

WRAP YOUR HOME IN ECO-FRIENDLY BEAUTY

Nickel Gap and V-Groove Siding
Installation Guide

ACRE™ BY MODERN·MILL

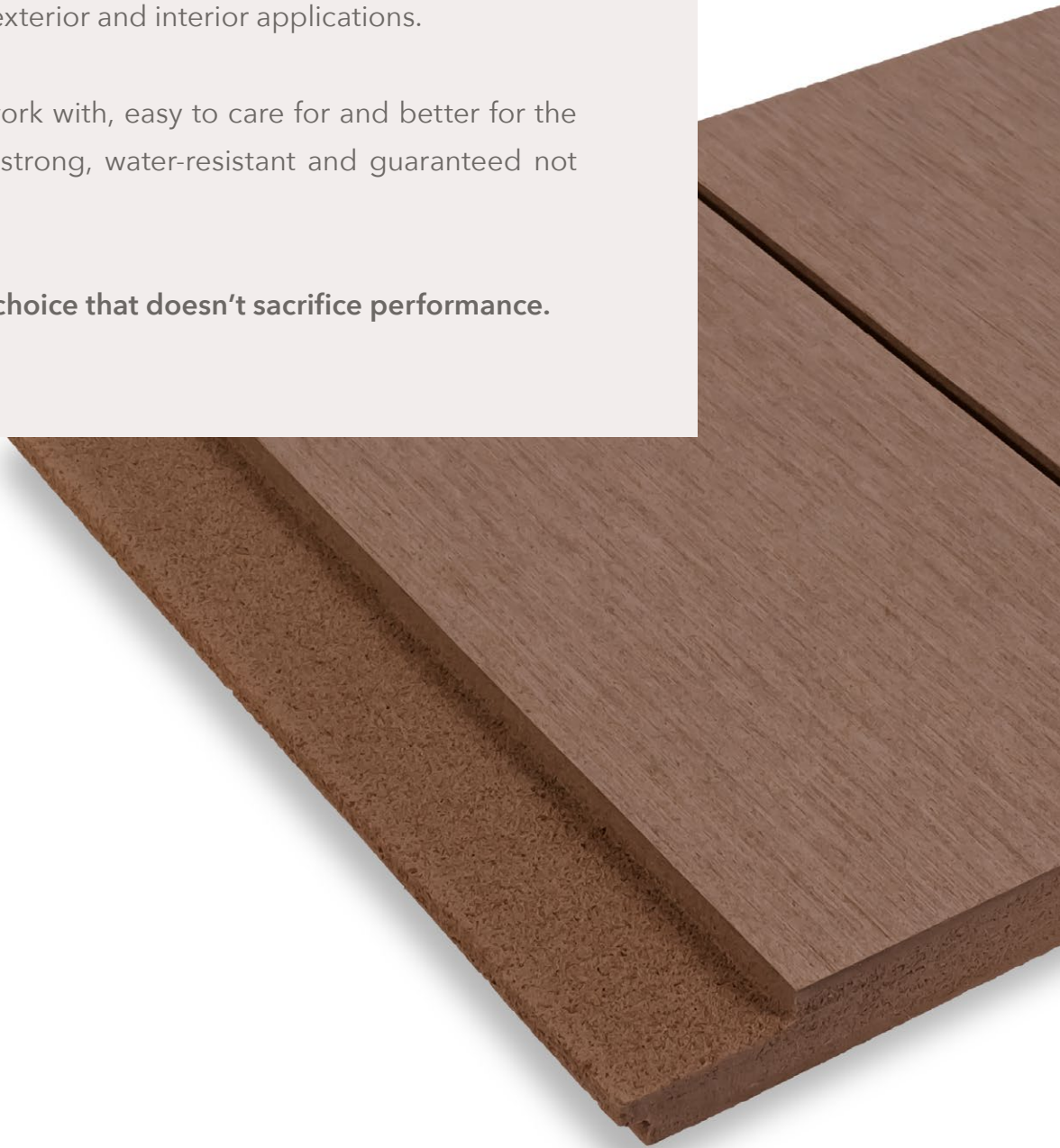
BUILD BETTER WITH ACRE

Modern Mill is leading the way toward a more sustainable future, one tree-free board at a time.

Our award-winning building material, ACRE, is the ideal alternative to wood for countless exterior and interior applications.

It's beautiful, easy to work with, easy to care for and better for the environment. ACRE is strong, water-resistant and guaranteed not to rot or splinter.

ACRE is a sustainable choice that doesn't sacrifice performance.



Keys to Success

These are THE critical considerations for your successful ACRE installation.

Pay close attention to the following sections in this guideline:

FASTENING

- Proper fasteners (minimum 8D x 2 1/2" ring shank nails or minimum #8 x 2 1/2" screws).
- DO NOT USE BRADS, FINISH/TRIM HEAD NAILS/SCREWS OR STAPLES.
- Always fasten with a minimum of 1 1/2" penetration into solid framing.
- For any questions, please reach out to your Modern Mill Rep.
- Take care to drive all fasteners to proper depth.

FINISHING

- Use approved water-based coatings with LRV 55 or greater.
- **If the coating's LRV is below 55, or if you're not sure, contact your Modern Mill rep.**

CLIMATE CONDITIONS AND INSTALLATION TEMPERATURE

- Ambient temperature and temperature of ACRE material at time of installation MUST be considered.
- Pay careful attention to Expansion and Contraction guidance on page 13.

UNIQUE APPEARANCE

- Note that rice hulls, like wood, can vary slightly in color, which can be seen in the final product both prior to and after staining. For best appearance it's important to mix boards from various pallets or various points of the stack.

WE WOULD LOVE TO HELP GUIDE YOUR PROJECT TO SUCCESS. PLEASE CONTACT US AT ZEN@MODERN-MILL.COM OR 601-869-5050.

ACRE™ BY MODERN·MILL

PRODUCT EXPECTATIONS

INSTALLATION GUIDES

ACRE contains PVC. It's important to familiarize yourself with its spacing requirements, coatings and all installation guidelines. This will ensure ACRE products perform as designed and to expectations.

