



ACRE™ BY MODERN·MILL

INSTALLATION SPOTLIGHT

Board and Batten Applications



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.

DISCLAIMER

These installation instructions reflect current best practices and may be updated over time. Always check for the latest guide version at www.modern-mill.com/tech-and-training/ or contact your sales rep for the most current installation procedures.

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
- SHEETS

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. Be sure to inspect boards prior to installing for shipping damage or other irregularities.

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.

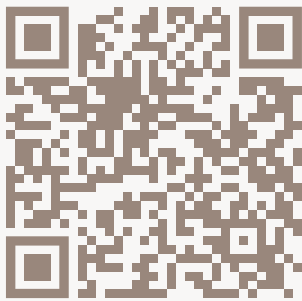


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PRODUCT APPLICATIONS

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

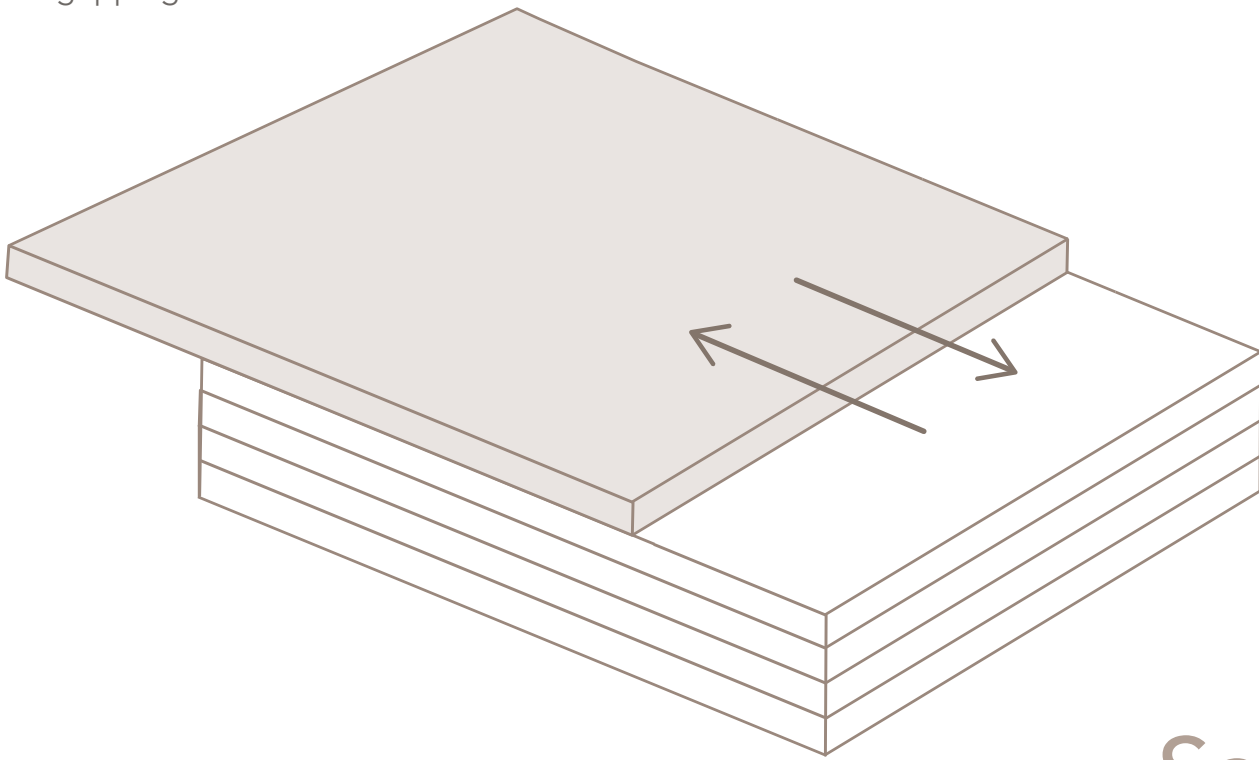
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EXTREME HEAT WARNING

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 sheets and battens horizontally, fully supported on a flat surface.
- Do not place ACRE sheets and battens 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.
- Pull sheets or battens across the pallet or 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 installation. During installation, be aware of changes in ambient temperature that could affect product gapping.



