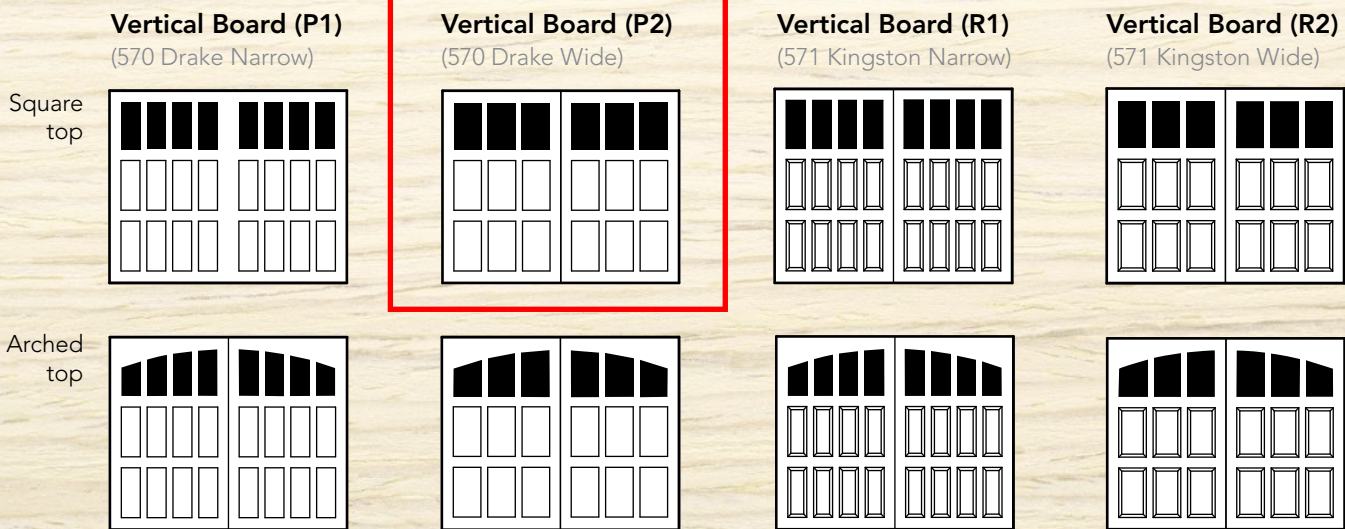# *Parson Series*

Note:
Previous model
numbers and panel
styles are noted in
parentheses in gray.

Simply sophisticated, the Parson Series' classic
solid wood designs are the essence of luxury.
Doors provided unfinished, in paint-grade or stain-grade wood.

Model 9960 **Premium Construction** (Insulated)

Vertical Board (R4)
(580 Bristol Narrow)

Vertical Board (PR3)
(580 Bristol Wide)

Square
top

Arched
top

Model 9940 **Standard Construction** (Insulation optional)

Vertical Board (P1)
(570 Drake Narrow)

Vertical Board (P2)
(570 Drake Wide)

Vertical Board (R1)
(571 Kingston Narrow)

Vertical Board (R2)
(571 Kingston Wide)

Square
top

Arched
top

Doors come standard without windows. Doors above are pictured with optional windows.
See additional window options on page 14.

PREMIUM
garage doors

Clopay®

America's Favorite Garage Doors®

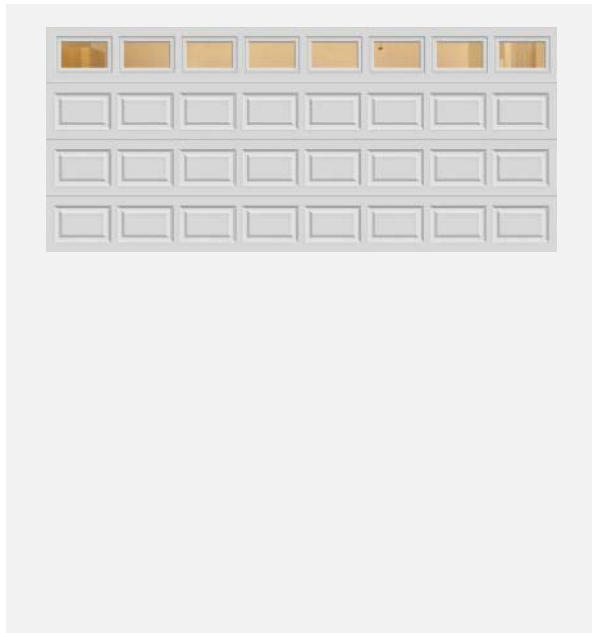*Model 9200, Short Elegant Panel with Optional Colonial 509 Window Design*

Clopaydoor.com

Your Completed Doors

(1) Garage Door

Classic™ Steel (Premium Series)

Size:	Top Section:
16' 0" X 7' 0"	Plain Short 19 1/2" x 12"
Style:	Placement:
Short Panel	4th Row
Construction:	Glass section :
3-layer 2" Intellicore® Insul. R-Value 18.4	1 Section
Base Color:	Glass:
Standard White	Double Pane Obscure Glass (Insulated)

Model 9203, Long Elegant Panel with Optional Charleston 608 Window Design

DETAIL

Deep panel edging and natural embossed woodgrain texture improve appearance close-up and from the curb.

STYLE

Elegant Short
Complements homes with traditional styling. Models 9200, 9130, 4300 and 4050.


Elegant Long
Ideal for ranch style homes. Models 9203, 9133, 4310 and 4053.

Doors range from 6' to 16' high and 6'2" to 20' wide. Consult your Clopay Dealer for size options.
WINDCODE® Doors are available to meet most regional wind load requirements.
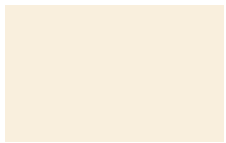*Consult your local dealer for specific information.*

Model 4050, Short Elegant Panel
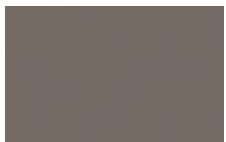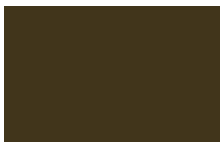*with Optional Colonial 509 Window Design*

COLORS
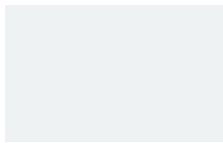
Standard White	Almond	Desert Tan
Sandtone	Bronze	Chocolate
Mocha Brown*	Hunter Green	Gray
Charcoal*	Black*†	

- Exterior steel on standard color doors has a natural woodgrain texture.

- Doors can be painted to match the home's exterior using a high-quality latex exterior paint. Do not use oil-based paint.

Due to the printing process, colors may vary. See your Clopay Dealer for color samples.

*Not available on Models 4050 and 4053.
† Additional charges apply.

CUSTOM PAINT OPTION

COLOR BLAST®

Color Blast® finish offers more than 1,500 Sherwin-Williams® color options to complement your home. Clopay's durable two-part paint system has been thoroughly tested and is backed by a five-year warranty.
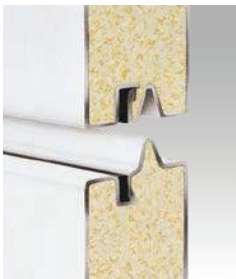
*Model 9200, Short Elegant Panel with Plain Short Windows;
Shown in Ultra-Grain® Classic Cherry Finish*

RUST-PREVENTION SYSTEM

Steel skins are protected through a tough, layered coating system, including a hot-dipped galvanized layer, a protective metal oxide pretreatment and a baked-on primer and top coat.

GREATER ENERGY EFFICIENCY

Thermal break* separates the interior from the exterior skin to improve energy efficiency and comfort.

Thermal break is not present on Models 4050 and 4053.

ENVIRONMENTAL ASSURANCE

Clopay doors are compliant with environmental laws and regulations. Clopay doors do not contain HFCs. All Clopay doors are compliant with:

- California SB 1013
- New Jersey A-5583/S-3919 – Greenhouse Gas Bill
- Washington HB 1112 – Hydrofluorocarbon Greenhouse Gas Emissions
- Canadian regulations amending the ozone-depleting substances and halocarbon alternatives regulations

WARRANTIES

PAINT SYSTEM	WINDOW	HARDWARE
LIMITED **LIFE** WARRANTY	LIMITED **10 YR** WARRANTY	LIMITED **3 YR** WARRANTY

WINDOW OPTIONS

Our windows add natural light to your garage while adding curb appeal to your home. All Clopay window frames are UV-protected and are color matched to our prefinished door colors. Window frames screw in from the inside for easy glass replacement or to change designs.

ARCHITECTURAL SERIES WINDOWS

These windows are from Clopay's Architectural Series, featuring a larger viewing area and are available on select models and heights.
Short windows are 19-1/2" × 16" and long windows are 42" × 16".

Available on These Models

9200* 9133
9203 4300*
9130* 4310

| Plain Short | Plain Long | ARCH2 | ARCH1 | ARCH3 | Trenton® Short | Trenton® Long |

| REC12 | REC14 | Vertical Grille on ARCH2 | Vertical Grille on ARCH1 | Vertical Grille on ARCH3 | Kristin® Short | Kristin® Long |

| SQ22 | SQ24 | Grille on ARCH2 | Grille on ARCH1 | Grille on ARCH3 | Clayton™ Short | Clayton™ Long |

| Wrought Iron Short (Acrylic) | Wrought Iron Long (Acrylic) | Wrought Iron ARCH (Acrylic) |

Windows are available single pane or insulated in clear, frosted, seeded, obscure and rain designs.
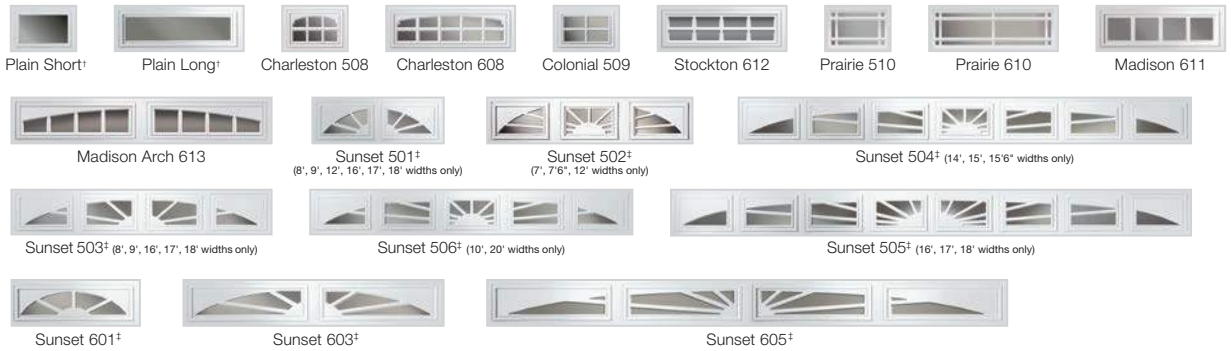
| Clear | Frosted | Seeded | Obscure | Rain |

DECORATIVE INSERT SERIES WINDOWS

UV-protected cellular plastic insert designs snap into either the inside or outside of the window frame for easy cleaning or to change designs. Windows are offered in single strength, double strength, acrylic, obscure or insulated glass. Short windows are 19-1/2" × 12" and long windows are 40-1/2" × 12".

Available on These Models

9200* 4300*
9203 4310
9130* 4050*
9133 4053

| Plain Short† | Plain Long† | Charleston 508 | Charleston 608 | Colonial 509 | Stockton 612 | Prairie 510 | Prairie 610 | Madison 611 |

| Madison Arch 613 | Sunset 501‡ (8', 9', 12', 16', 17', 18' widths only) | Sunset 502‡ (7', 7'6", 12' widths only) | Sunset 504‡ (14', 15', 15'6" widths only) |

| Sunset 503‡ (8', 9', 16', 17', 18' widths only) | Sunset 506‡ (10', 20' widths only) | Sunset 505‡ (16', 17', 18' widths only) |

| Sunset 601‡ | Sunset 603‡ | Sunset 605‡ |

Windows are available single pane or insulated in clear, frosted, obscure and rain designs. Clear acrylic also available.

| Clear | Frosted | Obscure | Rain |
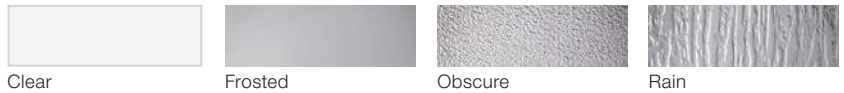
Short windows not available on long panel doors.
*Panel emboss may not align with windows due to size difference. Some size limitations apply.
† Shown with clear glass. Acrylic and obscure glass optional.
‡ Sunset windows not available on Ultra-Grain® finish doors.
Additional charges for optional glass apply.
Acrylic windows require special cleaning. Never use products that contain ammonia or petroleum products to clean acrylic. Please visit www.clopaydoor.com/acrylic for complete details.

Marquis Weathermax®
Sell Sheet
(RESRS122)

Updated: 7/15

GAF

®

Quality You Can Trust…From North America's Largest Roofing Manufacturer!™

MARQUIS WeatherMax®

SHINGLES

"Outstanding, All-Weather Performance!"

gaf.com
gaf.ca

Color Shown:
Autumn Brown

Autumn Brown   **Charcoal**   **Golden Cedar**   **Weathered Gray**

"Your Best Investment For Outstanding, All-Weather Performance"

SHINGLE & ACCESSORY LTD. WARRANTY
30 Years
LTD. WARRANTY TERM

ADVANCED PROTECTION™ TECHNOLOGY

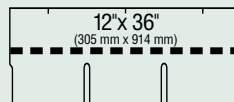Color Shown:
Golden Cedar

The top of the line in traditional "3-tab" shingles, Marquis WeatherMax® Shingles are designed for the discriminating homeowner who demands outstanding performance, classic detailing, and a traditional appeal.

for HOMEOWNERS

- *Your Best Investment...* For just pennies-a-day more than standard 3-tab shingles, Marquis WeatherMax® Shingles provide outstanding, all-weather performance
- *Stays In Place...* Passes the industry's two toughest wind tests: ASTM's 110 mph and 150 mph (177 & 241 km/h) wind tests (under controlled laboratory conditions)
- *Advanced Protection® Shingle Technology...* Reduces the use of precious natural resources while providing excellent protection for your home (visit gaf.com/aps to learn more)
- *Highest Fire Rating...* Class A fire rating from Underwriters Laboratories
- *Looks Great...* Color Lock™ Ceramic Firing (granules) helps maintain the true shingle color
- *Great For Resale...* Long-lasting beauty may increase your home's resale value
- *Peace Of Mind...* 30-year ltd. transferable warranty with Smart Choice® Protection (non-prorated material and installation labor coverage) for the first five years[1]

for PROFESSIONALS

- *Versatile...* Twice as sturdy as standard shingles, so they lie flatter and look better – excellent for reroofing or complete tear-offs
- *Dependable Performance..* Special Dura Grip™ Adhesive seals faster and easier than standard shingles – and at lower temperatures

12"x 36"
(305 mm x 914 mm)

QUALITY TESTED
·GOOD·
HOUSEKEEPING
Since ★ 1909
LIMITED WARRANTY • ghseal.com for details

Marquis WeatherMax® Shingles have earned the prestigious Good Housekeeping Seal, which means that Good Housekeeping stands behind this product. (Refer to Good Housekeeping Magazine for its consumer protection policy. Applicable in U.S. only.)

SPECIFICATIONS

Fiberglass Asphalt Construction
30-Year Ltd. Transferable Warranty[1]
80 mph Ltd. Wind Warranty[1]
Class A Fire Rated – UL 790
ASTM D3018 Type 1
ASTM D3462[2]
ASTM D3161, Class F
ASTM D7158, Class H

CSA A123.5
Approx. 79 Pieces/Square
Approx. 3 Bundles/Square
Approx. 316 Nails/Square
5" (127 mm) Exposure

[1] See *GAF Shingle & Accessory Ltd. Warranty* for complete coverage and restrictions.
[2] Periodically tested by independent and internal labs to ensure compliance with ASTM D3462 at time of manufacture.

Note: It is difficult to reproduce the color clarity and actual color blends of these products. Before selecting your color, please ask to see several full-size shingles.

GAF®

gaf.com
gaf.ca

General
Product
Information

Working
Safely

Tools for
Cutting and
Fastening

General
Installation
Requirements

General
Fastener
Requirements

Finishing and
Maintenance

HardieWrap®
Weather Barrier

HardieTrim®
Boards/Battens

HardieSoffit®
Panels

HardiePlank®
Lap Siding

HardieShingle®
Siding

HardiePanel®
Vertical Siding

Appendix/
Glossary

ESR-1844 &
2290 Report

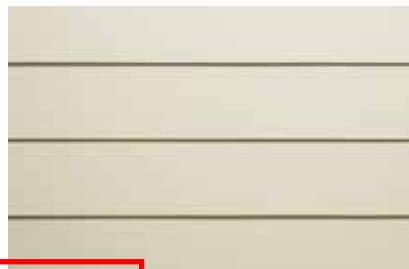# **Hardie**Plank ®

HardiePlank® Lap Siding Product Description

HardiePlank® lap siding is factory-primed fiber-cement lap siding available in a variety of styles and textures. Please see your local James Hardie® product dealer for product availability. HardiePlank lap siding comes in 12 ft. lengths. Nominal widths from 5 1/4 in to 12 in. create a range of exposures from 4 in to 10 3/4 in

   HardiePlank lap siding is also available with ColorPlus® Technology as one of James Hardie's prefinished products. ColorPlus® Technology is a factory applied, oven-baked finish available on a variety of James Hardie siding and trim products. See your local dealer for details and availability of products, colors, and accessories.

   The HZ5® product line is right at home in climates with freezing temperatures, seasonal temperature variations, snow and ice. HZ5® boards are the result of our generational evolution of our time-tested products. We've evolved our substrate composition to be specifically designed to perform in conditions found in these climates. To ensure that its beauty matches its durability, we've engineered the surface for higher performance, giving it superior paint adhesion and moisture resistance. In addition, we've added a drip edge to the HardiePlank® HZ5® lap siding product to provide improved water management in conditions specific to HZ5® climates.

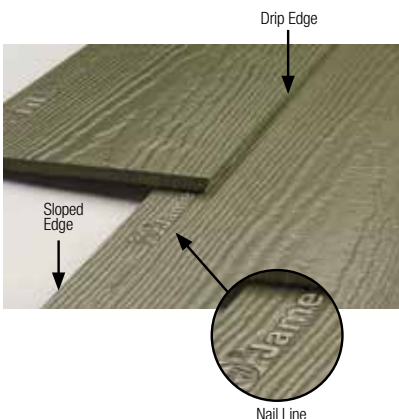**Select Cedarmill©**

Smooth

Beaded Cedarmill©

Beaded Smooth

Custom Colonial Roughsawn®

Custom Colonial Smooth®

Drip Edge

Sloped
Edge

Nail Line

85

General Product Information

Working Safely

Tools for Cutting and Fastening

General Installation Requirements

General Fastener Requirements

Finishing and Maintenance

HardieWrap® Weather Barrier

HardieTrim® Boards/Battens

HardieSoffit® Panels

HardiePlank® Lap Siding

HardieShingle® Siding

HardiePanel® Vertical Siding
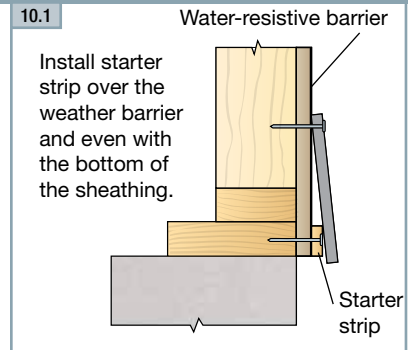
Appendix/ Glossary

ESR-1844 & 2290 Report

Installation of HardiePlank® Lap Siding
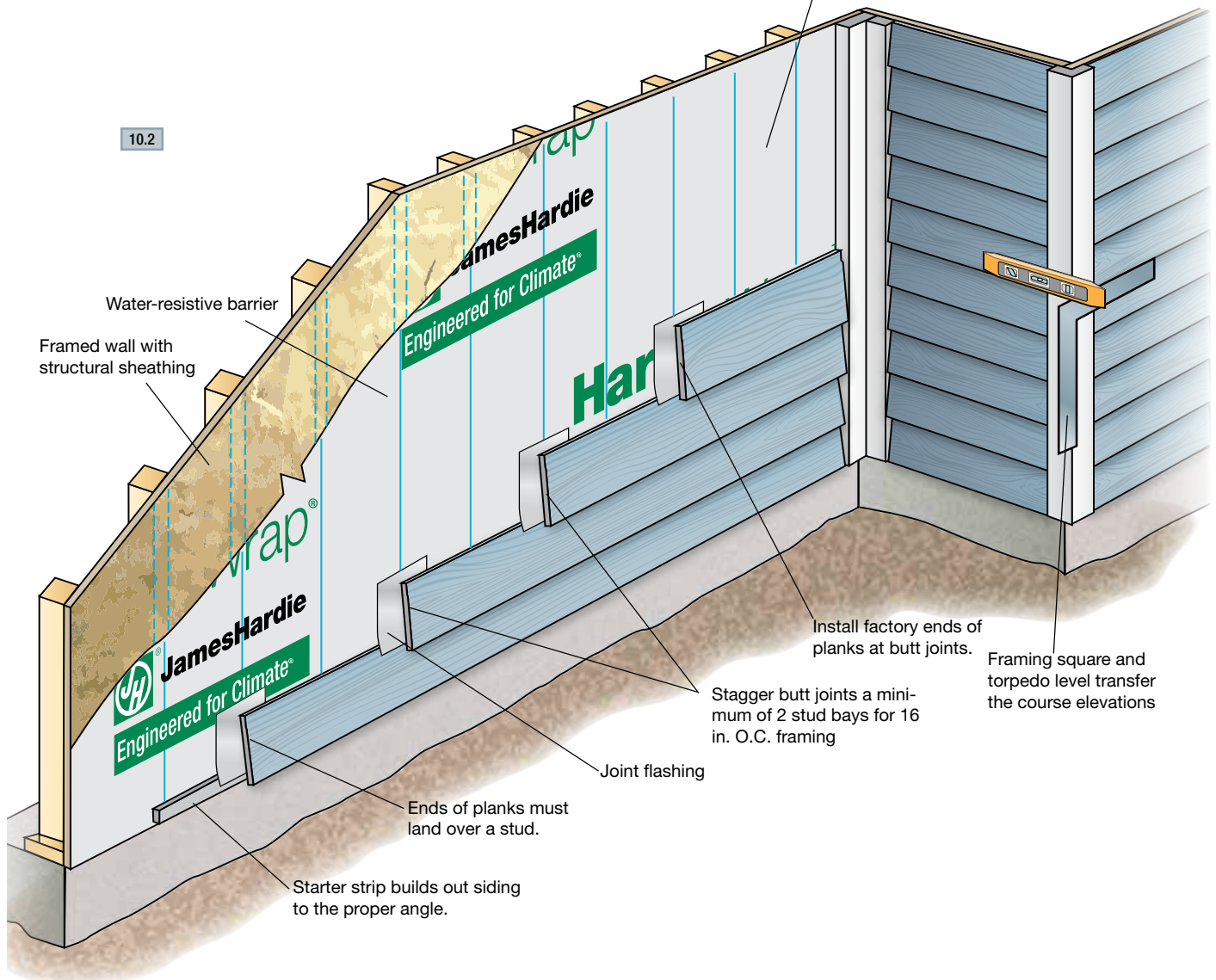
INSTALL A STARTER STRIP

HardiePlank® lap siding requires a starter strip beneath the first course to set it on the proper angle and to create a proper drip edge at the bottom of the siding. Starter strips are easily made by ripping 1¼ in. pieces of HardiePlank siding from full or partial planks.