- TRIM
- DECKING
- FENCING
- SIDING
- PORCH BOARDS

COATING AND FINISHING

PROPER INSTALLATION REQUIRES CLOSE ADHERENCE TO MODERN MILL **COATINGS GUIDELINES**: This is a critical and important step, especially with outdoor applications for ACRE to perform as expected and to avoid the effects of excessive expansion and contraction.

ACRE does not absorb paints, stains, or clear coats as typical woods products do. For best results, we recommend applying coatings with boards on a smooth flat surface prior to installation.

ACRE products generally will not gray like natural woods in exterior applications. However, color may fade over time with increased UV exposure, therefore a UV-resistant stain or paint can help resist fading and make for easier cleaning and care.

UNIQUE APPEARANCE

Note that rice hulls, like wood, can vary slightly in color, which can be seen in the final product both prior to and after staining. For best appearance it's important to mix boards from various pallets or various points of the stack.

MOVEMENT

ACRE WILL EXPAND AND CONTRACT WITH ENVIRONMENTAL TEMPERATURE CHANGES. INSTALLATION CONDITIONS AND FINISH COLOR WILL IMPACT EXPANSION AND CONTRACTION. Refer to the proper product installation guide to ensure the best product performance and minimize the effects of expansion and contraction.

FASTENERS

USING THE CORRECT TYPE AND NUMBER OF FASTENERS WILL ENSURE MATERIALS PERFORM AS INTENDED. DO NOT USE BRADS, FINISH/TRIM HEAD NAILS/SCREWS, OR STAPLES. Fasteners must penetrate solid framing members. All projects and designs are unique. For any installation questions please contact your Modern Mill Rep.

Caution: under driven button-cap fasteners may inhibit the engagement of siding panels.

HEAT RETENTION

Coatings will affect product performance, including heat retention, therefore it's important to read the **Coatings Guide** and use manufacturer approved coatings and finishes.

BURNING WARNING

Safety Warning: Do not burn ACRE products or scraps. ACRE products are not safe to be discarded by burning, used as a firewood, kindling or as any other source of fuel to create and/or maintain a fire or heat source.

STORAGE AND HANDLING

We recommend keeping ACRE in a cool, dry spot, out of direct sunlight. Please acclimate ACRE products prior to installation. Always install ACRE immediately after making any cuts.

ADHESIVES

We recommend utilizing a PVC glue or cement, polyurethane glue or construction adhesives. **Do not use wood glue.**

STAINS AND CLEANING

ACRE products can be stained by certain foods, drinks and chemicals. Clean up any stains or dirt as quickly as possible and keep areas clean from debris. Soap and water, or a product like Simple Green® can clean most stains. In some cases, light sanding may be required. If using a power washer, we do not recommend pressure above 2500 psi and to use a wide fan tip or oscillating tip and keeping the tip a minimum of 12" from the surface.

SURFACE MARRING (SCUFFS) AND LIGHT SURFACE DAMAGE

Like wood, ACRE might endure some dings, dents or marring on the job. Most light surface damage can be removed by simply sanding ACRE lightly with 120 grit sandpaper on a pole or block sander in the direction of the grain. Please note, less than 120 grit sandpaper may scratch the surface and affect the finish when stain is applied. We do not recommend the use of an orbital or palm sander as this can affect the ACRE grain structure.

ENVIRONMENTAL IMPACT

ACRE by Modern Mill is made from upcycled rice hulls in a zero-waste manufacturing facility in the U.S.A. ACRE is tree-free, and free of phthalates, phenol, formaldehyde and adhesives. Contact us at zen@modern-mill.com to learn about options for recycling.

WARRANTY

ACRE products have a limited lifetime guarantee to be free from material defects that are a result of the manufacturing process, rotting or splintering as a direct result of the manufacturing process or by normal use and service provided conditions described in all installation materials and technical guides are met. In no event shall Modern Mill be responsible or liable for labor, installation, re-installation, freight, taxes or any other charges related to defective product. Visit our website to learn more:

www.modern-mill.com/warranty

MODERN·MILL

601-869-5050 | zen@modern-mill.com | modern-mill.com

FIRST TIME USING ACRE?

Be sure to visit our **Product Expectations** page for all our installation guides and best practices before building with ACRE.



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PRODUCT APPLICATIONS

Please consult with a Modern Mill representative to ensure your intended use of ACRE products is fit for purpose. Published and current installation guidelines must be followed for ACRE's warranty to remain valid. For example, ACRE Siding is only approved as shiplap and board and batten and must follow prescribed installation guides. Lap Siding is not an approved application.



Be sure to visit our Product Expectations page for all our installation guides and best practices before building with ACRE

<https://modern-mill.com/product-expectations/>



BURNING WARNING

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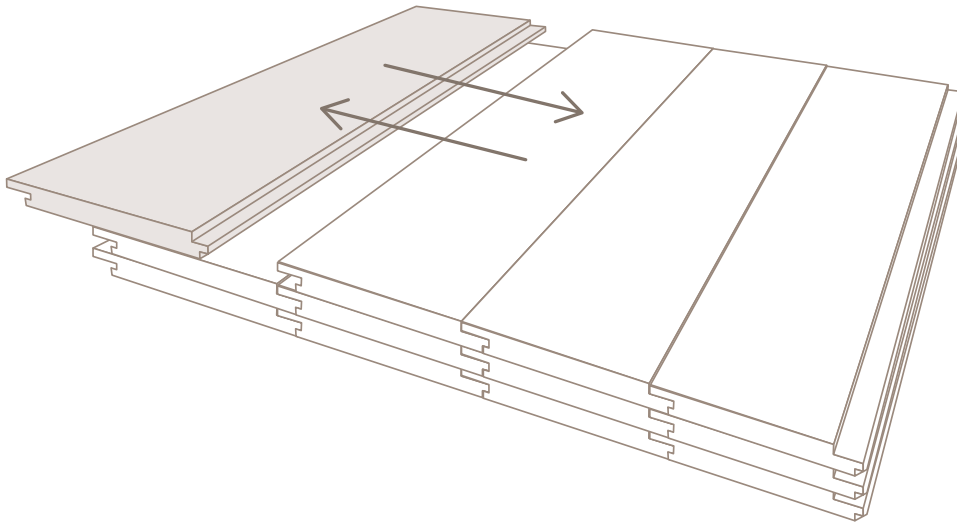