Safety

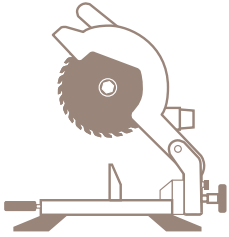
- Wear safety glasses and appropriate personal protective equipment (PPE) for job site conditions.
- Follow proper safety practices for using all power tools and any job site equipment.

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

Getting Started

TOOLS YOU WILL NEED

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



Miter Saw



Tape Measure



Circular Saw



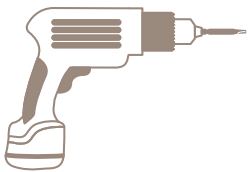
Safety Glasses



Exterior rated fasteners
#8 x 2 1/2" screw, or
8D x 2 1/2" ring
shank nail



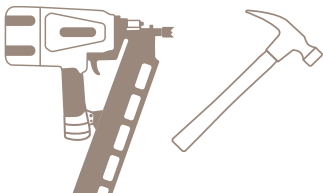
Ladder



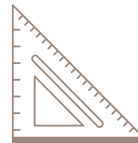
Drill



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.
- Be sure to inspect boards prior to installing for shipping damage or other irregularities.

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.

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MOISTURE

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

SHEET AND BOARD LAYOUT

FOR BOARD & BATTEN

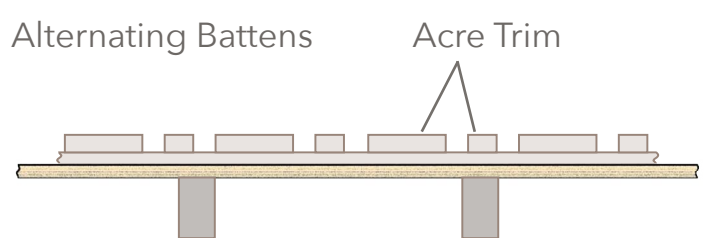
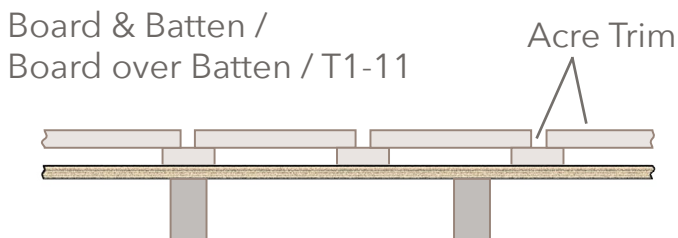
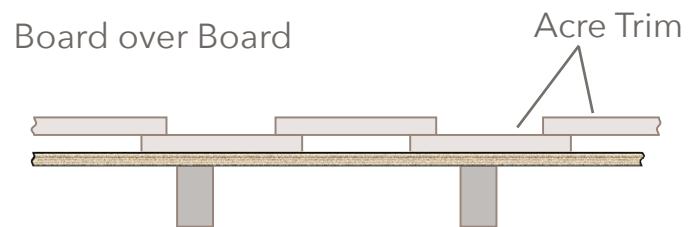
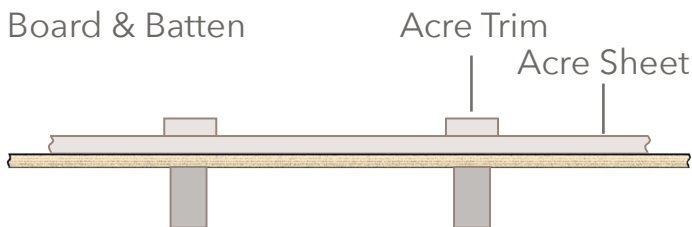
Sheet Options:

1/2" or 3/4" thickness / Sanded or Embossed Batten

Batten Options:

1" x 2", 1" x 3", 5/4" x 2", or 5/4"x3".

ACRE sheets should always be installed vertically and should not bridge floors. ACRE sheet goods are available in lengths of 8 foot to 20 foot, so choose or cut boards to correct lengths so that sheets break on the subfloor of each story.



