

Exterior Installation & Maintenance Guidelines

Montana Timber Products (MTP) manufactures natural wood building materials to give years of satisfaction and performance. Natural wood products perform their best when installed in accordance with industry standard practices for construction. Failure to install in accordance with applicable building codes and these instructions may diminish performance and void the limited warranty. All MTP materials are pre-finished with an ULTRA-LOW VOC, NON-TOXIC Environmentally friendly Seal-Once waterproofing sealant. For additional information on Seal-Once please visit: (www.seal-once.com).

1. Design and Construction Considerations

Proper design and construction should impede moisture infiltration and prevent moisture differential within building systems. The following are well established means to prevent moisture accumulation within building exteriors:

- Allow sufficient clearance to grade
- Do not allow moisture to accumulate without drainage
- Design with adequate building overhangs
- Minimize moisture penetration with appropriate flashing and sealing
- Implement an interior vapor barrier
- Allow water that has penetrated the exterior envelope means to drain from the structure
- Below is a typical section view for reference

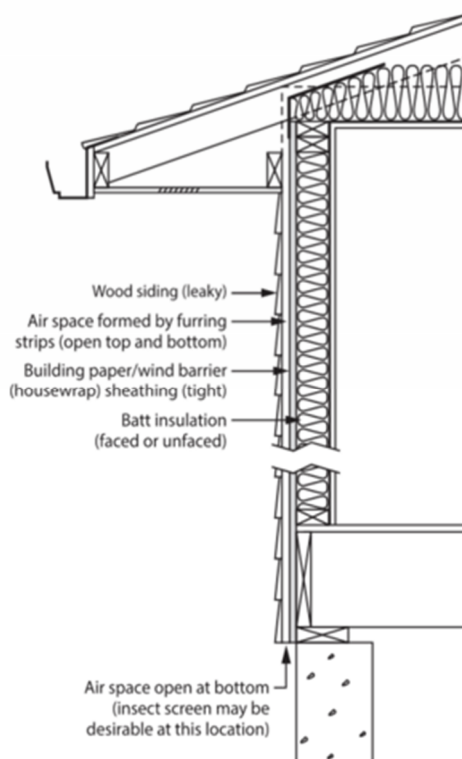


Fig. from USDA Forest Products Laboratory

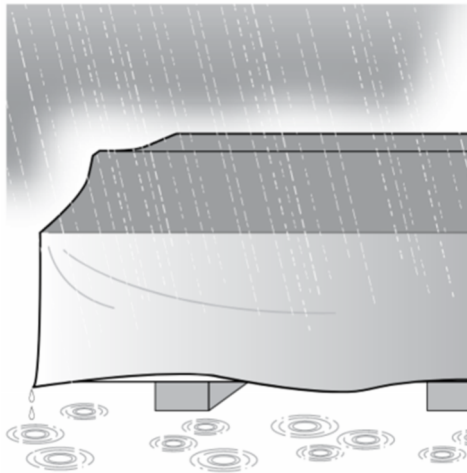
Consult with your architect and builder for specific building codes in your area pertaining to installation of exterior wood products.

2. Delivery, Inspection, and Storage

Montana Timber Products materials are shipped on contracted flatbed semi-trucks or by LTL Carriers like SAIA or FedEx Freight. Please be sure that there is room for the truck to safely access and leave the delivery site. If this is not possible, please provide an alternate delivery location. Units of material will generally be 48" wide and can be as long as 20' (timbers may be longer). Depending on the type and quantity of material ordered, units can weigh more than 4000 lbs. A CUSTOMER PROVIDED FORKLIFT IS REQUIRED FOR OFFLOADING.

If the materials are damaged in transit, it must be noted on the freight bill prior to signing the Bill of Lading and reported immediately to MTP. The receiving party is responsible for inspecting product upon delivery and prior to installation. Contact MTP immediately if any visible damage or defects are identified. Installation of materials without prior notification of deficiencies constitutes acceptance.

Until installed, MTP materials should be protected from direct sunlight, water saturation, dust, debris and damage from other construction activities. Store materials flat and off the ground on stringers so that moisture is not absorbed through the bottom boards of the stack. Protect with a waterproof covering, elevated in the center to allow water to shed. Do not completely seal the bundle, as proper air circulation is required. Storage in an enclosed dry building, such as a garage, is recommended.



