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Envello Siding
Installation guide

US

Board & Batten+ - Vertical

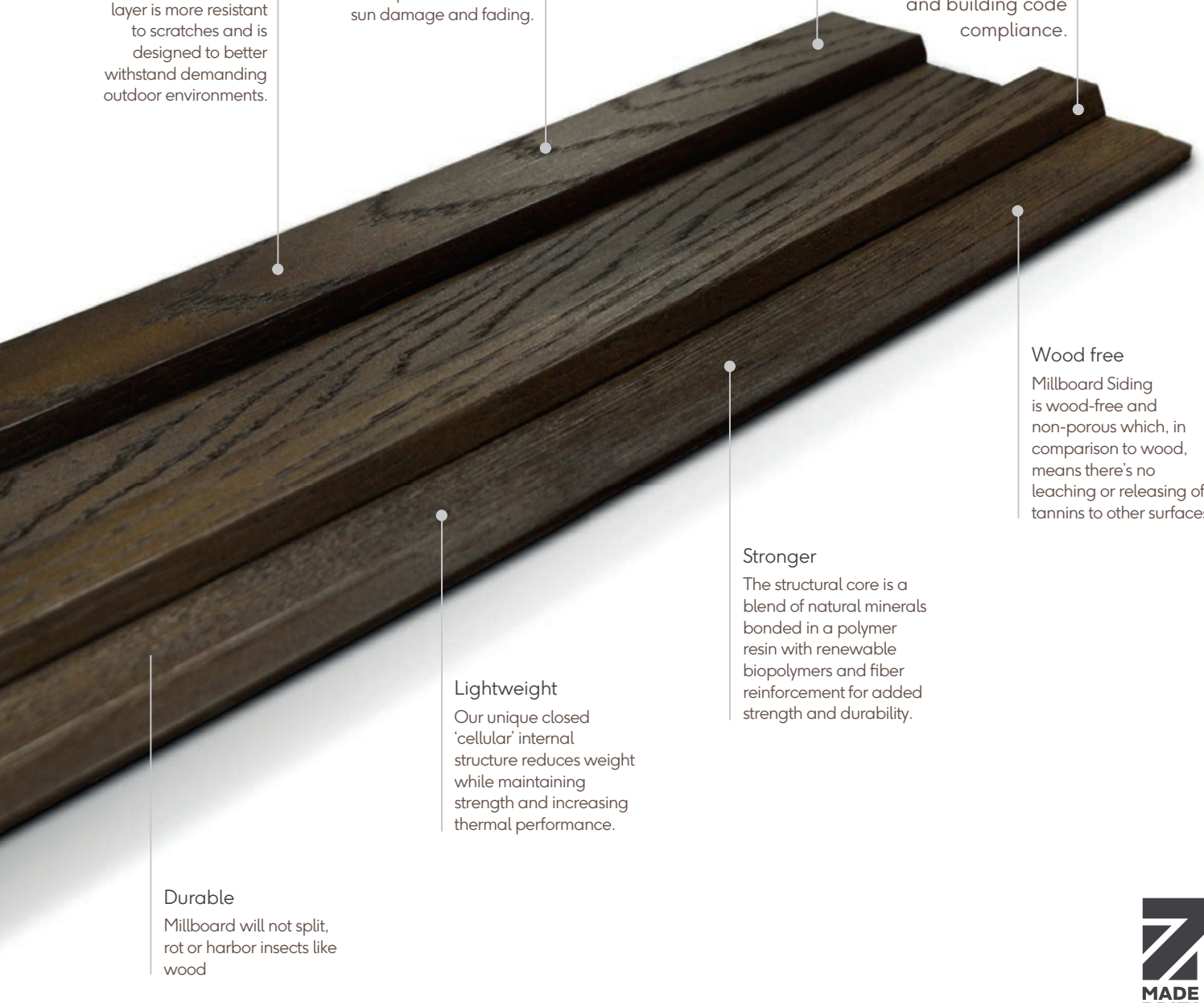
Contents page

Easily find your way around the Millboard Envello® Siding installation guide for Board & Batten+ - Vertical

About Millboard Siding

A closer look

Millboard Siding uses a unique material, unrivalled across the globe. Take a closer look at the construction and performance of this stunning yet functional siding.



Tough

The unique surface layer is more resistant to scratches and is designed to better withstand demanding outdoor environments.

Enduring

The dual-tone surface layer is hand colored using pigments chosen to improve resistance to sun damage and fading.

Beautiful

Each length is hand molded using specially selected hardwood masters for an unrivalled organic wood-grain appearance in a composite material.

Fire rated

The boards are tested to ASTM E84 and have a flame spread index of less than 25, for added assurance and building code compliance.

Wood free

Millboard Siding is wood-free and non-porous which, in comparison to wood, means there's no leaching or releasing of tannins to other surfaces.

Stronger

The structural core is a blend of natural minerals bonded in a polymer resin with renewable biopolymers and fiber reinforcement for added strength and durability.

Lightweight

Our unique closed 'cellular' internal structure reduces weight while maintaining strength and increasing thermal performance.

Durable

Millboard will not split, rot or harbor insects like wood

MADE IN BRITAIN

The Board & Batten+ has been molded from four individual pieces of Oak with different widths and grain patterns, creating a truly unique balance for both contemporary and traditional designs. With a tongue and groove profile that only requires fasteners through the tongue, the install time is dramatically reduced compared to the traditional method of batten-on-board siding with wood.

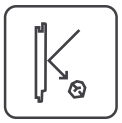
The profiles on the Board & Batten+ are designed with differing angles to create shadow definition between the grain patterns, as well as facilitating drainage when used horizontally. The increased thickness of the Board & Batten+ provides superior impact resistance.

Hand molded and colored
Skillfully molded by hand and authentically colored, replicating oak in the most realistic way.

Moisture resistant
Due to Envello's non-porous composition, no sealing is required, unlike other available products.

UV stability
UV stabilized for better performance and fade resistance over time.

Increased thermal performance
The unique composition helps to enhance the thermal performance of buildings in both winter and summer.



Impact and weather resistant
A durable coating and elastomeric surface ensures increased resilience against hail and natural weathering.

Easy to install
No specialist tools required, Envello can be cut and installed in the same way as traditional wood.

Wood free
Envello is solid, not hollow, making it strong. This means it will not rot or warp like wood.

WUI Certified
Verified as suitable for use in Wildland Urban Interface areas, when installed in accordance with the install guide.

Crafted to be perfectly imperfect

Each length of Millboard Siding is the result of a long process of craftsmanship and attention to visual detail. Just like the specially selected Oak used to create the unique molds, the fine details and natural imperfections in the original oak has been recreated in the highly durable Millboard product.

From the initial laying of the elastomeric surface, right through to the pouring of the fiber-reinforced resin mineral, we focus on achieving the quality of finish, reflecting the true random and natural characteristics of the original oak. Our passion is to accurately reproduce the original while adding to the benefits of our unique board technology, which is why many of our processes are carried out manually. For example, each piece is hand colored to establish the authentic wood finish our boards are renowned for.

Product Suitability

Intended Use

Envello siding has been designed for beauty, longevity and ease of installation on residential and low-rise buildings. However, to ensure the best installation and long-term performance, we recommend that a professional contractor carries out the installation.
It is the property owner's responsibility to make sure that plans meet relevant local building codes before the installation begins. Envello siding must be supported by a suitable substructure that is in accordance with building codes.

Envello siding is a tongue and groove profile which means that the siding provides protection from direct rain and wind but is not a completely waterproof finish. Whatever is behind the siding needs to provide the waterproof protection for the building, and that consideration regarding dissipation of moisture behind the boards needs to be included in the detailed design.

Do not use Envello siding as a structural material; it should be fastened to a structural surface.

Limitations

This installation guide is not exhaustive - the responsibility for design lies with the specifier or responsible party for the project, to ensure the final design meets the requirements of the intended application and building codes.

This guide must be used in conjunction with project drawings and specifications, applicable building codes, and relevant compliance documents.

For designs outside the scope of this installation guide, specific design must be undertaken by an architect or designer.

If in doubt, we strongly recommend contacting Millboard pre-design stage to arrive at a suitable, robust, efficient solution and to avoid disappointment.

It is the responsibility of designers, installers, and owners to ensure that the information in this manual is current, by checking with Millboard or referring to our website. As new technology is introduced or industry standards are altered, Millboard reserves the right to alter existing specifications and remove products without notice. Visit our website at: www.millboard.com

The use of this manual does not guarantee acceptance or accreditation of a design, material or building solution by any entity authorized to do so under law; does not mean that a design, material or building solution complies with the building codes; or does not absolve the user from complying with any Federal, State or local regulations..

Pre-Installation

Storage and Handling

Millboard Envello Siding boards should always be stored on a flat surface or level bearers maximum of 16" apart and stacked face-to-face, not back-to-face. The Square Corner Trims should be fully supported along their length.

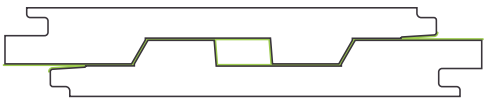
When loading and unloading by hand, make sure that both ends are lifted on the edge to avoid permanent deformation and/or damage to the boards.