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 ACRE with rabbeted trim to conceal the effects of expansion and contraction at board ends.
- Alternatively, you can use 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 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

FLASHING REQUIREMENTS

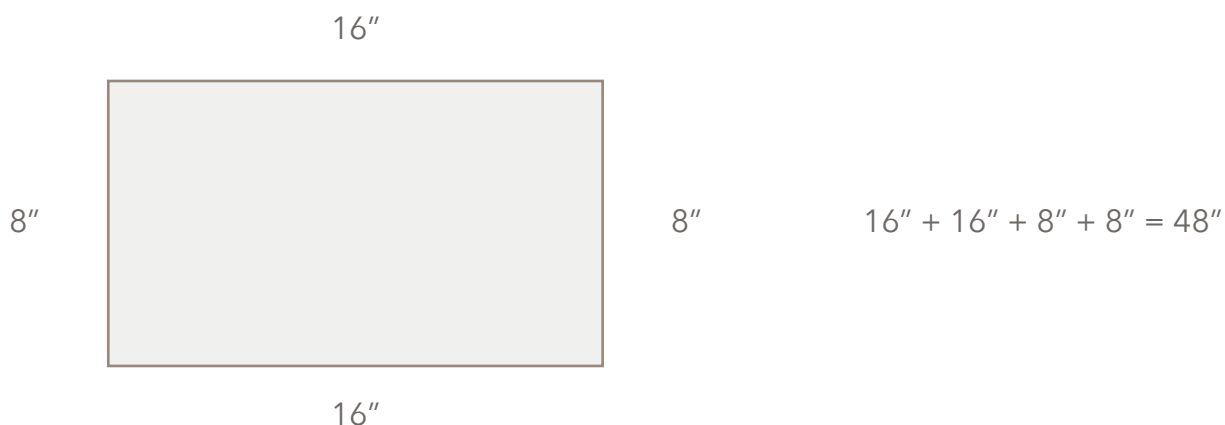
- Required wall flashing must be in compliance with all applicable state and local building codes.
- Install roof step flashing, and window and door flashing per all applicable state and local codes or the manufacturer instructions.
- Appropriate color matched flashing or felt strips can be used behind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

Installation

FASTENING

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

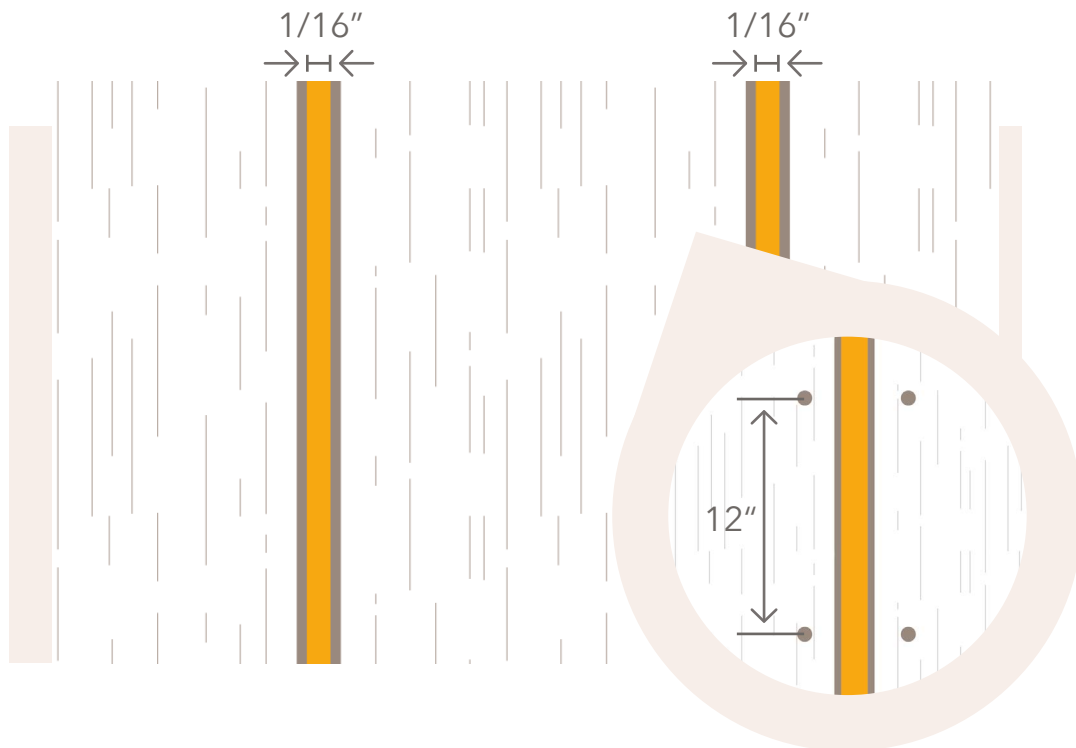
- Use only approved fasteners.
- Do not use brads, finish/trim head nails, or staples.
- Using screws for fastening is highly recommended.
- Use fasteners rated and approved for exterior use. Note: coastal applications may require special stainless steel fasteners.
- Minimum Screw Size: #8 x 2 1/2" flat 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. Fasten interior surface of sheets not exceeding 16" o.c. with min #8 x 2 1/2" screws or min 8D x 2 1/2" ring shank nails.
- For a more secure fastening schedule and to mitigate movement, fasten every 12".
- Fastening using the 48" perimeter rule: between four fasteners, the perimeter should be 48".



