



SAGIREV INSTALLATION GUIDELINES

NOVEMBER 1, 2020

VERSION 1.1

*UPDATES:

- Images

- New 2 Pc Aluminum Trims

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INTRODUCTION

This guide has been prepared and intended for individuals with moderate to extensive knowledge of basic building practices. Appropriate protective eye wear should always be used when cutting. Warranty may be voided if proper application and installation practices are not followed.

Although relatively simple to install, SAGIREV requires compliance with some fundamental building practices described in this guide.

The information provided in this document is offered in good faith and believed to be reliable, but is made without warranty, express or implied, as to merchantability or fitness for a particular purpose. Readers should review this document in conjunction with their design professional's advice, construction drawings, manufacturer's technical literature, building code, and fire code. Sagiper North America Inc. does not assume any responsibility for reader's compliance with applicable laws and regulations.

NOTE: Where the terms "recommend" or "should" are used in this guide, the associated step is optional for installing boards. The step represents an installation best practice. Where the terms "required" or "must" are used, the associated step is a necessary part of the installation process and must be followed.

SAGIREV Features and Properties

SAGIREV boards are extruded PVC, which is a thermoplastic resin and is one of the most widely used plastics in the world. PVC is highly resistant to cracking, twisting, and warping. Unlike wood, it will never rot or support mold or mildew, and is also impervious to insects.

SAGIREV Boards

SAGIREV boards are available in 4" (100 mm), 6" (150 mm), 8" (200 mm) with three total profiles, similar to a traditional wood exterior tongue & groove or interior wood solid lumber paneling profiles. All board profiles are available in 12' (3,660 mm) and 19' (5,790 mm) nominal lengths.



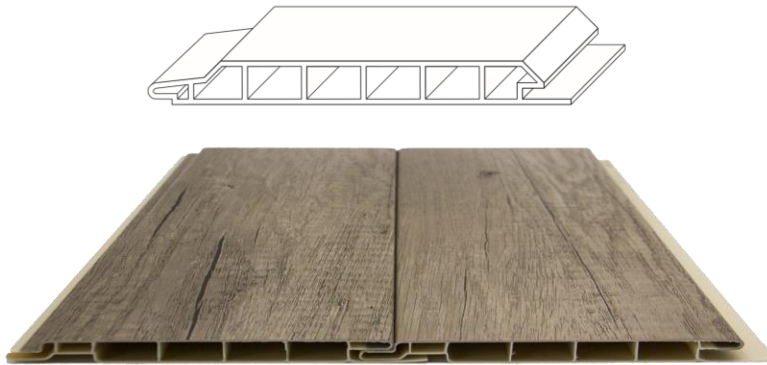


Figure 1, SAGIREV 4" (100 mm) x 10 mm thick V-Groove Board Profile

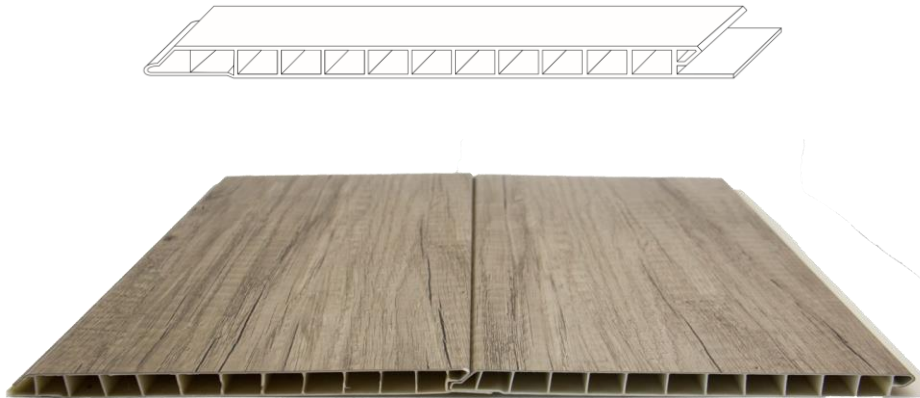


Figure 2, SAGIREV 6" (150 mm) x 10 mm thick V-Groove Board Profile



Figure 3, SAGIREV 8" (200 mm) x 10 mm thick Tongue & Groove Board Profile

SAGIREV Accessories

Sagiper offers SAGIREV accessory profiles that enable the project to be completed that are coordinated, color matching, and specifically designed for SAGIREV boards.