The bottom of the starter strip should be installed even with the bottom of the mudsill or the bottom edge of the sheathing. The strip must be installed over the water-resistive barrier, but occasional gaps should be left in the starter strip to allow any accumulated moisture behind the siding to drain away safely.

10.1

Install starter strip over the weather barrier and even with the bottom of the sheathing.

Water-resistive barrier

Starter strip

OVERVIEW OF HARDIEPLANK LAP SIDING

TIP: For accurate fastening, snap vertical chalk lines on the water-resistive barrier at the center of every stud location.

10.2

Water-resistive barrier

Framed wall with structural sheathing

Install factory ends of planks at butt joints.

Framing square and torpedo level transfer the course elevations

Stagger butt joints a minimum of 2 stud bays for 16 in. O.C. framing

Joint flashing

Ends of planks must land over a stud.

Starter strip builds out siding to the proper angle.

INSTALLING THE PLANKS

The first course of HardiePlank® siding is critical to the proper installation of the plank on the rest of the building. The first course should start at the lowest point of the house and within required clearances. Special attention should be made to ensure that it's straight and level. Attention should also be paid to staggering any butt joints in the planks so that the installation is attractive while making efficient use of material.

10.3

Keep bottom edge of the first course even with the bottom of the corner trim.

6 in min

Use a level 4 ft. or longer level to check the first course.

Snapped chalk line guides the first course.

1. Use a level (4 ft. or longer) or chalked level line to be sure that the first course is level. As installation proceeds up the wall, periodically check the level and straightness of the courses. When correcting for flatness over products such as exterior insulation, use drywall shims. It is good practice to snap a chalk line every 3 to 5 courses to keep the planks straight and level.

2. Position the bottom edge of the first course of siding a minimum ¼ in below the edge of the starter strip (maintain required clearances) and secure.

3. Run the siding to the HardieTrim® board leaving a 1/8 in. gap between the siding and trim.

The bottom of the siding should be kept even with the bottom of the trim, or if desired, the trim may extend below the bottom of the siding. But the siding should never hang below the trim. ***When installing the first course make sure ground clearances are in accordance with James Hardie requirements and those of local codes.**
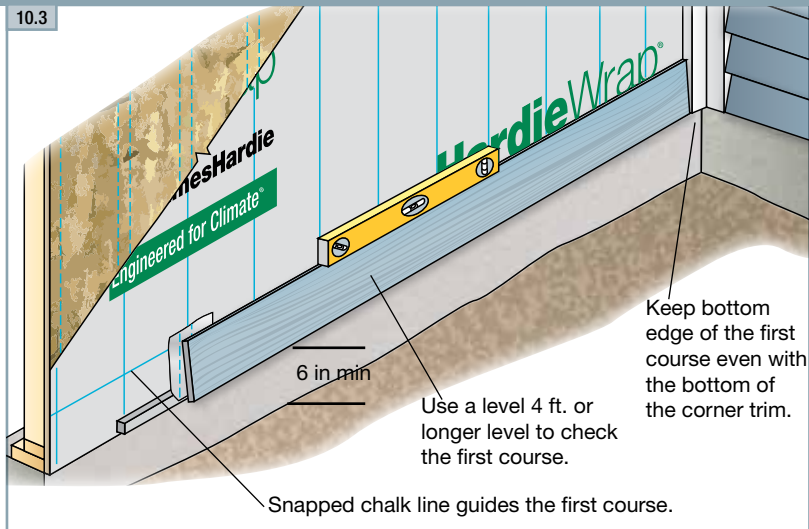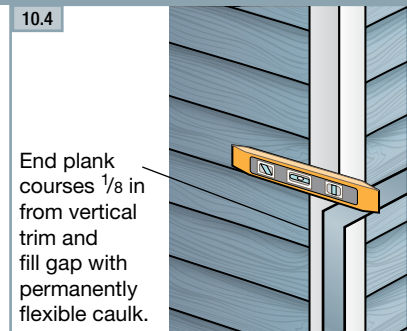
PLANK ALIGNMENT AT CORNERS

For the best looking installation, make sure that the heights of the plank courses match on both sides of a corner. Use a framing square, speed square or a level to match up the plank heights. Check every few courses to make sure proper heights are being maintained.

10.4

End plank courses 1/8 in from vertical trim and fill gap with permanently flexible caulk.

HANDLING

IMPORTANT: To prevent damage to the drip edge, extra care should be taken when removing planks from the pallet, while handling, and when installing with a lap gauge. Planks are interlocked together on the pallet, therefore they should be removed from the pallet horizontally (side to side) to allow planks to unlock themselves from one another.

Pull from across the stack

Do not go down the stack
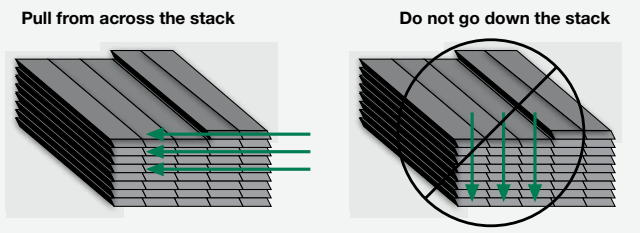
TIP: When taking planks from the pallet installation, avoid repeating the texture pattern by working across the pallet. Two to four planks can be removed from a stack at one time. But then material should be taken from adjacent stacks, again working across the pallet. Texture repeat is typically a concern on large walls with few breaks such as windows or doors.

General Product Information

Working Safely

Tools for Cutting and Fastening

General Installation Requirements

General Fastener Requirements

Finishing and Maintenance

HardieWrap® Weather Barrier

HardieTrim® Boards/Battens

HardieSoffit® Panels

HardiePlank® Lap Siding

HardieShingle® Siding

HardiePanel® Vertical Siding

Appendix/ Glossary

ESR-1844 & 2290 Report

General Product Information

Working Safely

Tools for Cutting and Fastening

General Installation Requirements

General Fastener Requirements

Finishing and Maintenance

HardieWrap® Weather Barrier

HardieTrim® Boards/Battens

HardieSoffit® Panels

HardiePlank® Lap Siding

HardieShingle® Siding

HardiePanel® Vertical Siding

Appendix/ Glossary

ESR-1844 & 2290 Report

Installation of HardiePlank® Lap Siding (cont.)

BLIND NAILING (nailing through top of plank)

Blind nailing is recommended for installing any type of HardiePlank® lap siding including ColorPlus® siding. With blind nailing, each course covers the fasteners on the course below, which provides a better looking installation.

For blind nailing HardiePlank lap siding, James Hardie recommends driving fasteners 1 in. from the top edge of the plank. Additionally fasteners should be placed no closer than 3/8 in from the ends of the plank.

10.5   Blind nailing measurments

Nails for blind nailing shall be between 3/4 in and 1 in. from the top of the board.
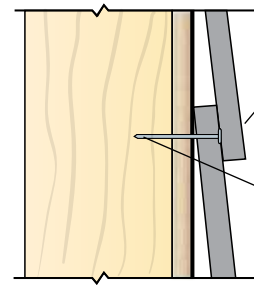
Keep nails ³/₈ in from ends of boards.
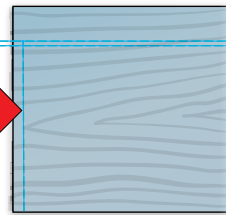
10.6   Blind nailing

Fasteners are hidden by the course above.

Nails are driven through the sheathing into the studs.

HardiePlank® HZ5® Lap Siding is manufactured with a nail line that should be used as a guide for proper nail placement when blind nailing. This nail line should not be used as a lap line.

Avoid placing fasteners near the top edge of the plank. This practice, called "high nailing", may lead to loose planks, unwanted gaps or rattling. **Pin-backed corners may be done for aesthetic purposes only. Finish nails are recommended for pin-backs. Headed siding nails are allowed. Place pin-backs no closer than 1in. from plank ends & 3/4in. from plank edge into min. 3/8in. wood structural panel. Pin-backs are not a substitute for blind or face nailing**

FACE NAILING (nailing through the overlap at the bottom of the plank)

Although blind nailing is recommended by James Hardie, face nailing may be required for certain. installations including: installations in high wind areas, fastening into OSB or equivalent sheathing without penetrating a stud, or when dictated by specific building codes. Refer to Appendix D for related code matters.

10.7   Face nailing

Exposed fasteners are driven through the face of the boards.

Drive fasteners only where planks overlap
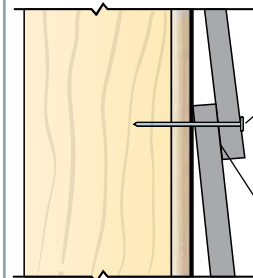
STAGGERING THE BUTT JOINTS

For walls longer than 12 ft, it is necessary to butt joint additional lengths of HardiePlank siding. These butt joints should be staggered to avoid noticeable patterns, which is determined by the placement of the first course. Butt joints between consecutive courses should be spaced apart by at least two stud bays for 16 in, o.c. framing or one bay for 24 in. o.c. framing.

While random placement of the planks is usually the most aesthetically pleasing, a progressive stagger pattern can make the job easier and faster without the pattern becoming too noticeable. With this strategy, the cut off piece for one course becomes the starter piece for a course above, making efficient use of materials and ensuring that all butt joints land on studs. The pattern can be modified for different stud placement.

10.8

Cutoff pieces form the starter pieces for courses above.
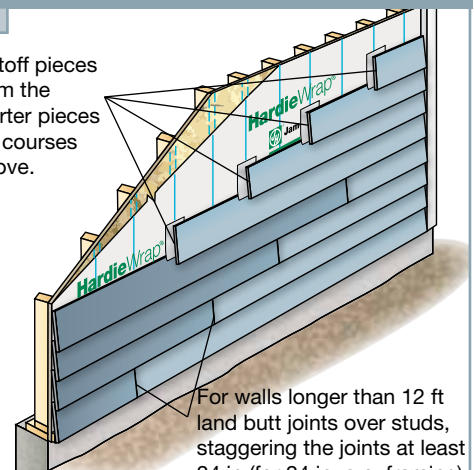
For walls longer than 12 ft land butt joints over studs, staggering the joints at least 24 in (for 24 in. o.c. framing) or 32 in. (two stud bays for 16 in. o.c. framing).

General
Product
Information

Working
Safely

Tools for
Cutting and
Fastening

General
Installation
Requirements

General
Fastener
Requirements

Finishing and
Maintenance

HardieWrap®
Weather Barrier

HardieTrim®
Boards/Battens

HardieSoffit®
Panels

HardiePlank®
Lap Siding

HardieShingle®
Siding

HardiePanel®
Vertical Siding

Appendix/
Glossary

ESR-1844 &
2290 Report

JOINT FLASHING

One or more of the following joint treatment options are required by code (as referenced 2009 IRC R703.10.2)

A. Joint Flashing (James Hardie recommended)

B. Caulking* (Caulking is not recommended for ColorPlus for aesthetic reasons as the Caulking and ColorPlus will weather differently. For the same reason, do not caulk nail heads on ColorPlus products.}

C. "H" jointer cover

Flashing behind butt joints provides an extra level of protection against the entry of water at the joint. James Hardie recommends 6 in. wide flashing that overlaps the course below by 1 in. Some local building codes may require different size flashing.

Joint-flashing material must be durable, waterproof materials that do not react with cement products. Examples of suitable material include finished coil stock and code compliant water-resistive barriers. Other products may also be suitable.

TIP: Joint flashing can be quickly and easily made by cutting a 6 in. wide section off a roll of housewrap. Tape the roll tightly at the cut mark and cut the section off using a miter saw with a carbide blade. Individual sheets then can be cut to length with a utility knife.
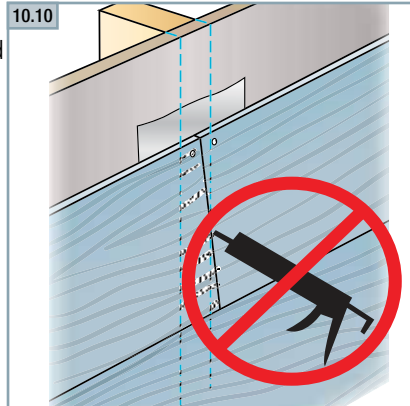
TIP: Use light-colored joint flashing when using light-colored ColorPlus lap siding or other siding with a light-colored finish. Dark-color joint flashings should be used on siding with dark finishes.

10.9 Flashing behind to add an additional layer of protection from water infiltration
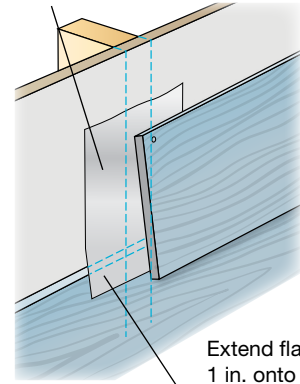
Extend flashing 1 in. onto the course below

10.10

Caulking at HardiePlank lap siding butt joints is not recommended for ColorPlus for aesthetic reasons as the caulking and ColorPlus will weather differently. For the same reason, do not caulk exposed nail heads. Refer to the ColorPlus touch-up section for details

JOINT PLACEMENT AND TREATMENT

Butt joints in HardiePlank lap siding should always land on a stud. Butt joints between studs are not recommended and should be avoided. Whenever possible, factory-finished ends should be used at butt joints.

Place cut ends where the siding meets a corner, door, window trim, or other break in the wall where the joint is to be caulked. If cut ends are used in a butt joint between planks, James Hardie requires sealing cut ends for all products. For ColorPlus products, use the color-matched edge coater to seal the cut end.

10.11 HardieWrap Hardie
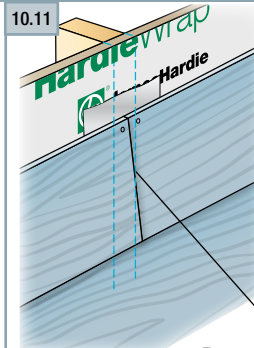
Butt planks with moderate edge contact

COLORPLUS® TIP: When installing HardiePlank lap siding with ColorPlus Technology, position the plank in the immediate area where the plank is to be fastened. Do not place the plank on the course below and slide into position. Doing so may scuff or scratch the ColorPlus finish on the installed piece.

General Product Information

Working Safely

Tools for Cutting and Fastening

General Installation Requirements

General Fastener Requirements

Finishing and Maintenance

HardieWrap® Weather Barrier

HardieTrim® Boards/Battens

HardieSoffit® Panels

HardiePlank® Lap Siding

HardieShingle® Siding

HardiePanel® Vertical Siding

Appendix/ Glossary

ESR-1844 & 2290 Report

Installation of HardiePlank® Lap Siding (cont.)

CONTINUING THE INSTALLATION

Once the initial course of HardiePlank® siding is fastened to the wall, continue installing successive courses with full 12 ft. pieces (follow the stagger pattern for longer walls), or until a window, door or other opening interrupts the course (fig 10.12). Notch planks as needed to fit around windows and doors. Again, be sure to seal all cut edges. Avoid placing butt joints directly above or below windows or above doors. Separate the joint from the opening by at least one course of siding.

Where butt joints land on a stud, make sure there is enough stud space for plank on both sides of the joint to land properly. Optimally both sides of a butt joint should land in the middle of a stud with 3/4 in landing space for each side. The minimum stud space for a plank to land is 3/8 in

Pay special attention to window, doors, and corners that have been trimmed before the siding goes on. Vertical trim boards may cover the king studs beside windows or doors, or they may cover up corner studs leaving no room for nailing the siding. In these places add extra studs as needed.

If corners are trimmed with HardieTrim® 5/4, 4/4 boards, it may be necessary to measure and cut the first pieces of siding to make sure the butt joints land on studs.
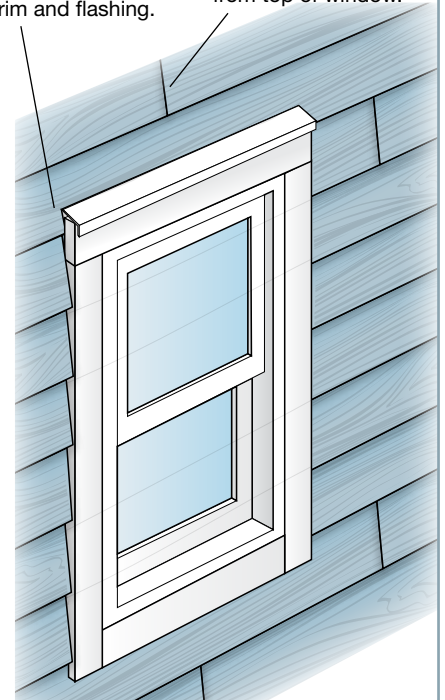
10.12 | **Planking around windows**

Add an extra stud if necessary for nailing the ends of the planks.
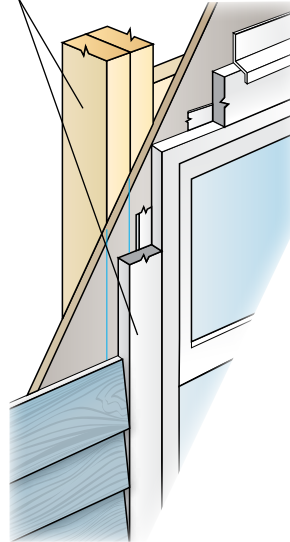
Notch plank around window trim and flashing.

Keep butt joints more than one course away from top of window.

COLORPLUS TIP: HardiePlank lap siding with ColorPlus Technology is shipped with a protective laminate slip sheet, which should be left in place during cutting and fastening to reduce marring and scratching. The sheet should be removed immediately after each plank is installed.

INSTALLING HARDIEPLANK® SIDING ON GABLE WALLS

Siding gable walls can be challenging, and some of the keys to siding gable walls efficiently are determining the angle or pitch of the roof, properly staging materials, and ensuring that the plank lengths are measured accurately.

To estimate the amount of siding needed to complete a gable end, use the estimating tools located in Appendix C.

Stage enough material on the pump jacks or scaffolding to complete the gable end, but take care not to overload the staging. When possible, a cut table should be located on the pump jacks or scaffolding, which frees up crew members to work on other walls.

To cut planks for the gable:

1. Tack up a small scrap piece of siding where the first gable course is going.

2. Hold a second small piece of siding against the eave or rake board.

3. Trace the angle onto the scrap.

4. Cut that line and label the scrap as the template for the gable angle. The template can then be used to transfer the angle onto the larger pieces for cutting and installation.

5. Periodically check the angle as you progress up the wall.

The quickest way to measure and cut consecutive courses of siding for a gable is to work off the previous piece.

1. Cut and fit the lowest course of siding.

2. Before installing, lay it flat and measure down 1¼ in. from the top edge of the plank for the course overlap. Make a mark on both ends.

3. Set a piece of uncut siding on top of the first piece, aligning the bottom edge with the overlap marks. Transfer the length directly to the uncut piece.