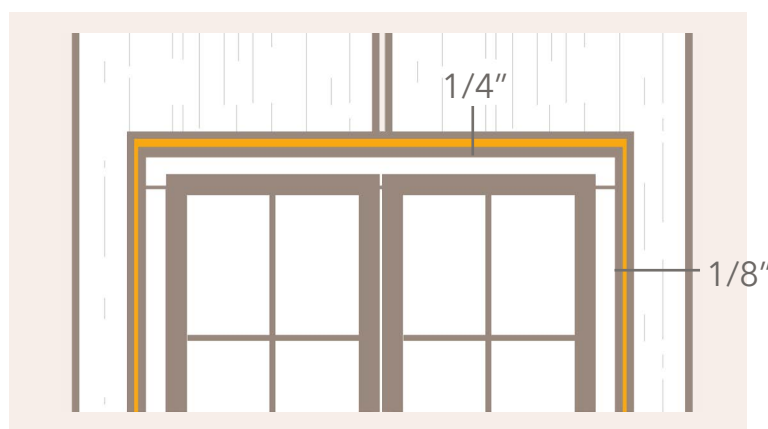
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INSTALLING SHEETS OR BOARDS

- Begin with a solid substrate and a flat surface. We recommend a minimum 7/16" OSB or 1/2" plywood.
- Install vertically oriented ACRE sheets side by side, in a row, across the first level of your project.
- Leave a 1/16" gap between sheets when installing.
- Fasten not closer than 1/2" from the edge and not more than 16" on center when securing directly to framing.
- If fasteners are unable to penetrate framing, fasten into OSB or plywood no more than 12" on center along the length of the sheet.