3. Jobsite Preparation Tips

- 1) Read the installation guidelines in entirety.
- 2) Maintain an organized, clean, and safe working environment.
- 3) Account for all necessary woodworking tools and materials (circular saw, miter saw, tape measure, hand tools, nails, etc.).
- 4) Verify windows and doors are installed in accordance with the manufacturer's instructions and local building codes.
- 5) Check that flashing is installed at all windows, doors, band boards, fascia, skirts, posts, and other areas where moisture must be directed away from the building.
- 6) Confirm house wrap/building paper is installed in accordance with the manufacturer's instructions and local building codes.
- 7) Ensure that wood siding will not be installed directly over rigid foam insulation. Use furring strips to create an air space and use a building wrap directly against foam insulation.
- 8) Verify appropriate clearances above grade.
- 9) Ensure wood siding will not be installed in direct contact with concrete, masonry, patios, porches, and or roofing.

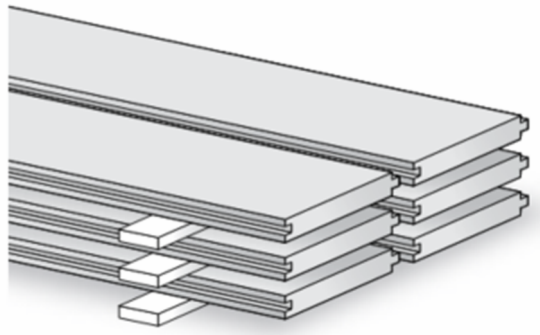
- 10) Verify all building substrates and wood siding materials are clean and dry
- 11) Make a final inspection of all exterior walls and mark bearings (studs) and blocking.
- 12) Acclimate wood products before installation.

This list is intended to give a general overview for jobsite preparation and is not exhaustive for every unique location and install application.

4. Acclimation

All wood products require proper acclimation to ensure optimal performance. With changes in ambient moisture all wood products expand and contract. Please follow these important steps, PRIOR TO INSTALLATION, to help minimize movement of wood product:

- 1) Acclimate wood as close as possible to the point of usage. For indoors, locate in the room of usage
- 2) Acclimate wood off the ground making sure no moisture seeps from underneath, cover the top only and protect from direct sunlight and precipitation
- 3) Stack each layer using spacers. This will allow for free air circulation
- 4) Acclimate for 10-14 days or longer depending on conditions



The objective of acclimation is for the moisture content of the wood to align closely with that of the local environment. Improper acclimation is the most common mistake with natural wood products. It is also important to consider the storage duration and seasonal changes with acclimation. Wood that has been stored over the winter and will be installed in the spring has the highest potential for movement due to moisture and temperature differential.

The chart below shows recommended moisture contents for different climate zones in the United States. Check your wood materials with a [moisture meter](#) available at most lumber yards or home improvement stores.

MOISTURE CONTENT GUIDELINES						
Use of Wood in Exterior	Recommended Moisture Content at Time of Installation					
	Most Areas of the U.S.		Dry, Southwestern States		Damp, Warm South-eastern Coastal Areas	
	Average ¹	Individual Pieces	Average ¹	Individual Pieces	Average ¹	Individual Pieces
Siding, Trim and Sheathing	12%	9-14%	9%	7-12%	12%	9-14%

¹To obtain a realistic average, test at least 10% of each item, i.e. 10% of the siding pieces, 10% of the trim pieces and random checks of the sheathing material. It is particularly important to check the sheathing prior to the siding application if it has become wet after installation.

Source: *Wood Handbook*, 1999, from Table 12-2.

5. Installation

Look through the entire MTP material order (Bill of Lading and piece count are included with delivery) and organize by lengths and widths respective to the design intent and aesthetic priority of the structure. Use smaller boards for cuts around windows & doors and longer boards for large wall sections.

Natural wood materials have inherent color variation. Sort out the obvious differences in color and blend together for the best visual consistency. Set aside undesirable color tones. A construction waste factor (MTP recommends 15% with each order) will allow for culling less visually desirable materials. Attempt to use these pieces by blending in non-focal points on the structure. The photo below represents the color range that can naturally occur in the wood fiber, within the same bunk of material. Notice that there are very dark grains, versus lighter and mixed.



