


WRAP YOUR HOME IN ECO-FRIENDLY BEAUTY

Shiplap Siding Installation

ACRE™ BY MODERN·MILL



A new alternative to wood is finally here. ACRE is a sustainable, durable alternative with the look and feel of real wood. ACRE is a brand-new material that's lightweight, strong and water-resistant, guaranteed not to rot, crack or splinter.

ACRE is easy to cut and accepts paint or stain.

Best of all, ACRE is made without harming a single tree, in a zero-waste environment in Fernwood, Mississippi.

GET READY TO STEP INTO A WORLD BEYOND WOOD.

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
- Siding
- Decking
- Porch Boards
- Fencing

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 clear coat can help resist fading and make for easier cleaning and care.

Movement

ACRE has less movement than most synthetic and composite building materials. ACRE will expand and contract as environmental (temperature) conditions change. Refer to the proper product installation guide to ensure the best product performance and minimize the effects of expansion and contraction.

Heat Retention

ACRE products are generally cooler to the touch than most synthetic or traditional composites. 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.

Fasteners

ACRE can be joined with commonly available fasteners. Using the correct type and number of fasteners will ensure materials perform as intended. **Do not use brad or finish nails**. It is important to select the most appropriate fastener in accordance with the application. Consult installation instructions to make sure you are following the proper fastening guidelines.

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 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

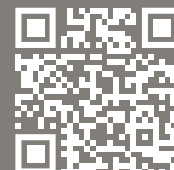
zen@modern-mill.com

modern-mill.com

2023.07

WE'RE HERE TO HELP.

Be sure to visit our online **Tech & Training** center for informative technical videos and downloads.

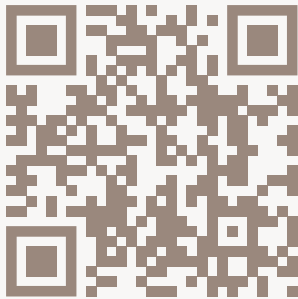


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PRODUCT APPLICATIONS

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.



Visit our online
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BURNING WARNING

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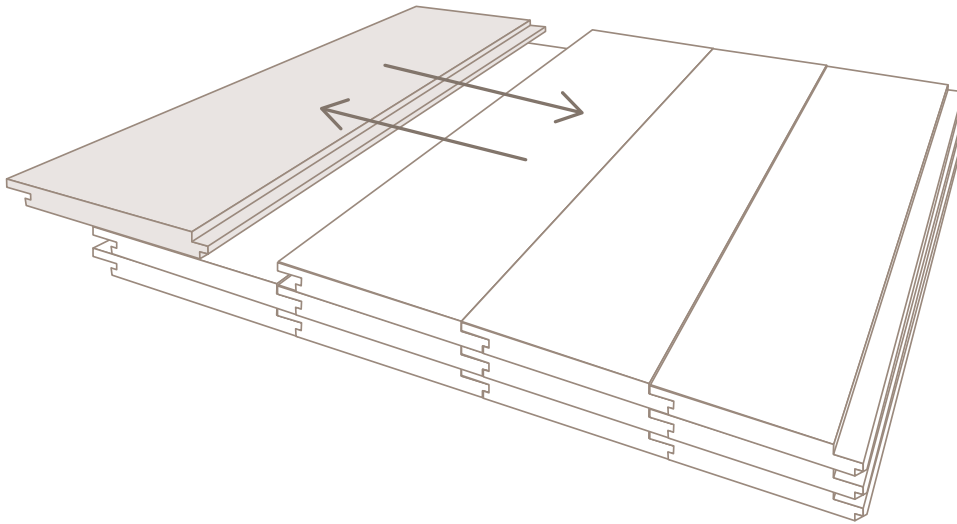
EXTREME HEAT WARNING

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 Shiplap Siding horizontally, fully supported on a flat surface.
- Do not place ACRE Shiplap 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 Shiplap 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.



*A specialty finish with a light reflective pigment was used on this project.
Pay close attention to our approved coatings for darker colors.

Getting Started

TOOLS YOU WILL NEED

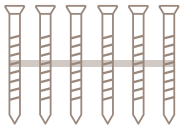
Readily available tools can be used for installing ACRE Shiplap siding. The following tools are recommended. Use extreme caution and be sure to use all tools per applicable manufacturers' instructions.