They should only be lifted off the stack, and not dragged as this could cause abrasion or marking on the surface.

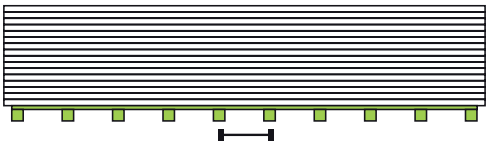
Wear gloves and long sleeves when handling the boards and take care when lifting them. We recommend that two people carry the boards. They should be carried on their side for increased rigidity.

We advise that the siding planks are stored on site at least 72 hours before installation, to allow the boards to acclimate. Only move the pallet if the boards are safely strapped to it.

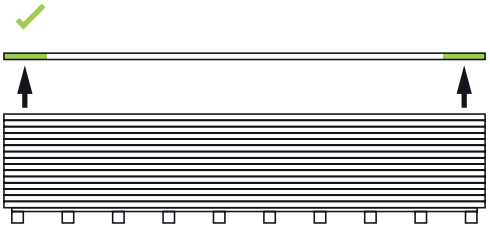
Millboard cannot be held responsible for damage caused by improper storage and handling of the product.



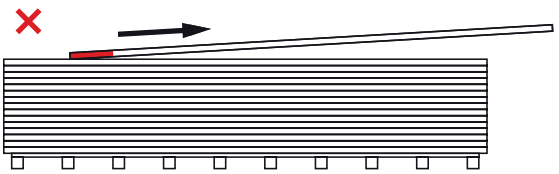
Stack boards face-to-face



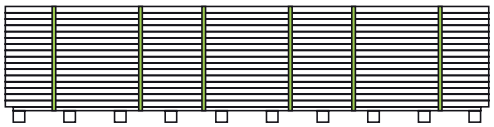
Ensure boards are on a flat surface or bearers max. 16" apart



Lift boards on the edges using 2 people to lift at a time



Do not drag the boards off the stack



Ensure boards are secured to the pallet before transporting

Tolerances:

There will always be a slight variance in the board's dimensions due to the fact that we mold from natural oak, and due to the pressure of the molding process. Despite this, we calibrate the boards to maintain as consistent a profile as possible.

The manufacturing tolerances are: Width: ± 1/16" (2mm). Length: ± 3/16" (5mm). Thickness: ± 1/16" (2mm).

When working with the boards, a level may be required to help keep the boards running upright. In order to achieve straight and consistent gapping between boards, it may be necessary to use shims during the installation process.

Tools & PPE required

Here are the tools and PPE. you will need to install Millboard Envello Siding.

If you are unsure on how to use any tools, please consult the tool's user manual.

Miter saw/jigsaw/handsaw
Envello Siding products can be cut with standard wood cutting tools (i.e. miter saw, jigsaw, handsaw). We recommend using a carbon-tipped saw blade. An aluminum-cutting blade should be used for the metal trims.

Tool set
Standard carpentry tools will be needed to complete the installation, including: tape measure, a pencil, set square, planer, utility knife and a drill bit set.

Level
A level is used to ensure that the starter trims are level and the boards keep upright.

Personal Protective Equipment
When handling Millboard products, wear long sleeves and gloves. When cutting products, wear an N99 dust mask, ear defenders and safety glasses.

Nailers and drills
The siding boards can be fastened with either nails or screws as shown on page 21. Siding nailers are used for the siding boards with nails through the board tongue; finishing nailers are used with nails through the board face and for the reveal boards.

Laser level/line
If available, a laser level can be used to ensure the starter trims are installed level.

Cutting

Envello products can be cut with standard wood cutting tools (i.e. miter saw, jigsaw, handsaw). We recommend a carbon-tipped saw blade. An aluminum-cutting blade should be used for the metal trims.

When cutting the boards, wear an N99 dust mask, safety glasses, long sleeves and protective gloves.

A dust bag or vacuum must be used on miter saws.

Make sure that the boards are adequately supported when cutting. Boards should be cut face-up for a cleaner finish.

When the board is cut, Touch-up Coating, which are shown on page 14, should be used if the cut will be visible and exposed to UV.

Dispose of board off-cuts by disposing as general waste. Don't burn them at home.

Failure to comply with all health and safety regulations when cutting and installing this product may result in personal injury

Tip:

If there is a breeze/wind when cutting the boards, locate the saw up wind so that excess dust is blown away from the operator & project.

Fire Performance

Envello Board & Batten+ siding is crafted with fire retardants in the board composition. It has been tested to SFM 12-7A-1 and ASTM E84 and is approved for use in Wildland Urban Interface (WUI) zones when installed in accordance with this manual.

For WUI zones, the design must include Type X Gypsum sheathing behind the siding boards to achieve the fire performance as per page 16.
The siding should not be fastened solely into the gypsum sheathing, the fasteners should penetrate the framing or into the WSP sheathing as per CBI listing https://www.drjcertification.org/dl/2304-117

The responsibility for the siding's suitability in the required location is to be determined by a certified building professional (code official, building insurance, fire officer, etc) inspector.

Millboard will not be held responsible for incorrect specification, application, or product installation in areas not in accordance with Federal, State or local regulations.

Current guidance should be gained from the government or state website relating to the geographical project location,

Materials

Color Characteristics

We go to extraordinary lengths to recreate the look of natural products and therefore intentionally add secondary toning colors. This painstaking process means that there may be variance within the same board or between boards.

Envello siding has been designed to replicate the natural variances of wood and is manufactured to have tonal variance in the color.

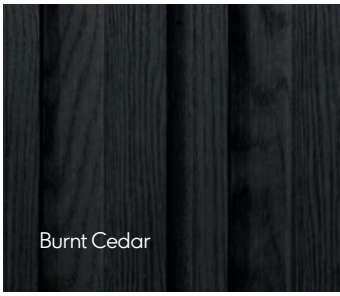
Buying all the Millboard you need at the same time should help to ensure that the color is consistent. If you do have multiple batches then it is best to mix the boards, to create an effective, subtle blend.

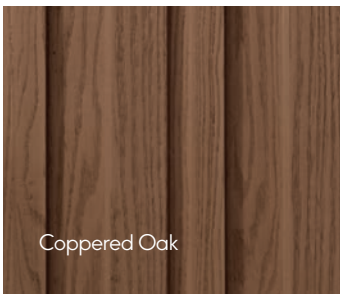
Note that our Antique Oak color has more tonal variation per individual board than any of the other colors in the Millboard range.

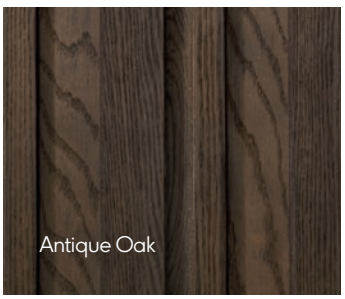
As with all products exposed to sunlight, Millboard will naturally weather and tone down over time. Loss of gloss is perfectly normal and will not affect the performance of the products.

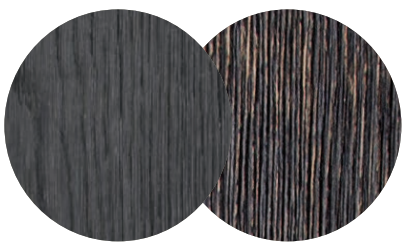
Millboard takes great care ensuring the performance of its products maintain the natural wood grain details we seek to portray, and we believe at every stage of its life Millboard truly reflects this more than any other wood alternative product, due to being molded from real oak and the hand colored process.

On delivery if you identify any aesthetic or structural defects please contact us prior to installation.





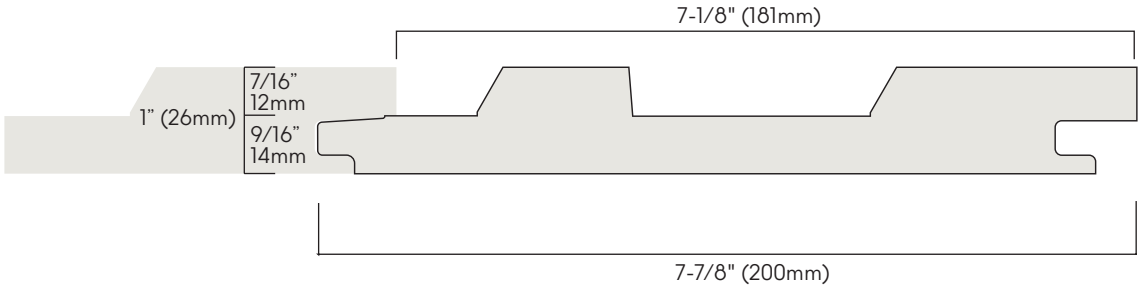




Colour tone may vary from batch to batch.
Antique Oak has more variance between boards.