EXTREME HEAT WARNING

Be aware of excess heat on ACRE surfaces such as but not limited to fire, direct or reflective sunlight, reflective sunlight from energy-efficient window products. Low-emissivity (Low-E) glass can harm ACRE products because Low-E glass products are designed to prevent passive heat gain within a structure and can cause unusual heat build up on exterior surfaces from sunlight reflection. The extreme rise of surface temperatures can create an environment which exceeds normal exposures and may create scenarios which can cause ACRE products to melt, sag, warp, discolor, expand and contract beyond acceptable tolerances or accelerate weathering. Be sure to consult Modern Mill's coatings guide, sales representatives or contact us at zen@modern-mill.com or 601-869-5050 for consultative assistance before installation.

Storage and Handling

- Store ACRE Nickel Gap and V-Groove Siding horizontally, fully supported on a flat surface.
- Do not place ACRE Nickel Gap and V-Groove Siding directly on a surface that can develop excessive heat.
- Store in a cool, dry place.
- We recommend storing with pallet covers to keep it clean and protected.
- ACRE Nickel Gap and V-Groove siding boards are packaged interlocked. Pull boards across the row and not straight down the stack (see image).
- Acclimate ACRE to the temperature it will be installed at for at least two hours before processing.
- During installation, be aware of changes in ambient temperature that could affect product gapping.



Safety

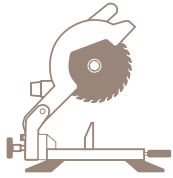
- Wear safety glasses and appropriate personal protective equipment (PPE) for job site conditions.
- Follow proper safety practices for using all power tools and any job site equipment.

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Getting Started

TOOLS YOU WILL NEED

Readily available tools can be used for installing ACRE Nickel Gap and V-Groove siding. The following tools are recommended. Use extreme caution and be sure to use all tools per applicable manufactures' instructions.



Miter/Chop Saw



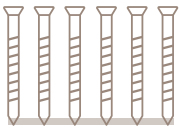
Tape Measure



Jig Saw



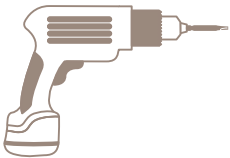
Safety Glasses



Exterior rated fasteners min
#8 x 2 1/2" screws or min
8D x 2 1/2" ring shank nails
DO NOT USE BRADS, FINISH/TRIM HEAD
NAILS/SCREWS, OR STAPLES.



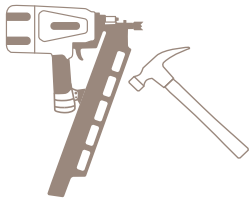
Ladder



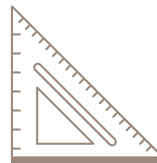
Drill



Pencil



Hammer and/or collated
pneumatic nail gun



Speed Square

For best results use a fine-toothed finish blade. A jigsaw can be used to cut around obstructions depending on the design of your project.

ACRE siding can be stained, painted, or left natural with appropriate clear coat or sealant.

Please visit the [ACRE Coatings Guidelines](#) for more information.

Requirements Before Installation

BEFORE GETTING STARTED

- When working on any new construction, renovation or repair project, always wear protective clothing and safety equipment. Safety glasses, gloves, a dust mask, and long sleeves are recommended especially when cutting or sawing.
- Fasteners have sharp edges. Use proper care when handling.
- Safety Data Sheets can be downloaded from www.modern-mill.com.
- Ensure boards are dry before installation.

PAINTING, STAINING OR FINISHING ACRE PRODUCTS

Pro Tip: For best results, applying paint, stain, or clear coats on a smooth flat surface is recommended. ACRE products may be finished after installation, however the viscosity of the coating could result in an uneven appearance if not monitored closely.

Coat ACRE with manufacturer recommended water-based paints, stains or sealers.

If you choose to paint ACRE, use a coating with a Light Reflective Value (LRV) 55 or greater.

For any paint or stain color with an LRV below 55 or if you are not sure - contact your Modern Mill rep for help and approval for use.



Follow this QR code for a list of finish manufacturers and products that have passed paint-manufacturer testing standards and for technical assistance.

WALL REQUIREMENTS

- Framing and sheathing requirements must comply with all applicable state and local building codes.
- Weather-resistant barrier requirements must comply with all applicable state and local building codes.
- Ensure that there are no nails or screws protruding.

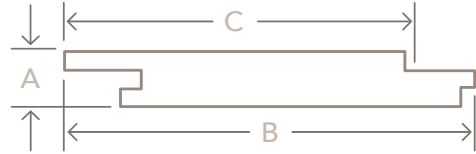
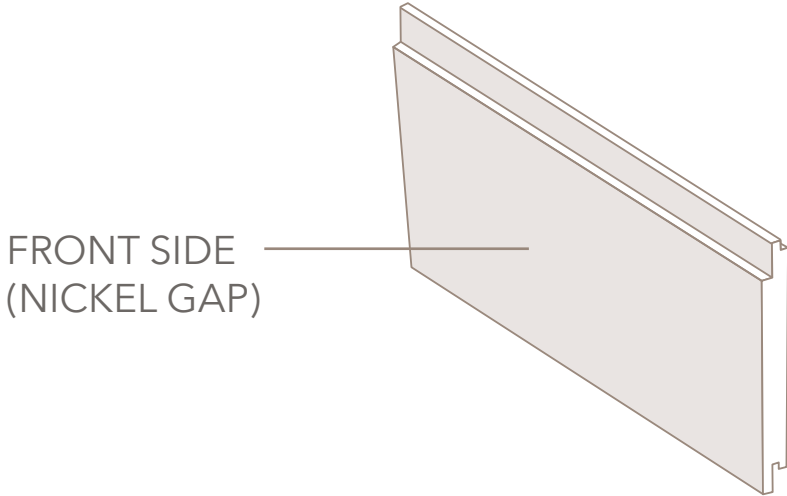
MOISTURE

- Avoid installing product in standing water or areas that can stop water from draining away from the building.