Miter/Chop Saw



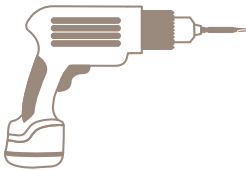
Tape Measure



Exterior rated fasteners
#8 x 2 1/2" screws or
8D x 2 1/2" ring shank nails



Safety Glasses



Drill



Ladder



Hammer and/or collated
pneumatic nail gun



Pencil

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 color with an LRV below 55, pay close attention to our approved coatings for darker colors.



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

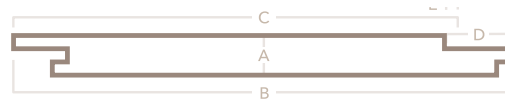
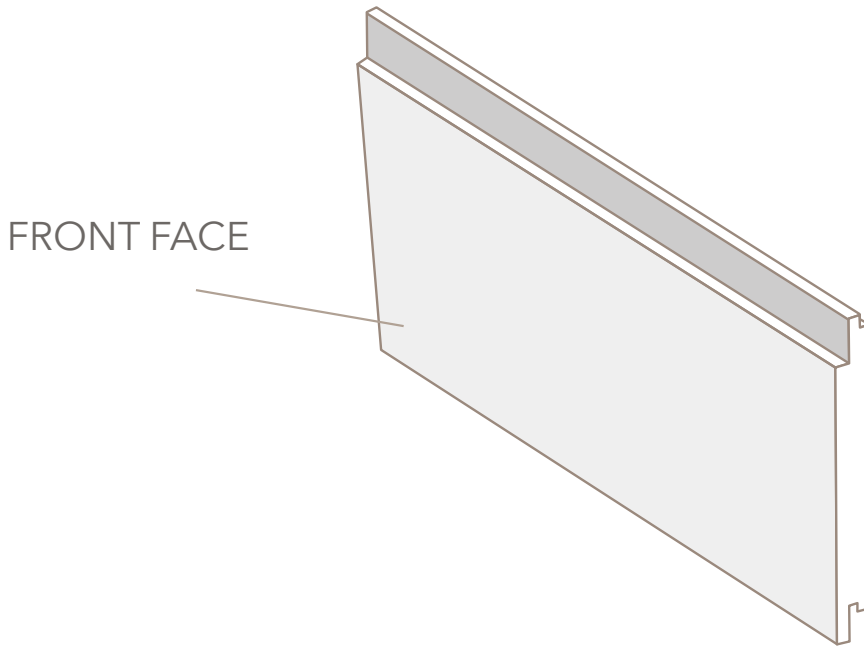
- Framing and sheathing requirements must comply with all applicable state and local building codes.
- Weather-resistant barrier requirements must comply with all applicable state and local building codes.
- Ensure that there are no nails or screws protruding.

MOISTURE

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

ACRE Shiplap Siding

- Shiplap siding is a one sided product. Shiplap boards are to be installed as shown in the diagram below



SHIPLAP SIDING PROFILE DETAILS

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

- Locking tongue and groove application for a flat and straight install.

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

- 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.
- Be aware of changes in ambient temperature, which could impact the effects of expansion and contraction.
- Fasten ACRE as soon after cutting as possible to minimize the effects of expansion and contraction.
- If possible, use one continuous board with rabbeted trim to conceal the effects of expansion and contraction at board ends.
- Alternatively, you can use shorter length splitter boards with scarfed or rabbeted joints to minimize the effects of expansion and contraction.
- Follow gapping instructions closely for best results.