Figure 4, SAGIREV J-Mold Trim

1-piece accessory, PVC with decorative film, 5/8" (17 mm) face width x 1/2" (12 mm) x 1 1/8" (30 mm) x 12' (3,660 mm) long and 19' (5,790mm) long.



Figure 5, SAGIREV H-Mold Trim

1-piece trim, PVC with decorative film, 1 1/8" (30 mm) face width x 12' (3,660 mm) long and 19' (5,790 mm) long.



Figure 6, SAGIREV Outside Corner Trim

1-piece trim, PVC with decorative film, 1" (24 mm) wing length x 12' (3,660 mm) long and 19' (5,790 mm) long.



Figure 7, SAGIREV Clip Crown Molding

2-piece accessory, PVC with decorative film, 1 1/4" (33 mm) x 1 1/4" (33 mm) x 12' (3,660 mm) long and 19' (5,790mm) long, composed of base and finishing cap.

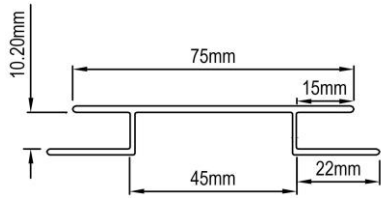


Figure 8, Vent Strip

1-piece accessory, PVC with decorative film, 5/8" (15 mm) flange width each side x 1 3/4" (45mm) perforated width x 12' (3,660 mm) long. Coverage is 255 sq.in or 1.77 sqft of ventilation.



2-piece Aluminum J Mold Clip



2-piece Aluminum H Mold Clip

2-piece accessory J Mold Clip, aluminum base and finishing cap with decorative film, 1 3/8" (35 mm) x 19' (5,790 mm) long, composed of base and finishing cap.

2-piece accessory H Mold Clip, aluminum base and finishing cap with decorative film, 2 3/8" (60 mm) x 19' (5,790 mm) long, composed of base and finishing cap.



Sagiper Touch-Up Pen

WARNINGS AND SAFETY

Fire and Heat Sources

- All PVC products can be damaged by excessive heat. Keep a safe distance between SAGIREV and heat sources, such as fireplaces, barbeques, and fire pits.

Protection of Installer

Wear and use appropriate Personal Protective Equipment (PPE), take all necessary precautions to protect eyes, wear gloves as required to protect from sharp edges and corners. If exposure to air-borne particulates occurs wear an appropriate dust mask. The OHS Code describes further requirements.

GLOSSARY

Casing: Molding used to trim door and window openings at the jambs. Also referred to as "window surround", "door surround", or "brickmold".

Channel: The recessed area of an accessory trim piece, where cladding boards are inserted. Channels can also refer to the entire trim piece itself, and are named for the letter of the alphabet their profile resembles (e.g., J-mold trim/J-trim, H-Mold Trim, etc.).

Course: A single row of boards, running the full length of the building; or in the case of a vertical installation, from top to bottom.

Face: The visible side of a board once the board is installed.

Face-Nailing: The action of fastening directly through the "face" side of a board (instead of nailing through the nailing flange). Face nailing is NOT recommended for SAGIREV installations.

Flashing: A thin, impervious material (often metal) located around exterior wall openings, windows, doors and under/behind J-mold trim, to shed the draining water away from the building.

Mitre: A diagonal cut, beveled to a specific angle (usually 45°). Sometimes miter cuts are made to cladding or soffit boards, to provide a neater installed appearance.

Nailing Flange or Hem: The section of board or accessory where the fasteners are located.

Rip Cut: A cut made lengthwise on a board or trim.

Shim: A minor building material used to create a consistent plane on an uneven substrate, prior to installing boards or accessories. Also used to level or plumb a product during installation.

Soffit: The material used to enclose the horizontal underside of an eave, cornice, or overhang.

TRANSPORTATION AND STORAGE

Transportation

When transporting Sagiper products, keep the boxes flat, and support them along their entire length. When products arrive at the project site, inspect materials for accidental damage. Damaged products should not be installed. All damages must be noted on the Bill of Lading (BoL).

Storage

Store the boxes on a flat surface and support the entire length of the boxes. Keep the boxes dry. Store the boxes away from areas where falling objects or other construction activity may cause damage. Ensure the stacks of boxes are stable.