ACRE Nickel Gap and V-Groove Siding

- Nickel Gap and V-Groove siding is a one sided product. Nickel Gap and V-Groove boards are to be installed as shown in the diagram below.



NICKEL GAP PROFILE DETAILS

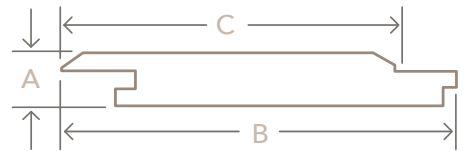
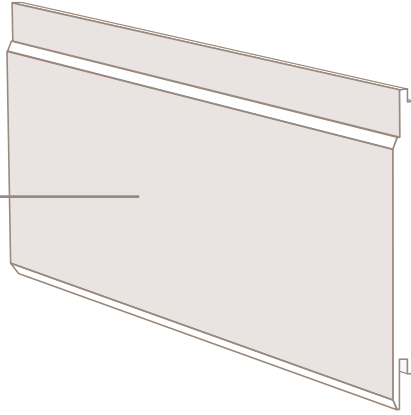
Nominal Size	Actual Thickness (A)	Actual Width (B)	Reveal (C)	Lengths
1"x6"	3/4"	5-7/16"	4-1/2"	12', 16', 20'
1"x8"	3/4"	7-3/16"	6-1/4"	12', 16', 20'
1"x10"	3/4"	9-3/16"	8-1/4"	12', 16', 20'

AESTHETIC

ACRE Grain



FRONT SIDE
(V-GROOVE)



V-GROOVE PROFILE DETAILS

Nominal Size	Actual Thickness (A)	Actual Width (B)	Reveal (C)	Lengths
1" x 6"	0.75"	5-7/16"	4-3/4"	12', 16', 20'
1" x 8"	0.75"	7-3/16"	6-1/2"	12' 16' 20'
1" x 10"	0.75"	9-3/16"	8-1/2"	12' 16' 20'

AESTHETIC

ACRE Grain



FLASHING REQUIREMENTS

- Required wall flashing must be in compliance with all applicable state and local building codes.
- Install roof step flashing, and window and door flashing per all applicable state and local codes or the manufacturer instructions.
- Appropriate color matched flashing or felt strips can be used behind all butt joints to reduce water getting through the siding.

Expansion and Contraction

- Follow gapping instructions and fastening requirements closely for best results.
- ACRE products undergo a degree of linear expansion with changes in weather or seasons. Expansion and contraction is most significant where extreme temperatures may exist.
- **Ambient temperature, direct sunlight and color of finish impact the degree of expansion and contraction of ACRE. These three factors MUST be considered when determining proper gapping at time of install.**
- Use ACRE Rabbeted Trim to conceal the effects of expansion and contraction at board ends.
- Fasten ACRE as soon after cutting as possible to minimize the effects of expansion and contraction.
- Alternatively, you can use shorter length boards with scarfed or rabbeted joints to minimize the effects of expansion and contraction.

Based on the temperature at time of installation, see chart. Create a gap between boards and follow fastening guidelines.

The chart below applies to ACRE installed with applied finishes having an LRV of 55 or greater. Gapping requirements will change with darker color choices. Contact your Modern Mill rep for support.

35 Degrees F and below	1/8" / 3.2 mm
36-59 Degrees F	1/16" / 1.2 mm
60-89 Degrees F	Lightly butted
90 Degrees F and above	Tightly butted

FOR INSTALLATIONS WITH DARKER COLORS

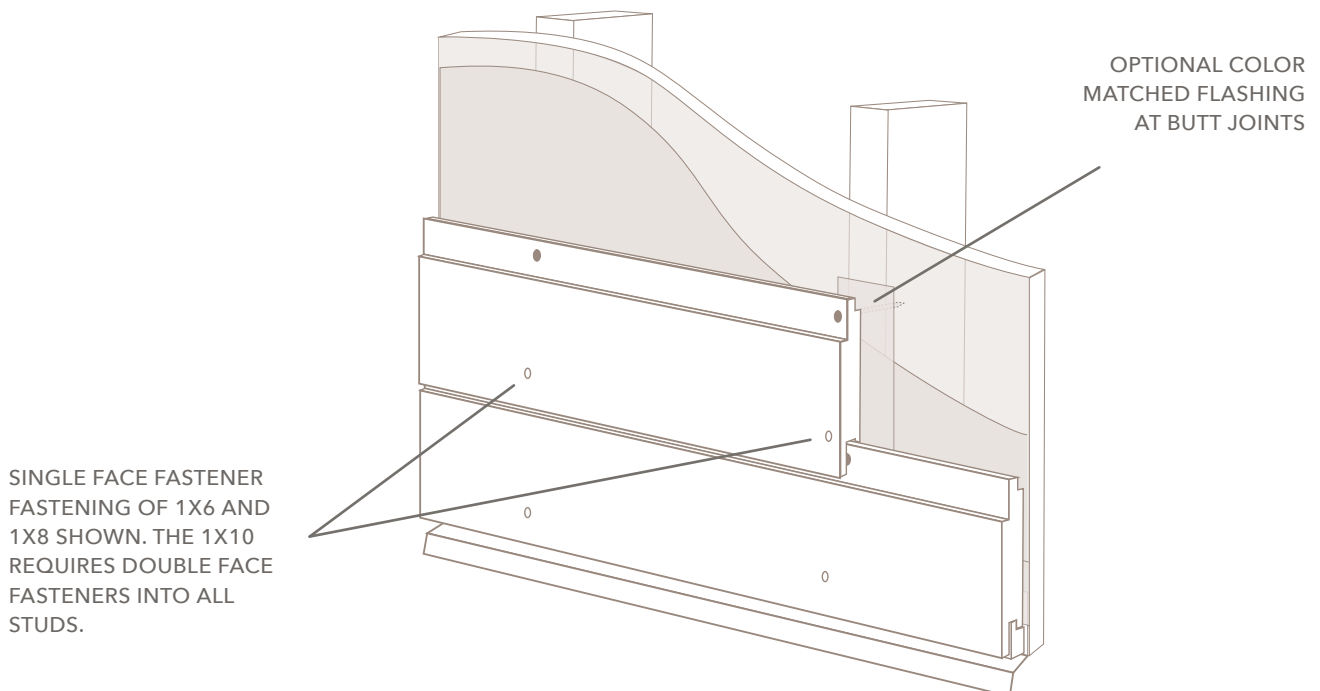
- For any installation using a paint or stain color with an LRV below 55, OR if you are not sure – contact your Modern Mill rep for help and approval for use.
- **Installations with darker colors will involve additional fastening requirements to properly control the effects of heat build up.**