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

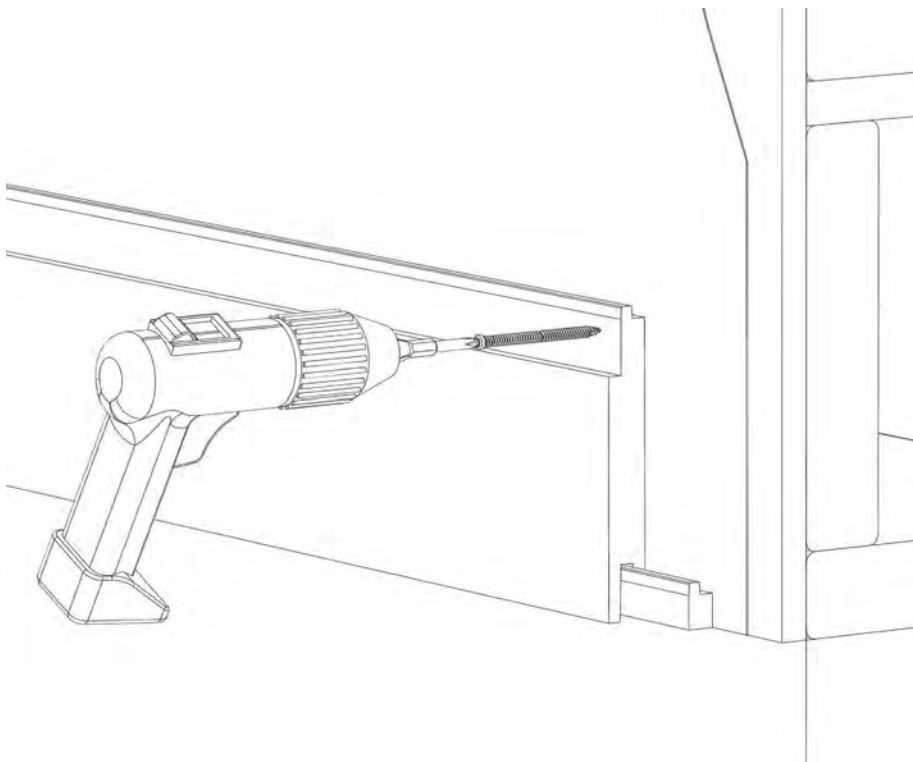
35 Degrees (F) and under	1/8 inch / 3.2 mm
36 - 89 Degrees (F)	1/16 inch / 1.2 mm
90 Degrees (F) and above	0 inches / 0 mm

Installation

FASTENING

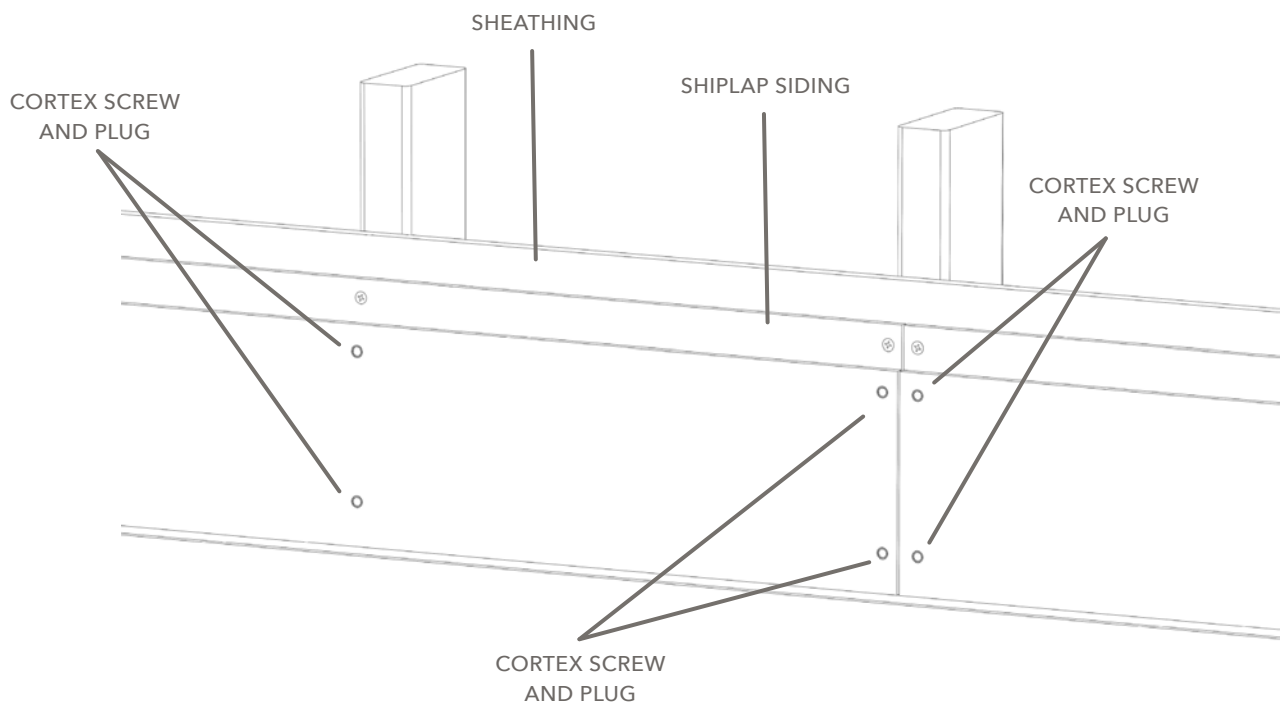
To have fasteners last as long as Shiplap siding, use a high-quality fastener that meets the following specifications:

- Use only approved fasteners.
- Do not use brads, finish nails, or staples.
- Using screws for fastening is highly recommended.
- Use fasteners rated and approved for exterior use. Note: coastal applications may require special stainless steel fasteners.
- Minimum Screw Size: #8 x 2 1/2" flat head.
- 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".
- Make sure fasteners are driven flush with the surface of the siding.
- Fasten into solid framing not more than 16" on center.
- If fasteners are unable to penetrate framing, fasten into minimum 7/16" OSB or 1/2" plywood no more than 12" apart along the length of the board.
- For a more secure fastening schedule and to mitigate movement, fasten every 12".
- Fasten Shiplap siding using the top of the flange as seen in the diagram.