4. Draw the gable angle with the template, cut the angle and then repeat the process for the next course.

TIP: Stainless steel fasteners are recommended when installing James Hardie® products.
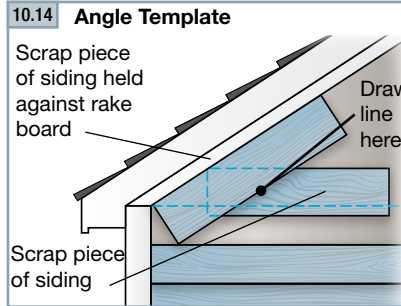
10.13

4 Draw the angle, cut and repeat the process for the next course.

Tip for fast gable installation

3 Place a plank for the next piece on the overlap lines and mark the length.

2 Before installing, measure down the 1¼ in. overlap at the top of the board.

1 Measure, cut and fit lowest gable plank using gable angle template.

10.14 Angle Template

Scrap piece of siding held against rake board

Draw line here

Scrap piece of siding

HARDIEPLANK® SIDING FASTENER SPECIFICATIONS

The Fastener Specifications table shows fastener options for a variety of different nailing substrates. Please refer to the applicable ESR report online (see back page) to determine which fastener meets your wind load design criteria.

Fastener Substrate			Approved Fastener	Fastener Type
wood studs	blind nail	16 in o.c.	③ ⑨ ⑯	② .113 in x .267 in x 2 in — **6D common**
		24 in o.c.		③ .093 in x .222 in. x 2 in — **6D siding nail**
	face nail	16 in o.c.	② ⑤	⑨ No 11ga 1.25 in long — **roofing nail**
		24 in o.c.	② ⑤	⑦ Ribbed Bugle-Head No. 8 .323 in x 1.625 in — **screws**
steel studs*	blind nail	16 in o.c.	⑧ ⑬	⑧ Ribbed Wafer-Head No. 8 (.375 in x 1.25 in)
		24 in o.c.		⑫ [AKN-100] .100 in x .25 in x 1.5 in — **ET&F**
	face nail	16 in o.c.	⑦ ⑫	⑬ [AGS-100] .100 in x .313 in x 1.5 in
		24 in o.c.		⑭ masonry nail [ASTM C-90] ASM-144-125 (P/C) .30 in x .14 in x 1.25 in
Direct to Masonry			⑭	⑤ .113 in x .260 in x 2.375 in — **8D common**
7/16 in OSB or equivalent (face nailed)			④	⑯ No 11ga 1.75 in long — **roofing nail**
				④ .091 in. x .221 in. x 1.5 in — **4D siding nail**

*When blind fastening 9.5 in or wider product onto steel studs, use screws.

● *indicates recommended fasteners*

General Product Information

Working Safely

Tools for Cutting and Fastening

General Installation Requirements

General Fastener Requirements

Finishing and Maintenance

HardieWrap® Weather Barrier

HardieTrim® Boards/Battens

HardieSoffit® Panels

HardiePlank® Lap Siding

HardieShingle® Siding

HardiePanel® Vertical Siding

Appendix/ Glossary

ESR-1844 & 2290 Report

HardiePlank® Lap Siding

IMPORTANT: FAILURE TO FOLLOW JAMES HARDIE WRITTEN INSTALLATION INSTRUCTIONS AND COMPLY WITH APPLICABLE BUILDING CODES MAY VIOLATE LOCAL LAWS, AFFECT BUILDING ENVELOPE PERFORMANCE AND MAY AFFECT WARRANTY COVERAGE. FAILURE TO COMPLY WITH ALL HEALTH AND SAFETY REGULATIONS WHEN CUTTING AND INSTALLING THIS PRODUCT MAY RESULT IN PERSONAL INJURY. BEFORE INSTALLATION, CONFIRM YOU ARE USING THE CORRECT HARDIEZONE® PRODUCT INSTRUCTIONS BY VISITING HARDIEZONE.COM OR CALL 1-866-942-7343 (866-9-HARDIE)

STORAGE & HANDLING:

Store flat and keep dry and covered prior to installation. Installing siding wet or saturated may result in shrinkage at butt joints. Carry planks on edge. Protect edges and corners from breakage. James Hardie is not responsible for damage caused by improper storage and handling of the product.
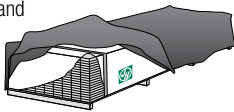
⚠ CUTTING INSTRUCTIONS

OUTDOORS
1. Position cutting station so that airflow blows dust away from the user and others near the cutting area.
2. Cut using one of the following methods:
   a. Best: Circular saw equipped with a HardieBlade® saw blade and attached vacuum dust collection system. Shears (manual, pneumatic or electric) may also be used, not recommended for products thicker than 7/16 in.
   b. Better: Circular saw equipped with a dust collection feature (e.g. Roan® saw) and a HardieBlade saw blade.
   c. Good: Circular saw equipped with a HardieBlade saw blade.

INDOORS
DO NOT grind or cut with a power saw indoors. Cut using shears (manual, pneumatic or electric) or the score and snap method, not recommended for products thicker than 7/16 in.

- DO NOT dry sweep dust; use wet dust suppression or vacuum to collect dust.
- For maximum dust reduction, James Hardie recommends using the "Best" cutting practices. Always follow the equipment manufacturer's instructions for proper operation.
- For best performance when cutting with a circular saw, James Hardie recommends using HardieBlade® saw blades.
- Go to jameshardiepros.com for additional cutting and dust control recommendations.

IMPORTANT: The Occupational Safety and Health Administration (OSHA) regulates workplace exposure to silica dust. For construction sites, OSHA has deemed that cutting fiber cement with a circular saw having a blade diameter less than 8 inches and connected to a commercially available dust collection system per manufacturer's instructions results in exposures below the OSHA Permissible Exposure Limit (PEL) for respirable crystalline silica, without the need for additional respiratory protection.

If you are unsure about how to comply with OSHA silica dust regulations, consult a qualified industrial hygienist or safety professional, or contact your James Hardie technical sales representative for assistance. James Hardie makes no representation or warranty that adopting a particular cutting practice will assure your compliance with OSHA rules or other applicable laws and safety requirements.

IMPORTANT: To prevent damage to the drip edge, extra care should be taken when removing planks from the pallet, while handling, and when installing with a lap gauge. Please see additional handling requirements on page 4.
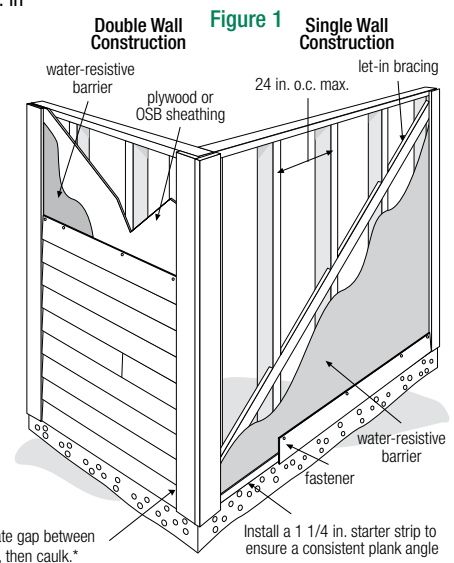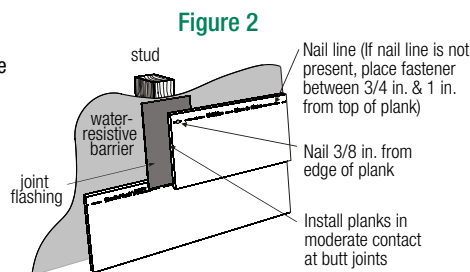
GENERAL REQUIREMENTS:

- HardiePlank® lap siding can be installed over braced wood or steel studs, 20 gauge (33 mils) minimum to 16 gauge (54 mils) maximum, spaced a maximum of 24 in o.c. or directly to minimum 7/16 in thick OSB sheathing. See General Fastening Requirements. Irregularities in framing and sheathing can mirror through the finished application. Correct irregularities before installing siding.
- Information on installing James Hardie products over non-nailable substrates (ex: gypsum, foam,etc.) can be located in JH Tech Bulletin 19 at www.jamehardie.com
- A water-resistive barrier is required in accordance with local building code requirements. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements. James Hardie will assume no responsibility for water infiltration. James Hardie does manufacture HardieWrap® Weather Barrier, a non-woven non-perforated housewrap[1], which complies with building code requirements.
- Adjacent finished grade must slope away from the building in accordance with local building codes - typically a minimum of 6 in. in the first 10 ft..
- Do not use HardiePlank lap siding in Fascia or Trim applications.
- Do not install James Hardie products, such that they may remain in contact with standing water.
- HardiePlank lap siding may be installed on flat vertical wall applications only.
- For larger projects, including commercial and multi-family projects, where the span of the wall is significant in length, the designer and/or architect should take into consideration the coefficient of thermal expansion and moisture movement of the product in their design. These values can be found in the Technical Bulletin "Expansion Characteristics of James Hardie® Siding Products" at www.jameshardie.com.
- James Hardie Building Products provides installation /wind load information for buildings with a maximum mean roof height of 85 feet. For information on installations above 60 feet, please contact JH technical support.

INSTALLATION: JOINT TREATMENT

One or more of the following joint treatment options are required by code (as referenced 2009 IRC R703.10.2)
A. Joint Flashing (James Hardie recommended)
B. Caulking* (Caulking is not recommended for ColorPlus for aesthetic reasons as the Caulking and ColorPlus will weather differently. For the same reason, do not caulk nail heads on ColorPlus products.)
C. "H" jointer cover

Figure 2

stud
water-resistive barrier
joint flashing

Nail line (If nail line is not present, place fastener between 3/4 in. & 1 in. from top of plank)
Nail 3/8 in. from edge of plank
Install planks in moderate contact at butt joints

Figure 1

Double Wall Construction
water-resistive barrier
plywood or OSB sheathing

Single Wall Construction
24 in. o.c. max.
let-in bracing

water-resistive barrier
fastener

Leave appropriate gap between planks and trim, then caulk.*

Install a 1 1/4 in. starter strip to ensure a consistent plank angle

Note: Field painting over caulking may produce a sheen difference when compared to the field painted PrimePlus. *Refer to Caulking section in these instructions.
[1]For additional information on HardieWrap® Weather Barrier, consult James Hardie at 1-866-4Hardie or www.hardiewrap.com

SELECT CEDARMILL© I SMOOTH I BEADED CEDARMILL© I BEADED SMOOTH

Visit jameshardiepros.com for the most recent version.

HS11117 P1/4 09/19
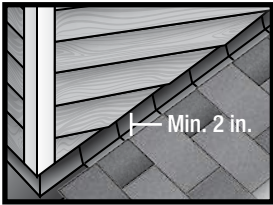
CLEARANCE AND FLASHING REQUIREMENTS

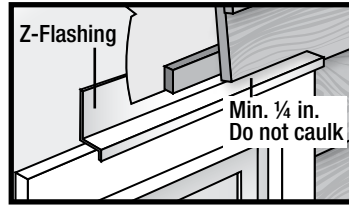**Figure 3**
Roof to Wall

Min. 2 in.

Figure 4
Horizontal Flashing

Z-Flashing

Min. ¼ in.
Do not caulk

Figure 5
Kickout Flashing

As required
by IRC code
min 4 in. x 4 in.
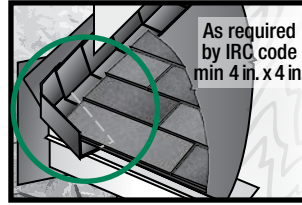
Figure 6
Slabs, Path, Steps to Siding

Min. 2 in.
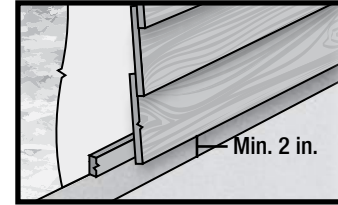
Figure 7
Deck to Wall

Z-Flashing

Min.
2 in.
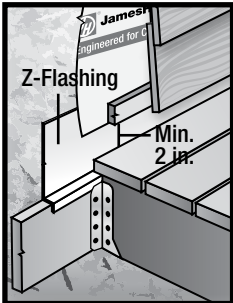
Figure 8
Ground to Siding

6 in.
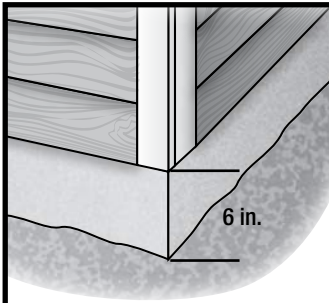
Figure 9
Gutter to Siding

1in.
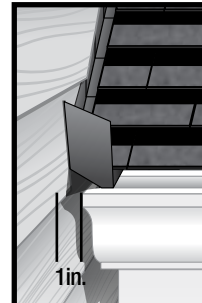
Figure 10
Sheltered Areas

Z-Flashing

Min. ½ in.
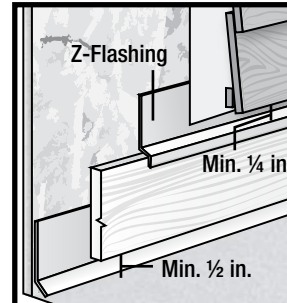
Figure 11
Mortar/Masonry

L-Flashing

Z-Flashing

Min. ¼ in.
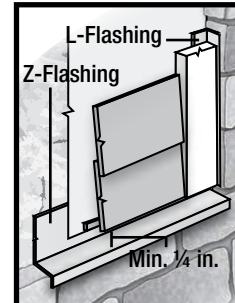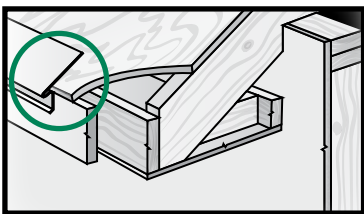
Figure 12
Drip Edge

Figure 13
Block Penetration

Z-Flashing

Min. ¼ in.
Do not caulk

Figure 14
Valley/Shingle Extension

Extend shingles
at least 1 in.
out from the
fascia when
gutters are
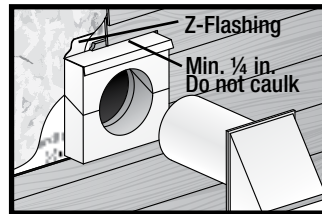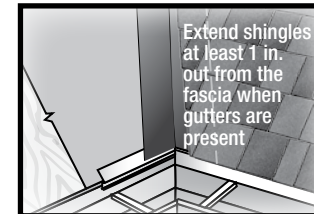present

FASTENER REQUIREMENTS*

Refer to the applicable ESR report online to determine which fastener meets your wind load design criteria.

Blind Nailing is the preferred method of installation for HardiePlank® lap siding products. Face nailing should only be used where required by code for high wind areas and must not be used in conjunction with Blind nailing (Please see JH Tech bulletin 17 for exemption when doing a repair).

BLIND NAILING

Nails - Wood Framing
- Siding nail (0.09 in. shank x 0.221 in. HD x 2 in. long)
- 11ga. roofing nail (0.121 in. shank x 0.371 in. HD x 1.25 in. long)

Screws - Steel Framing
- Ribbed Wafer-head or equivalent (No. 8 x 1 1/4 in. long x 0.375 in. HD) Screws must penetrate 3 threads into metal framing.

Nails - Steel Framing
- ET & F Panelfast® nails or equivalent (0.10 in. shank x 0.313 in. HD x 1-1/2 in. long) Nails must penetrate minimum 1/4 in. into metal framing.

OSB minimum 7/16 in.
- Siding nail (0.09 in. shank x 0.215 in. HD x 1-1/2 in. long
- Ribbed Wafer-head or equivalent (No. 8 x 1 5/8 in. long x 0.375 in. HD).

FACE NAILING

Nails - Wood Framing
- 6d (0.113 in. shank x 0.267 in. HD x 2 in. long)
- Siding nail (0.09" shank x 0.221" HD x 2" long)

Screws - Steel Framing
- Ribbed Bugle-head or equivalent (No. 8-18 x 1-5/8 in. long x 0.323 in. HD) Screws must penetrate 3 threads into metal framing.

Nails - Steel Framing
- ET & F pin or equivalent (0.10 in. shank x 0.25 in. HD x 1-1/2 in. long) Nails must penetrate minimum 1/4 in. into metal framing.

OSB minimum 7/16 in.
- Siding nail (0.09 in. shank x 0.221 in. HD x 1-1/2 in. long)

*Also see General Fastening Requirements; and when considering alternative fastening options refer to James Hardie's Technical Bulletin USTB 5 - Fastening Tips for HardiePlank Lap Siding.

FASTENER REQUIREMENTS *continued*
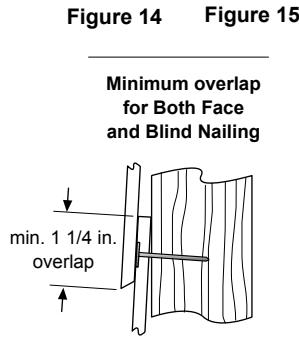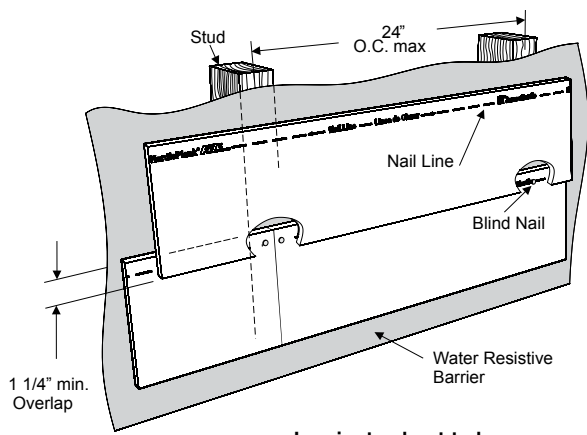
Laminate sheet to be removed immediately after installation of each course for ColorPlus® products.

Pin-backed corners may be done for aesthetic purposes only. Finish nails are recommended for pin-backs. Headed siding nails are allowed. Place pin-backs no closer than 1 in. from plank ends and 3/4 in. from plank edge into min. 3/8 in. wood structural panel. Pin-backs are not a substitute for blind or face nailing.

GENERAL FASTENING REQUIREMENTS

Fasteners must be corrosion resistant, galvanized, or stainless steel. Electro-galvanized are acceptable but may exhibit premature corrosion.   James Hardie recommends the use of quality, hot-dipped galvanized nails. James Hardie is not responsible for the corrosion resistance of fasteners. Stainless steel fasteners are recommended when installing James Hardie® products near the ocean, large bodies of water, or in very humid climates.

Manufacturers of ACQ and CA preservative-treated wood recommend spacer materials or other physical barriers to prevent direct contact of ACQ or CA preservative-treated wood and aluminum products. Fasteners used to attach HardieTrim Tabs to preservative-treated wood shall be of hot dipped zinc-coated galvanized steel or stainless steel and in accordance to 2009 IRC R317.3 or 2009 IBC 2304.9.5

- Consult applicable product evaluation or listing for correct fasteners type and placement to achieve specified design wind loads.
- NOTE: Published wind loads may not be applicable to all areas where Local Building Codes have specific jurisdiction. Consult James Hardie Technical Services if you are unsure of applicable compliance documentation.
- Drive fasteners perpendicular to siding and framing.
- Fastener heads should fit snug against siding (no air space).
- NOTE: Whenever a structural member is present, HardiePlank should be fastened with even spacing to the structural member. The tables allowing direct to OSB or plywood should only be used when traditional framing is not available.

CUT EDGE TREATMENT

Caulk, paint or prime all field cut edges. James Hardie touch-up kits are required to touch-up ColorPlus products.

CAULKING

For best results use an Elastomeric Joint Sealant complying with ASTM C920 Grade NS, Class 25 or higher or a Latex Joint Sealant complying with ASTM C834. Caulking/Sealant must be applied in accordance with the caulking/sealant manufacturer's written instructions. **Note: some caulking manufacturers do not allow "tooling".**

PAINTING

DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® products. Factory-primed James Hardie products must be painted within 180 days of installation. 100% acrylic topcoats are recommended. Do not paint when wet. For application rates refer to paint manufacturers specifications. Back-rolling is recommended if the siding is sprayed.

PNEUMATIC FASTENING

James Hardie products can be hand nailed or fastened with a pneumatic tool. Pneumatic fastening is highly recommended. Set air pressure so that the fastener is driven snug with the surface of the siding. A flush mount attachment on the pneumatic tool is recommended. This will help control the depth the nail is driven. If setting the nail depth proves difficult, choose a setting that under drives the nail. (Drive under driven nails snug with a smooth faced hammer - Does not apply for installation to steel framing).

HS11117 P3/4 09/19

COLORPLUS® TECHNOLOGY CAULKING, TOUCH-UP & LAMINATE

- Care should be taken when handling and cutting James Hardie ColorPlus® products. During installation use a wet soft cloth or soft brush to gently wipe off any residue or construction dust left on the product, then rinse with a garden hose.
- Touch up nicks, scrapes and nail heads using the ColorPlus® Technology touch-up applicator. Touch-up should be used sparingly. If large areas require touch-up, replace the damaged area with new HardiePlank® lap siding with ColorPlus® Technology.
- Laminate sheet must be removed immediately after installation of each course.
- Terminate non-factory cut edges into trim where possible, and caulk. Color matched caulks are available from your ColorPlus® product dealer.
- Treat all other non-factory cut edges using the ColorPlus Technology edge coaters, available from your ColorPlus product dealer.
Note: James Hardie does not warrant the usage of third party touch-up or paints used as touch-up on James Hardie ColorPlus products.

Problems with appearance or performance arising from use of third party touch-up paints or paints used as touch-up that are not James Hardie touch-up will not be covered under the James Hardie ColorPlus Limited Finish Warranty.