Installation

FASTENING

For the best performance of your ACRE Nickel Gap and V-Groove siding installation, use a high quality fastener that meets the following specifications:

- **Use only approved fasteners. DO NOT USE BRADS, FINISH/TRIM HEAD NAILS/SCREWS, OR STAPLES**
- Minimum Screw Size: #8 X 2 1/2" exterior grade flat head in blind fastening flange, #8 x 2 1/2" composite screw in face where applicable.
- Minimum Nail Size: 8D x 2 1/2" exterior grade ring shank nail.
- Minimum Fastener Length: Fastener must penetrate the wood stud at least 1 1/2".
- Fasten into solid framing not more than 16" on center.
- **Using screws for fastening is highly recommended.**
- Use fasteners rated and approved for exterior use. Note: coastal applications may require special stainless steel fasteners.
- Make sure fasteners are driven flush with the surface of siding.
Note: Cortex plug system screws drive beneath the surface to accommodate plugs.
- ACRE Cortex Screw and Plug systems are available for face fastening.
Note: These screws should NOT be used on the blind fastening flange.
- Fasten Nickel Gap and V-Groove Siding as seen in the diagram below.
- Secure 1x6 & 1x8 siding with a fastener in the nailing flange AND an additional face fastener into all studs located approximately 2» above bottom edge. The 1x10 panel requires 2 face fasteners into all studs.
ACRE Cortex plug system can be used to conceal additional fasteners.

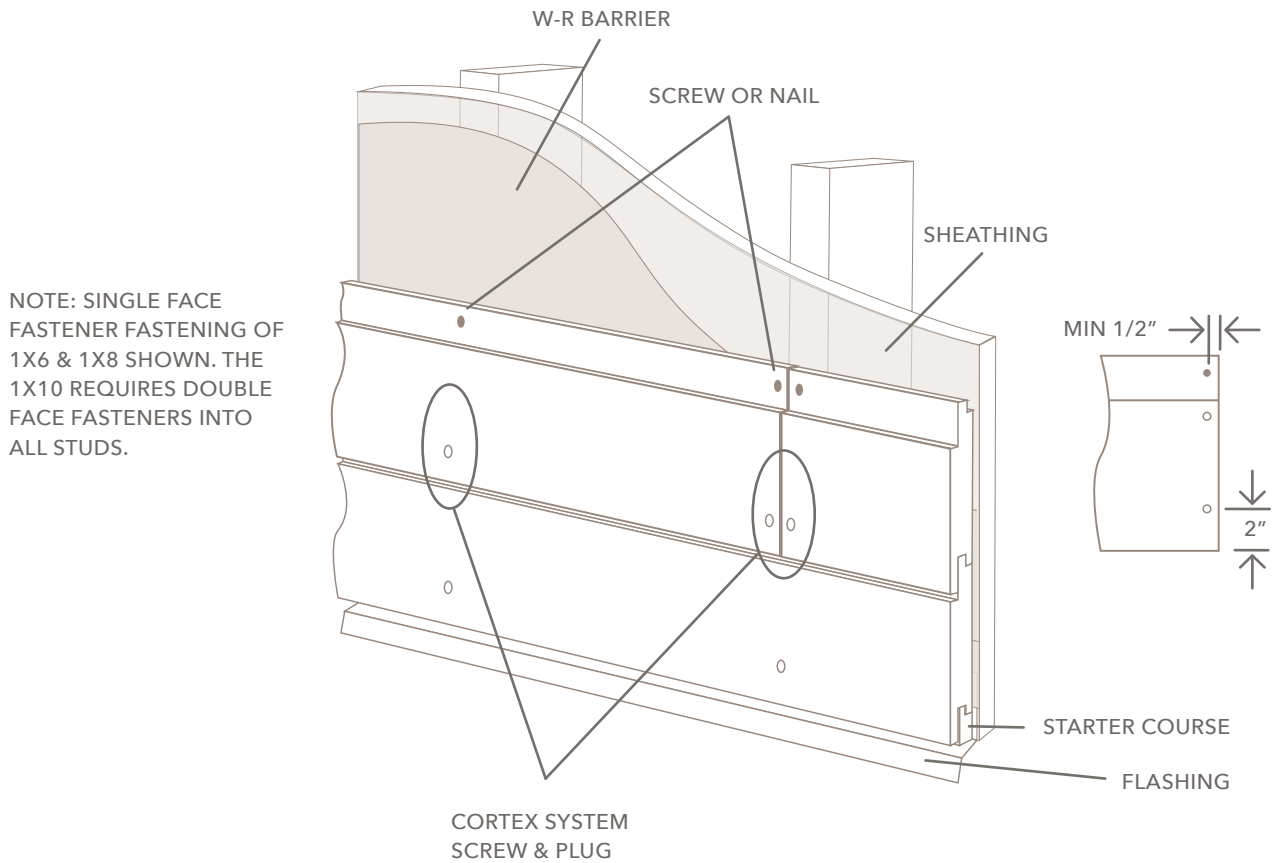


NOTE

The graphics illustrate the installation of nickel gap boards; however, V-groove boards follow the same installation method.