Siding boards & accessories

Envello Board & Batten+ Siding boards

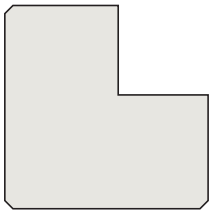


Dimensions:	3/4"(T) x 7-7/1" (W) x 141-3/4" (L)		
	(26 x 200 x 3600mm)		
Effective Cover:*	7-1/8" (181mm)		
Board coverage	0.14 boards per sq. ft.		
	(1.53 boards sq. m.)		
Colors:	Smoked Oak - MCBF360D	Burnt Cedar - MCBF360R	Anthracite - MCBF360X
	Antique Oak - MCBF360A	Limed Oak - MCBF360L	Coppered Oak - MCBF360C
	Golden Oak - MCBF360G	Jarrah - MCBF360J	

* When installed

Siding boards & accessories

Envello Square Corner Trim



Dimensions: 2" (T) x 2" (W) x 120" (L)
(50 x 50 x 3050mm)
Colors: Smoked Oak - MCPTF50D
Antique Oak - MCPTF50A
Golden Oak - MCPTF50G
Burnt Cedar - MCPTF50R
Limed Oak - MCPTF50L
Jarrah - MCPTF50J
Anthracite - MCPTF50X
Coppered Oak - MCPTF50C

Fasteners: Perforated closure, 3/4” screws

Profile used to finish off the corners of the building.

Vertical Starter Trim L

Dimensions: 1/2" (T) x 1" (W) x 98" (L)
(13 x 25 x 2500mm)
Product code: GT250L
Fasteners: Siding fasteners or 3/4” screws

Aluminum trim used to start the siding at the bottom.

Millboard Reveal Boards

5-3/4" (146mm)

Dimensions: 5/8"(T) x 5-3/4" (W) x 141-3/4" (L)
(16 x 146 x 3600mm)
Color: Smoked Oak - MCR146D
Antique Oak - MCR146A
Golden Oak - MCR146G
Burnt Cedar - MCR146R
Limed Oak - MCR146L
Jarrah - MCR146J
Anthracite - MCR146X
Coppered Oak - MCR146C

Reveal boards may be required for soffits or finishing trims.

Perforated Closure

Dimensions: 1" (T) x 2" (W) x 118" (L)
(25 x 50 x 3000mm)
Product code: GP300L
Fasteners: 3/4” screws

Aluminum profile used as a installation tool for the Corner profiles

Siding Accessories Screws

Dimensions: #6 x 3/4" (3.5 x 20mm)
Quantity: Box of 250
Product code: FC20P250

A2 Stainless Steel screws used to fasten the corner profiles, starter trims and perforated closures

Envello Colored Head Screws

Dimensions: #6 x 1-5/8" (3.5 x 40mm)
Quantity: Box of 100
Product code: Smoked Oak - FC40P100D
Antique Oak - FC40P100A
Golden Oak - FC40P100G
Burnt Cedar - FC40P100R
Limed Oak - FC40P100L
Jarrah - FC40P100J
Anthracite - FC40P100X
Coppered Oak - FC40P100C

In most instances the siding boards are installed using the approved fasteners through the board tongue. Envello Colored Head Screws may be required for installing the siding boards where a fastener through the tongue is not possible. Also used for installing Reveal boards.

Approved Siding fasteners

This table shows fastener options for different substrates. Please refer to the applicable Listing at https://www.drjcertification.org/dl/2304-117 to determine which fastener meets your wind load design criteria.

Fastening Substrate	Approved Fastener	Fastener Spacing (in o.c.)
7/16" OSB	#8 x 2" Flat Head Wood Screw	16
		24
	0.092" x 2" Ring Shank Nail (6D Siding Nail)	16
		24
2x4 SPF Sawn Lumber	#8 x 2" Flat Head Wood Screw	16
		24
	0.092" x 2" Ring Shank Nail (6D Siding Nail)	16
		24
20 ga CFS	#8 x 1 1/2" Flat Head Sheet Metal Screw	16
		24

* All fasteners to be minimum galvanized external grade, but are recommended to be stainless steel

The fastener can be longer than the above and should penetrate into the framing members by a minimum of 1", this penetration would be into the building framing member and/or OSB sheathing (excluding Gypsum). See page 21 for more information on fasteners.

Alternative to the Colored Head Screws:

As an alternative to the Colored Head screws, 16g stainless steel finishing nails can be used through the face of the board. The finishing nails need to be a minimum of 2" long.

This guide will detail how these can be used in conjunction with the siding. A small hole may be left where the finishing nails has gone through the board surface.

Touch-up Coating

Smoked Oak
17 fl.oz AP500D

Antique Oak
17 fl.oz AP500A

Golden Oak
17 fl.oz AP500G

Burnt Cedar
17 fl.oz AP500R

Limed Oak
17 fl.oz AP500L

Jarrah
17 fl.oz AP500J

Anthracite
17 fl.oz AP500X

Coppered Oak
17 fl.oz AP500C

Touch-up used for coating any exposed cuts or edges on the Envello boards, corner profiles, Reveal boards, fascia, or decking boards.

Additional items that may be required (supplied by others):

- Flashing/drip profiles (around windows/doors/openings or at the bottom of the siding)
- Fasteners for attaching the furring to the structure.
- Drainable house wrap (e.g. Benjamin Obdyke HydroGap or Tamlyn Drainable Wrap)
  More info on page 17.
- Clear high performance sealant adhesive (MS/Hybrid polymer adhesive)
- Polyurethane wood glue (used when mitering the boards)
- Super glue (used when mitering the boards)
- Furring strips (if required)
- 16 gauge Stainless Steel finishing nails (as an alternative to the colored head screws)

Preparation

Wall preparation

All local building codes and regulations need to be read and understood to ensure all wall constructions are compliant before installing Envello siding. Establishing a suitable structural support behind the siding is essential in working towards the longevity of the overall system. This is the responsibility of the property owner, architect/designer, general contractor and/or installer.

Envello siding can be installed over framing either made of wood or steel spaced at a maximum of 24" on center. The framing members can either be braced or faced off with 7/16" thick OSB or equivalent rigid sheathing. Steel framing needs to be a minimum of 20 gauge to provide adequate holding power for the fasteners.

Ensure all irregularities in the wall construction are made straight before the siding is installed. Any flaw in the wall behind the siding can be accentuated in the overall finish. The time and care taken on setting/fixing the support system will be reflected in the finished result. Time taken to upright corners and straighten undulating walls will make the installation of the siding far easier, and will give a superior finish.

Wall construction for WUI zones

When installing Envello siding in WUI restricted zones, it is important that Type X Gypsum is used behind the boards. The fastener should penetrate into the framing members by a minimum of 1", this penetration would be into the building framing member and/or OSB sheathing but excluding the Gypsum.

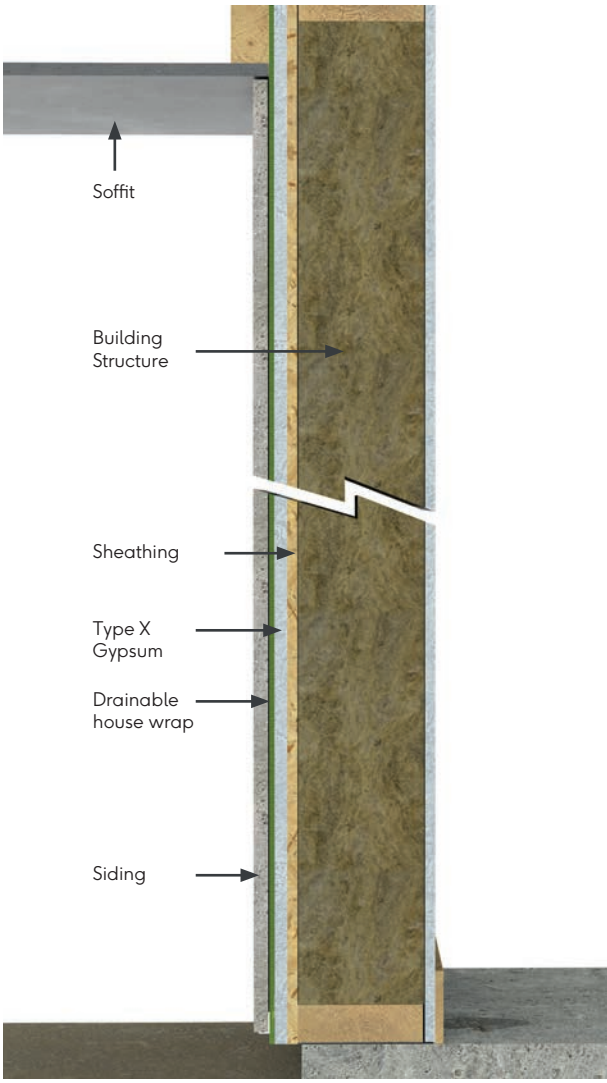


Fig.1 - Typical construction for WUI zones

Weather-Resistive Barrier (WRB)

Envello siding is a tongue and groove siding system which provides some protection from direct weathering on the wall construction. Some water may penetrate behind the siding boards, especially if they are installed vertically. Therefore whatever is behind the siding boards needs to provide the waterproofed system for the wall construction. Millboard will not be held responsible for any moisture penetration into the building.
In accordance with local building code requirements, a weather resistive barrier is required to be installed behind the siding. This WRB should be installed along with the necessary flashing to direct water away from the wall construction.