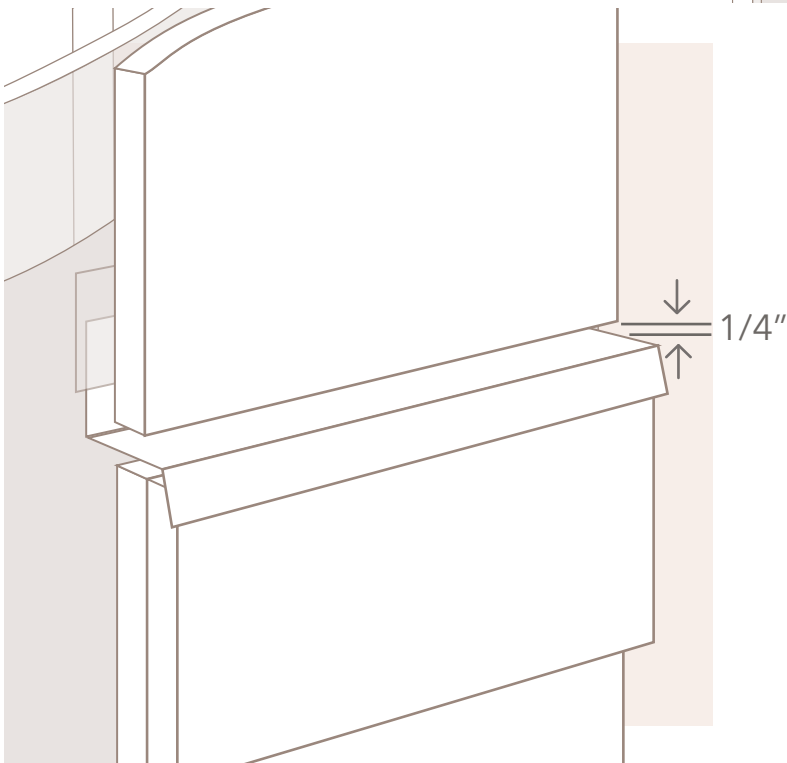
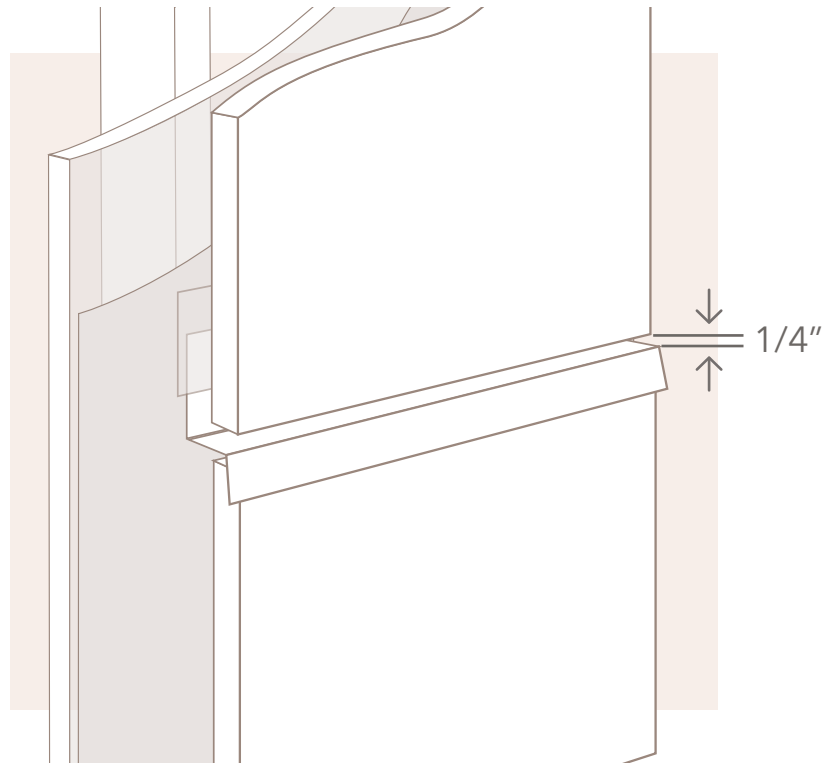


- Allow a 1/4" gap above windows. Do not caulk the gap above windows (to allow for drainage).
- Leave a 1/8" gap in the sides and bottom of windows. This gap should be caulked against water leaks.