Warning

DO NOT store boxes in a location where temperatures may exceed 50°C (130° F) (e.g., on asphalt pavement during unusually hot weather or under dark tarps/plastic wraps without proper air circulation).

DO NOT store the boxes in stacks more than six (6) boxes high.

TOOLS AND EQUIPMENT

Recommended Equipment

- Rubber mallet
- Chalk line
- Tape measure
- Framers square
- Power drill
- Level
- Mitre saw, carbide blade with 80+ teeth

Warning

DO NOT use pneumatic nailing guns or manual staplers to fasten SAGIREV boards. Pneumatic nailing guns and manual staplers frequently break the nailing flange, and typically apply too much pressure to allow the boards to expand/contract freely. Only an electric stapler with dial down depth control is acceptable for interior applications only.

FASTENERS

Screws

Exterior Installations: Use an appropriate length, hot-dip galvanized steel or stainless steel wafer head screw to fasten the boards through the nailing flange.



Figure 9, Wafer Head Screw

- Select screws with length to penetrate 1¼" (32 mm) into solid wood minimum.

Staples

For interior installations only, staples are acceptable or an appropriate length wafer head steel screw to fasten the boards through the nailing flange. Only an electric stapler with dial down depth control is acceptable (pneumatic staplers or manual staplers are not and may damage the nailing flange) for interior installations only. **For exterior installation DO NOT use staples.**

Warning *IMPORTANT*

Interior and Exterior Installations: DO NOT use pneumatic staplers.

Exterior Installations:

DO NOT use SAGIREV boards on exterior wall applications. SAGIREV products are not engineered for this application therefore warranty is void. See SAGIWALL product line for exterior wall applications.

DO NOT butt joint Sagirev panels on exterior applications. An H-Mold trim must be utilized.

DO NOT use staples for exterior installations.

DO NOT use glue or adhesives of any kind to fasten the SAGIREV boards.

DO NOT use electroplated galvanized fasteners. The lifespan of SAGIREV is extremely long and the fasteners must have at least the same lifespan as the boards.

PREPARATION

Exterior Installations: Allow SAGIREV boards and accessories to completely acclimate to the outside temperature before beginning installation.

Interior Installations: Allow SAGIREV boards and accessories to completely acclimate to the typical interior room temperature before beginning installation.

Shimming

Verify all wall and soffit substrates are plumb, square, and even across their surfaces. If a surface is uneven, install shims to create a flat consistent substrate for the SAGIREV.

Board Preparation

The factory board ends of most SAGIREV boards have minor alignment differences. Sometimes the decorative film is shorter or longer than the board core. Prior to installation, remove the excess film or remove the uncoated portion of the board. Boards are always slightly longer than specified length to account for this condition.

* IMPORTANT * Randomized Board Patterns

SAGIREV BOARDS ARE MANUFACTURED FROM A LARGE REPEATING PATTERN (48" X 48"), AND ARE PACKAGED SEQUENTIALLY. A BEST PRACTICE IS TO RANDOMLY SHUFFLE THE BOARDS AT THE PROJECT SITE OR PRE-PLAN THE INDIVIDUAL BOARD LOCATIONS, TO MINIMIZE IDENTICAL BOARD PATTERNS LOCATED ADJACENT TO EACH OTHER. WHEN INSTALLING BOARDS ON FEATURE WALLS OR ON LARGE SCALE PROJECTS WITH VAST CLADDING AREAS, PERIODICALLY REVIEW THE BOARD PATTERNS FROM A DISTANCE TO ENSURE A RANDOM APPEARANCE.

GENERAL INSTALLATION CONSIDERATIONS

Fasten every SAGIREV board at 16" (400 mm) on centre.

Exterior Installations: Maintain a maximum distance of 1/4" (6 mm) between the end of the SAGIREV board and the respective accessory (H-Mold Trim or J-Mold Trim). An example is shown in [Figure 34](#) where the SAGIREV soffit boards are penetrated by a recessed light fixture, with a wide light flange trim that covers the expansion/contraction gap.