REQUIRED METHODS OF SECURING BOARDS TO MINIMIZE GAPPING

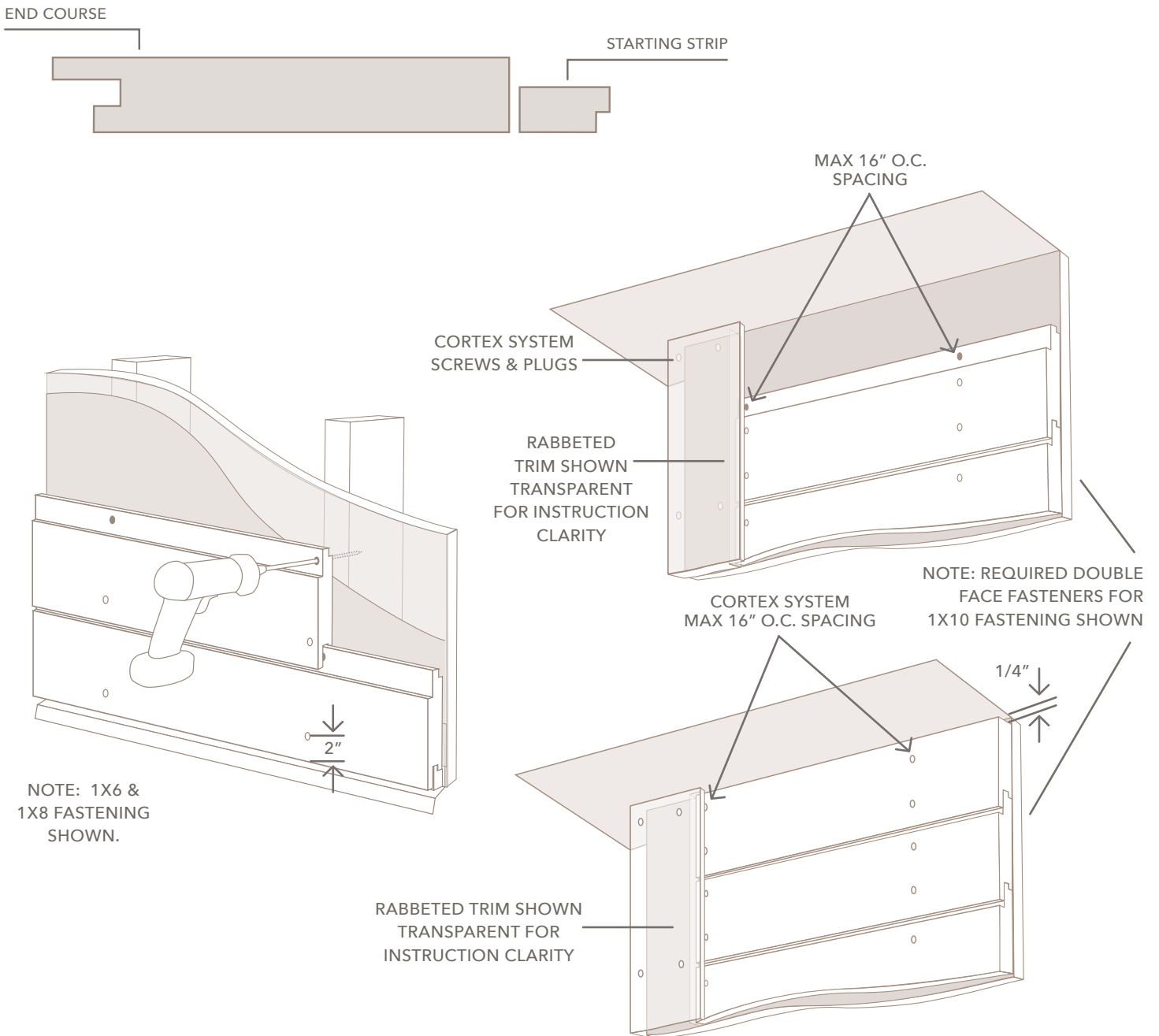
- For 1x6 & 1x8, single additional face fasteners into all studs approximately 2" up from edge. For 1x10, double face fasteners into all studs.
- To minimize the appearance of expansion and contraction, create a scarf or rabbeted (Nickel Gap and V-Groove) joint on each board end taking care to ensure the fastener penetrates the panel at least 1/2" from the short edge. (see page 18).
- Note: For vertical installations, additional fastening considerations are required. Contact your Modern Mill rep to make sure installation complies to latest requirements.



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STARTING AND ENDING COURSE FOR HORIZONTAL NICKEL GAP AND V-GROOVE INSTALLATION

- Begin by ripping the fastener area of a piece of ACRE Nickel Gap and V-Groove siding. Use this piece as the starter strip.
- The remaining bottom portion of panel may be used as the ending course below the soffit or top of wall.
- Ensure the first course is level.
- As with full Nickel Gap and V-Groove siding boards, blind fasten into the tongue of the starter strip.
- Continue the installation as described below.
- Finish the wall by ripping the ending board to desired width. Stack the board on top of the last course and face fasten into the wall not exceeding 16" on center into solid framing.