TRANSITIONING SHEETS OR BOARDS

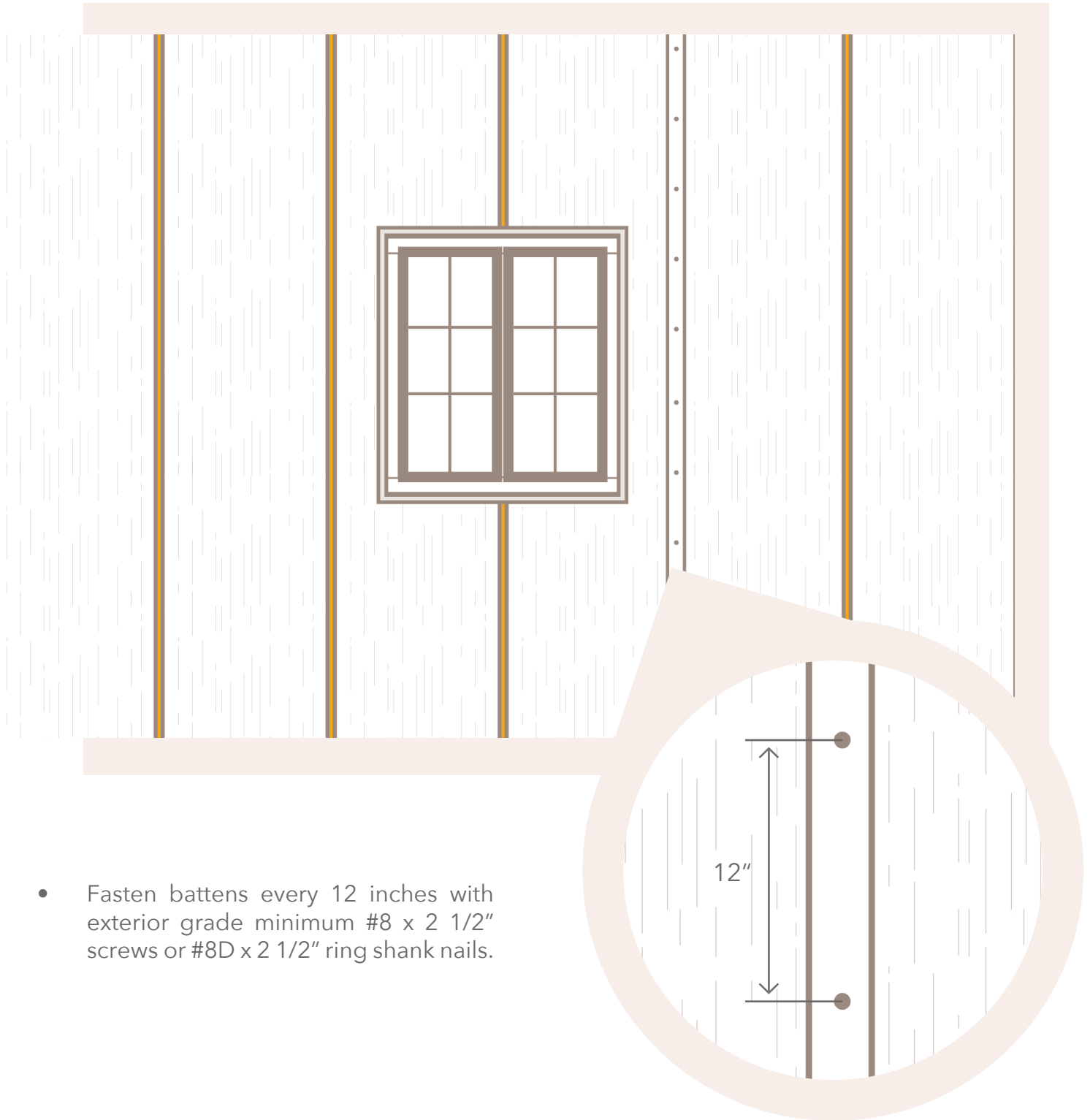
A second row of sheets should sit atop of the first row with appropriately sized Z flashing and a 1/4" gap from the top and bottom edges of sheets/boards for drainage. When using caulk, only caulk top edges of sheets/boards.



If you choose to use a band board across the top of this row, be sure to use the appropriate sized Z flashing and include a 1/4" gap when starting the second row.