MTP siding products can be installed horizontally and vertically. Reference figures below for visual representation of each application. Furring strips are recommended as the best practice for both horizontal and vertical orientation.

Horizontal Application

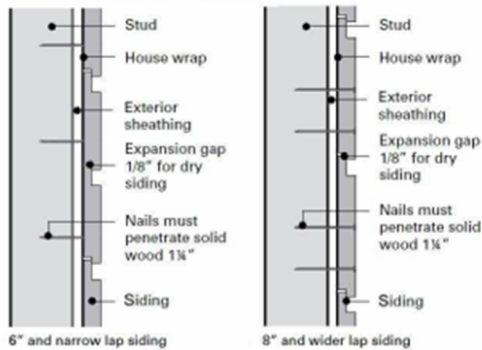
Start with the bottom course at the corner; use a level or to ensure that the first board is installed level. Work with the channels/tongue pointing upward. For lap siding, allow 1/8" expansion gap between siding. Nail the starter row with ring shank siding nails (see fastening section). Continue nailing in an upward direction and chalk a line after several rows to keep siding level. The last board may need to be ripped to form a tight top edge, otherwise implement a frieze board or metal soffit to form a straight horizontal eve joint.

Vertical Application

Install horizontal blocking or furring strips to allow for siding to be nailed securely with maximum of 24" on-center spacing. Use a level to keep boards plumb while installing. Follow the joint instructions above and fastening guidelines below.

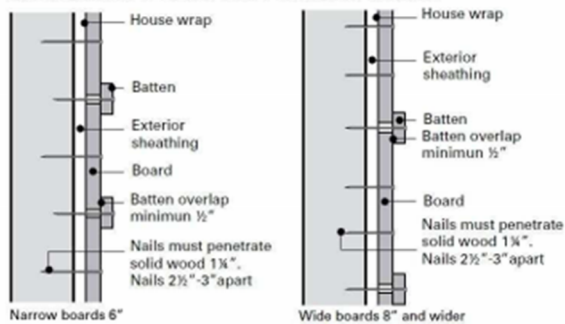
Lap or Channel - Installed with the edge of one board having a recessed area which receives the overlapping edge of the board next to it, to impede water during rainfall.

INSTALLING LAP SIDINGS



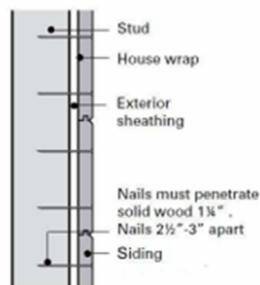
Board & Batten - A vertical pattern installed by placing square edge boards against each other and overlapping with a batten, covering the gap.

INSTALLING BOARD-AND-BATTEN SIDING



Tongue & Groove – Suggested installation method for soffits and interior paneling. **Not recommended for exterior siding application.**

INSTALLING TONGUE AND GROOVE



Fastening

Stainless steel nails are strongly advised (use No. 304 or No. 316). Other types of fasteners are not recommended. For best results use “split-less” ring shank stainless steel siding nails. These nails have thin blunt points to reduce wood splitting.

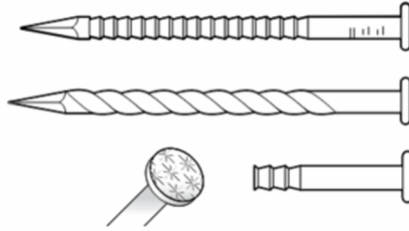


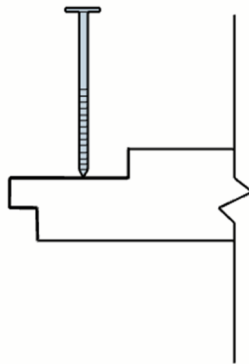
Fig. from WRCLA Real Cedar

Nails should be driven through siding and penetrate 1-1/4 in. of solid wood backing. Maintain a maximum on-center spacing of 24 in. between fastening to studs or furring strips. Two nails per course for 6 & 8 in. patterns and three nails per course for 10 & 12 in. patterns. Use 6d-8d nails. Keep nails neatly aligned and spaced 2-1/2 – 3 in. apart to allow for dimensional movement. All materials should be face nailed. Blind nailing is not recommended.