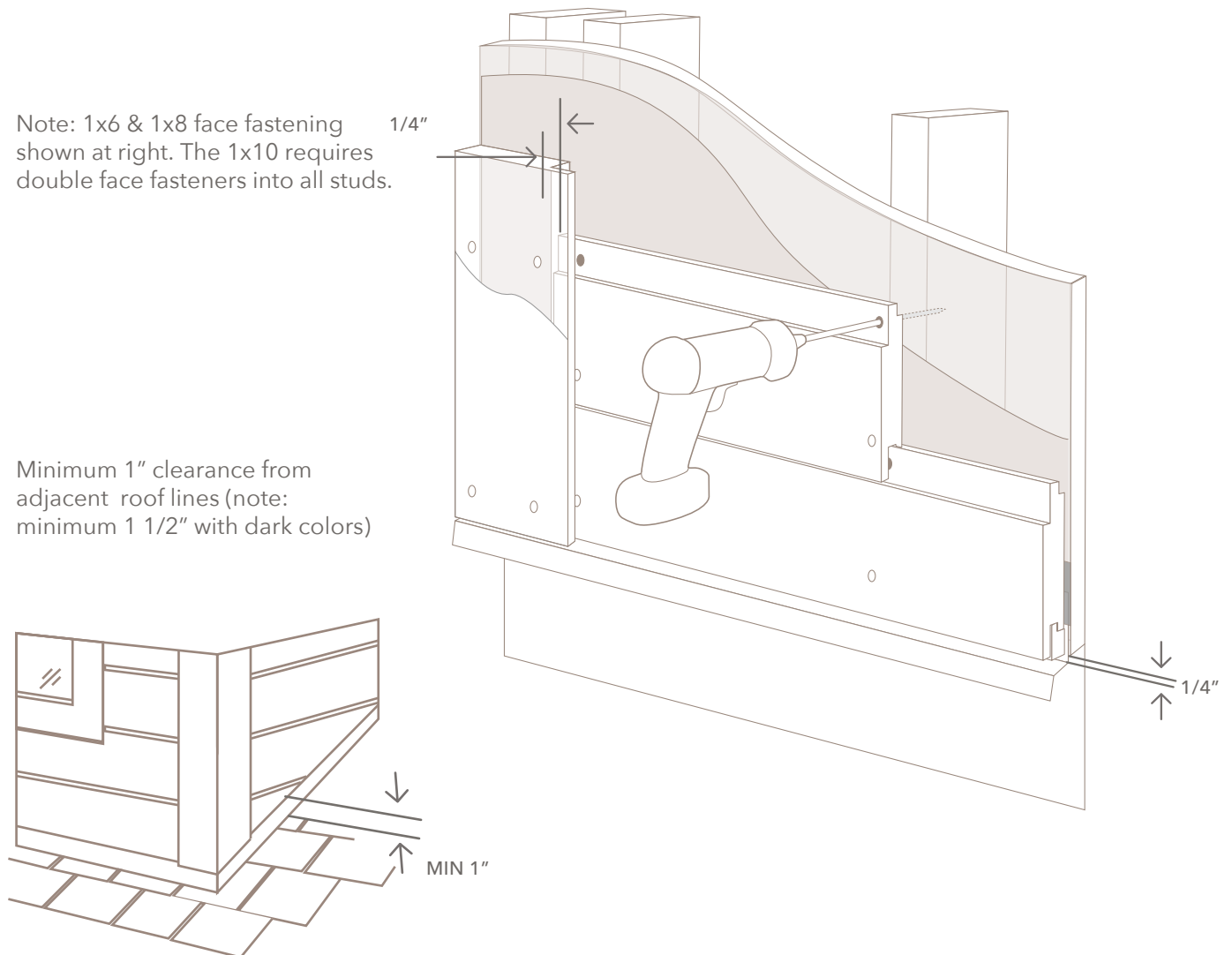


HANGING ACRE NICKEL GAP AND V-GROOVE HORIZONTALLY

- Staggering the butt joints over stud locations can reduce noticeable patterns.
- Use ACRE Rabbeted Trim boards to conceal expansion and contraction. Closely follow trim installation guidelines.
- When a course of siding runs underneath a window, fasten into solid framing every 8".
- Seal all vertical joints along window and door edges with a high-grade exterior caulk.
- Starter strips should be fastened along the centerline of its length. Predrilling a 1/8" hole is strongly suggested in colder weather.
- Ripped boards, to complete the installation at the top of the wall, should be fastened at least 3/4" from the top edge.
- For 1x6 & 1x8, single additional face fasteners into all studs approximately 2" up from edge. For 1x10, double face fasteners into all studs.

Note: 1x6 & 1x8 face fastening shown at right. The 1x10 requires double face fasteners into all studs.

Minimum 1" clearance from adjacent roof lines (note: minimum 1 1/2" with dark colors)



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HANGING ACRE NICKEL GAP AND V-GROOVE VERTICALLY

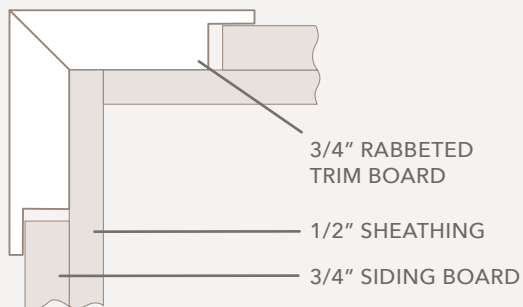
To make sure your vertical installation complies with the most recent requirements, contact your Modern Mill rep.

OUTSIDE CORNERS

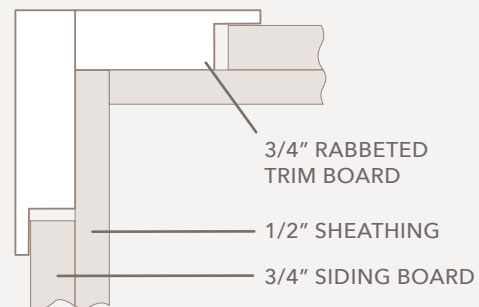
- For outside corners, use of ACRE Rabbeted Trim for corner boards is recommended.
Note: If NOT using ACRE Rabbeted Trim, be aware of the possibility of visible gapping with expansion and contraction.
- For corner details outside the scope below, please contact your Modern Mill rep for guidance.
- Only use approved adhesives when gluing joints.