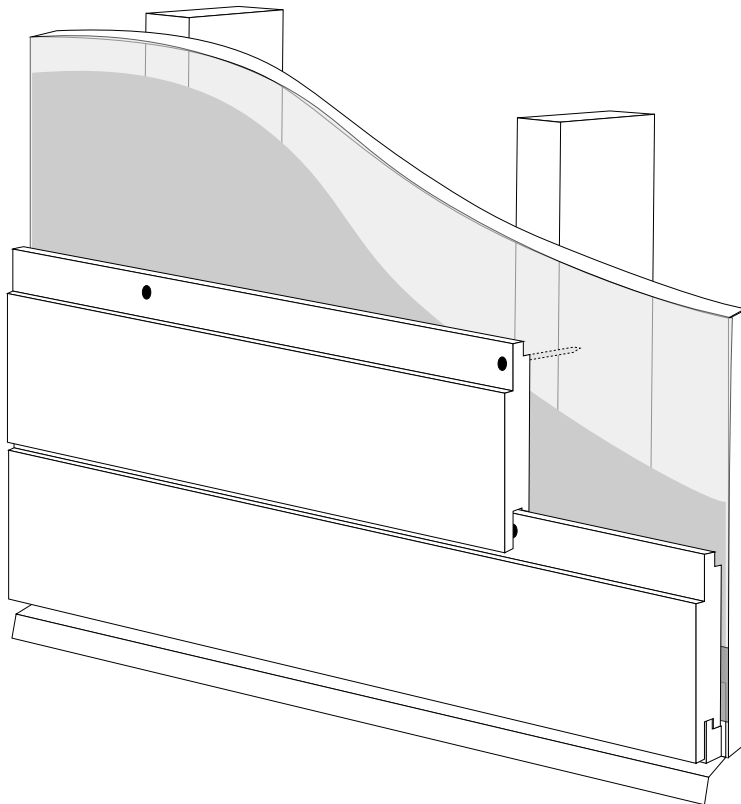
RECOMMENDED METHODS OF SECURING BOARD TO MINIMIZE GAPPING

- Secure board using two Cortex face fasteners to the last two studs only.
- To minimize the effects of expansion and contraction, create a rabbeted joint on each board end and glue the joint.
- Note: when using the above method while installing 1x10 Shiplap siding, three screws are required.