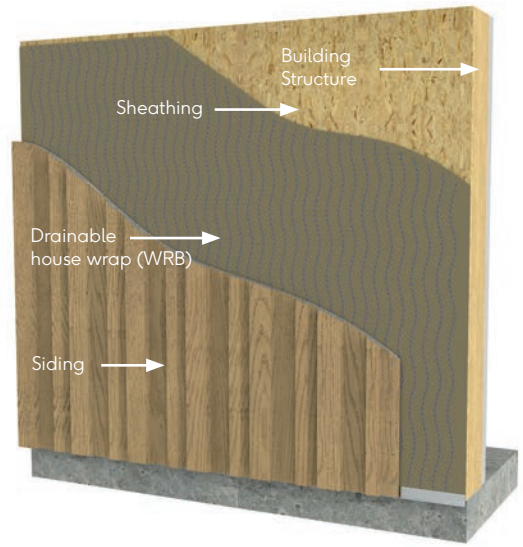


Fig.2 - Typical wall build-up with drainable housewrap

Water management and ventilation

Water management and ventilation behind the siding should always be taken into consideration, in relation to the location of the project, exposure of the siding to the elements and how much rain the siding will be subjected to (in addition to the requirements of the local building code). As a minimum we recommend a non-compressible drainable house wrap to be used behind the boards. (Fig. 2) When the siding is installed vertically and/or the project is in a high rainfall location, we highly recommend increasing the drainage plane behind the siding with the following:

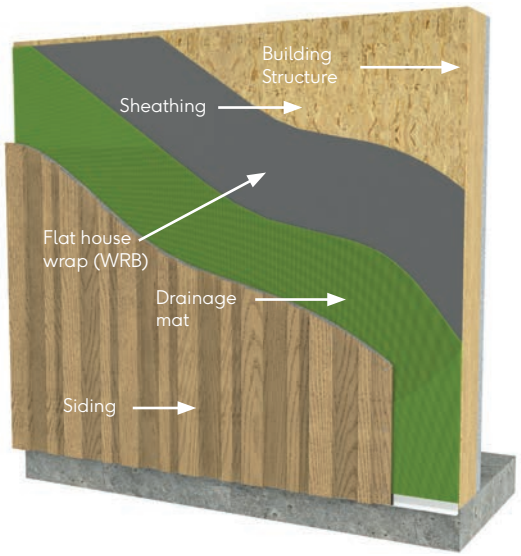


Fig.3 - Typical wall build-up with rainscreen drainage mat

Increased drainage cavities - Furring Strips

For an increased drainage/ventilation channel behind the boards a rainscreen system can be applied. This can be done in two ways over a common flat house wrap:

1. Add a rainscreen drainage mat. This usually provides a 1/4" - 3/8" gap behind the boards. (Fig 3)
2. Add furring strips of pressure-treated wood.
   When installing siding vertically, the furring strips can be done in two ways to allow the passage of water and air through the system:
   1. Install horizontal furring strips at 16" or 24" centers depending on the location, install these over vertical furring strips or pack off the sheathing by a minimum of 1/4".
   2. Install the furring strips at an angle, with the centers reduced to 12" or 16" respectively. (Fig.4)

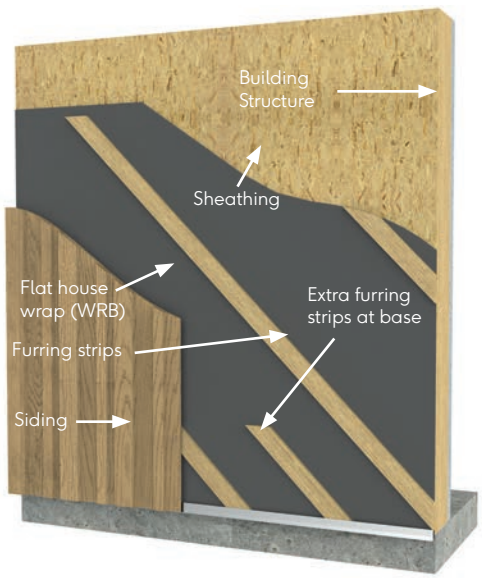


Fig.4 - Typical wall build-up with furring strips

When using furring strips behind the siding, consideration regarding insect and rodent invasion should also be taken in to account and a perforated closure or fly mesh should be used to counter these threats where there is the required air gap, while still maintaining the air flow.
Where possible, ventilation pathways for cavities should be provided at the top and bottom of the siding of minimum 1/4". These air gaps also apply above and below a window. Plan these gaps while installing the furring strips. (Fig 5)

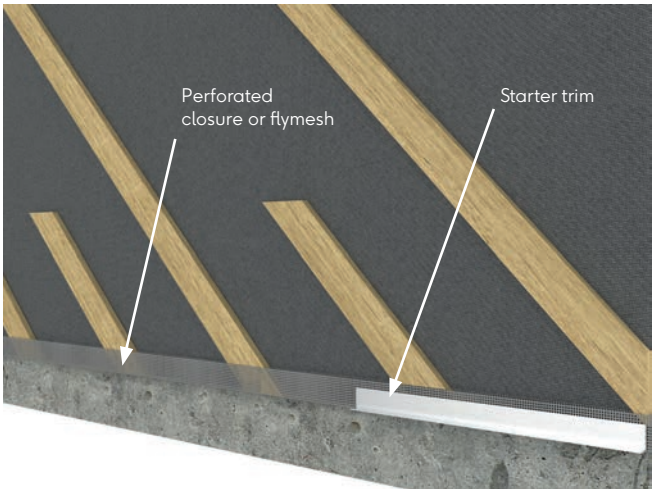


Fig.5 - Insect invasion prevention

Flashing

The required flashing should be properly installed to direct moisture away from the building and should be installed in accordance with the building code. The detailing and installation of this flashing needs to be taken into consideration before the siding install is planned, and is especially critical when a rainscreen system is used to take into account the extra depth of the system behind the siding boards. The flashing should be of the right material and grade for the location to outperform the lifespan of the siding. The flashing shown throughout this guide is indicative and should not be used as the final detail.
Where there is a potential for the flow of water (i.e. gutter, roof, etc), this should not be directly terminated at or directed towards the siding.

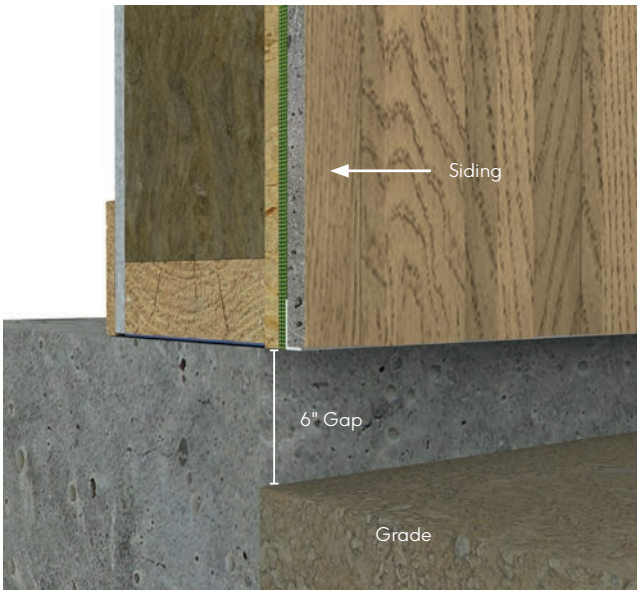


Fig. 6 - Base of wall

Determine at what height the siding is to start. The bottom of the siding boards should have sufficient clearances from other surfaces, and should be in accordance with the relevant building code, which is normally a minimum of 6" above grade (Fig.6), or 1" above surface where water may collect. Gaps may be reduced to 3/8" (10 mm) for surfaces that slope away from the structure or surfaces that provides gaps that allow water to flow through so that it cannot accumulate, such as a deck. (Fig 7) With a laser line or level, mark up a level line around the building or along the wall that is to be clad. This line will be the bottom of the starter trim and where the boards will start.

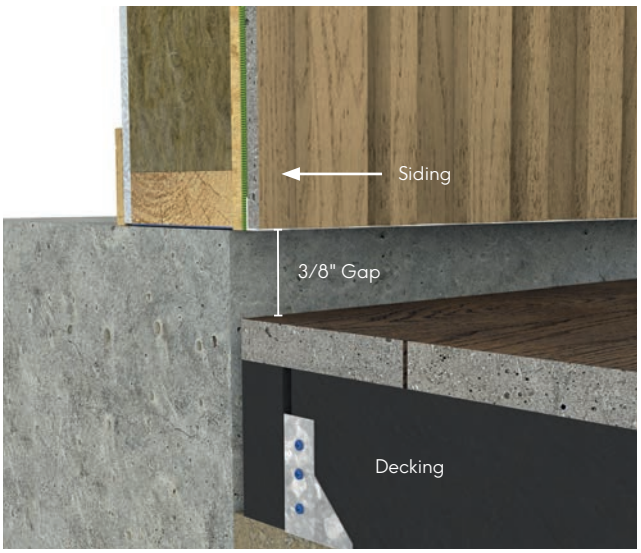


Fig. 7 - Install detail above deck

Installation

Plan the corner details before you start installing the siding.