RECOMMENDED INSTALLATION METHOD FOR OUTSIDE CORNERS

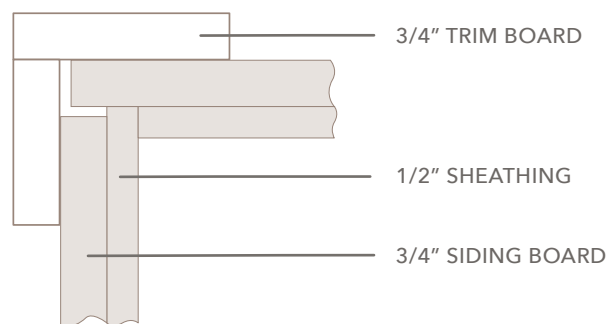
Standard 5/4 mitered Rabbeted trim over 1/2" sheathing



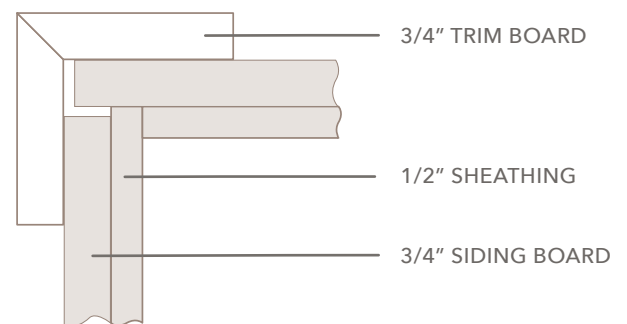
Standard 5/4 butted rabbeted trim over 1/2" sheathing



Standard butted 3/4" trim over 1/2" sheathing

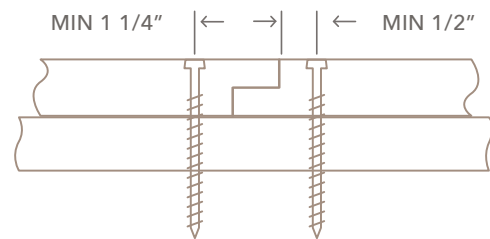
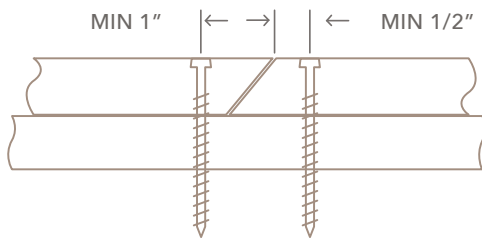


Standard mitered 3/4" trim over 1/2" sheathing

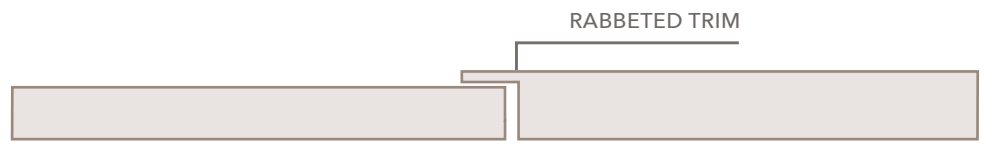


JOINTS

- For any joints, use a scarf or rabbeted joint to minimize the effects of expansion and contraction.
 - Throughout the installation, continue to refer to the expansion and contraction section on page 13 for gap information.
 - For long continuous courses of ACRE Nickel Gap and V-Groove siding use ACRE Rabbeted Trim to allow for and conceal movement.
-
- Butt Joints: Scarf joints and rabbeted joints.



- ACRE Rabbeted Trim should be used in the field for minimizing the effects of expansion and contraction along with achieving a clean look.



TRIM BOARD FASTENING SCHEDULE

Board Width	Fasteners / Width 16" O.C. MAX
6"	2
8" and 10'	3
12"	4

Finishing and Adhesives

- **APPLY FINISHES ON THE GROUND BEFORE INSTALLATION.**
- Be sure to consider ambient and material temperature before installation, in regards to expansion, contraction and necessary gapping. See Expansion and Contraction section on page 13.
- Coat ACRE products with manufacturer recommended water-based paints, stains, or sealers.
- If you choose to paint or stain ACRE, use an approved coating with a Light Reflective Value (LRV) 55 or greater.
- **For any color with an LRV below 55 or if you are not sure, contact your Modern Mill rep for help and approval for use.**

ADHESIVES

- Use recommended PVC glue, cement, polyurethane glue, or construction adhesives.
- **DO NOT USE WOOD GLUE.**
- If gluing a miter joint, the use of mechanical fasteners on each side of the joint is recommended to allow the bonding time.
- For best results, surfaces to be glued should be smooth, clean, and in complete contact with each other.

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Care and Cleaning

- Wash down the exterior surface with water at minimum every 6-12 months, or as required.
- For easier care and cleaning, we recommend coating your ACRE products with an exterior grade water soluble paint or stain.
- Be mindful of products which contain chemicals may alter the appearance of ACRE products.
- To clean ACRE products use a gentle all-purpose cleaner such as Simple® Green with a natural all fiber brush.
- Follow manufacturer instructions on all cleaning products. Test first on an inconspicuous area of the deck to ensure the surface remains undisturbed.
- Do not use traditional composite deck cleaners. ACRE products are made from natural fibers and PVC / polymers. Use gentle cleaning products as recommended.
- If using a power washer, we do not recommend pressure washing above 2500 psi. We suggest testing in an inconspicuous area first to ensure it will not damage the product's surface.
- If power washing, we recommend using a wide fan tip or oscillating tip, and keeping the tip a minimum of 12" from product surface.
- To remove rust stains, use household cleaners such as Krud Kutter "the must for rust".
- We recommend clearance between ACRE products and landscaping. Prune any vegetation back that is touching the wall.

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ACRE™ BY MODERN·MILL

It's better building,
one tree-free board at a time.

*A SPECIALTY FINISH WITH A LIGHT REFLECTIVE PIGMENT WAS USED ON THIS PROJECT. PAY CLOSE ATTENTION TO OUR APPROVED COATINGS. FOR DARKER COLORS AND VERTICAL INSTALLATION, PLEASE CONTACT YOUR MODERN MILL REP.

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modern-mill.com

ACRE Nickel Gap and V-Groove
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