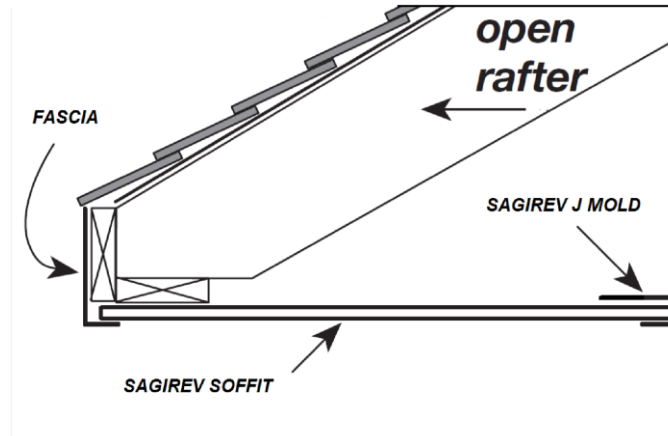


Figure 10, Section detail of SAGIREV soffit perimeter trim (J-Mold Trim)

When a soffit or ceiling is longer than 12 or 19ft, cover two board ends with an H-Mold Trim. Ensure board butt joints are made over solid wood or strapping to provide secure fastening. Before installation of a H-Mold Trim, install strapping with at least the same width as the H-Mold Trim, in order to later fasten the H-Mold Trim (see [Figure 11](#)). We do not recommend butting panels on exterior applications as they will expand and contract creating a gap between the boards.

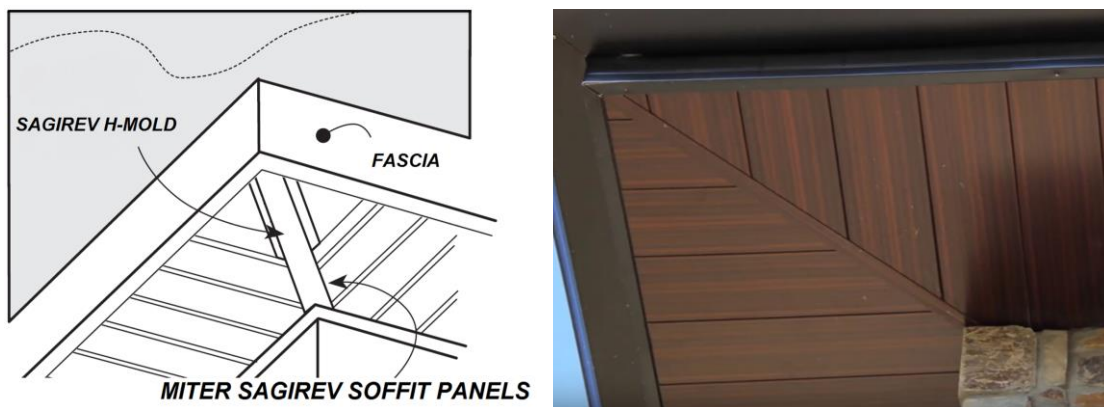


Figure 11, Details at soffit, H-Mold Trim

Important Temperature Considerations

*** IMPORTANT *** **Exterior Installations:** During the entire installation process, it's critical that each soffit component is allowed to freely expand and contract with the changes in temperature. Improperly installed components that restrict this expansion/contraction will buckle or warp. Unlike wood, SAGIREV will not swell when exposed to moisture.

Leave 1/4" (6 mm) to allow for thermal expansion, when installing in moderate to cool temperatures. If installing in warmer temperatures, it is important to be cognisant of thermal contraction and leave less than 1/4" (6 mm).

Examples

- SAGIREV boards have a coefficient of thermal expansion/contraction of $5 \times 10^{-5} \text{ m}/(\text{m}^\circ\text{C})$. As an example, in a city that has a seasonal high-low temperature range of -30°C to $+30^\circ\text{C}$, exterior boards will be exposed to a temperature change of 60 degrees Celsius total. A nominal 19' (5,790 mm) long SAGIREV soffit board will experience a change in length seasonally of 11/16" (17 mm). This does not harm the product.
- As another SAGIREV soffit board example, in a city that has a seasonal high-low temperature range of -3°C to $+25^\circ\text{C}$, the soffit boards will be exposed to a temperature change of 28 degrees Celsius total. A 10' (3,050 mm) SAGIREV board will change 3/16" (4.5 mm) in length, when comparing the board length on the coldest day and warmest day. In this example, if the board is initially cut outdoors (at -3°C) then that board can be expected to only expand, and won't contract. These are important considerations for the determining the appropriate gap allowance at board ends.
- Interior installations typically have consistent ambient air temperatures, or small temperature variations. Typically the gap allowance at board ends can be nominal.