Corners of the building

For the external and internal corners of a building it can be done in a number of ways; Utilising the 2" Square Corner Trim or mitring and gluing the Enhanced Grain boards, or butting boards together. With the Envello Square Corner Trim, this should be fitted before all of the Starter Trims or Board & Batten+ boards are fitted.

When installing the Square Corner Trim on an internal corner, predrill a 1/8" hole through the profile, 1/4" in from the edge of the profile. With the durafix 2-3/8" screws fasten the profile into the corner, sinking the screws 3/8" into the profile. (Fig. 9)

When installing the Square Corner Trim on an external corner, attach a Perforated Closure strip to the back of each Corner Trim using 3/4" screws spaced 8" on center. Then screw the protruding Perforated Closure to the building. See Figs 8-10.

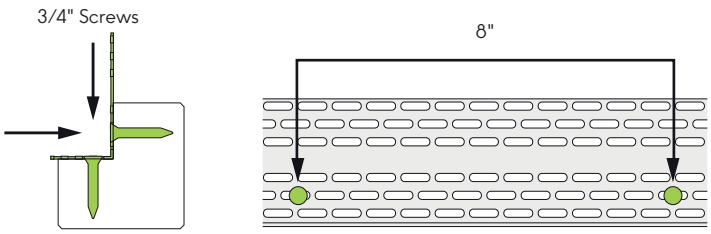


Fig. 8 - Use of perforated closure on corner profiles

Joining Square Corner Trims

To make a longer Square Corner Trims, connect pieces using a 22.5° scarf joint. Cut the scarf joint to slope downhill towards the outer edge, so that it sheds rain. Glue the scarf joint together with superglue, ensuring the visible faces are flush, then screw the Corner Profile to a strip of Perforated Closure prior to attaching it to the building.

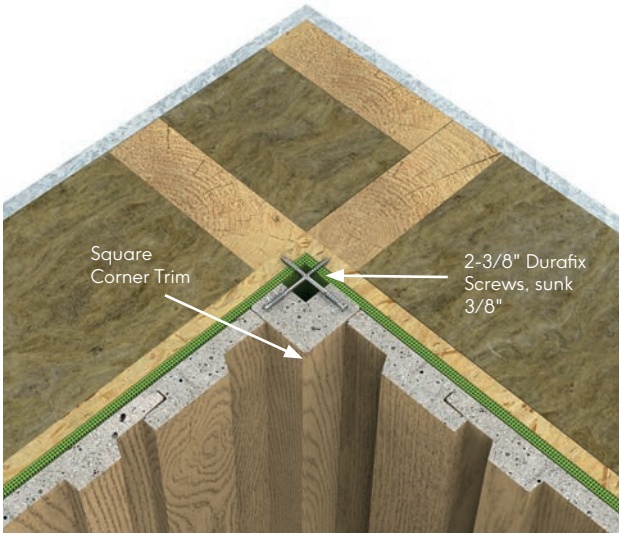


Fig. 9 - Internal corner profile

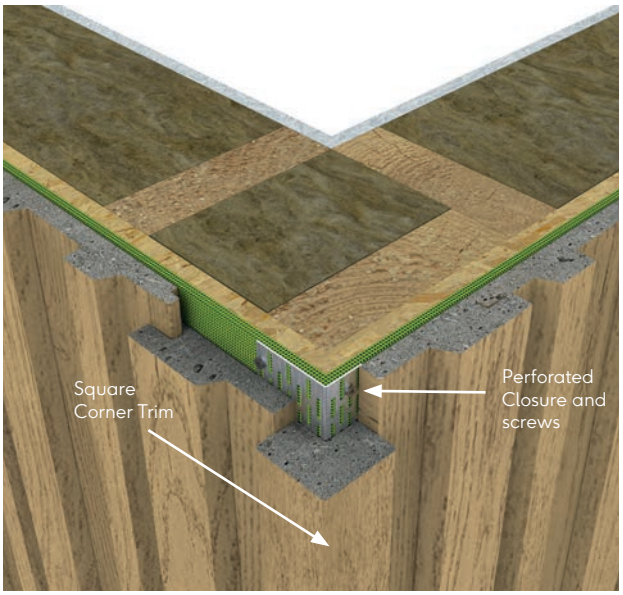


Fig. 10 - External corner profile

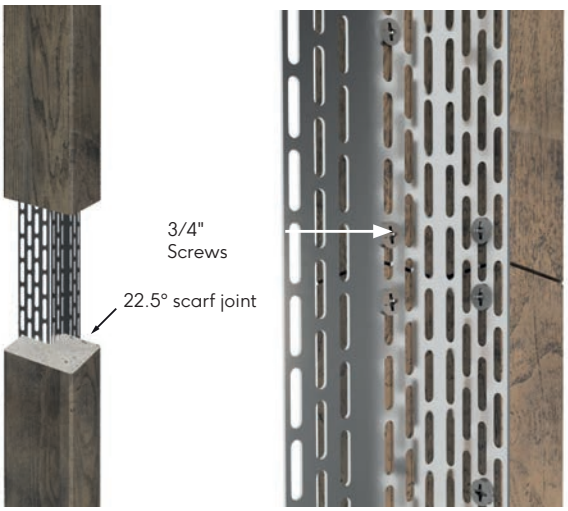


Fig. 11 - Joining corner profiles

Alternatively, the boards can be butted together or butted up to a mitered Enhanced Grain decking board on an internal corner as shown in fig. 12.

Tip for miter joints:

Miter and dry fit the boards to make sure the joint fits well, then apply polyurethane wood glue to the core of the boards and superglue to the surface layer.

Bring the joint together with the surface layer front edge touching together first, then close the back of the joint and drop into place. If any PU glue bubbles out of the joint, wait until it is semi-dry and remove. Touch-up Coating can be used on any small imperfections on this joint.

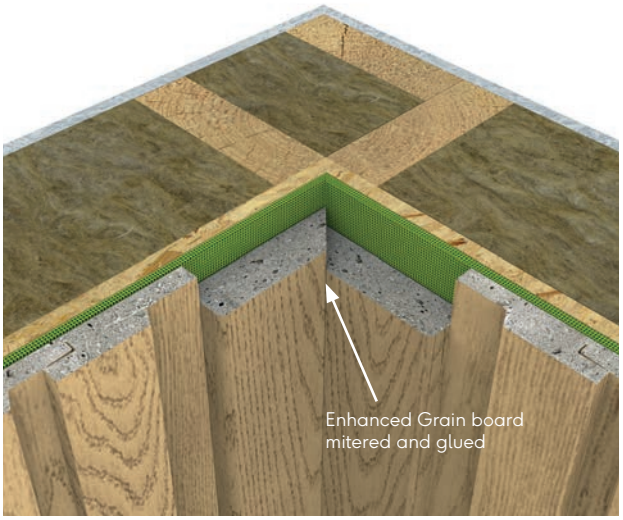


Fig. 12 - Mitered Corner board detail

There are alternative ways to install external corners. The siding boards can be mitered and glued to create the external corner. (Fig. 13)

Or alternatively, the Enhanced Grain boards can be mitered for the corner inline with the siding boards. (Fig. 15) These Enhanced Grain boards would be fastened through the face using Durafix 2-3/8" (60mm) screws with two screws every 16".

These alternative methods also apply for external or internal corners that are not at 90°.