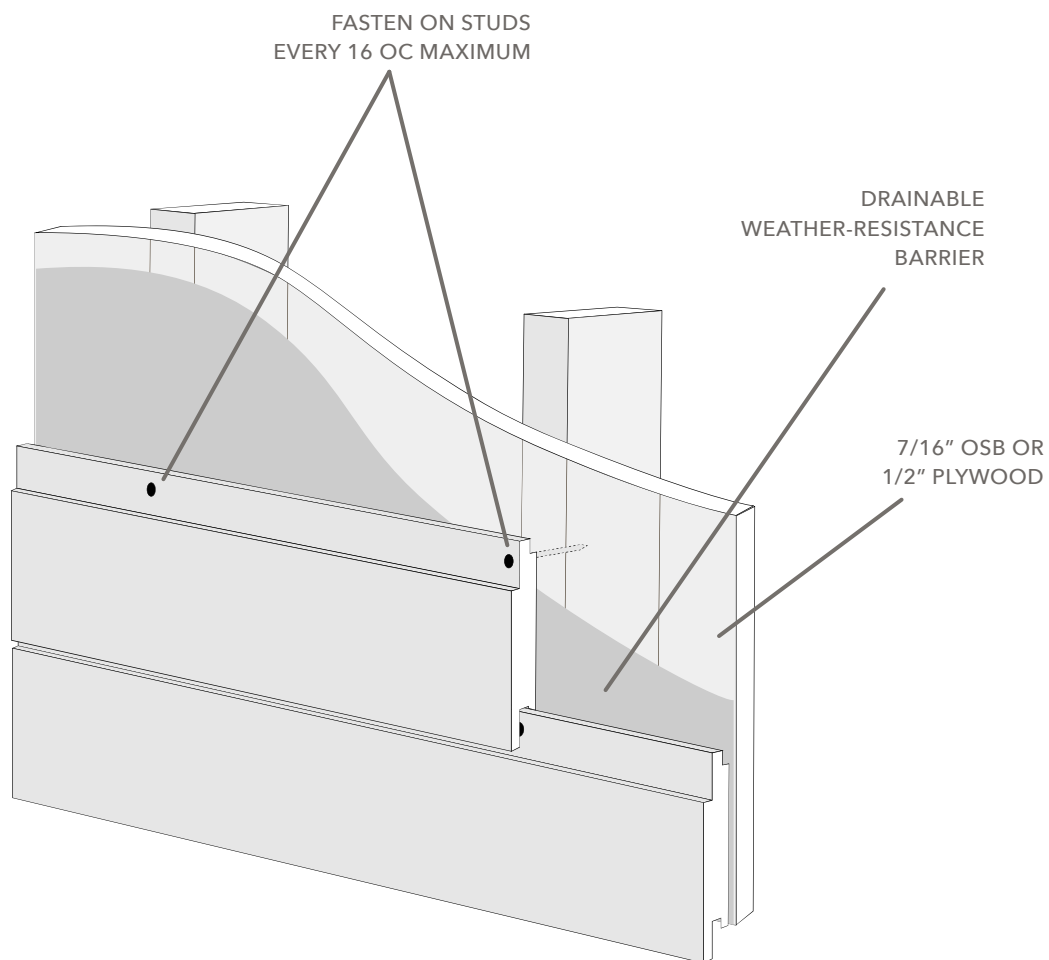
STARTING AND ENDING COURSE FOR HORIZONTAL SHIPLAP INSTALLATION

- Begin by ripping the fastener area of a piece of ACRE Shiplap 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 Shiplap 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, or 12" on center into sheathing only.