Hand nailing is preferred to ensure each nail head is flush with the siding. Heavy nailing distorts wood and may cause splitting. The use of pneumatic fasteners is discouraged for exterior use; however, if they must be used reduce the air pressure and finish by tapping nails flush. Nails should never break the surface or be counter sunk. Do not nail closer than 2 in. to the edge of material without drilling pilot holes.

*****Special Fastening Instructions for Tex Gap Profile*****

MTP offers an interlocking tongue and groove profile called Tex Gap (only recommended for 4 and 6 in. width boards) that can blind nailed. Pre-drilling holes is highly recommended to prevent splitting boards. Only nail in the thick section of the tongue per diagram below using the nail recommendations provided above.



Field Cuts

All field cuts must have exposed wood re-sealed with two coats of Seal-Once sealer prior to installation. Note that end cuts will absorb sealant much faster than other surfaces. Touch up cut ends, ripped lengths and scratches with a small brush and blend the color with light strokes. Avoid bleeding into already stained areas and apply only to the affected area. Wipe off any excess with a clean dry rag. Experiment on a few boards to refine your technique. Do not leave any cut edges unsealed or apply stain in freezing temperatures.

Butt Joints

When a single board does not span the entire distance between trim pieces a butt joint will need to be implemented on the middle of a stud or furring strip. Make sure each cut end of board is re-sealed. All butt joints should be planned out ahead of installation, using a staggered pattern, for the best possible finished product. Drill pilot holes before driving nails flush on ends.

Trim

The common locations of trim on structures are around windows and doors, as well as inside and outside corners of the building. The best exterior trim details are designed to keep water out but provide easy drainage for any water that penetrates the exterior. Suggested best practices for installation:

- Slope the top edges of horizontal trim boards to properly shed water
- Avoid exposed end-grain facing upward for vertical trim boards
- Avoid wide horizontal wood surfaces exposed to water
- Use flashing to shed water away from horizontal trim
- Follow the fastening guidelines provided above

Fascia

Fascia is found underneath the roof line just behind the gutters or drip edge. It is mounted vertically on the exposed ends of rafters or the top of exterior walls to create a layer between the edge of the roof and the outside. The fascia board is installed at the edges of the rafter's tails or trusses on your roof. MTP provides fascia boards typically in 12 ft. or longer lengths. Suggested best practices for installation:

- Flashing should be implemented to direct water away from the fascia
- A scarf joint is commonly used for abutting sections of fascia boards
- Follow the fastening guidelines provided above

Flashing

Use flashing to direct moisture away from the building to designated drainage areas. Install flashing horizontally from the top of windows and doors and where there is a change in material or direction. Flashing should tilt downward to allow water to shed properly. Do not caulk where flashing, siding, trim or other materials meet. Caulking should never be used in lieu of flashing.

Caulking

Use exterior grade high-performance acrylic-latex, silicone, acrylic, or urethane caulks and sealants to seal gaps around windows, doors, corners, and other exterior joints that are exposed to potential water intrusion. Caulking is not a permanent solution and as such requires regular maintenance. If not inspected and maintained, caulking may fail and trap water, creating severe moisture problems. Do not rely on it as the only barrier to moisture penetration. Do not caulk areas that will prevent moisture from escaping the wall cavity (e.g., under windows and around flashing). Avoid three-sided adhesion. The caulk should only adhere to the two surfaces that create the opening in the surface plane, not to any rigid substrate behind. For gaps wider than ¼ inch, insert a backer rod into gaps where caulk seals are to be made, and then caulk over. In all cases, follow the caulking manufacturer's recommendations.

Timbers

Timbers are used for a traditional wood construction style that complements the design intent of a structure. Common applications are posts, beams, trusses, and braces. MTP offers kiln-dried #1 and better free-of-heart center Douglas Fir timbers; kiln-dried, box-heart Douglas Fir timbers; and Cedar timbers. Splits and cracks in the surface of timbers are part of the natural drying process. Kiln drying timbers does not eliminate all possible occurrences of cracks.