Warranty Considerations

Material Compatibility Issues

All PVC products are incompatible with asphaltic products, and must never be in direct contact with each other. If these materials are accidentally in contact, compounds from the asphaltic material will leach into the PVC product and weaken and/or discolor the PVC product. If an asphalt material touches a PVC product, it must be cleaned immediately or the surface could be permanently "stained". Solvents are not recommended for cleaning PVC. Fortunately, these situations are avoidable with proper planning, are not valid cause for a warranty claim.

Code Compliance

The applicable Building Code and Fire Code are determined based on the project site location, and as there are many different codes in Canada and the USA, and as Building Codes are regularly updated, Sagiper North America can't address all code related information in this guide. It is the responsibility of the project design authority, architect, installer, and/or contractor to understand the applicable code and install exterior envelope products in accordance with those codes. The requirements of local Building Codes must always be observed, as a minimum requirement. Some code related issues to consider include the following:

- For small buildings/residential the minimum attic ventilation requirements are indicated in Building Code.
- The required flammability qualities of soffit/ceiling materials and interior wall finishes materials are indicated in building code. The most current test results of Sagiper products are available on their website www.sagipernorthamerica.com.

Installation Clearances

Exterior Installations: Leave a maximum clear space of 1/4" (6 mm) between the end of the SAGIREV board and any other fixed material or trim (see [Figure 10](#)). Also, leave a maximum clear space of 1/4" (6 mm) around other materials that penetrate the boards, such as recessed pot lights, electrical outlets (see [Figure 34](#)). Also comply

with the minimum clearance requirements of the electrical device. If the clearance requirements are different, provide the larger clearance.

Cutting SAGIREV Boards

All PVC is softer in warmer temperatures and more brittle in colder temperatures. Generally, in colder temperatures push circular saws more slowly to avoid chipping the board. Use fine tooth blade (80 teeth or more) for mitre saw. Use circular blade in reverse to cut for lights.

Installation at Interior Wall Corners

Where two walls meet at a corner, install the boards on the first wall. Fit the receiving end of the outside corner into the SAGIREV boards already fastened to the wall. Boards on the opposite wall can now be fit into the other end of the corner. Corner is friction fit. For additional adhesion, a small bead of PL Premium can be applied to the inside track of the outside corner.



Figure 12, Images of Outside Corner Trim



Figure 13, Image at inside corner with two J-Mold Trims

Warning

DO NOT install SAGIREV with a butt joint at exterior locations. An H-Mold Trim MUST be installed at exterior SAGIREV board-to-board ends.

HORIZONTAL INSTALLATION AT INTERIOR WALLS

Step 1

Place a level guideline with chalk to all SAGIREV wall areas, where the bottom of the lowest board will be installed.

Step 2

Install J-Mold Trims at inside corners, where SAGIREV boards abut other wall finishes, at the perimeter of windows, doors, and other materials penetrating SAGIREV boards.

Step 3

Install the lowest course of boards, through the nailing flange. Fasten the boards through the tab at each stud 16" (400 mm) on center. If the boards are being fastened directly to a solid surface (e.g. plywood) fasten 16" (400 mm) on center. Install a few additional board courses, and check that the boards are level. Check the ends of adjacent boards align horizontally (a board should not be noticeably higher or lower than the adjacent board).

Install the remaining boards. Every few courses check for level and that adjacent boards are aligned horizontally.

Step 4

Install all the Outside Corner Trims.

Step 5

Install H-Mold Trims vertically, located at the ends of each horizontal board.

Step 6

Install the finishing caps of the SAGIREV Clip Crown Molding, as applicable.

VERTICAL INSTALLATION AT INTERIOR WALLS

Installation recommendations for vertical installations are the same as horizontal installations, with a few extra considerations. When installing the SAGIREV boards vertically, the Starter Strip is not required.

Step 1

Install J-Mold Trims at inside corners, where SAGIREV boards abut other wall materials, at the perimeter of windows, doors, and other materials penetrating SAGIREV boards.

Step 2

Install the first vertical course of boards beginning at an Outside Corner Trim or J-Mold Trim, and fasten through the nailing flange. Fasten the boards 16" (400 mm) on center. If the boards are being fastened directly to a solid surface (e.g. plywood) fasten 16" (400 mm) on center.

Install a few additional board courses, and check that the boards are plumb. Check the ends of adjacent boards align vertically (a board should not be noticeably left or right from the board below).