COVERAGE CHART/ESTIMATING GUIDE
Number of 12 ft. planks, does not include waste

COVERAGE AREA LESS OPENINGS										
		HARDIEPLANK® LAP SIDING WIDTH								
SQ (1 SQ = 100 sq.ft.)	(exposure)	5 1/4 / 4	6 1/4 / 5	7 1/4 / 6	7 1/2 / 6 1/4	8 / 6 3/4	8 1/4 / 7	9 1/4 / 8	9 1/2 / 8 1/4	12 / 10 3/4
1		25	20	17	16	15	14	13	13	9
2		50	40	33	32	30	29	25	25	19
3		75	60	50	48	44	43	38	38	28
4		100	80	67	64	59	57	50	50	37
5		125	100	83	80	74	71	63	63	47
6		150	120	100	96	89	86	75	75	56
7		175	140	117	112	104	100	88	88	65
8		200	160	133	128	119	114	100	100	74
9		225	180	150	144	133	129	113	113	84
10		250	200	167	160	148	143	125	125	93
11		275	220	183	176	163	157	138	138	102
12		300	240	200	192	178	171	150	150	112
13		325	260	217	208	193	186	163	163	121
14		350	280	233	224	207	200	175	175	130
15		375	300	250	240	222	214	188	188	140
16		400	320	267	256	237	229	200	200	149
17		425	340	283	272	252	243	213	213	158
18		450	360	300	288	267	257	225	225	167
19		475	380	317	304	281	271	238	238	177
20		500	400	333	320	296	286	250	250	186

This coverage chart is meant as a guide. Actual usage is subject to variables such as building design. James Hardie does not assume responsibility for over or under ordering of product.

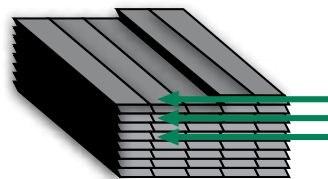## PAINTING JAMES HARDIE® SIDING AND TRIM PRODUCTS WITH COLORPLUS® TECHNOLOGY
When repainting ColorPlus products, James Hardie recommends the following regarding surface preparation and topcoat application:
- Ensure the surface is clean, dry, and free of any dust, dirt, or mildew
- Repriming is normally not necessary
- 100% acrylic topcoats are recommended
- DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products.
- Apply finish coat in accordance with paint manufacturers written instructions regarding coverage, application methods, and application temperature
- DO NOT caulk nail heads when using ColorPlus products, refer to the ColorPlus touch-up section
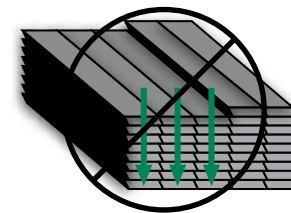
ADDITIONAL HANDLING REQUIREMENTS

IMPORTANT: To prevent damage to the drip edge, extra care should be taken when removing planks from the pallet, while handling, and when installing with a lap gauge. Planks are interlocked together on the pallet, therefore they should be removed from the pallet horizontally (side to side) to allow planks to unlock themselves from one another.

Pull from across the stack

Do not go down the stack

HS11117 P4/4 09/19

RECOGNITION: In accordance with ICC-ES Evaluation Report ESR-2290, HardiePlank® lap siding is recognized as a suitable alternate to that specified in the 2006, 2009, 2012 & 2015 International Residential Code for One and Two-Family Dwellings, and the 2006, 2009, 2012 & 2015 International Building Code. HardiePlank lap siding is also recognized for application in the following: City of Los Angeles Research Report No. 24862, State of Florida Product Approval FL#13192, Miami-Dade County Florida NOA No. 17-0406.06, U.S. Dept. of HUD Materials Release 1263f, Texas Department of Insurance Product Evaluation EC-23, City of New York MEA 223-93-M, and California DSA PA-019. These documents should also be consulted for additional information concerning the suitability of this product for specific applications.

Product warranties, safety information and additional installation information are available at jameshardiepros.com

JamesHardie™

Supporting documents for this product:

Test Reports:
    https://media.pella.com/professional/adm/CertificationReports/Test_Reports_AS-Clad.pdf

CSI Specs (readable using Microsoft Word or other text editing application):
    https://media.pella.com/professional/adm/Wood-CSI_Specs/08551-PRC.rtf

AIA Masterspec (readable using Microsoft Word or other text editing application):
    https://media.pella.com/professional/adm/Wood-CSI_Specs/Masterspec/08550FL_finished.rtf

Detailed Product Description (readable using Microsoft Word or other text editing application):
    https://media.pella.com/professional/adm/Clad-Wood/PRC-Casement-C.rtf

Size Tables (requires appropriate CAD software to read and use):
    https://media.pella.com/professional/adm/Clad-Wood/PRC-CM-Elev_D.dwg

CAD cross sections (requires appropriate CAD software to read and use):
    https://media.pella.com/professional/adm/Clad-Wood/PRC-CM-Detail_D.dwg

3D & BIM (requires appropriate software to read and use):
    https://media.pella.com/professional/adm/RevitFiles/PR-Revit/Window-Casement-Pella-Reserve-Contemporary.zip

Sketchup (requires appropriate software to read and use):
    https://media.pella.com/professional/adm/Clad-Wood-ASC/PellaSKP_PellaReserve_Contemporary_Casement.zip

Combination Recommendations:
    https://media.pella.com/professional/adm/Clad-Wood/D_Combinations.pdf

Installation Details:
    https://media.pella.com/professional/adm/Clad-Wood/F_InstallationDetails.pdf

Impact-Resistant Casement, Complete Product Information:
    https://media.pella.com/professional/adm/Clad-Wood/Pella-ImpactResistant_Casement.pdf

Rectangular and Angled Shapes

Sizes	
Standard vent / fixed sizes	●
Standard fixed companion sizes	●
Egress sizes	●
Special sizes available	●

Performance[1]	
Meets or Exceeds AAMA / WDMA Ratings	R30 - CW50 Hallmark Certified
Air Infiltration (cfm/ft^2 of frame @ 1.57 psf wind pressure)[2]	0.05
Water Resistance	7.5 psf
Design Pressure	30 - 50 psf

Other Performance Criteria	
Forced Entry Resistance Level (Minimum Security Grade)[3]	10
Operating Force (lb) Initiate Motion / Maintain Motion (of Hallmark tested size and glazing)[4]	15 / 6

Sound Transmission Class / Outdoor-Indoor Transmission Class							
Product	Frame Size Tested[5]	Glazing System				STC Rating	OITC Rating
		Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness	Third Pane Thickness		
Contemporary Clad Window	**Vent with No Grilles**						
	23" x 59"	11/16"	2.5mm	2.5mm	—	26	23
	23" x 59"	11/16"	5mm	3mm	—	31	26
	23" x 59"	11/16"	3mm	6.0mm PVB	—	34	28
	Fixed with No Grilles						
	47" x 59"	11/16"	3mm	3mm	—	28	24
	47" x 59"	11/16"	5mm	3mm	—	31	26
	47" x 59"	11/16"	3mm	6.0mm PVB	—	33	29

(—) = Not Available
(1) Maximum performance for single unit when glazed with the appropriate glass thickness. See Design Data pages in this section for specific product performance class and grade values. Values shown are for standard and special sizes; Custom sizes may not have the same values. Contact your local sales representative for complete information.
(2) Published performance data for air infiltration is determined by testing a minimum of four (4) products of NFRC model size. Testing is conducted in accordance with ASTM E283. Air infiltration ratings for products will differ by size. The performance data does not apply to combination assemblies unless noted. Actual product performance may vary for a number of reasons including installation and product care.
(3) The higher the level, the greater the product's ability to resist forced entry.
(4) Glazing configurations may result in higher operational forces.
(5) ASTM E 1425 defines standard sizes for acoustical testing. Ratings achieved at that size are representative of all sizes of the same configuration.
NOTE: Performance with additional options may not be the same as Standard and Special size units. Please contact your local Pella representative for complete information.

Standard	Options / Upgrades
Glazing	
Glazing Type	
Dual-Pane Insulating Glass	Triple-Pane Insulating Glass
Insulated Glass Options/Low-E Types	
Advanced Low-E	SunDefense™ Low-E
	SunDefense+ Low-E
	AdvancedComfort Low-E
	NaturalSun Low-E
	NaturalSun+ Low-E
	Clear (no Low-E coating)
Additional Glass Options	
Annealed Glass	Tempered Glass
	Obscure Glass [1]
	Tinted Glass (Bronze, Gray and Green)
	Noise reduction glass (5mm/3mm or 4mm/6mm combination)
	Noise reduction laminated glass (non-impact)
Gas Fill/High Altitude	
Argon	High altitude
	High Altitude with Argon [2]
Wood Types	
Pine	Mahogany, Douglas Fir
Exterior	
Exterior Sash Profile	
Square	—
Exterior Finish	
EnduraClad® protective finish	EnduraClad Plus protective finish
Cladding Colors [1]	
Standard colors	Feature Colors, Custom Colors
Interior	
Interior Sash Profile	
Square	—
Interior Finish	
Unfinished wood	Factory primed [3], Factory prefinished paint [3], Factory prefinished stain
Hardware	
Hardware Type	
Wash hinge Hardware	Side Pivot
Hardware Style	
Saldo, Fold-Away crank	—
Hardware Finishes	
Champagne, White, Brown or Matte Black	Satin Brass, Satin Nickel, Oil-Rubbed Bronze, Polished Chrome
Sash Locks	
SureLock® System, Unison Lock System [4]	—
Grilles	
Integral Light Technology® Grilles	
—	Traditional, Prairie, Top Row, Cross, Custom
Grilles-Between-the-Glass	
—	Traditional, Prairie, Top Row [1], Cross, Custom-Equally Divided
Screens	
—	InView™ screens

(1) Contact your local Pella sales representative for current designs and color options.
(2) Available with Low-E argon-insulated glass only.
(3) Not available on Mahogany and Douglas Fir interiors.
(4) Unit height determines availability.

Combinations are a great way to create visual interest in any project. A combination is an assembly formed by two or more separate windows or doors whose frames are mulled together by a combination or reinforcing mullion.

Pella window combinations are available in an endless variety of arrangements. Below are some examples available factory-assembled combinations. See the Combinations Recommendations document for typical mullions, requirements and limitations.

Contact your local Pella sales representative for more information.
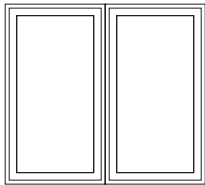
Two-Wide
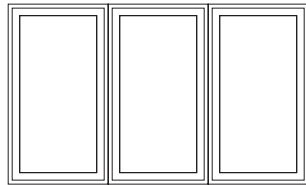
Three-Wide Equal
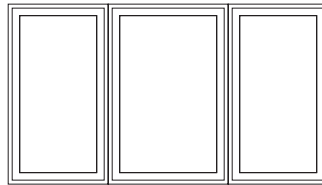
Three-Wide Unequal
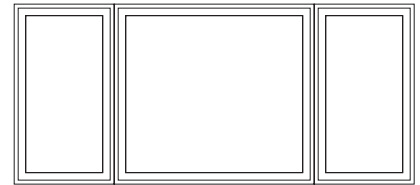
Center Fixed with Flankers
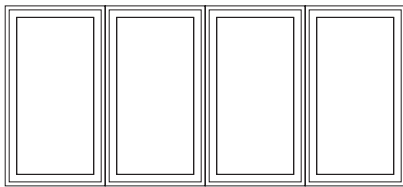
Four-Wide
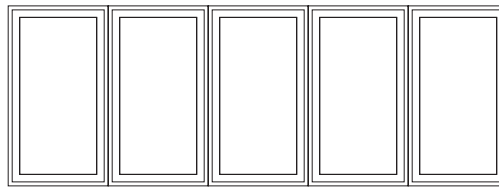
Five-Wide
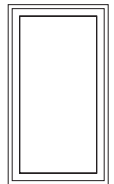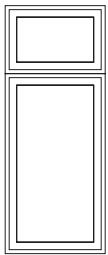
Transom over Single

Two-Wide Transom over Two-Wide

Three-Wide Transom over Three-Wide

Four-Wide Transom over Four-Wide

Two-High

Clad Frame over Single

Two-Wide Clad Frame over Two-Wide

Three-Wide Clad Frame over Three-Wide

Four-Wide Clad Frame over Four-Wide

Single Clad Frame over Two-Wide

Single Clad Frame over Three-Wide

Three-Wide Clad Frame over Three-Wide Unequal

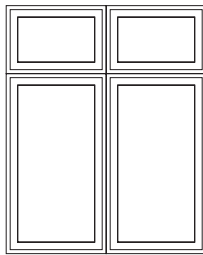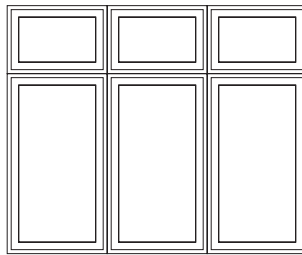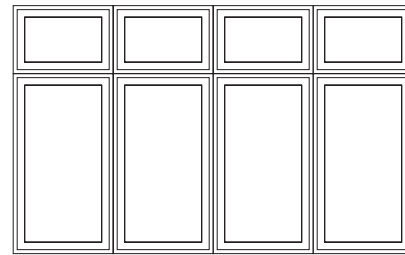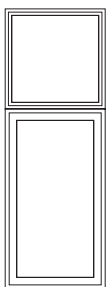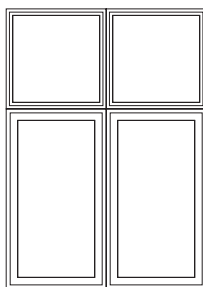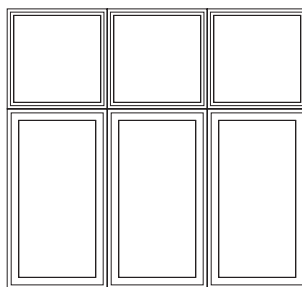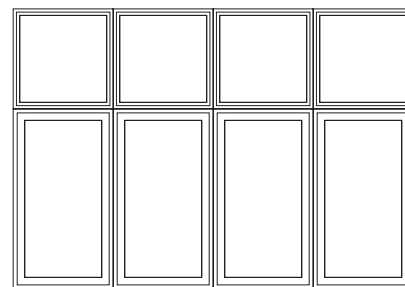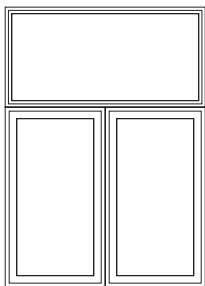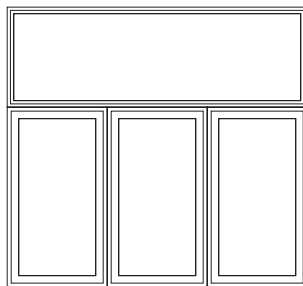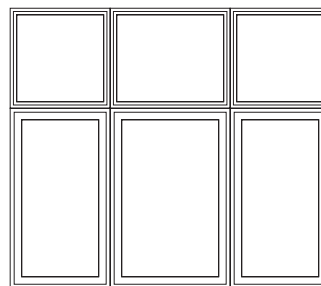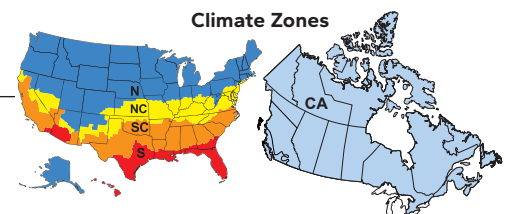| Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) ENCt.	Glass (mm) Int.	Gap Fill	Performance Values[1] U-Factor	SHGC	VLT %	CR	Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown U.S. Zone N	NC	SC	S	Canada[2] ER	CA
Vent Dual-Pane Glazing — Aluminum-Clad Exterior										N	NC	SC	S		CA
11/16"	Clear IG	PEL-N-11-24121-00001	3	3	air	0.45	0.57	0.59	42						
	with grilles-between-the-glass	PEL-N-11-24122-00001				0.45	0.52	0.54	42						
	with integral grilles	PEL-N-11-24123-00001				0.45	0.52	0.54	42						
11/16"	Advanced Low-E IG	PEL-N-11-24313-00001	3	3	argon	0.29	0.27	0.51	57						
	with grilles-between-the-glass	PEL-N-11-24314-00001				0.29	0.25	0.46	57						
	with integral grilles	PEL-N-11-24315-00001				0.29	0.25	0.46	57						
11/16"	SunDefense™ Low-E IG	PEL-N-11-24317-00001	3	3	argon	0.28	0.20	0.47	57			SC	S		
	with grilles-between-the-glass	PEL-N-11-24318-00001				0.28	0.19	0.42	57			SC	S		
	with integral grilles	PEL-N-11-24319-00001				0.29	0.19	0.42	57				S		
11/16"	SunDefense+ Low-E IG	PEL-N-11-26013-00001	3	3	argon	0.25	0.20	0.46	45		NC	SC	S		
	with grilles-between-the-glass	PEL-N-11-26014-00001				0.25	0.18	0.41	45		NC	SC	S		
	with integral grilles	PEL-N-11-26015-00001				0.25	0.18	0.41	45		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-11-24325-00001	3	3	argon	0.25	0.27	0.49	45		NC				
	with grilles-between-the-glass	PEL-N-11-24326-00001				0.25	0.24	0.45	45		NC				
	with integral grilles	PEL-N-11-24327-00001				0.26	0.24	0.45	45						
11/16"	NaturalSun Low-E IG	PEL-N-11-21563-00002	3	3	argon	0.30	0.50	0.57	56						
	with grilles-between-the-glass	PEL-N-11-21751-00002				0.30	0.46	0.52	56						
	with integral grilles	PEL-N-11-21754-00002				0.31	0.46	0.52	56						
11/16"	NaturalSun+ Low-E IG	PEL-N-11-25941-00001	3	3	argon	0.26	0.46	0.56	44	N				34	CA
	with grilles-between-the-glass	PEL-N-11-25942-00001				0.26	0.42	0.51	44	N					
	with integral grilles	PEL-N-11-25943-00001				0.26	0.42	0.51	44	N					
Vent Dual-Pane Tinted Glazing															
11/16"	Bronze Advanced Low-E IG	PEL-N-11-24449-00002	5	3	argon	0.29	0.24	0.33	56						
	with grilles-between-the-glass	PEL-N-11-24450-00002				0.30	0.22	0.30	56				S		
	with integral grilles	PEL-N-11-24451-00002				0.30	0.22	0.30	56				S		
11/16"	Gray Advanced Low-E IG	PEL-N-11-24449-00003	5	3	argon	0.29	0.22	0.28	56				S		
	with grilles-between-the-glass	PEL-N-11-24450-00003				0.30	0.20	0.26	56				S		
	with integral grilles	PEL-N-11-24451-00003				0.30	0.20	0.26	56				S		
11/16"	Green Advanced Low-E IG	PEL-N-11-24449-00004	5	3	argon	0.29	0.27	0.44	56						
	with grilles-between-the-glass	PEL-N-11-24450-00004				0.30	0.25	0.40	56						
	with integral grilles	PEL-N-11-24451-00004				0.30	0.25	0.40	56						
Vent Dual-Pane High Altitude Glazing															
11/16"	Advanced Low-E IG	PEL-N-11-24145-00001	3	3	air	0.32	0.27	0.51	54						
	with grilles-between-the-glass	PEL-N-11-24146-00001				0.32	0.25	0.46	54						
	with integral grilles	PEL-N-11-24147-00001				0.33	0.25	0.46	54						
11/16"	SunDefense Low-E IG	PEL-N-11-24169-00001	3	3	air	0.32	0.21	0.47	54				S		
	with grilles-between-the-glass	PEL-N-11-24170-00001				0.32	0.19	0.42	54				S		
	with integral grilles	PEL-N-11-24171-00001				0.33	0.19	0.42	54						
11/16"	SunDefense+ Low-E IG	PEL-N-11-26009-00001	3	3	Gap	0.27	0.20	0.46	42			SC	S		
	with grilles-between-the-glass	PEL-N-11-26010-00001				0.27	0.18	0.41	42			SC	S		
	with integral grilles	PEL-N-11-26011-00001				0.28	0.18	0.41	42			SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-11-24217-00001	3	3	air	0.28	0.27	0.49	41						
	with grilles-between-the-glass	PEL-N-11-24218-00001				0.28	0.24	0.45	41						
	with integral grilles	PEL-N-11-24219-00001				0.28	0.24	0.45	41						
11/16"	NaturalSun Low-E IG	PEL-N-11-24193-00001	3	3	air	0.33	0.50	0.57	53						
	with grilles-between-the-glass	PEL-N-11-24194-00001				0.33	0.45	0.52	53						
	with integral grilles	PEL-N-11-24195-00001				0.34	0.45	0.52	53						
11/16"	NaturalSun+ Low-E IG	PEL-N-11-25937-00001	3	3	air	0.28	0.45	0.56	41						
	with grilles-between-the-glass	PEL-N-11-25938-00001				0.28	0.41	0.51	41						
	with integral grilles	PEL-N-11-25939-00001				0.29	0.41	0.51	41						