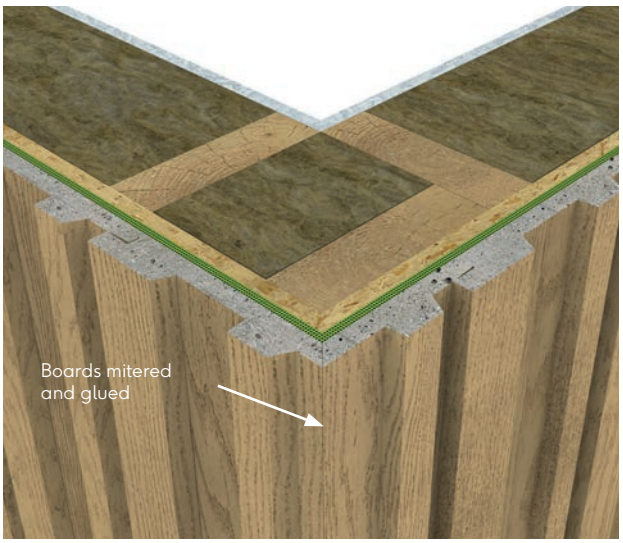


Fig. 13 - External corner Miter detail

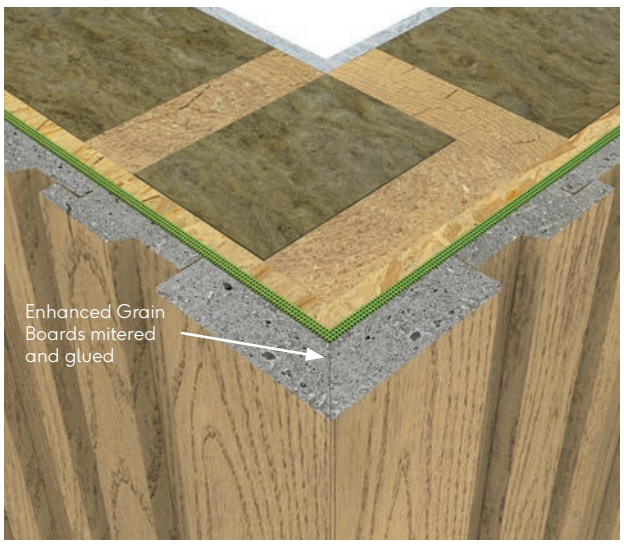


Fig. 15 - Mitered Corner board detail

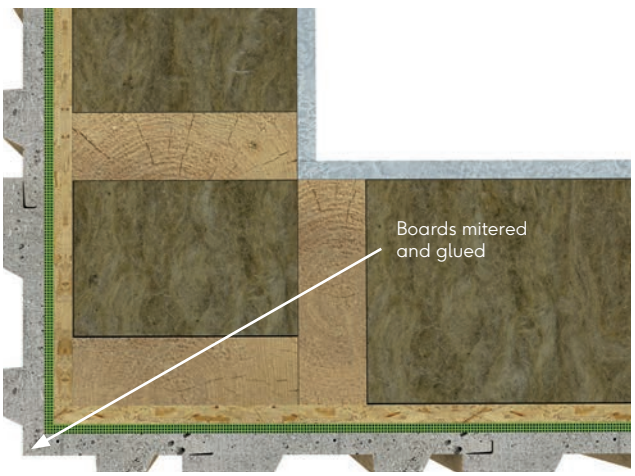


Fig. 14 - External corner miter top view

Installing Starter Trims

The Starter trims will be installed at the bottom of the siding area, to keep a straight line around the base of all the siding.
These trims should be installed level so that the boards running off these trims are upright.

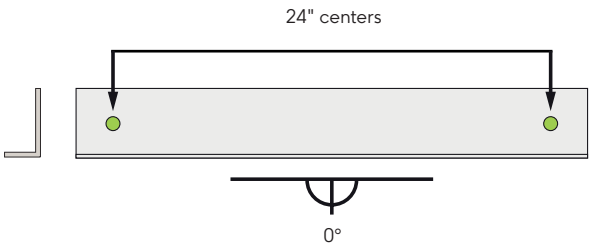


Fig. 16a - Starter trim install

These starter trims are installed using 3/4" (20mm) Accessories Screws with the heads countersunk into the trim, or are installed with the main siding board fastener.

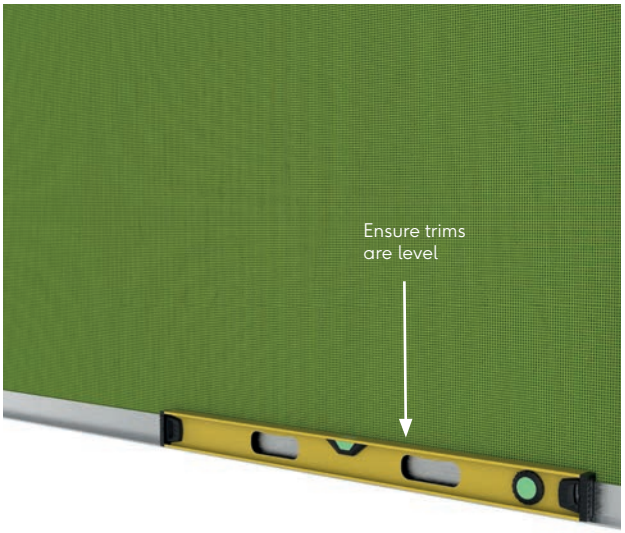


Fig.16 - Installing starter trim

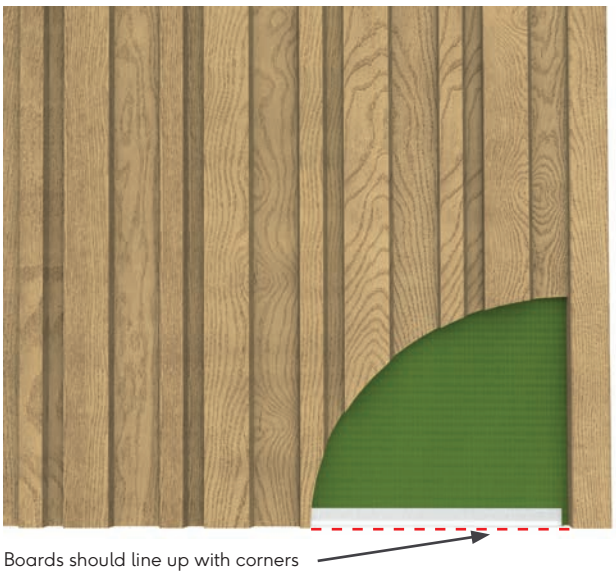
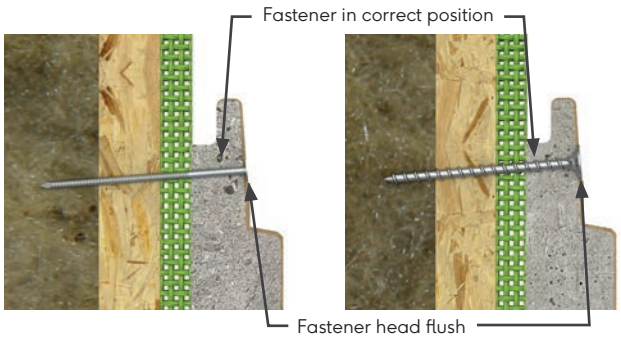
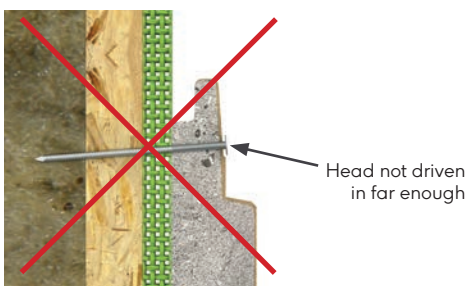


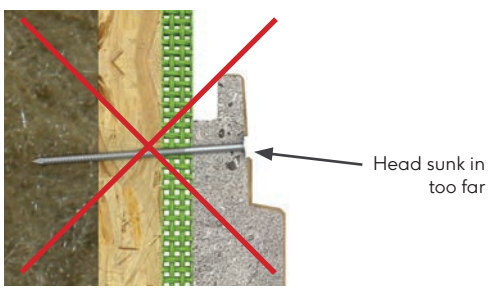
Fig.17 - Height of starter trim

Fasteners

Fasteners must be hot-dipped galvanized or stainless steel. Stainless steel fasteners are recommended when installing products in coastal or very humid climates.
Fasteners used shall be in accordance with the ones specified on page 13. These fasteners should be installed through the groove on the tongue of the boards.
The fasteners should be be angled towards the board slightly, driving the head to sit flush with the board surface.
When using a nail gun, adjust the pressure so that the nail-head sits flush with the surface of the board.
Use the guide-groove on the tongue to position fasteners.
If the the fastener head is more than 3/4" from the edge of the tongue, the groove of the next board won't hide it.







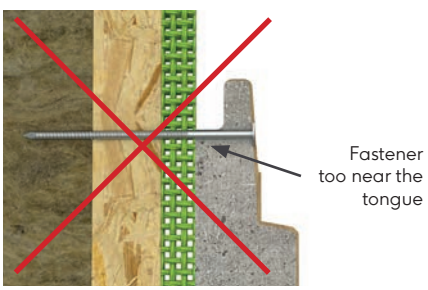


Fig. 18 - Fastener depth and position

Once the first board has been installed, the second board can be installed beside it, with the groove covering the tongue of the previous board.

Check the boards against a level every 4/5th board to ensure that the boards are keeping upright, adjust the spacing between the following boards accordingly.

When the tongue is taken off the boards to fit around windows/doors, or at the edge of a building, 1-5/8" (40mm) Colored Head screws or 2" stainless steel finishing nails will need to be used through the board face. Shown in Fig. 20.

If finishing nails are being used through the board face as an alternative to the Colored Head screws, there needs to be two nails every 12" if the cut-down board is more than 2" wide, and the nails driven in at angles.

When using finishing nails to hold the siding boards, we recommend the use of a clear polymer adhesive sealant to help secure the products in place where possible.

Note that finishing nails can only be used as an alternative to the colored head screws and should NOT be used through the board tongue as the main siding board fastener. A small hole may be left where the finishing nail has gone through the board surface.