Install the remaining boards. Every few courses check for plumb and that adjacent boards are aligned vertically.

Step 3

Install all the Outside Corner Trims.

Step 4

Install H-Mold Trims horizontally, located at the ends of each horizontal board. Give consideration to where this trim will be located, relative to other significant wall features. It may be desirable to align this trim with other wall elements.

Step 5

Install the male finishing caps of the SAGIREV Crown Clip Molding, as applicable.

INSTALLATION AT INTERIOR CEILINGS

SAGIREV can be installed as a ceiling finish by installing it directly to a gypsum board ceiling, installing it to ceiling furring/strapping, or installing it to the face of a suspended T-bar system.

Step 1

If installing SAGIREV on ceiling furring/strapping, install furring perpendicular to the direction that the SAGIREV boards will be installed. Install furring at 16" (400 mm) on center.

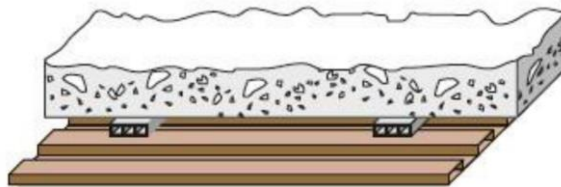


Figure 14, Diagram of ceiling furring and perpendicular SAGIREV boards

Step 2

Install J-Mold Trims where SAGIREV boards abut other ceiling materials, at the perimeter of the ceiling area, and where other materials penetrate SAGIREV boards (such as recessed light fixtures). J-Mold Trims are not required if the light fixture has its own trim that covers the board ends.

Alternatively the Clip Crown Molding can be installed at the ceiling area perimeter (see [Figure 7](#)). When the Clip Crown Molding is used, install only the male piece of the molding at this time.

Step 3

Install the first course of boards, fastening through the nailing flange. Fasten the boards at each furring/strapping 16" (400 mm) on center. If the boards are being fastened directly to a solid surface (e.g. plywood) fasten 16" (400 mm) on center. Install a few additional board courses, and check that the boards are consistently perpendicular or parallel to the adjacent wall plane. Install H-Mold Trims at board end-to-board end connections.

Install the remaining boards. Every few courses check for consistent alignment with the adjacent wall plane.

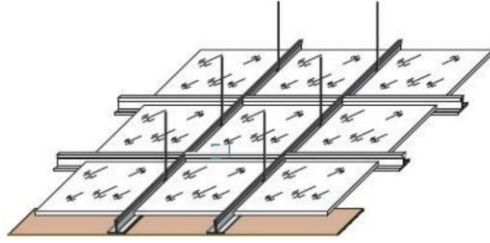


Figure 15, Diagram of SAGIREV board installed on to T-bar suspension system

Step 4

Install the last SAGIREV board with the J-Mold Trim.

Alternatively where the Clip Crown Molding is used, snap in the female piece of the Clip Crown Molding on to the male piece at this time.

INSTALLATION AT EXTERIOR SOFFITS

Step 1

Install J-Mold Trims where SAGIREV boards abut other soffit materials, at the perimeter of the soffit area. Where other materials penetrate SAGIREV boards (such as recessed light fixtures) J-Mold Trims are not required if the light fixture has its own trim that covers the expansion/contraction gap.

Step 2

Install H-Mold Trims at the ends of each horizontal board, and allowing for proper expansion/contraction gaps.

Step 3

Install the first course of boards, fastening through the nailing flange. Fasten the boards at each joist/rafter at 16" (400 mm) on center. If the boards are being fastened directly to a solid surface (e.g. plywood) fasten 16" (400 mm) on center. Install a few additional board courses, and check that the boards are consistently perpendicular or parallel to the adjacent wall plane. Check the proper gap allowances are maintained at the ends of each board within each course.

Install the remaining boards. Every few courses check for consistent alignment with the adjacent wall plane.

Step 4

Install Ventilation Trim: Venting for SAGIREV soffits is achieved by using either the continuous SAGIREV Vent Strip that is snapped in between two board groove-to-groove or by using 4" (100 mm) circular aluminum soffit vents (See [Figure 8](#), [Figure 16](#), and [Figure 17](#)).



Figure 16, Soffit with SAGIREV Vent Strips, perpendicular application

The SAGIREV Vent Strip can be installed in either perpendicular or parallel SAGIREV soffit applications.