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Climate Zones

(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2023 (Version 7) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) ENCt.	Int.	Gap Fill	U-Factor	SHGC	VLT %	CR	N	NC	SC	S	ER	CA
Fixed Dual-Pane Glazing — Aluminum-Clad Exterior										**N**	**NC**	**SC**	**S**		**CA**
11/16"	Clear IG	PEL-N-1-59119-00001	3	3	air	0.46	0.64	0.67	42						
	with grilles-between-the-glass	PEL-N-1-59120-00001				0.46	0.58	0.60	42						
	with integral grilles	PEL-N-1-59121-00001				0.46	0.58	0.60	42						
11/16"	Advanced Low-E IG	PEL-N-1-59311-00001	3	3	argon	0.27	0.30	0.57	57						
	with grilles-between-the-glass	PEL-N-1-59312-00001				0.27	0.28	0.51	57						
	with integral grilles	PEL-N-1-59313-00001				0.28	0.28	0.51	57						
11/16"	SunDefense™ Low-E IG	PEL-N-1-59315-00001	3	3	argon	0.27	0.23	0.53	57			SC	S		
	with grilles-between-the-glass	PEL-N-1-59316-00001				0.27	0.21	0.47	57			SC	S		
	with integral grilles	PEL-N-1-59317-00001				0.28	0.21	0.47	57			SC	S		
11/16"	SunDefense+ Low-E IG	PEL-N-1-61941-00001	3	3	argon	0.23	0.22	0.52	45		NC	SC	S		
	with grilles-between-the-glass	PEL-N-1-61942-00001				0.23	0.20	0.46	45		NC	SC	S		
	with integral grilles	PEL-N-1-61943-00001				0.24	0.20	0.46	45		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-1-59323-00001	3	3	argon	0.23	0.30	0.56	44		NC				
	with grilles-between-the-glass	PEL-N-1-59324-00001				0.23	0.27	0.50	44		NC				
	with integral grilles	PEL-N-1-59325-00001				0.24	0.27	0.50	44		NC				
11/16"	NaturalSun Low-E IG	PEL-N-1-59319-00001	3	3	argon	0.28	0.56	0.65	56					37	CA
	with grilles-between-the-glass	PEL-N-1-59320-00001				0.28	0.51	0.58	56					34	CA
	with integral grilles	PEL-N-1-59321-00001				0.29	0.51	0.58	56						
11/16"	NaturalSun+ Low-E IG	PEL-N-1-61869-00001	3	3	argon	0.24	0.51	0.63	44	N				39	CA
	with grilles-between-the-glass	PEL-N-1-61870-00001				0.24	0.46	0.57	44	N				37	CA
	with integral grilles	PEL-N-1-61871-00001				0.25	0.46	0.57	44	N				35	CA
Fixed Dual-Pane Tinted Glazing															
11/16"	Bronze Advanced Low-E	PEL-N-1-59447-00002	5	3	argon	0.28	0.27	0.37	56						
	with grilles-between-the-glass	PEL-N-1-59448-00002				0.29	0.25	0.33	56						
	with integral grilles	PEL-N-1-59449-00002				0.29	0.25	0.33	56						
11/16"	Gray Advanced Low-E IG	PEL-N-1-59447-00003	5	3	argon	0.28	0.25	0.32	56						
	with grilles-between-the-glass	PEL-N-1-59448-00003				0.29	0.23	0.29	56				S		
	with integral grilles	PEL-N-1-59449-00003				0.29	0.23	0.29	56				S		
11/16"	Green Advanced Low-E IG	PEL-N-1-59447-00004	5	3	argon	0.28	0.31	0.50	56						
	with grilles-between-the-glass	PEL-N-1-59448-00004				0.29	0.28	0.45	56						
	with integral grilles	PEL-N-1-59449-00004				0.29	0.28	0.45	56						
Fixed Dual-Pane High Altitude Glazing															
11/16"	Advanced Low-E IG	PEL-N-1-59143-00001	3	3	air	0.31	0.31	0.57	53						
	with grilles-between-the-glass	PEL-N-1-59144-00001				0.31	0.28	0.51	53						
	with integral grilles	PEL-N-1-59145-00001				0.32	0.28	0.51	53						
11/16"	SunDefense Low-E IG	PEL-N-1-59167-00001	3	3	air	0.31	0.23	0.53	53				S		
	with grilles-between-the-glass	PEL-N-1-59168-00001				0.31	0.21	0.47	53				S		
	with integral grilles	PEL-N-1-59169-00001				0.32	0.21	0.47	53				S		
11/16"	SunDefense+ Low-E IG	PEL-N-1-61937-00001	3	3	air	0.26	0.22	0.52	41			SC	S		
	with grilles-between-the-glass	PEL-N-1-61938-00001				0.26	0.20	0.46	41			SC	S		
	with integral grilles	PEL-N-1-61939-00001				0.27	0.20	0.46	41			SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-1-59215-00001	3	3	air	0.26	0.30	0.56	41						
	with grilles-between-the-glass	PEL-N-1-59216-00001				0.26	0.27	0.50	41						
	with integral grilles	PEL-N-1-59217-00001				0.27	0.27	0.50	41						
11/16"	NaturalSun Low-E IG	PEL-N-1-59191-00001	3	3	air	0.32	0.56	0.65	53						
	with grilles-between-the-glass	PEL-N-1-59192-00001				0.32	0.51	0.58	53						
	with integral grilles	PEL-N-1-59193-00001				0.33	0.51	0.58	53						
11/16"	NaturalSun+ Low-E IG	PEL-N-1-61865-00001	3	3	air	0.27	0.51	0.63	40					36	CA
	with grilles-between-the-glass	PEL-N-1-61866-00001				0.27	0.46	0.57	40						
	with integral grilles	PEL-N-1-61867-00001				0.27	0.46	0.57	40						

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Climate Zones

(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2023 (Version 7) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.
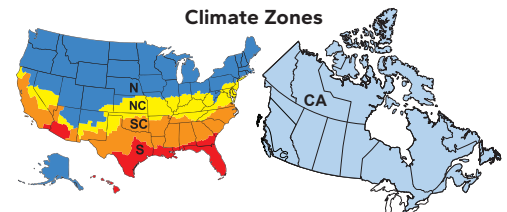
Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Glass (mm) Mid.	Glass (mm) Int.	Gap Fill	U-Factor	SHGC	VLT %	CR	U.S. Zone N	U.S. Zone NC	U.S. Zone SC	U.S. Zone S	Canada ER	Canada CA
Vent Triple-Pane Glazing — Aluminum-Clad Exterior											**N**	**NC**	**SC**	**S**		**CA**
1"	Advanced Low-E IG	PEL-N-11-24333-00001	3	3	3	argon	0.23	0.25	0.45	65		NC				
	with grilles-between-the-glass	PEL-N-11-24334-00001					0.23	0.23	0.40	65		NC	SC	S		
	with integral grilles	PEL-N-11-24335-00001					0.23	0.23	0.40	65		NC	SC	S		
1"	SunDefense™ Low-E IG	PEL-N-11-24337-00001	3	3	3	argon	0.23	0.18	0.41	65		NC	SC	S		
	with grilles-between-the-glass	PEL-N-11-24338-00001					0.23	0.17	0.37	65		NC	SC	S		
	with integral grilles	PEL-N-11-24339-00001					0.23	0.17	0.37	65		NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-11-24329-00001	3	3	3	argon	0.23	0.41	0.50	65	N				35	CA
	with grilles-between-the-glass	PEL-N-11-24330-00001					0.24	0.37	0.46	65	N	NC				
	with integral grilles	PEL-N-11-24331-00001					0.23	0.37	0.46	65	N	NC				
Vent Triple-Pane High Altitude Glazing																
1"	Advanced Low-E IG	PEL-N-11-24269-00001	3	3	3	air	0.26	0.25	0.45	62						
	with grilles-between-the-glass	PEL-N-11-24270-00001					0.26	0.23	0.40	62			SC	S		
	with integral grilles	PEL-N-11-24271-00001					0.26	0.23	0.40	62			SC	S		
1"	SunDefense Low-E IG	PEL-N-11-24277-00001	3	3	3	air	0.26	0.19	0.41	62			SC	S		
	with grilles-between-the-glass	PEL-N-11-24278-00001					0.26	0.17	0.37	62			SC	S		
	with integral grilles	PEL-N-11-24279-00001					0.26	0.17	0.37	62			SC	S		
1"	NaturalSun Low-E IG	PEL-N-11-24261-00001	3	3	3	air	0.26	0.41	0.50	61	N					
	with grilles-between-the-glass	PEL-N-11-24262-00001					0.27	0.37	0.46	61						
	with integral grilles	PEL-N-11-24263-00001					0.27	0.37	0.46	61						

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2023 (Version 7) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.
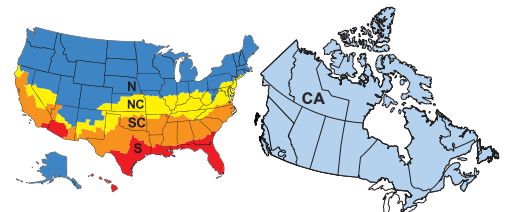
Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm) Ext.	Mid.	Int.	Gap Fill	U-Factor	SHGC	VLT %	CR	U.S. Zone N	NC	SC	S	Canada ER	CA
Fixed Triple-Pane Glazing — Aluminum-Clad Exterior											N	NC	SC	S		CA
1"	Advanced Low-E IG	PEL-N-1-59331-00001	3	3	3	argon	0.21	0.28	0.51	65	N	NC			30	CA
	with grilles-between-the-glass	PEL-N-1-59332-00001					0.21	0.25	0.45	65	N	NC			28	CA
	with integral grilles	PEL-N-1-59333-00001					0.21	0.25	0.45	65	N	NC			28	CA
1"	SunDefense™ Low-E IG	PEL-N-1-59335-00001	3	3	3	argon	0.20	0.21	0.47	66	N	NC	SC	S	27	CA
	with grilles-between-the-glass	PEL-N-1-59336-00001					0.21	0.19	0.42	66	N	NC	SC	S	25	CA
	with integral grilles	PEL-N-1-59337-00001					0.21	0.19	0.42	66	N	NC	SC	S	25	CA
1"	NaturalSun Low-E IG	PEL-N-1-59327-00001	3	3	3	argon	0.21	0.46	0.57	65	N				40	CA
	with grilles-between-the-glass	PEL-N-1-59328-00001					0.22	0.42	0.51	65	N				37	CA
	with integral grilles	PEL-N-1-59329-00001					0.21	0.42	0.51	65	N				38	CA
Fixed Triple-Pane High Altitude Glazing																
1"	Advanced Low-E IG	PEL-N-1-59267-00001	3	3	3	air	0.24	0.28	0.51	62		NC				
	with grilles-between-the-glass	PEL-N-1-59268-00001					0.25	0.25	0.45	62		NC				
	with integral grilles	PEL-N-1-59269-00001					0.25	0.25	0.45	62		NC				
1"	SunDefense Low-E IG	PEL-N-1-59275-00001	3	3	3	air	0.24	0.21	0.47	62		NC	SC	S		
	with grilles-between-the-glass	PEL-N-1-59276-00001					0.25	0.19	0.42	62		NC	SC	S		
	with integral grilles	PEL-N-1-59277-00001					0.25	0.19	0.42	62		NC	SC	S		
1"	NaturalSun Low-E IG	PEL-N-1-59259-00001	3	3	3	air	0.25	0.46	0.57	62	N				35	CA
	with grilles-between-the-glass	PEL-N-1-59260-00001					0.25	0.42	0.51	62	N					
	with integral grilles	PEL-N-1-59261-00001					0.25	0.42	0.51	62	N					

Header note: Performance Values[1] | Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown | Canada[2]

R-Value = 1/U-Factor
SHGC = Solar Heat Gain Coefficient
VLT % = Visible Light Transmission
CR = Condensation Resistance
ER = Canadian Energy Rating

Climate Zones

(1) Glazing performance values are calculated for Pine using NFRC 100, NFRC 200 and NFRC 500. Thermal performance of other wood species may vary. ENERGY STAR® values are updated to 2023 (Version 7) criteria.
(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
Based on unit size, some products will use 2.5 mm glass that will have equivalent or improved performance from what is shown.
See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.
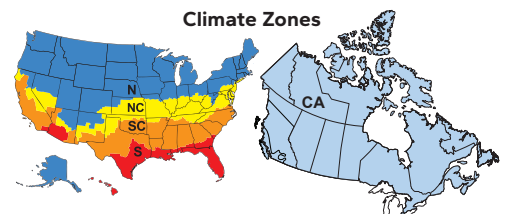
For a complete list of ratings, refer to the Impact-Resistant product section.

Product	Design Pressure Large Missile Rating D		Hallmark Certified	Florida Product Approval System
	Minimum	Maximum		
Vent Units				
11/16" Insulated Glass PVB	75	75	411-H-1339	FL10015.1
1" Insulated Glass SGP	75	+75 / -85	411-H-1339	FL10015.3
Fixed Units				
11/16" Insulated Glass PVB	75	75	411-H-1339	FL10022.1
1" Insulated Glass SGP	+75 / -85	+75 / -85	411-H-1339	FL10022.4
Large Fixed Units				
11/16" Insulated Glass PVB	75	75	411-H-1339	FL10022.1
1" Insulated Glass SGP	75	+75 / -85	411-H-1339	FL10022.4
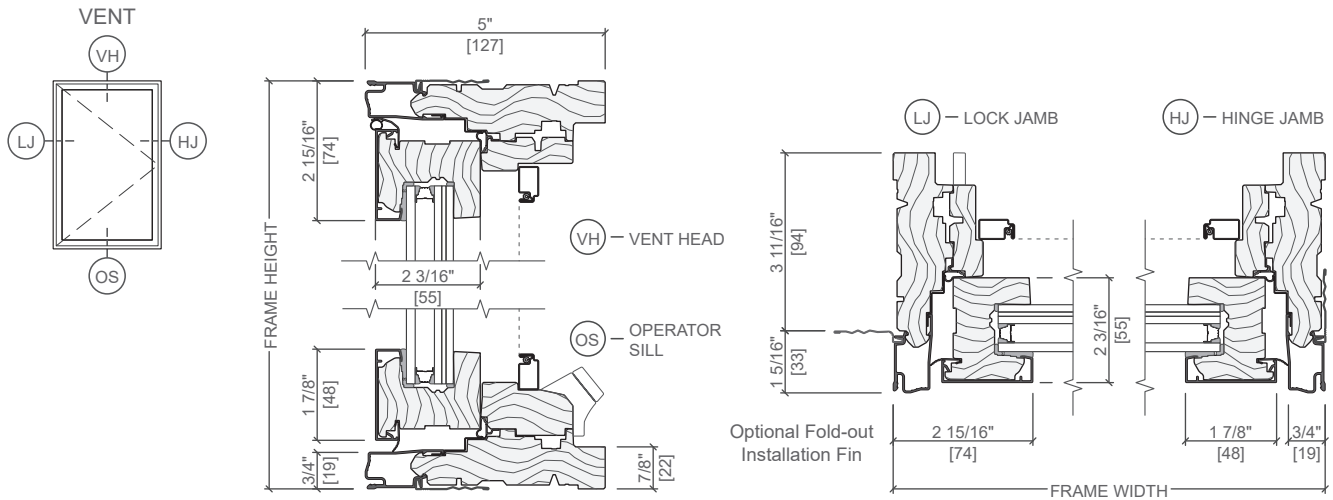
(—) = Not Available
1-7/8" sash stiles and rails are standard for impact-resistant units.
All sizes and glass types are tested for air/water/structural and impact-cresistance, and are certified for wind zone 4, large missile rating D.
Florida Product Approval System number not needed if Miami-Dade County approved.
Consult your local building code to ensure products meet all requirements.

Contemporary Style Collection - Integral Light Technology ®

Square Grilles
Clad Exterior - Wood Interior
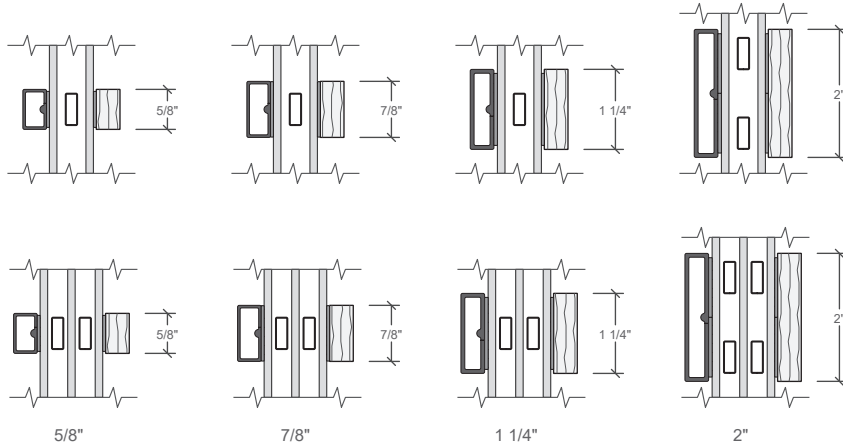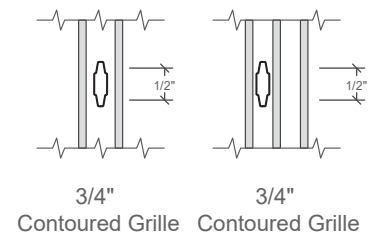
Grilles-Between-the-Glass

5/8"

7/8"

1 1/4"

2"

5/8"

7/8"

1 1/4"

2"

5/8"

7/8"

1 1/4"

2"

1/2"

1/2"

3/4"
Contoured Grille

3/4"
Contoured Grille

Integral Light Technology® Grilles

Prairie Lite Patterns

Size range availability is for 3/4", 7/8" and 1-1/4" grille width.
Standard corner lite dimension for Prairie patterns = 2-1/2" VG.

9-Lite
   - Available in all standard and special sizes.

Other Available Patterns

Cross
   - Standard visible glass to separator bar = one-quarter of total
     visible glass height.
Top Row
   - Standard visible glass to separator bar = 14" or half of total
     visible glass height, whichever is smaller.

VG

VG

VG

VG
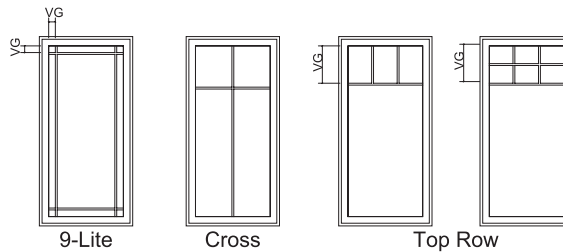
9-Lite   **Cross**   **Top Row**

Grilles-Between-the-Glass

Available Patterns

9-Lite
- Available in all standard and special sizes.

Cross
   - Available for units with frame heights ≥35". Standard visible
     glass to separator bar = 1/4 of total visible glass height.

Top Row
   - Standard visible glass to separator bar = 14" for frame
     heights >35". Standard visible glass to separator bar = 21"
     for 35" frame heights and optional for 41" frame height.
     Separator bar at 12" or 16" optional for frame heights >41".

VG

VG

VG

VG

9-Lite   **Cross**   **Top Row**
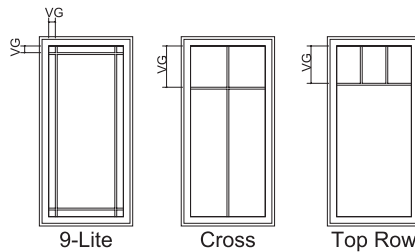
For traditional patterns, see size tables.

VG = Visible Glass
Lite dimensions noted can vary.
Custom configurations are also available, for details contact your local Pella sales representative.

Casement Shapes - (as viewed from the exterior)

General Restrictions All Angle Top

Angled Shapes - Fixed

Frame cannot exceed 96" in both directions.

Minimum angle between adjoining members is 20°, and maximum angle is < 160°.

Maximum frame < 54.5 ft² (based on rectangular unit).

Angled Shapes - Roto Operator

Maximum frame area equals 19.5 ft² (based on rectangular unit).

Not all units meet egress requirements.

Frame width cannot exceed hinge jamb height.

> **Hinge Side Height ≥ Frame Width ÷ 2955 x Frame Area + 18.175"**
> *** Calculate Frame Area as if unit was a rectangle. = Frame Height x Frame Width**

Unit must be hinged off short jamb, if angle height (Y) divided by angle width (W) is greater than 0.364.

Unit is not valid if angle height (Y) is greater than angle width (X).

Short Side (S1) must be less than overall height.
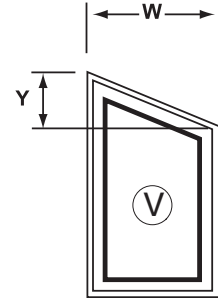
Custom Stile and Rail Widths

The A dimension shown can vary from 1-1/2", 1-7/8", 3", 5".

1-7/8" stiles and rails are standard for impact-resistant units.

For Unit sizes > 36 sq ft 1-1/2" sash is not available.

Any members meeting at an angle not equal to 90° must be the same width.
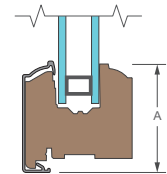
Cross section shown is representation of design, bottom rail shown as an example.

The following additional options are available:

- Special Wood Types
- Custom Grille Types and Patterns
- Custom Glazing
- Custom Width and height rectangular units
- Custom Width sash stiles and rails
- Angled Shape vent and fixed windows
- Corner Window Units (Fixed Only)

Corner Window
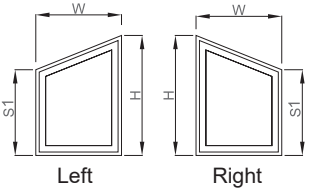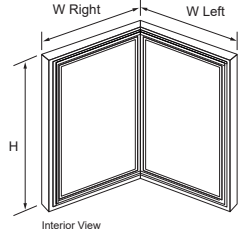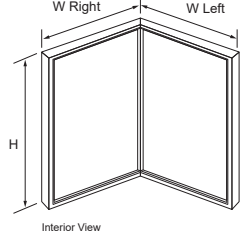
Contact your local sales representative for complete information.