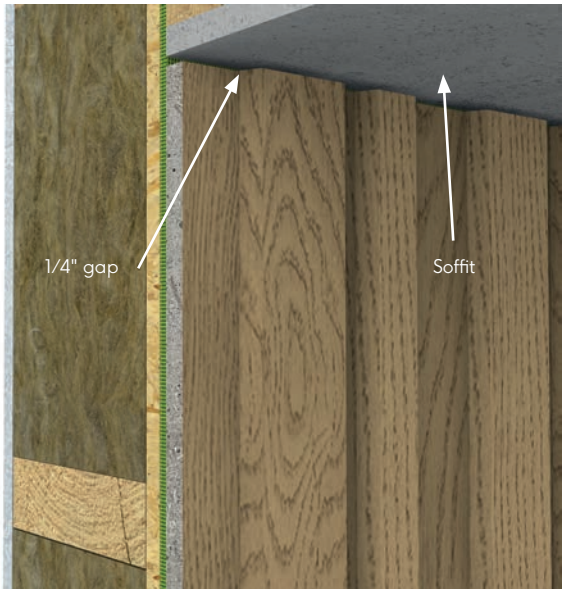


Fig. 19 - Wall head

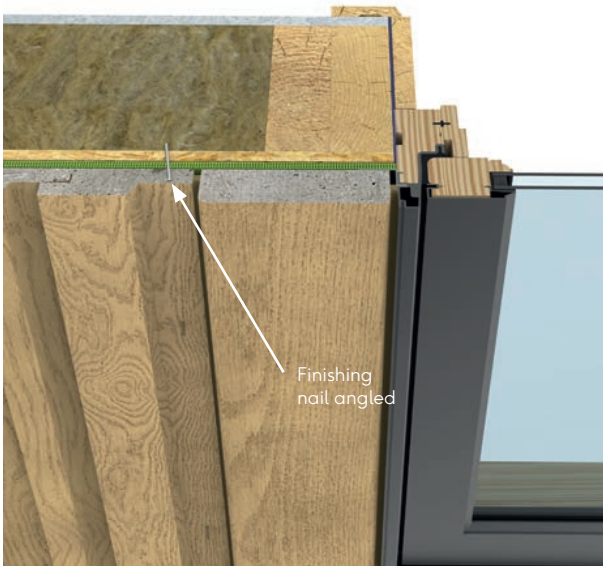


Fig. 20 - Typical finishing nail detail - Window jamb

Joining boards

When joining boards end-to-end without flashing, stagger the joints across the wall.

As the boards are manufactured through a molding process we recommend that all ends are cut before they're installed. Dry fit the boards first to make sure they align, using boards that are of appropriate dimensions to ensure a consistent finish.

We recommend that the boards are joined with a 22.5° scarf joint with one overlapping the other. Paint the upward-facing cut with Touch-Up Coating (see Fig. 21)

When there is a horizontal joint between siding areas, install a flashing detail that allows for building movement without affecting the boards. (see Fig.22)

Enhanced Grain boards can be used beneath this flashing as a band board if desired. Fasten these with Durafix 2-3/8" (60mm) screws (see Fig.23)

As Millboard is made from a resin mineral composition it is stable in comparison to wood, or wood-based composites. During the curing process the boards may shrink a maximum of 0.2% (1/4" over the length of a full board).

Fig.21 - Board joint

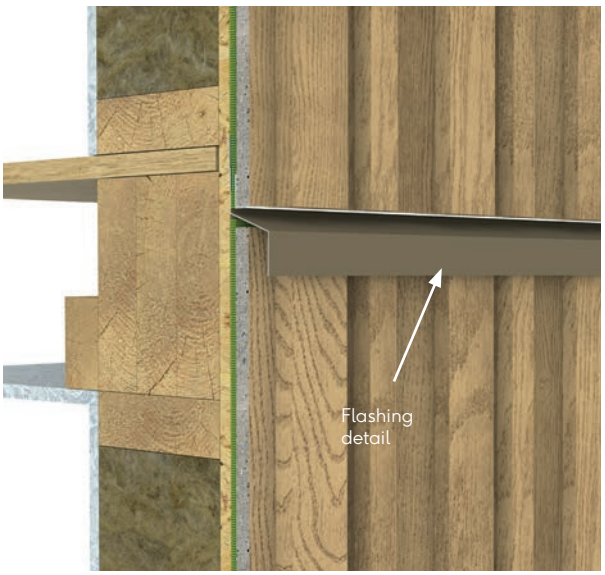


Fig.22 - Horizontal joint

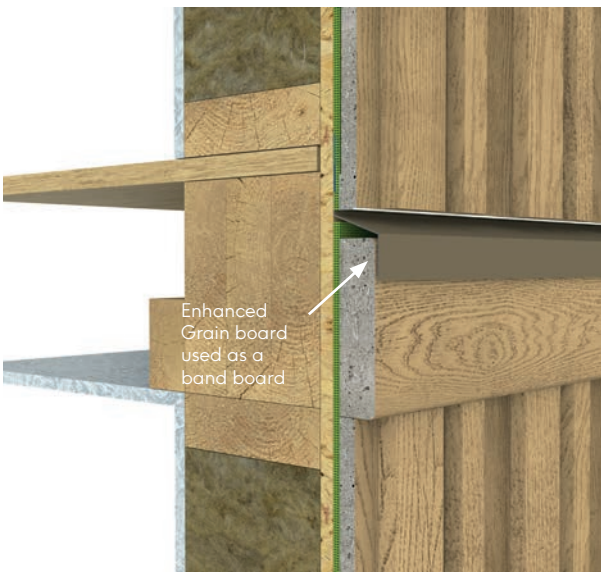


Fig.23 - Horizontal joint with band board

Details around windows & doors

Any flashing trims around windows and doors are supplied by others (e.g. the window manufacturer, flashing manufacturer). They should be designed to work with the window/door joinery as well as the depth of siding or window edging used. Install flashing in accordance with national and local building codes.

Install and seal windows and doors in accordance with the manufacturers instructions before installing the siding. Ensure that the siding allows the window or door to function as designed. Allow a path for any moisture behind the siding to escape, leaving an uncaulked 1/4" gap above windows and doors (Fig 25).

Enhanced Grain boards as a trim. These should be mitered, glued and installed in the same plane as the siding using Durafix 2-3/8" (60mm) screws. Leave a 1/8" gap between the board and the window. If a rainscreen system or furring strips are used behind the boards, the gaps don't need to be caulked.

The siding can be installed tight to the Enhanced Grain board or with a gap, whatever is desired.

Follow the manufacturer's instructions when caulking around windows and doors.