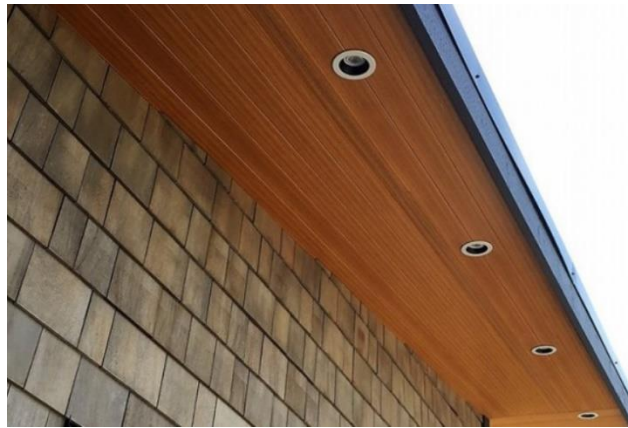


Figure 17, Soffit with SAGIREV Vent Strips, parallel application

Step 4a

Build out the perimeter with the SAGIREV J Mold Trim. Do not install an outside J Mold Trim as the fascia will cover this side. (See Figure 18)



Figure 18, J Mold Trim at soffit, prior to installing soffit boards

Step 4b

Install the first SAGIREV soffit board and fasten to the substrate. (See [Figure 19](#) and [Figure 20](#))



Figure 19



Figure 20

Step 4c

For both parallel and perpendicular applications, the SAGIREV soffit board that will receive the "J" end of the Vent Strip, should have its nailing flange ripped with a utility knife on the groove edge. This will allow the soffit board to sit snug within the "J" end of the SAGIREV Vent Strip. (See Figure 21)



Figure 21, Remove nailing flange

Step 4d

The SAGIREV Vent Strip will then be fitted along the groove edge of the SAGIREV board and fit tongue to groove with the SAGIREV soffit board already fastened into place. (See Figure 22)



Figure 22

Step 4e

Once the board, with the SAGIREV Vent Strip, is fit into place, fasten the longer end of the SAGIREV Vent Strip to the stud/rafter substrate. (See Figure 23)



Figure 23

Step 4f

Use the fastened end of the SAGIREV Vent Strip to receive the next SAGIREV soffit board, continue the remainder of the soffit installation and cap outside end with aluminum fascia to complete install. (See Figure 24)



Figure 24

Soffit Penetrations

Prior to installation, review all electrical device (e.g. recessed lights) manufacturer's recommendations for minimum clearances to soffit materials.



Figure 25, Soffit with light fixture

WARNING**

PROPER VENTILATION OF YOUR SAGIREV SOFFIT SYSTEM IS AN INTEGRAL PART OF THE SYSTEMS PERFORMANCE. CAREFUL BUILDING CONSIDERATIONS MUST BE MADE WHEN DETERMINING WHETHER OR NOT VENTILATION IS REQUIRED TO AVOID ISSUES. Inadequate soffit ventilation on warm summer days, especially at south facing areas, can lead to trapped air and excessive heat build-up within the soffit space resulting in soffit temperatures much higher than the outside air temperatures. This can also result in condensation build up on the face of the SAGIREV panels during colder winter temperatures. If the area above the SAGIREV soffit shares the same attic space as a perimeter vented soffit, the SAGIREV must also be vented to allow for wind to enter and exit both systems, avoiding potential damage to the SAGIREV panels from wind washing. SAGIREV Soffit vent strip offers 255 sq.in or 1.77 sqft of ventilation per 12ft piece. **Adequate soffit ventilation is always recommended.** Please refer to your local building code for proper ventilation requirements.

CARE AND MAINTENANCE

All soffit products require little cleaning due to their protected location. If desired, SAGIREV maintenance is very simple, needing only a simple cleaning with a sponge or damp cloth. When dirt has become noticeable wash it with an ordinary garden hose. Detergent or other types of non-abrasive cleaning products may also be used.

Before using any cleaning product, carefully read the cleaning product's instructions, and test it on a small inconspicuous area or on a scrap piece to see results.

Warning

SAGIREV does not require any surface treatments, such as the application of surface sealers or coatings.

DO NOT use a stiff bristle brush or abrasive cleaner, which may change the gloss of the boards.

DO NOT use abrasive products to clean SAGIREV.

DO NOT use power washers for cleaning.

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