> **NOTE:** Performance Class and Grade for a Casement with additional options and Specialty windows may not be the same as Standard and Special size units. Please contact your local Pella representative for complete information.

Casement Shapes and Custom Options

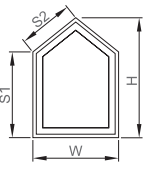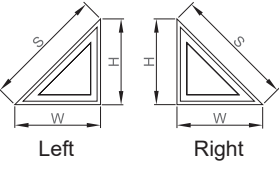| Angled Shape Units | | Minimum | Maximum | Restrictions |
|---|---|---|---|
| **Trapezoid** | **Fixed** | | | |
| Left Right | W | 9" | 12' 0" | |
| | H | 9" | 12' 0" | |
| | S1 | 1' 1-3/4" | — | |
| | **Vent with Side Pivot Hinge** | | | |
| | W | 1' 1-3/4" | 3' 5" | $S1 \geq W \div 2955 \times (W \times H) + 18.175"$ |
| | | | | $H \leq W + S1$ |
| | (Hinge Side) | 1' 1-3/4" | 8' 0" | If $(H - S1) \div W > 0.364$, |
| | | | | Unit must hinge off of short side |
| | Lock Jamb Side | 9" | 8' 0" | See Restricted Opening. |
| **Pentagon** | **Fixed** | | | |
| | W | 9" | 12' 0" | Peak must be centered. This shape is defined with peak centered for calculation purposes. If peak is not centered, it must be reviewed manually for acceptability. Maximum frame area cannot be > 54.5 sq ft. |
| | H | 1' 4-13/16" | 12' 0" | |
| | S1 / S2 | 9" | — | |
| | **Vent with Side Pivot Hinge** | | | |
| | W | 1' 1-3/4" | 3' 5" | $S1 \geq W \div 2955 \times (W \times H) + 18.175"$ |
| | H | 1' 7-9/16" | 8' 0" | $H \leq W \div 2 + S1$ |
| | S1 | 13-3/4" | < 8' 0" | Maximum frame area cannot be > 19.5 sq ft. |
| | S2 | 9" | — | See Restricted Opening. |
| **Isosceles Triangle** | **Fixed** | | | |
| Left Right | W | 11-1/4" | 11' 3-5/16" | |
| | H | 11-1/4" | 11' 3-5/16" | |
| | S | 9" | 12' 0" | |

Mitered Corner		Minimum	Maximum	Restrictions
Fixed Sash in Frame (Casement)	**Fixed**			
Interior View	W Left	12"	4' 0"	Max Frame area of each side cannot be > 54.5 sq ft.
	W Right	12"	4' 0"	Max Glass Area of each side cannot be > 48 sq ft.
	Height	12"	6' 1"	
Fixed Frame Direct Set	**Fixed**			
Interior View	W Left	12"	4' 0"	Max Frame area of each side cannot be > 54.5 sq ft.
	W Right	12"	4' 0"	Max Glass Area of each side cannot be > 48 sq ft.
	Height	12"	6' 1"	See Fixed Frame Direct Set product section for features and options

Angled shapes are not available with push-out hardware.

Size Tables

Transoms

		(451) (432)	(552) (533)	(603) (584)	(654) (635)	(756) (737)	(832) (813)	(908) (889)
	Opening	1' 5 3/4"	1' 9 3/4"	1' 11 3/4"	2' 1 3/4"	2' 5 3/4"	2' 8 3/4"	2' 11 3/4"
	Frame	1' 5"	1' 9"	1' 11"	2' 1"	2' 5"	2' 8"	2' 11"
(451) (432)	1' 5 3/4" 1' 5"	1717						
(552) (533)	1' 9 3/4" 1' 9"		2121					
(603) (584)	1' 11 3/4" 1' 11"			2323				
(654) (635)	2' 1 3/4" 2' 1"				2525			
(756) (737)	2' 5 3/4" 2' 5"					2929		

Vent Units

		(451)/(432)	(552)/(533)	(603)/(584)	(654)/(635)	(756)/(737)	(832)/(813)	(908)/(889)
(813)	2' 8 3/4" / 2' 8"	1732	2132	2332	2532	2932	3232	
(908) (889)	2' 11 3/4" / 2' 11"	1735	2135	2335	2535 E3	2935	3235 E2	3535 E1 E2
(1 060) (1 041)	3' 5 3/4" / 3' 5"	1741	2141	2341	2541 E3	2941 E1 E2	3241 E1 E2	3541 E
(1 213) (1 194)	3' 11 3/4" / 3' 11"	1747	2147	2347	2547 E2	2947 E	3247 E	3547 E
(1 365) (1 346)	4' 5 3/4" / 4' 5"	1753	2153	2353	2553 E2	2953 E	3253 E	3553 E
(1 518) (1 499)	4' 11 3/4" / 4' 11"	1759	2159	2359	2559 E2	2959 E	3259 E	3559 E
(1 670) (1 651)	5' 5 3/4" / 5' 5"	1765	2165	2365	2565 E2	2965 E	3265 E	3565 E
(1 822) (1 803)	5' 11 3/4" / 5' 11"	1771 T	2171	2371	2571 E2	2971 E	3271 E	3571 E
(1 873) (1 854)	6' 1 3/4" / 6' 1"	1773 T	2173	2373	2573 E2	2973 E	3273 E	3573 E

Not to scale.
F = Fixed only
T = Tempered glass due to aspect ratio.
Traditional grille patterns shown.

Rough Opening Dimensions

Clad exterior units: Dimensions shown in tables are rough opening dimensions.

Egress Notes for Standard Crank-Out Casement:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft^2.

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft^2.

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft^2.

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft^2.

See Design Data pages in this section for clear opening dimensions.

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product. Consult your local building code to ensure products with Rolscreens meet egress requirements.

Side pivot hardware reduces Performance class to 'R'.

Egress information shown is for standard operators only, for Push-Out Casement egress information see the Design Data pages.

Pella® Reserve™ Contemporary Casement Window

Size Tables - Fixed

Opening / Frame (height)	1'5 3/4" / 1'5" (451)(432)	1'9 3/4" / 1'9" (552)(533)	1'11 3/4" / 1'11" (603)(584)	2'1 3/4" / 2'1" (654)(635)	2'5 3/4" / 2'5" (756)(737)	2'8 3/4" / 2'8" (832)(813)	2'11 3/4" / 2'11" (908)(889)	3'5 3/4" / 3'5" (1 060)(1 041)	3'11 3/4" / 3'11" (1 213)(1 194)	4'5 3/4" / 4'5" (1 365)(1 346)	4'11 3/4" / 4'11" (1 518)(1 499)
1'5 3/4" / 1'5" (451)(432)	1717	2117	2317	2517	2917	3217	3517	4117	4717	5317	5917
1'9 3/4" / 1'9" (552)(533)		2121						4121	4721	5321	5921
1'11 3/4" / 1'11" (603)(584)			2323					4123	4723	5323	5923
2'1 3/4" / 2'1" (654)(635)	1725	2125	2325	2525	2925	3225	3525	4125	4725	5325	5925
2'5 3/4" / 2'5" (756)(737)					2929			4129	4729	5329	5929
2'8 3/4" / 2'8" (832)(813)	1732	2132	2332	2532	2932	3232	3532	4132	4732	5332	5932
2'11 3/4" / 2'11" (908)(889)	1735	2135	2335	2535	2935	3235	3535	4135	4735	5335	5935
3'5 3/4" / 3'5" (1 060)(1 041)	1741	2141	2341	2541	2941	3241	3541	4141	4741	5341	5941
3'11 3/4" / 3'11" (1 213)(1 194)	1747	2147	2347	2547	2947	3247	3547	4147	4747	5347	5947
4'5 3/4" / 4'5" (1 365)(1 346)	1753	2153	2353	2553	2953	3253	3553	4153	4753	5353	5953
4'11 3/4" / 4'11" (1 518)(1 499)	1759	2159	2359	2559	2959	3259	3559	4159	4759	5359	5959
5'5 3/4" / 5'5" (1 670)(1 651)	1765	2165	2365	2565	2965	3265	3565	4165	4765	5365	5965
5'11 3/4" / 5'11" (1 822)(1 803)	1771	2171	2371	2571	2971	3271	3571	4171	4771	5371	5971
6'1 3/4" / 6'1" (1 873)(1 854)	1773	2173	2373	2573	2973	3273	3573	4173	4773	5373	5973

Rough Opening Dimensions

Clad exterior units: Dimensions shown in tables are rough opening dimensions.

Not to scale.
Traditional grille patterns shown.
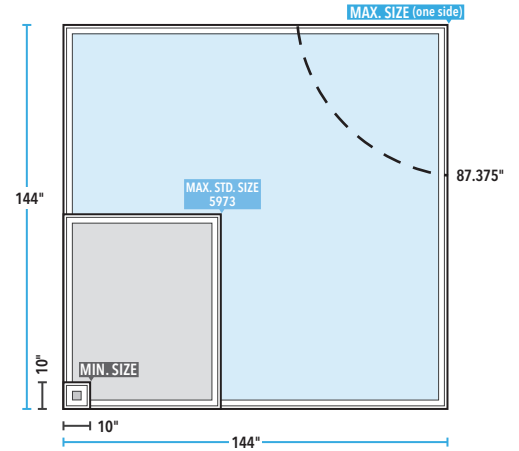
Special Size Frame Dimensions

	Minimum	Maximum
Vent	1'1-3/4" W x 1'1-3/4" H (13.75" x 13.75") (349 x 349)	3'11" W x 9'0" H (47" x 108") (1 194 x 2 743)
	Frame width cannot exceed frame height on vent sizes. Max frame area 19.5 sq. ft.	
Fixed	10" W x 10" H (254 x 254)	12'0" in one direction (144") (3 658)
	Max Fixed frame area cannot be greater than 66.25 sq. ft. One side must be ≤ 87.375" Max Glass Area cannot be greater than 60 sq. ft. Maximum Glass weight is 400 Pounds	
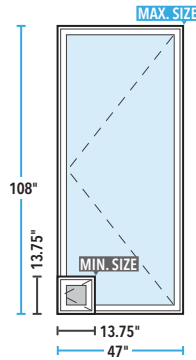
Available within size range shown. Standard Performance Option only.
Keep frame dimensions to the nearest 1/8" increment.
If Frame Width or Height > 96" OR Frame Area > 40.1 sq. ft. OR Glass Area > 36 sq. ft., Stiles and rails must be at least 1.875".
See the Curved, Angled and Rectangular shapes pages or contact your Pella representative for the availability of custom sizes smaller or larger than the parameters.

Vent Casement

Fixed Casement

Standard Hardware Clear Opening formulas

Hinge	Frame Width	Formula
Standard	FW ≥ 29" and ≤ 30-1/2"	FW - 9"
Standard	FW > 30-1/2"	FW - 9-3/4"
Side Pivot	FW ≥ 25" and ≤ 35"	FW - 4-3/8"

Clear opening height = unit height - 4.125"

For units with FW > 35" reference Restricted Opening chart.

Restricted Opening

Frame Width	Approximate Sash Opening Angle
>35	28 degrees
36	26 degrees
37	25 degrees
38	24 degrees
39	23 degrees
40	22 degrees
41	21 degrees

Sash opening will be limited to the angle shown.

Units over 35 inches wide do NOT meet Egress.

Miscellaneous Formulas

|	
Visible Glass	Width = Frame – 2.46" x 2
	Height = Frame – 2.46" x 2
Actual Glass	Width = Frame – 4"
	Height = Frame – 4"
Glass Weight	Actual Glass Width x Actual Glass Height x Actual Glass Thickness ÷ 11

Glazing weight in pounds, all Glass Width (W), Height (H) and Thickness are in inches.

Side Pivot Clear Opening formulas

Hinge	Frame Width	Frame Height	Clear Opening Width Formula	
			Clad Exterior	Wood Exterior
STD	17" to ≤ 29"	17" to ≤ 73"	Unit Width - 4.375	Unit Width - 4.375
	> 29" to ≤ 35"	29" to ≤ 47"	Unit Width - 4.375	Unit Width - 4.375
Heavy Duty*	13.75" to < 17"	13.75" to ≤ 96"	(Unit Width x 0.8) - 2.95	(Unit Width x 0.892) - 4.219
	17" to < 19"	13.75" to ≤ 96"	(Unit Width x 0.9) - 4.65	(Unit Width x 0.9) - 4.35
	19" to < 25"	13.75" to ≤ 96"	(Unit Width x 0.883) - 4.433	(Unit Width x 0.883) - 4.133
	25" to 29"	13.75" to ≤ 96"	Unit Width - 5.55	Unit Width - 5.55
	> 29" to ≤ 35"	13.75" to ≤ 96"	(Unit Width x 0.9) - 4.15	(Unit Width x 0.917) - 4.533

Clear opening height = unit height - 4.125"

* All units with Impact glass or standard IG glass weighing 56 lbs. or more require heavy duty hinges.

NOTE: Performance Class and Grade for a Casement with additional options and Specialty windows may not be the same as Standard and Special size units. Please contact your local Pella representative for complete information.
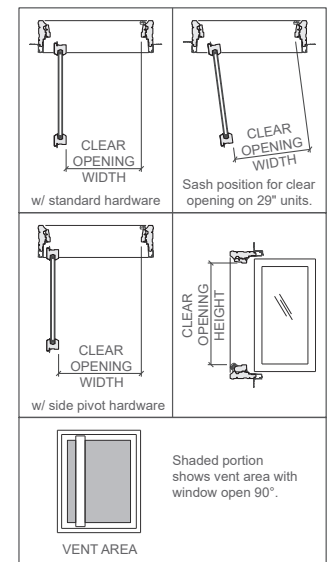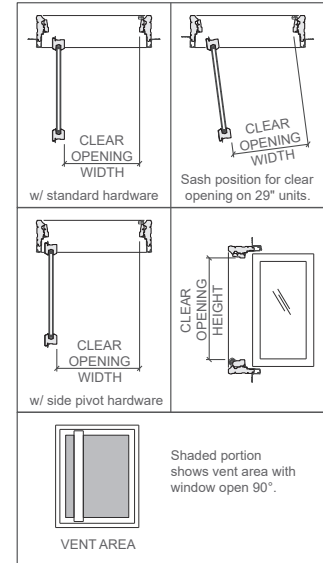
Design Data

Vent and Fixed, Standard Operator, Aluminum-Clad Exteriors

Unit	Egress	Clear Opening Width (Inches)	Clear Opening Height (Inches)	Clear Opening Ft²	Vent Area Ft²	Visible Glass Ft²	Dual-Pane Glazing Annealed	Dual-Pane Glazing Tempered	Triple-Pane Glazing Annealed or Tempered	Performance Vent	Performance Fixed
1732		7-1/4	27-7/8	1.4	2.0	2.1	2.5	3	3	CW50	CW50
1735		7-1/4	30-7/8	1.6	2.3	2.3	2.5	3	3	CW50	CW50
1741		7-1/4	36-7/8	1.9	2.8	2.8	2.5	3	3	CW50	CW50
1747		7-1/4	42-7/8	2.2	3.2	3.2	2.5	3	3	CW50	CW50
1753		7-1/4	48-7/8	2.5	3.7	3.7	2.5	3	3	CW50	CW50
1759		7-1/4	54-7/8	2.8	4.2	4.2	2.5	3	3	CW50	CW50
1765		7-1/4	60-7/8	3.1	4.7	4.6	2.5	3	3	CW50	CW50
1771T		7-1/4	66-7/8	3.4	5.2	5.1	—	3	3	CW50	CW50
1773T		7-1/4	68-7/8	3.5	5.3	5.3	—	3	3	CW50	CW50
2132		11-1/4	27-7/8	2.2	2.7	2.8	2.5	3	3	CW50	CW50
2135		11-1/4	30-7/8	2.4	3.1	3.1	2.5	3	3	CW50	CW50
2141		11-1/4	36-7/8	2.9	3.7	3.7	2.5	3	3	CW50	CW50
2147		11-1/4	42-7/8	3.3	4.4	4.4	2.5	3	3	CW50	CW50
2153		11-1/4	48-7/8	3.8	5.0	5.0	2.5	3	3	CW50	CW50
2159		11-1/4	54-7/8	4.3	5.7	5.6	2.5	3	3	CW50	CW50
2165		11-1/4	60-7/8	4.8	6.3	6.3	2.5	3	3	CW45/CW50	CW45/CW50
2171		11-1/4	66-7/8	5.2	7.0	6.9	2.5	3	3	CW45/CW50	CW45/CW50
2173		11-1/4	68-7/8	5.4	7.2	7.1	2.5	3	3	CW40/CW50	CW40/CW50
2332		13-1/4	27-7/8	2.6	3.1	3.1	2.5	3	3	CW50	CW50
2335		13-1/4	30-7/8	2.8	3.4	3.5	2.5	3	3	CW50	CW50
2341		13-1/4	36-7/8	3.4	4.2	4.2	2.5	3	3	CW50	CW50
2347		13-1/4	42-7/8	3.9	4.9	4.9	2.5	3	3	CW50	CW50
2353		13-1/4	48-7/8	4.5	5.6	5.7	2.5	3	3	CW50	CW50
2359		13-1/4	54-7/8	5.0	6.4	6.4	2.5	3	3	CW45/CW50	CW45/CW50
2365		13-1/4	60-7/8	5.6	7.1	7.1	2.5	3	3	CW40/CW50	CW40/CW50
2371		13-1/4	66-7/8	6.2	7.9	7.8	2.5	3	3	CW35/CW50	CW35/CW50
2373		13-1/4	68-7/8	6.3	8.1	8.1	2.5	3	3	CW35/CW50	CW35/CW50
2532		15-1/4	27-7/8	3.0	3.4	3.5	2.5	3	3	CW50	CW50
2535		15-1/4	30-7/8	3.3	3.8	3.9	2.5	3	3	CW50	CW50
2541	E3	20-5/8	36-7/8	5.3	4.6	4.7	2.5	3	3	CW50	CW50
2547	E2	20-5/8	42-7/8	6.1	5.5	5.5	2.5	3	3	CW50	CW50
2553	E2	20-5/8	48-7/8	7.0	6.3	6.3	2.5	3	3	CW50	CW50
2559	E2	20-5/8	54-7/8	7.9	7.1	7.1	2.5	3	3	CW45/CW50	CW45/CW50
2565	E2	20-5/8	60-7/8	8.7	7.9	7.9	2.5	3	3	CW40/CW50	CW40/CW50
2571	E2	20-5/8	66-7/8	9.6	8.7	8.7	2.5	3	3	CW35/CW50	CW35/CW50
2573	E2	20-5/8	68-7/8	9.9	9.0	9.0	2.5	3	3	CW30/CW50	CW30/CW50
2932		24-5/8	27-7/8	4.8	4.1	4.2	2.5	3	3	CW50	CW50
2935	E3	24-5/8	30-7/8	5.3	4.6	4.7	2.5	3	3	CW50	CW50
2941	E2	24-5/8	36-7/8	6.3	5.6	5.7	2.5	3	3	CW50	CW50
2947	E	20	42-7/8	6.0	6.6	6.7	2.5	3	3	CW50	CW50
2953	E	20	48-7/8	6.8	7.6	7.6	2.5	3	3	CW50	CW50
2959	E	20	54-7/8	7.6	8.6	8.6	2.5	3	3	CW45/CW50	CW45/CW50
2965	E	20	60-7/8	8.5	9.5	9.6	2.5	3	3	CW40/CW50	CW40/CW50
2971	E	20	66-7/8	9.3	10.5	10.5	3	3	3	CW45/CW50	CW45/CW50
2973	E	20	68-7/8	9.6	10.9	10.9	3	3	3	CW45/CW50	CW45/CW50
3232	E3	27-5/8	27-7/8	5.3	4.6	4.8	2.5	3	3	CW50	CW50
3235	E2	27-5/8	30-7/8	5.9	5.2	5.3	2.5	3	3	CW50	CW50
3241	E2	27-5/8	36-7/8	7.1	6.3	6.4	2.5	3	3	CW50	CW50
3247	E	22-1/4	42-7/8	6.6	7.4	7.5	2.5	3	3	CW50	CW50
3253	E	22-1/4	48-7/8	7.6	8.5	8.6	2.5	3	3	CW50	CW50
3259	E	22-1/4	54-7/8	8.5	9.6	9.7	2.5	3	3	CW45/CW50	CW45/CW50
3265	E	22-1/4	60-7/8	9.4	10.7	10.8	3	3	3	CW50	CW50
3271	E	22-1/4	66-7/8	10.3	11.9	11.9	3	3	3	CW45/CW50	CW45/CW50
3273	E	22-1/4	68-7/8	10.6	12.2	12.3	3	3	3	CW45/CW50	CW45/CW50
3532F		—	—	—	—	5.3	2.5	3	3	—	CW50
3535	E1	25-1/4	30-7/8	5.4	5.8	5.9	2.5	3	3	CW50	CW50
3541	E	25-1/4	36-7/8	6.5	7.0	7.2	2.5	3	3	CW50	CW50
3547	E	25-1/4	42-7/8	7.5	8.3	8.4	2.5	3	3	CW50	CW50
3553	E	25-1/4	48-7/8	8.6	9.5	9.6	2.5	3	3	CW45/CW50	CW45/CW50
3559	E	25-1/4	54-7/8	9.6	10.7	10.8	3	3	3	CW50	CW50
3565	E	25-1/4	60-7/8	10.7	12.0	12.0	3	3	3	CW50	CW50
3571	E	25-1/4	66-7/8	11.7	13.2	13.3	3	3	3	CW45/CW50	CW45/CW50
3573	E	25-1/4	68-7/8	12.1	13.6	13.7	3	3	3	CW45/CW50	CW45/CW50

CLEAR OPENING WIDTH
w/ standard hardware

CLEAR OPENING WIDTH
Sash position for clear opening on 29" units.