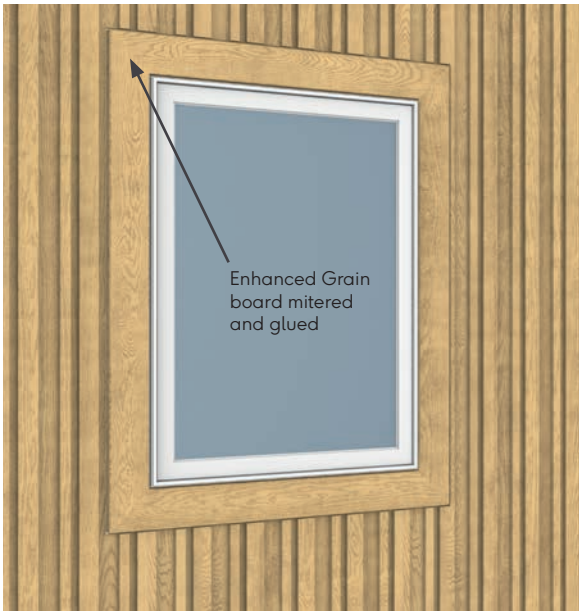


Fig.24 - Window surround with Enhanced Grain

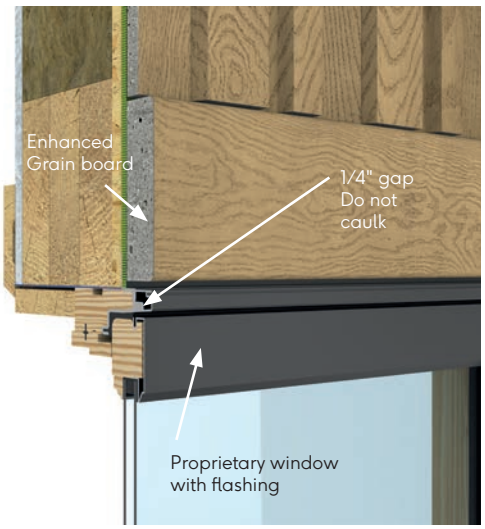


Fig.25 - Window head with Enhanced Grain

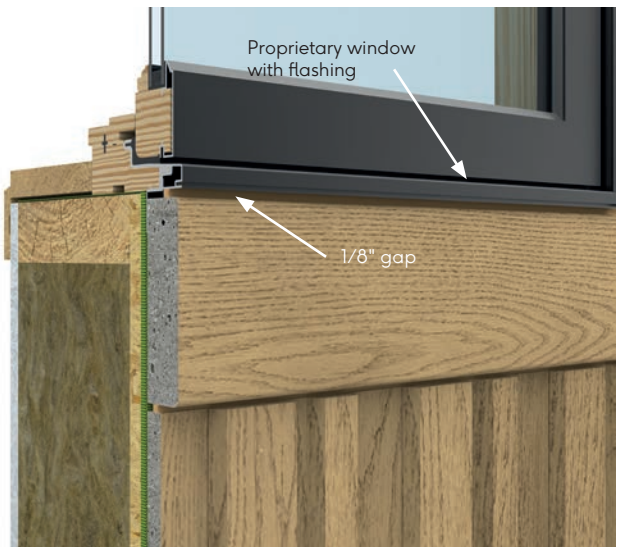


Fig.27 - Window sill with Enhanced Grain

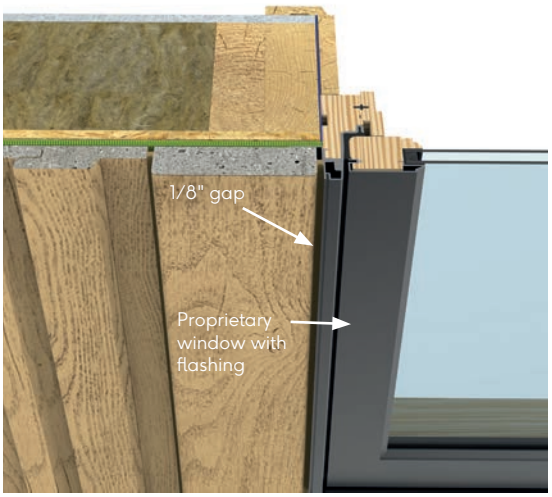


Fig.26 - Window jamb with Enhanced Grain

Details around wall penetrations

Other details that require flashing will also need to be supplied by others for the application, such as flashing around a mounting block, hot air vents or inter-story jointing details. The flashings shown throughout this guide are indicative and need to be confirmed by the manufacturer.

Mounting blocks can be created from sections of Enhanced Grain boards or by using prefabricated mounting blocks and flashing products. Any exposed cut edges of Millboard will need to be painted in touch-up for aesthetic purposes.

When installing siding around pipes; ensure the pipes are sufficiently sealed and that the siding fastening doesn't affect the performance.

Note that anything that is installed on the face of the boards should not rely on the boards to be secure; the fasteners should be installed into the building structure. If necessary, add packing behind the boards so that they are secured to a flat surface and can't deform.

For hot air vents, it is important to move the air away from the building envelope. As the vent is installed, a path for that moisture to leave the area should be identified. Consider what is being vented and where it is going before installing the vent. A good preventative measure for many vents is to increase the distance they extend from the wall to help expel moisture from the building.
For dryer vents, avoid placement too low to the ground where debris could easily impede air flow, trapping heat and moisture. Some types of high efficiency furnaces can be vented out through the walls. In these cases, avoid locating the vent too close to the roof or eaves where heat and moisture will be trapped.

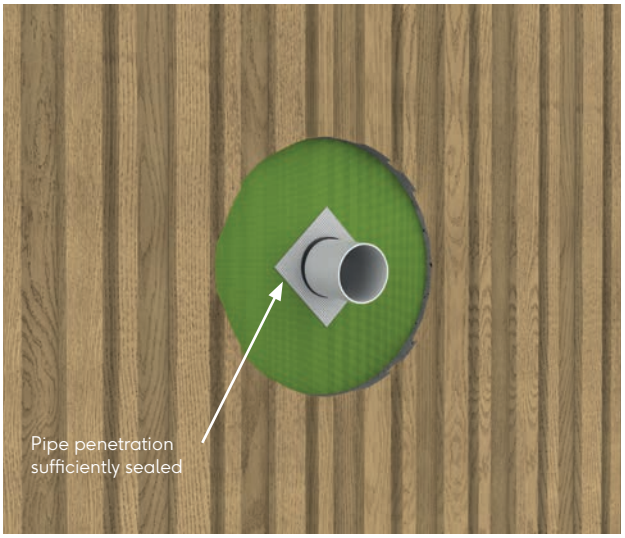


Fig.28 - Wall penetration

Installation Abutting Stucco

The junction between Envello and stucco can be done in a number of different ways. We recommend applying stucco first, up to a casing bead, before installing Envello siding.

Leave a 1/4" gap between the casing bead and the edge of the siding/corner profiles to allow caulk to be used.

The junction between the Board & Batten+ boards and stucco on a corner can be made using Square Corner Trims or Enhanced Grain boards (see Fig. 30).

When installing siding above stucco, install a flashing detail which goes up behind the siding and protrudes further than the stucco. This is to allow rain water to drip off the flashing detail (see Fig. 31).

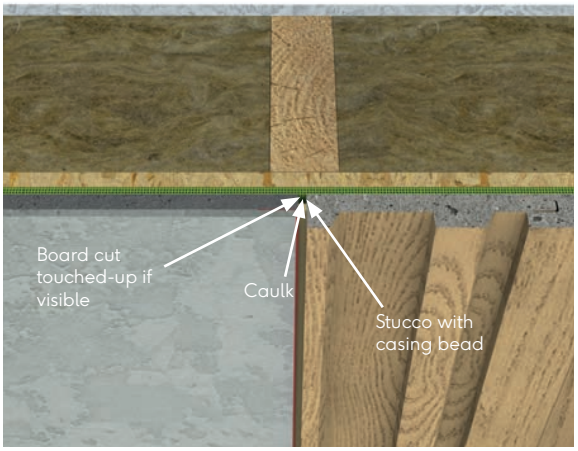


Fig.29 - Abutting stucco

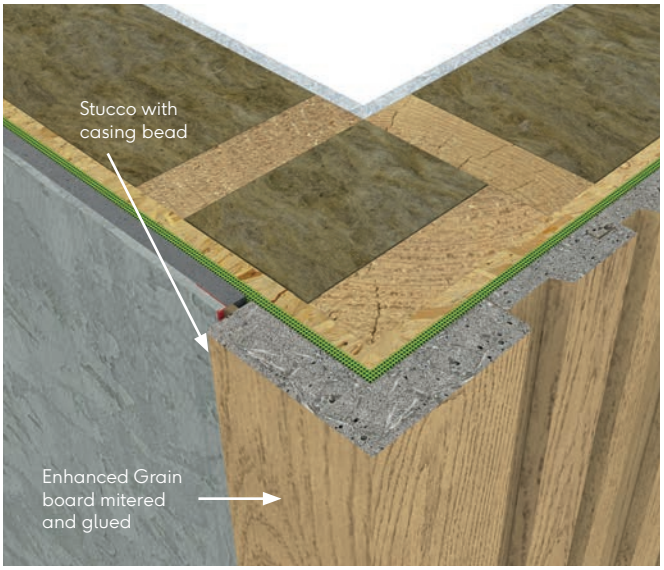


Fig.30 - Corner detail to stucco

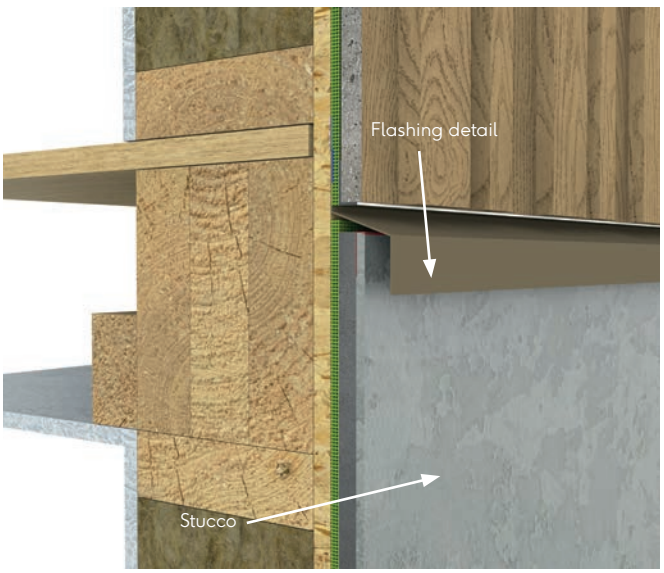


Fig.31 - Horizontal joint over Stucco

Maintenance

When installing the boards as part of a wider project, we strongly recommend they are stored away from cement dust or potential debris to minimize lasting damage or marking.

If the boards become dirty during installation, they should be cleaned as soon as possible using warm soapy water and a brush or pressure washer. We recommend that the siding is cleaned once to twice a year to remove surface dirt and debris.

Start cleaning at the top of the siding and work downwards along the grain. It is best to use a brush with an extendable handle to clean the boards.

Pressure washers can be used on Envello siding, with a PSI of no greater than 2000. A fan tip should be used with a 40 to 60 degree spread, keeping the head 10-12" away from the surface. Test in an inconspicuous first, as direct, prolonged contact could damage the surface of the boards.

Take extra care when using a pressure washer around windows, doors and cut ends of boards.

Stubborn marks may be removed with a range of different cleaners depending on the mark.

If you have any queries or concerns regarding your Millboard siding, please email us at technical.us@millboard.com

Live. Life. Outside.

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