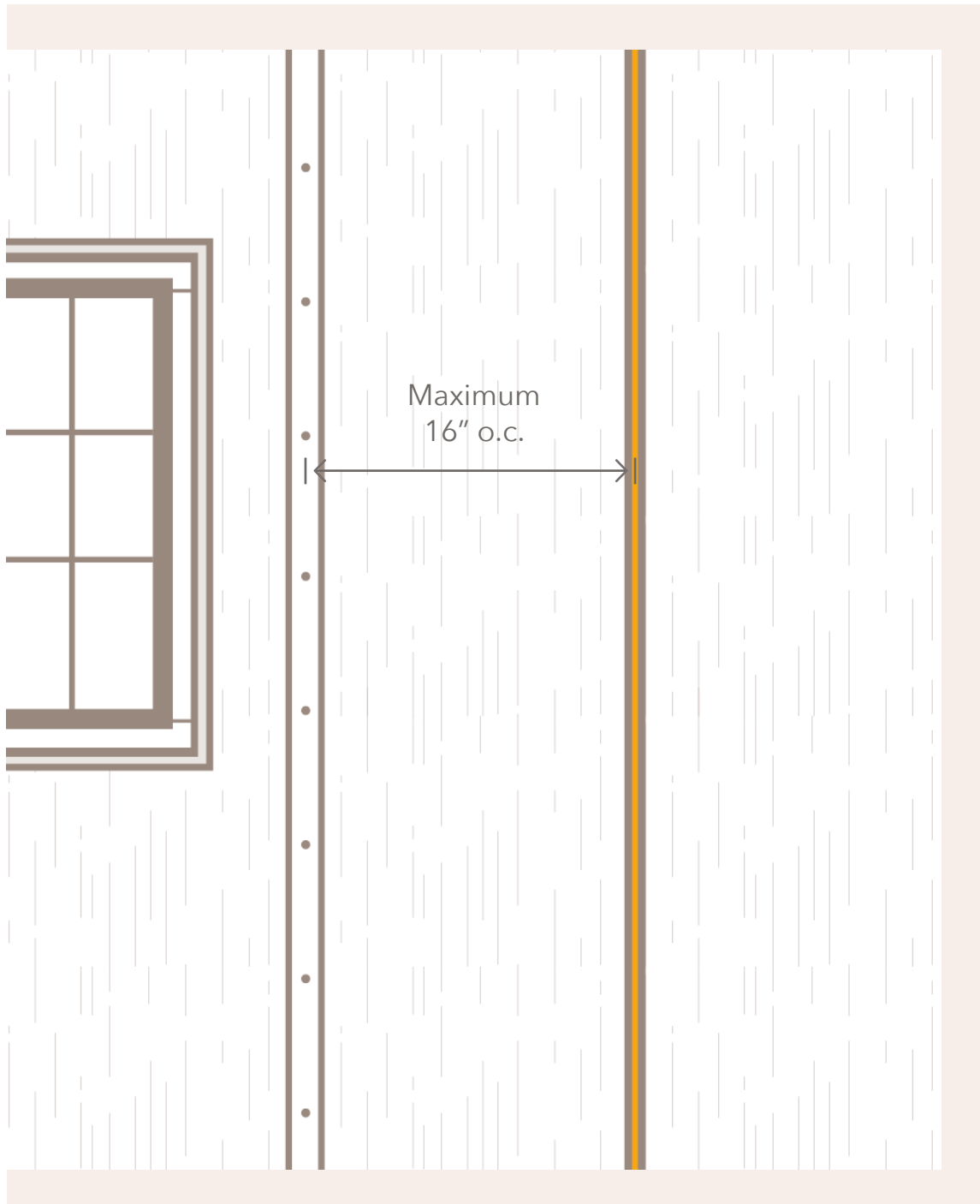
- Install the corner boards, the skirt or band board and the window trim.
- After the installation of the trims, add a small bead of caulk above any horizontal trims that are overlaid on top of the sheets such as the window head trim and skirt board.

Now you can begin installing the battens over each seam.



Fill in battens between seams with the same process.

- For proper fastening, make sure battens are spaced not more than 16" apart.
- Move up to the next course and install trim and battens as before.



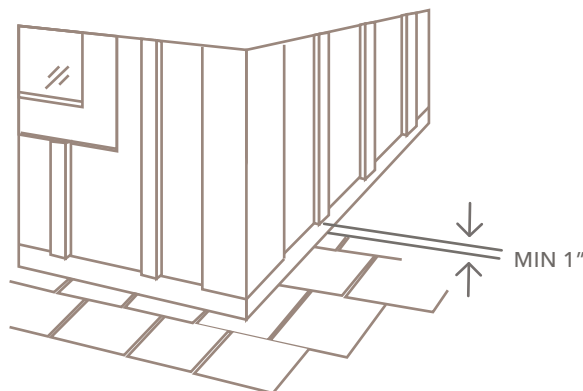
For gable ends, install sheets about a 1/8" short of the soffit to allow movement and install rake trim to cover the gap.



Do not bridge floors. Break sheets, trim and battens at the subfloor.

Approved methods for multi-story installations include using z-flashing and creating a rabbet or scarf joint.

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



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Finishing and Adhesives

- Apply stains, paints, 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 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.
- When 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 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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WE'RE HERE TO HELP

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at zen@modern-mill.com for assistance.

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