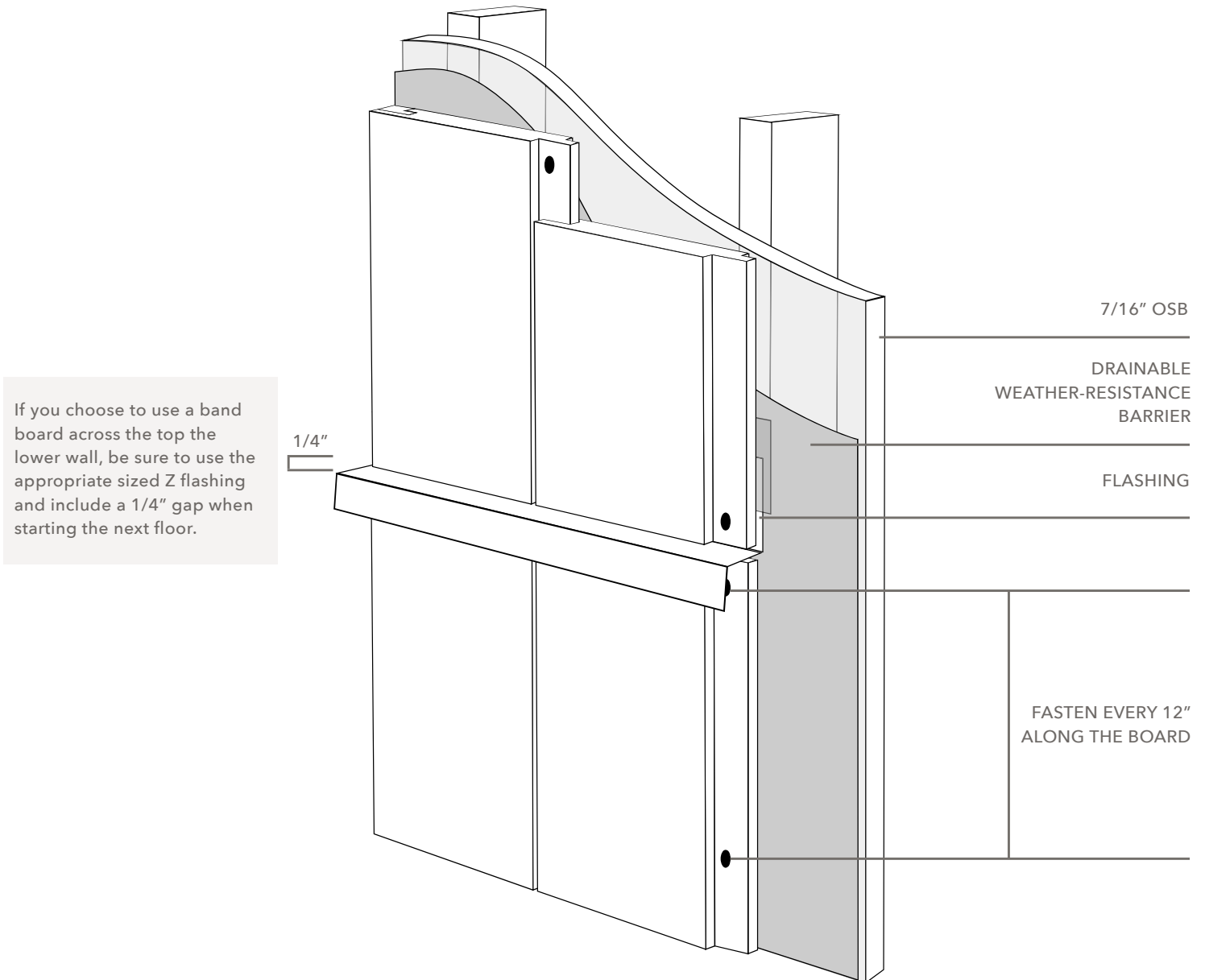
HANGING ACRE SHIPLAP HORIZONTALLY

- Stagger butt joints over stud locations to reduce noticeable patterns.
- When using rabbeted trim boards, leave 1/4" gap from the siding board end inside the concealed notch.
- When a course of siding runs underneath a window, fasten every 8".
- Seal all vertical joints along window and door edges with a high-grade exterior caulk.
- Starter strip and end boards require fastening at least 3/4" from the edge.



HANGING ACRE SHIPLAP VERTICALLY

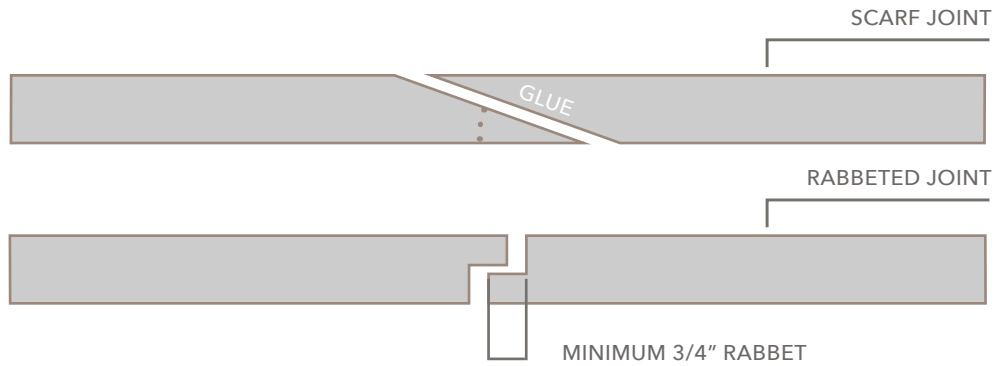
- Install flashing in accordance with all applicable state and local building codes above and below windows, doors, roof lines, corners, and any wall penetrations.
- If fasteners are unable to penetrate framing, fasten into minimum 7/16" OSB or 1/2" plywood no more than 12" apart along the length of the board.
- Leave a minimum 1/4" gap between course ends and the z-flashing.
- Alternatively to continuous siding and z-flashing, use trim as a band board with z-flashing to break the courses between floors.
- Do not bridge floors with Shiplap siding. Use z-flashing to break the course between floors.



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 above for gap information.
- For long continuous courses of ACRE Shiplap siding or for installations using glued butt joints, leave 1/4" gap into rabbeted ACRE trim on corners to allow for movement.
- Only use approved adhesives when gluing joints.

- Butt Joints: Scarf joints and rabbeted joints.



- Rabbeted trim can 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 stains or clear coats on the ground before installation.
- Coat ACRE products 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 color with an LRV below 55, pay close attention to our approved coatings for darker colors.

ADHESIVES

- Use recommended PVC glue, cement, polyurethane glue, or construction adhesives.
- DO NO USE WOOD GLUE.
- When gluing a 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.

Care and Cleaning

- Wash down the exterior surface with water every 6 - 12 months.
- 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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It's better building,
one tree-free board at a time.

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