CLEAR OPENING WIDTH
w/ side pivot hardware

CLEAR OPENING HEIGHT

Shaded portion shows vent area with window open 90°.

VENT AREA

Egress Notes for Standard Crank-Out Casement:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product. Consult your local building code to ensure products with Rolscreens meet egress requirements.

Side pivot hardware reduces Performance class to 'R'.

Egress information shown is for standard crank-out operators only, it does not include Push-Out Casements.

(—) = Not Applicable
F = Fixed only
T = Tempered required due to aspect ratio.
(1) Maximum performance when glazed with the appropriate glass thickness and using standard hinge hardware. Second value, where shown, requires tempered glass.
To convert area to square meters (m²), multiply square feet by 0.0929.

Design Data

Fixed, Aluminum-Clad Exteriors

Unit	Visible Glass Ft²	Standard Glass Thickness (mm)				Performance Class & Grade[1]
		Dual-Pane Glazing		Triple-Pane Glazing		
		Annealed	Tempered	Annealed	Tempered	
4135	7.2	2.5	3	3	3	CW50
4141	8.6	2.5	3	3	3	CW50
4147	10.1	3	3	3	3	CW50
4153	11.6	3	3	3	3	CW50
4159	13.0	3	3	3	3	CW50
4165	14.5	3	3	3	3	CW50
4171	16.0	3	3	3	3	CW45/CW50
4173	16.5	3	3	3	3	CW45/CW50
4735	8.4	2.5	3	3	3	CW50
4741	10.1	3	3	3	3	CW50
4747	11.8	3	3	3	3	CW50
4753	13.5	3	3	3	3	CW50
4759	15.3	3	3	3	3	CW50
4765	17.0	3	3	3	3	CW45/CW50
4771	18.7	4	4	4	4	CW50
4773	19.3	4	4	4	4	CW50
5335	9.6	2.5	3	3	3	CW45/CW50
5341	11.6	3	3	3	3	CW50
5347	13.5	3	3	3	3	CW50
5353	15.5	3	4	3	4	CW45/CW50
5359	17.5	3	4	3	4	CW40/CW50
5365	19.4	4	4	4	4	CW50
5371	21.4	4	4	4	4	CW50
5373	22.1	4	4	4	4	CW50
5935	10.8	3	3	3	3	CW50
5941	13.0	3	3	3	3	CW50
5947	15.3	3	3	3	3	CW50
5953	17.5	3	4	3	4	CW40/CW50
5959	19.7	4	4	4	4	CW50
5965	21.9	4	4	4	4	CW50
5971	24.1	4	4	4	4	CW45/CW50
5973	24.9	4	4	4	4	CW45/CW50

Transoms

Unit	Clear Opening (Inches)			Vent Area Ft²	Visible Glass Ft²	Standard Glass Thickness (mm)			Performance Class & Grade[1]
	Width	Height	Ft²			Dual-Pane Glazing		Triple-Pane Glazing	
						Annealed	Tempered	Annealed or Tempered	
1714F	—	—	—	—	0.6	2.5	3	3	CW50
1717	7-1/4	12-7/8	0.6	0.8	0.9	2.5	3	3	CW50
1725F	—	—	—	—	1.5	2.5	3	3	CW50
2114F	—	—	—	—	0.9	2.5	3	3	CW50
2117F	—	—	—	—	1.2	2.5	3	3	CW50
2121	11-1/4	16-7/8	1.3	1.5	1.6	2.5	3	3	CW50
2125F	—	—	—	—	2.0	2.5	3	3	CW50
2314F	—	—	—	—	1.0	2.5	3	3	CW50
2317F	—	—	—	—	1.3	2.5	3	3	CW50
2323	13-1/4	18-7/8	1.7	2.0	2.1	2.5	3	3	CW50
2325F	—	—	—	—	2.3	2.5	3	3	CW50
2514F	—	—	—	—	1.1	2.5	3	3	CW50
2517F	—	—	—	—	1.5	2.5	3	3	CW50
2525	15-1/4	20-7/8	2.2	2.5	2.6	2.5	3	3	CW50
2914F	—	—	—	—	1.3	2.5	3	3	CW50
2917F	—	—	—	—	1.8	2.5	3	3	CW50
2925F	—	—	—	—	3.1	2.5	3	3	CW50
2929	20	24-7/8	3.5	3.6	3.8	2.5	3	3	CW50
3214F	—	—	—	—	1.5	2.5	3	3	CW50
3217F	—	—	—	—	2.1	2.5	3	3	CW50
3225F	—	—	—	—	3.5	2.5	3	3	CW50
3514F	—	—	—	—	1.7	2.5	3	3	CW50
3517F	—	—	—	—	2.3	2.5	3	3	CW50
3525F	—	—	—	—	3.9	2.5	3	3	CW50

(—) = Not Applicable
F = Fixed only
(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.
To convert area to square meters (m²), multiply square feet by 0.0929.

Push-Out Casement

| Unit | Egress | Clear Opening | | | | | Vent Area Ft² | Visible Glass Ft² | Frame Area Ft² | Performance Class & Grade[1] |
		Width (Inches)	Height (Inches)	Ft²	Sash Angle (Degrees)	Reach to Close Sash (Inches)				
1735		7-1/2	31-1/4	1.6	85	18-1/4	1.6	2.3	4.1	R50
1741		7-1/2	37-1/4	1.9	85	18-1/4	1.9	2.8	4.8	R50
1747		7-1/2	43-1/4	2.3	85	18-1/4	2.3	3.2	5.5	R50
1753		7-1/2	49-1/4	2.6	85	18-1/4	2.6	3.7	6.2	R50
1759		7-1/2	55-1/4	2.9	85	18-1/4	2.9	4.2	6.9	R50
1765		7-1/2	61-1/4	3.2	85	18-1/4	3.2	4.6	7.6	R50
1771		7-1/2	67-1/4	3.5	85	18-1/4	3.5	5.1	8.3	R50
2135		10-5/8	31-1/4	2.3	70	19-1/2	2.3	3.1	5.1	R50
2141		10-5/8	37-1/4	2.7	70	19-1/2	2.7	3.7	5.9	R50
2147		10-5/8	43-1/4	3.2	70	19-1/2	3.2	4.4	6.8	R50
2153		10-5/8	49-1/4	3.6	70	19-1/2	3.6	5.0	7.7	R50
2159		10-5/8	55-1/4	4.1	70	19-1/2	4.1	5.6	8.6	R50
2165		10-5/8	61-1/4	4.5	70	19-1/2	4.5	6.3	9.4	R50
2171		10-5/8	67-1/4	5.0	70	19-1/2	5.0	6.9	10.3	R50
2335		14-1/2	31-1/4	3.1	70	22	3.1	3.5	5.5	R50
2341		14-1/2	37-1/4	3.8	70	22	3.8	4.2	6.5	R50
2347		14-1/2	43-1/4	4.4	70	22	4.4	4.9	7.5	R50
2353		14-1/2	49-1/4	5.0	70	22	5.0	5.7	8.4	R50
2359		14-1/2	55-1/4	5.6	70	22	5.6	6.4	9.4	R50
2365		14-1/2	61-1/4	6.2	70	22	6.2	7.1	10.3	R50
2371		14-1/2	67-1/4	6.8	70	22	6.8	7.8	11.3	R50
2535		16-1/4	31-1/4	3.5	70	25	3.5	3.9	6.0	R50
2541		16-1/4	37-1/4	4.2	70	25	4.2	4.7	7.1	R50
2547		16-1/4	43-1/4	4.9	70	25	4.9	5.5	8.1	R50
2553		16-1/4	49-1/4	5.6	70	25	5.6	6.3	9.2	R50
2559		16-1/4	55-1/4	6.2	70	25	6.2	7.1	10.2	R50
2565		16-1/4	61-1/4	6.9	70	25	6.9	7.9	11.2	R50
2571		16-1/4	67-1/4	7.6	70	25	7.6	8.7	12.3	R50
2935		20	31-1/4	4.3	57	25-1/2	4.3	4.7	7.0	R50
2941	E1	20	37-1/4	5.2	57	25-1/2	5.2	5.7	8.2	R50
2947	E	20	43-1/4	6.0	57	25-1/2	6.0	6.7	9.4	R50
2953	E	20	49-1/4	6.8	57	25-1/2	6.8	7.6	10.6	R50
2959	E	20	55-1/4	7.7	57	25-1/2	7.7	8.6	11.8	R50
2965	E	20	61-1/4	8.5	57	25-1/2	8.5	9.6	13.0	R50
2971	E	20	67-1/4	9.3	57	25-1/2	9.3	10.5	14.2	R50
3535		20-1/8	31-1/4	4.4	45	26	4.4	5.9	8.5	R50
3541	E1	20-1/8	37-1/4	5.2	45	26	5.2	7.2	9.9	R50
3547	E	20-1/8	43-1/4	6.0	45	26	6.0	8.4	11.4	R50
3553	E	20-1/8	49-1/4	6.9	45	26	6.9	9.6	12.8	R50
3559	E	20-1/8	55-1/4	7.7	45	26	7.7	10.8	14.3	R50
3565	E	20-1/8	61-1/4	8.6	45	26	8.6	12.0	15.7	R50
3571	E	20-1/8	67-1/4	9.4	45	26	9.4	13.3	17.2	R50

Push-Out Casement Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition any other accessories to the product. Consult your local building code to ensure products meet egress requirements.

(1) Maximum performance when glazed with the appropriate glass thickness. Refer to the Product Performance section for more information.

To convert area to square meters (m²), multiply square feet by 0.0929.

Frame

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are [clear pine] [mahogany] [douglas fir].
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks
- Overall frame depth is 5" (127mm) for a wall depth of 3-11/16" (94mm).
- Optional factory-applied jamb extensions available between 3-13/16" (97mm) and 9-3/16" (233mm).
- Optional factory-installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad® exterior trim.

Sash

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are [clear pine] [mahogany] [douglas fir].
- Exterior surfaces are clad with extruded aluminum butt-jointed at all corners of the sash with through-stile construction and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is [1-13/16" (46mm) for 11/16"] [2-1/8" (54mm) for 1"] glazing.
- Sash exterior profile is square, interior profile is square.

Weatherstripping

- Dual weatherstripping.
  - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
  - Secondary thermoplastic vulcanizate (TPV) leaf-type weatherstrip between edge of sash and frame on the vertical sides and bottom side, and Santoprene® bulb-type weatherstrip on the top.

Glazing System [1]

- Quality float glass complying with ASTM C 1036.
- Silicone-glazed dual-pane 11/16" dual-seal insulating glass [[annealed] [tempered]], [[clear] [[Advanced] [SunDefense™] [SunDefense+] [NaturalSun] [NaturalSun+] [AdvancedComfort] Low-E [with argon] [[bronze] [gray] [green] Advanced Low-E [with Argon]] [obscure] [Reflective Bronze] [Reflective Gray].
  – or –
- Silicone-glazed dual-pane 1" dual-seal tempered spandrel glass [Lava Bronze Amber] [Black] [Ford Blue] [Symmetry Bronze] [Symmetry Gray] [Symmetry Green].
  – or –
- Silicone-glazed dual-pane 11/16" dual-seal [[annealed] [tempered]] non-impact laminated glass [[clear] [[Advanced Low-E] [SunDefense Low-E] with Argon]] [[bronze] [gray] [green] Advanced Low-E [with argon]].
  – or –
- Silicone-glazed 1" triple-pane, dual-seal insulating glass [[annealed] [tempered]] [[Advanced Low-E] [SunDefense™] [NaturalSun Low-E] with [argon]].
  – or –
- Impact-Resistant
  - Silicone-glazed 1" dual-seal impact-resistant insulating glass[1] SGP. [[tempered] [annealed]] exterior light is [[Advanced Low-E] [SunDefense] with argon] [clear] [bronze] [gray] [green]]. Laminated clear interior light.
    – or –
  - Silicone-glazed 11/16" dual-seal impact-resistant insulating glass[1] [PVB]. [[tempered] [annealed]] exterior light is [[Advanced Low-E with argon] [clear]]. Laminated [clear] interior light, or [[tempered] [annealed]] exterior light is [[Advanced Low-E] [SunDefense] with argon] [clear]]. Laminated [[bronze] [gray] [green]] interior light.

Exterior

- Aluminum clad exteriors shall be finished with EnduraClad® protective finish, in a multi-step, baked-on finish.
  - Color is [standard] [custom][2].
  – or –
- Aluminum clad exteriors shall be finished with EnduraClad Plus protective finish with 70% fluoropolymer resin in a multi-step, baked-on finish
  - Color is [standard] [custom][2].

Interior

- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [paint] [stain] [2]].

Hardware

- Roto operator assembly
  - Steel worm gear sash operator with hardened gears.
  - Operator base is zinc die cast with painted finish.
  - Operator linkage, hinge slide, and hinge arms are stainless steel.
  - Exposed fasteners are stainless steel.
  - Hardware shall exceed 1,000 hours salt spray exposure per ASTM B 117.
- All vent units are available with left- or right-hand hinging.
- SureLock® System—A single handle locking system operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with frame height 29" and less, two unison operating locks installed on units with frame height over 29".
- Style of hardware is [Saldo integrated fold-away crank and standard lock handle with [baked enamel [Champagne] [White] [Brown] [Matte Black]] [Satin Nickel] [Oil-Rubbed Bronze] [Polished Chrome] hardware finish].

Optional Products

Grilles

- Integral Light Technology® grilles
  - Interior grilles are [5/8"] [7/8"] [1-1/4"] [2"] square profile that are solid [pine] [mahogany] [douglas fir]. Interior surfaces are [unfinished, ready for site finishing] [factory primed [pine: factory prefinished [paint] [stain] [2]].
  - Exterior grilles are [5/8"] [7/8"] [1-1/4"] [2"] square profile that are extruded aluminum.
  - Patterns are [Traditional] [Prairie] [Top Row] [Cross].
  - Insulating glass contains non-glare spacer between the panes of glass.
  - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer.
  – or –
- Grilles-Between-the-Glass [3]
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass (exterior air-space on triple-pane insulating glass).
  - Patterns are [Traditional] [Prairie] [Cross] [Top Row].
  - Interior color is [White] [Tan [4]] [Brown [4]] [Putty [4]] [Black] [Ivory] [Harvest] [Cordovan] [Brickstone].
  - Exterior color [5] is [standard] [2].

Screens

- InView™ Screens
  - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Screen frame finish is [baked enamel [Champagne] [White] [Brown] [Black]].

Hardware

- Optional factory applied limited opening hardware available for vent units in stainless steel; nominal 3" opening.
- Optional factory applied window opening control device. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely. Complies with ASTM F2090-17.

Sensors

- Optional factory installed integrated security sensors available in vent units.

---

(1) Low-E coated insulating glass is argon-filled (except high altitude). All other insulating glass (including high altitude Low-E) is air-filled.
(2) Contact your local Pella sales representative for current designs and color options.
(3) Available in clear or Low-E insulating glass with argon, and obscure insulated glass.
(4) Tan, Brown and Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with tan or brown exterior.
(5) Appearance of exterior grille color will vary depending on Low-E coating on glass.

Frame

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are [clear pine] [mahogany] [douglas fir].
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks
- Overall frame depth is 5" (127mm) for a wall depth of 3-11/16" (94mm).
- Optional factory-applied jamb extensions available between 3-13/16" (97mm) and 9-3/16" (233mm).
- Optional factory-installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad® exterior trim.

Sash

- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are [clear pine] [mahogany] [douglas fir].
- Exterior surfaces are clad with extruded aluminum butt-jointed at all corners of the sash with through-stile construction and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is [1-13/16" (46mm) for 11/16"] [2-1/8" (54mm) for 1"] glazing.
- Sash exterior profile is square, interior profile is square.

Weatherstripping

- Dual weatherstripping.
    - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
    - Secondary thermoplastic vulcanizate (TPV) leaf-type weatherstrip between edge of sash and frame on the vertical sides and bottom side, and Santoprene® bulb-type weatherstrip on the top.

Glazing System [1]

- Quality float glass complying with ASTM C 1036.
- Silicone-glazed dual-pane 11/16" dual-seal insulating glass [[annealed] [tempered]], [[clear] [[Advanced Low-] [SunDefense™ Low-E] [NaturalSun Low-E] [AdvancedComfort Low-E] with argon]] [[bronze] [gray] [green] Advanced Low-E [with Argon]] [obscure] [Reflective Bronze] [Reflective Gray].
    – or –
- Silicone-glazed dual-pane 1" dual-seal tempered spandrel glass [Lava Bronze Amber] [Black] [Ford Blue] [Symmetry Bronze] [Symmetry Gray] [Symmetry Green].
    – or –
- Silicone-glazed dual-pane 11/16" dual-seal [[annealed] [tempered]] non-impact laminated glass [[clear] [[Advanced Low-E] [SunDefense Low-E] with Argon]] [[bronze] [gray] [green] Advanced Low-E [with argon]].
    – or –
- Silicone-glazed 1" triple-seal insulating glass [[annealed] [tempered]] [[Advanced Low-E] [SunDefense™] [NaturalSun Low-E] with [argon]].

Exterior

- Aluminum clad exteriors shall be finished with EnduraClad® protective finish, in a multi-step, baked-on finish.
    - Color is [standard] [custom] [2].
    – or –
- Aluminum clad exteriors shall be finished with EnduraClad Plus protective finish with 70% fluoropolymer resin in a multi-step, baked-on finish
    - Color is [standard] [custom] [2].

Interior

- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [paint] [stain] [2]].

Hardware

- Finish of finger pull handle is [baked enamel, [Champagne] [White] [Brown]] [Satin Brass] [Satin Nickel] [Oil-Rubbed Bronze].
- All vent units are available with left- or right-hand hinging.
- SureLock® System—A single handle locking system operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with frame height 29" and less, two unison operating locks installed on units with frame height over 29".
- [Saldo lock handle with [baked enamel [Champagne] [White] [Brown] [Matte Black]] [Satin Brass] [Satin Nickel] [Oil-Rubbed Bronze] hardware finish].
- Factory applied window opening control device included. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely.

Optional Products

Grilles

- Integral Light Technology® grilles
    - Interior grilles are [5/8"] [7/8"] [1-1/4"] [2"] square profile that are solid [pine] [mahogany] [douglas fir]. Interior surfaces are [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [paint] [stain] [2]].
    - Exterior grilles are [5/8"] [7/8"] [1-1/4"] [2"] square profile that are extruded aluminum.
    - Patterns are [Traditional] [Prairie] [Top Row] [Cross].
    - Insulating glass contains non-glare spacer between the panes of glass.
    - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer.
    – or –
- Grilles-Between-the-Glass [3]
    - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass (exterior air-space on triple-pane insulating glass).
    - Patterns are [Traditional] [Prairie] [Cross] [Top Row].
    - Interior color is [White] [Tan [4]] [Brown [4]] [Putty [4]] [Black] [Ivory] [Harvest] [Cordovan] [Brickstone].
    - Exterior color [5] is [standard] [2].

Hinged In-Swing Screen

- InView™ Fiberglass Screen
    - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with SMA 1201, set in an aluminum extruded frame fitted to inside of window, supplied complete with all necessary hardware.
    - Screen frame interior exposed surfaces are extruded aluminum with [White] [Brown] [Black] painted finish.

Hardware

- Optional factory applied limited opening hardware available for vent units in stainless steel; nominal 3" opening.

Sensors

- Optional factory installed integrated security sensors available in vent units.