Consult with your architect, contractor, or structural engineer for material specifications and evaluation of constructability. Timber packages should only be installed by a professional contractor with job specific means and methods for hoisting, securing, and fastening.

Prefabricated Trusses

MTP pre-finished and assembled truss packages or components are to be built on-site. Prefabricated trusses must be structurally engineered by others. Shop drawings are provided by MTP for design team approval before fabrication.

6. Maintenance

Building structures are subject to wear and tear from the elements and occupant use, and therefore require maintenance. All building components have a design service life cycle, which may be affected by environmental conditions, installation, and maintenance measures. Regular or scheduled inspection of building components is recommended to maximize their performance and service life. Failure or decay in wood siding are usually caused by moisture penetration, which is largely preventable with proper installation and maintenance. Below are general guidelines for inspection and maintenance of natural wood siding products.

Caulking

Buildings normally experience some settlement/shrinkage of components which can cause cracked caulking. These areas should be immediately remedied. Failure to do so will likely lead to moisture infiltration in the building envelope. Caulking should be inspected annually. Any cracked, damaged or loose caulking should be removed and replaced. Siding should be checked for cracks and holes in the wood, fill holes with exterior grade wood putty.

Flashing

Flashing requires periodic washing to remove grime and re-sealing when corrosion of metal appears. Upon installation flashing should be sloped downward to the outer edge at approximately a 15-degree angle. If building settlement causes flashing to slope upward it must be corrected for water to shed properly.

Nails

Rusty nails indicate that moisture is soaking into the wood siding. If rusty nails are found, the moisture source must be eliminated, and the siding checked for moisture damage.

Windows/Doors

The flashing and caulking used to prevent moisture from entering windows and doors should be checked annually.

Corner Boards

Inspect corner boards periodically to ensure joints are tight and waterproofed and verify no water damage has occurred to the end of trim where it is proximity to decks, concrete or landscaping.

Site Drainage & Grading

Water should not be allowed to pool against foundation walls. Site drainage patterns, such as sloping the soil away from the building, can prevent surface water from pooling against foundation walls. Flowerbeds should be graded so as not to interfere with drainage. A minimum clearance of 8 inches should separate the ground and the bottom of exterior wall cladding. Never allow soil or gravel to come in contact with exterior wood materials or finishes of the building. Review and adjust the spray pattern of sprinkler systems regularly to prevent spray onto wood building components. In winter conditions remove all snow load that accumulates against wood products.

Resealing Instructions

MTP materials come pre-sealed with Seal-Once which includes a 10-year limited warranty for vertical surfaces and 6-year limited warranty for flat surfaces. Resealing time frames may vary depending on ultraviolet rays and moisture contact. If exposed to excessive UV rays (typically south or west facing side of home) and/or moisture contact, resealing may need to occur sooner. To re-seal and maintain warranty, MTP materials must be resealed using our specially formulated sealer comprised from customized tints and the use of Seal-Once (www.seal-once.com).

Preparation

All surfaces should be clean and dry before application for best penetration and performance of coating. Remove dust and debris with a mild, detergent cleaner.

Application

- Do not use if air or surface temperature is below 35°F
- Do not apply in rain or when rain is imminent
- RESEAL: DO NOT THIN. Mix well. Stir contents or shake thoroughly prior to use
Apply two even coats wet on damp with garden sprayer, brush, air-assisted and/or airless sprayer. Use medium spray pattern
- For best results, apply in the evening, out of direct sunlight, and at cooler temperatures
- If applying in direct sunlight and wood is hot, spray with a mist of water and apply immediately on dampened surface
- Apply to entire exposed wood surface
- Do not combine with other waterproofing products
- An additional third coat may be applied on areas with extreme exposure to UV rays and moisture (typically a south or west facing wall)
- Approximate coverage: 200 square feet/gallon. Apply two coats. Actual coverage will vary due to porosity of surface

Drying Time

- For decking allow sealer to dry completely before subjecting to light foot traffic — up to 2 hours; 24-48 hours for full cure, depending on temperature and humidity

Clean up

- Clean equipment and brushes with warm, soapy water
- Keep unused product above 32°F, protect from freezing

7. Limited Warranty

See Montana Timber Products Limited Warranty document.