---

(1) Low-E coated insulating glass is argon-filled (except high altitude). All other insulating glass (including high altitude Low-E) is air-filled.
(2) Contact your local Pella sales representative for current designs and color options.
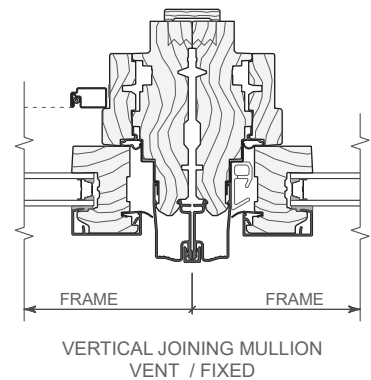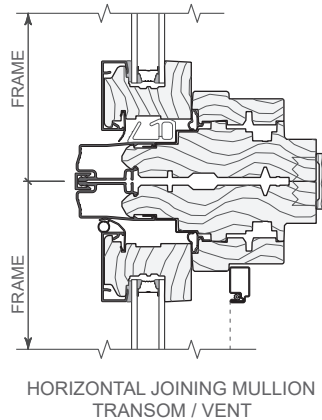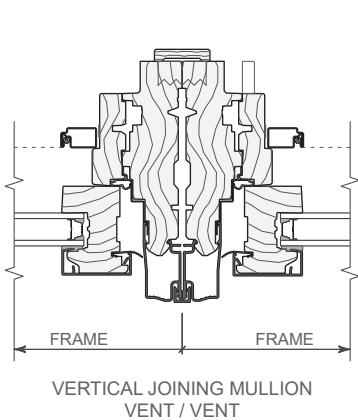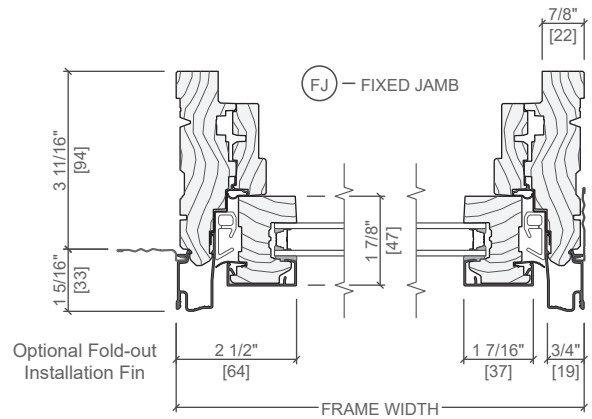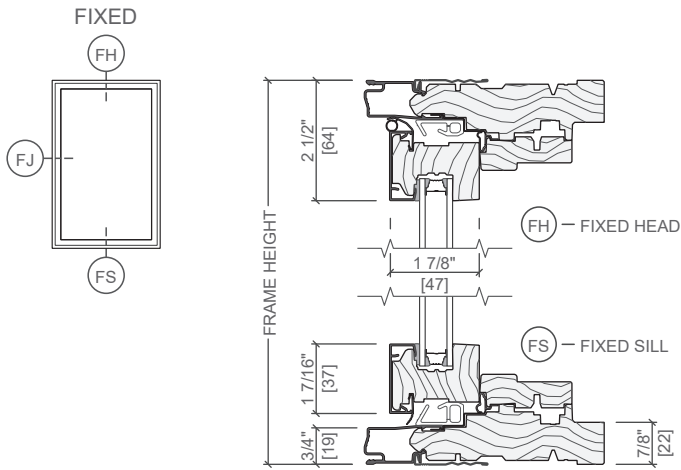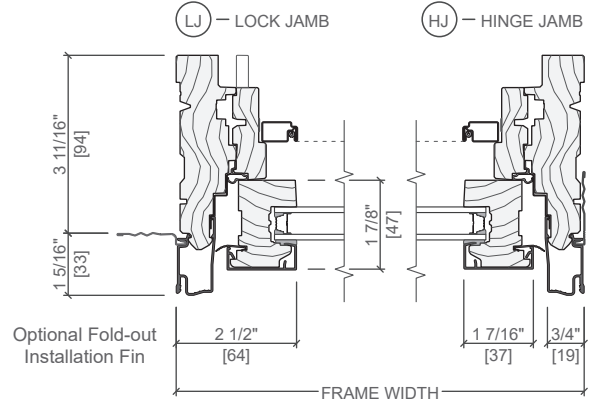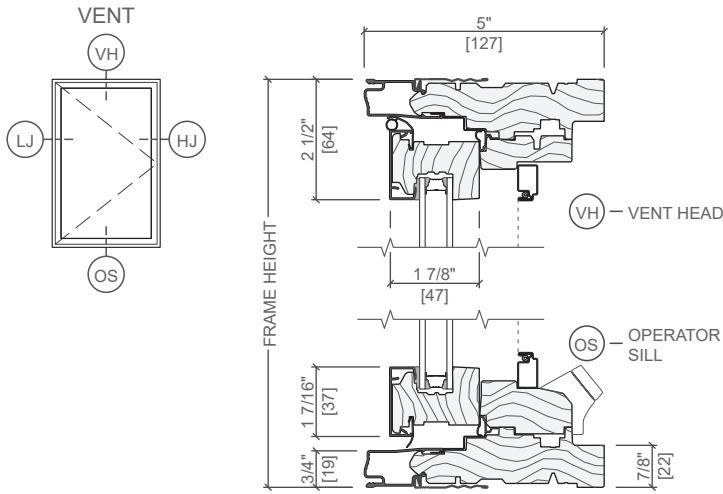(3) Available in clear or Low-E insulating glass with argon, and obscure insulated glass.
(4) Tan, Brown and Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with tan or brown exterior.
(5) Appearance of exterior grille color will vary depending on Low-E coating on glass.

VENT

VH
LJ — HJ
OS

5"
[127]

2 1/2"
[64]

FRAME HEIGHT

VH — VENT HEAD

1 7/8"
[47]

OS — OPERATOR SILL

1 7/16"
[37]

3/4"
[19]

7/8"
[22]

LJ — LOCK JAMB

HJ — HINGE JAMB

3 11/16"
[94]

1 7/8"
[47]

1 5/16"
[33]

Optional Fold-out Installation Fin

2 1/2"
[64]

1 7/16"
[37]

3/4"
[19]

FRAME WIDTH

FIXED

FH
FJ —
FS

2 1/2"
[64]

FRAME HEIGHT

FH — FIXED HEAD

1 7/8"
[47]

FS — FIXED SILL

1 7/16"
[37]

3/4"
[19]

7/8"
[22]

7/8"
[22]

FJ — FIXED JAMB

3 11/16"
[94]

1 7/8"
[47]

1 5/16"
[33]

Optional Fold-out Installation Fin

2 1/2"
[64]

1 7/16"
[37]

3/4"
[19]

FRAME WIDTH

FRAME

FRAME

VERTICAL JOINING MULLION
VENT / VENT

FRAME

FRAME

HORIZONTAL JOINING MULLION
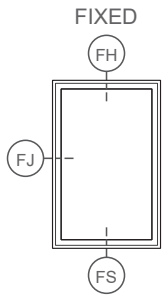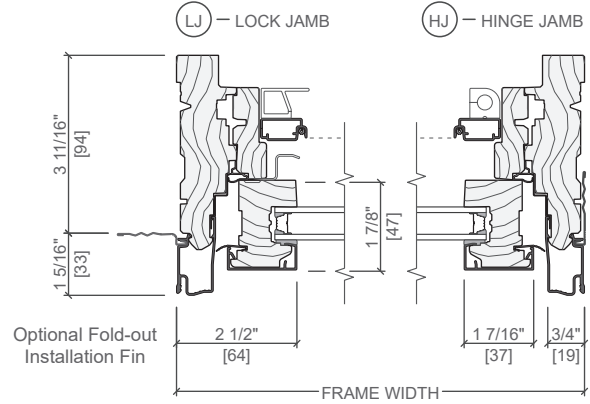TRANSOM / VENT

FRAME

FRAME

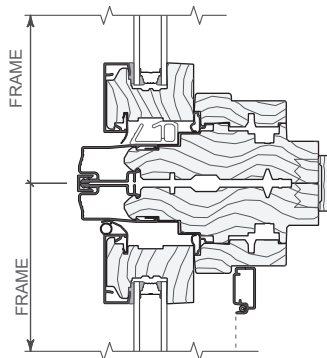VERTICAL JOINING MULLION
VENT / FIXED

Scale 3" = 1' 0"
All dimensions are approximate.
See supporting combinations documents for mullion limitations and reinforcing requirements.

Unit Sections – Aluminum-Clad Exterior, 1-7/8" Sash

VENT

VH
LJ   HJ
OS

5"
[127]

2 15/16"
[74]

FRAME HEIGHT

VH — VENT HEAD

1 7/8"
[48]

OS — OPERATOR SILL

1 7/8"
[48]

3/4"
[19]

7/8"
[22]

LJ — LOCK JAMB   HJ — HINGE JAMB

3 11/16"
[94]

1 5/16"
[33]

1 7/8"
[48]

Optional Fold-out Installation Fin

2 15/16"
[74]

1 7/8"
[48]

3/4"
[19]

FRAME WIDTH

FIXED

FH
FJ
FS

2 15/16"
[74]

FRAME HEIGHT

FH — FIXED HEAD

1 7/8"
[48]

FH — FIXED HEAD

1 7/8"
[48]

3/4"
[19]

FJ — FIXED JAMB

7/8"
[22]

3 11/16"
[94]

1 5/16"
[33]

1 7/8"
[48]

Optional Fold-out Installation Fin

2 15/16"
[74]

1 7/8"
[48]

3/4"
[19]

FRAME WIDTH

FRAME   FRAME

VERTICAL JOINING MULLION
VENT / VENT

FRAME

FRAME

HORIZONTAL JOINING MULLION
TRANSOM / VENT

FRAME   FRAME

VERTICAL JOINING MULLION
VENT / FIXED

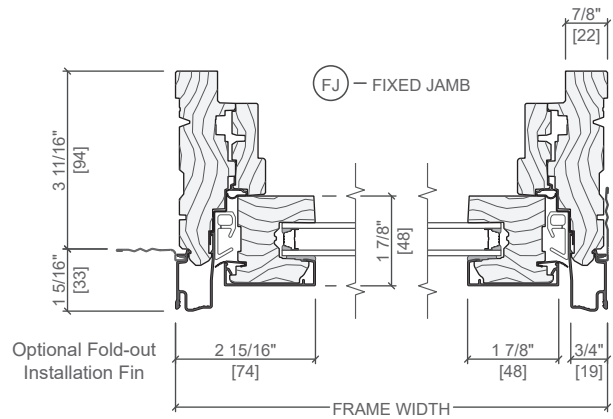Scale 3" = 1' 0"
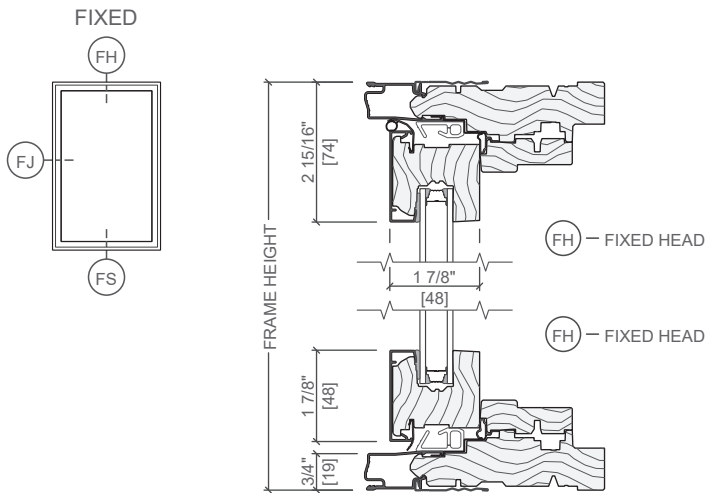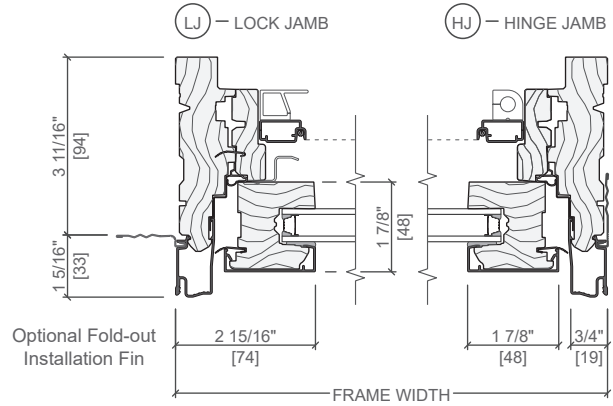1-7/8" sash is standard for impact-resistant units. All dimensions are approximate.
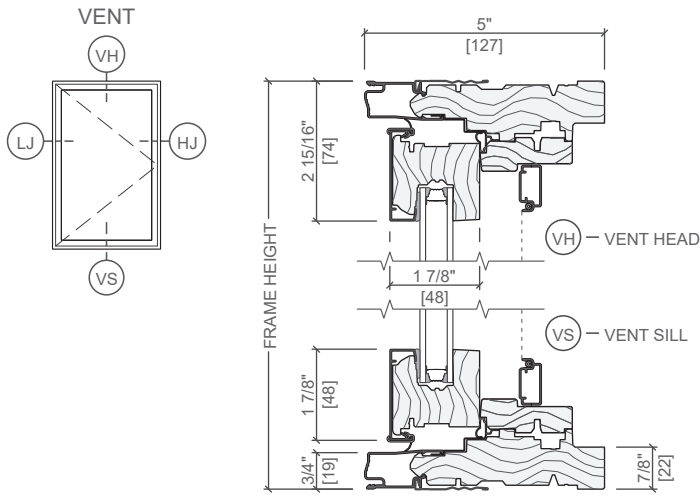See supporting combinations documents for mullion limitations and reinforcing requirements.

VENT

VH

LJ — HJ

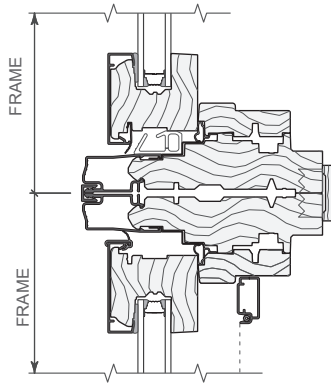OS

5"
[127]

2 15/16"
[74]

FRAME HEIGHT

2 3/16"
[55]

VH — VENT HEAD

OS — OPERATOR SILL

1 7/8"
[48]

3/4"
[19]

7/8"
[22]

LJ — LOCK JAMB

HJ — HINGE JAMB

3 11/16"
[94]

2 1/8"
[54]

1 5/16"
[33]

Optional Fold-out
Installation Fin

2 15/16"
[74]

1 7/8"
[48]

3/4"
[19]

FRAME WIDTH

FIXED

FH

FJ

FS

2 15/16"
[74]

FRAME HEIGHT

2 3/16"
[55]

FH — FIXED HEAD

FH — FIXED HEAD

1 7/8"
[48]

3/4"
[19]

7/8"
[22]

FJ — FIXED JAMB

3 11/16"
[94]

2 3/16"
[55]

1 5/16"
[33]

Optional Fold-out
Installation Fin

2 15/16"
[74]

1 7/8"
[48]

3/4"
[19]

FRAME WIDTH

Scale 3" = 1' 0"
All dimensions are approximate.

VENT

VH

LJ — HJ

VS

5"
[127]

2 1/2"
[64]

FRAME HEIGHT

1 7/8"
[47]

1 7/16"
[37]

3/4"
[19]

7/8"
[22]

VH — VENT HEAD

VS — VENT SILL

LJ — LOCK JAMB   HJ — HINGE JAMB

3 11/16"
[94]

1 5/16"
[33]

1 7/8"
[47]

Optional Fold-out
Installation Fin

2 1/2"
[64]

1 7/16"
[37]

3/4"
[19]

FRAME WIDTH

FIXED

FH

FJ

FS

2 1/2"
[64]

FRAME HEIGHT

1 7/8"
[47]

1 7/16"
[37]

3/4"
[19]

7/8"
[22]

FH — FIXED HEAD

FS — FIXED SILL

7/8"
[22]

FJ — FIXED JAMB

3 11/16"
[94]

1 5/16"
[33]

1 7/8"
[47]

Optional Fold-out
Installation Fin

2 1/2"
[64]

1 7/16"
[37]

3/4"
[19]

FRAME WIDTH

FRAME   FRAME

VERTICAL JOINING MULLION
VENT / VENT

FRAME

FRAME

HORIZONTAL JOINING MULLION
TRANSOM / VENT

FRAME   FRAME

VERTICAL JOINING MULLION
VENT / FIXED

Scale 3" = 1' 0"
All dimensions are approximate.
See supporting combinations documents for mullion limitations and reinforcing requirements.

VENT

LJ — LOCK JAMB

HJ — HINGE JAMB

VH — VENT HEAD

VS — VENT SILL

Optional Fold-out Installation Fin

FIXED

FJ — FIXED JAMB

FH — FIXED HEAD

FH — FIXED HEAD

Optional Fold-out Installation Fin

**VERTICAL JOINING MULLION
VENT / VENT**

**HORIZONTAL JOINING MULLION
TRANSOM / VENT**
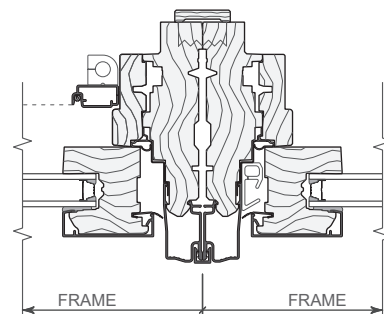
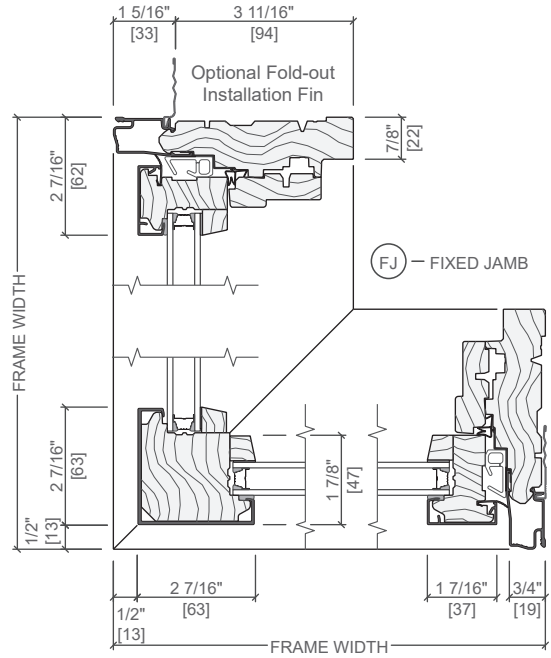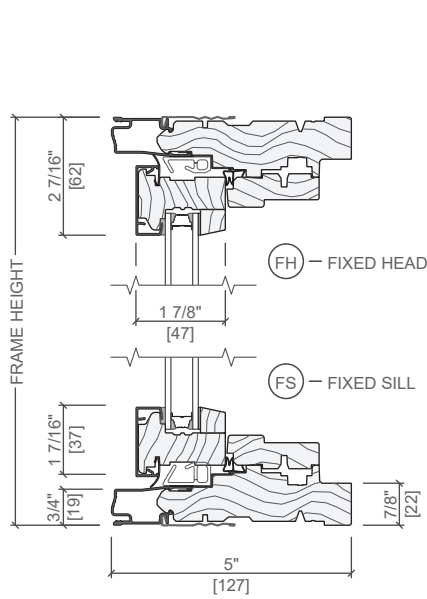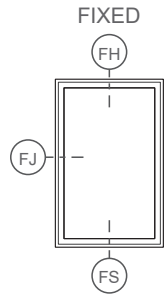**VERTICAL JOINING MULLION
VENT / FIXED**

Scale 3" = 1' 0"
1-7/8" sash is standard for impact-resistant units. All dimensions are approximate.
See supporting combinations documents for mullion limitations and reinforcing requirements.
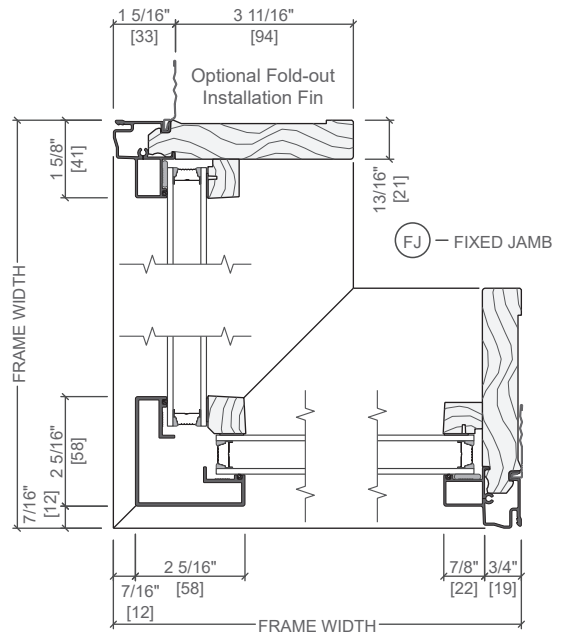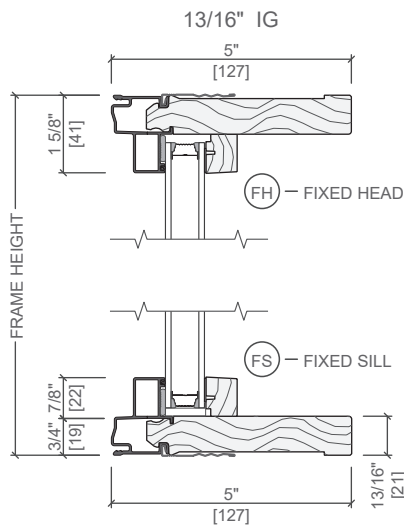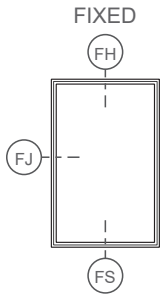
FIXED

FH — FIXED HEAD

FS — FIXED SILL

FJ — FIXED JAMB

Optional Fold-out Installation Fin

Fixed Frame Direct Set

FIXED

13/16" IG

FH — FIXED HEAD

FS — FIXED SILL

FJ — FIXED JAMB

Optional Fold-out Installation Fin

Direct Set cross section included for comparison purposes. See Fixed Frame Direct Set section or contact your local Pella sales representative for product details
Scale 3" = 1' 0"
All dimensions are approximate.