Iron Woods® Vanish™ Rain Screen and Soffit System

"Pushing the Envelope"©

The perfect complement to the natural beauty of our Iron Woods™ premium grade exterior building products and our existing line of siding profiles and standard rain screen offerings, the Vanish Rain Screen™ brings a newfound elegance to the art of both commercial and residential building envelope design and construction.

Iron Woods® rain screen was selected for the "Smart Home…Green and Wired" project located at the Chicago Museum of Science and Industry.

The concept of rain screen or breathable wall and soffit systems is not new. As far back as the 15th century the impact of moisture condensation behind exterior wall cladding or siding on material performance and finishes has been well understood as has the importance of allowing siding and soffit systems to ventilate. Open rain screen systems allow moisture to evaporate more rapidly than closed cladding systems, significantly improving the service life of a building envelope.

The Vanish Rain Screen is a state of the art 'Drained and Back-Ventilated' system that can be applied horizontally, vertically or diagonally as cladding and or soffit for both interior and exterior applications. It is important to understand that drained and back-ventilated systems are designed to leak and no attempt is made to minimize the effect of wind by means of pressure equalization as with 'Pressure Equalized' rain screen systems. In drained and back ventilated systems the cavity behind the cladding is drained, and positive back-ventilation is used to promote the rapid evaporation of any rainwater deposited in the air cavity. FEMA recognizes the benefits of Pressure Equalized rain screen systems in high wind environments though this does not constitute a guarantee or warranty of any kind, or as a substitute for the engineers, specifiers, architects, builders or contractors own analysis, investigation and due diligence regarding the appropriate choice, application and installation of the Vanish rain Screen System in any particular location or application.

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> *"Moisture accumulation and extreme fluctuations in moisture levels can adversely affect the service life of components, such as wood siding and windows. Adverse moisture conditions can induce checking, warping, paint failure, and in severe cases rotting of the wood. Proper building design and construction can help prevent moisture accumulation or excessive moisture fluctuation within building components"*
>
> *U.S. Dept. of Agriculture Forest Products Laboratory:*
> *Before You Install Exterior Wood Based Siding*

Architects and designers recognize that the Vanish™ Rain Screen cladding profile, material offerings and unique clip system represents a significant improvement in the technology for both residential and commercial cladding and soffit applications.

The 'Vanish™ System' … The State Of The Art in Rain Screen and Soffit Design.

Features and Benefits

- Elimination of face fasteners, and other non-hidden clip designs = clean aesthetic appearance

- Elimination of face fasteners as points of water penetration = increased durability of wood fiber

- Elimination of face fasteners = allowance of seasonal expansion and contraction increases durability of wood fiber

- Elimination of predrilling = reduced installation costs

- Elimination of top grooves for clip attachment in cladding profile = elimination of damaging gutter effect associated with decking style clip designs

- Optional use of battens = reduction in moisture holding points of contact with both envelope and cladding

- Optional use of battens = vertical and horizontal air flow improving moisture dissipation from the envelope and connection points.

- Optional use of Battens = reduction in installation costs

- Floating system design = cladding adjusts naturally to changes in environmental conditions eliminating stress at connection points

- Low Profile and High Profile clip options = new and retrofit design flexibility

- Unique cladding profile = improved water shedding and decreased risk of cladding to clip separation

- Unique three hole clip design = clip to batten, stud or sheathing fastening options.

- Wide clip design = superior connections and smooth transitions at butt joints

- Use of 1'' or 5/4'' nominal siding thickness = Design Flexibility

- Direct sheathing attachment option = use of random length cladding and reduced cladding trim waste and lower material cost

- Direct sheeting attachment = horizontal, diagonal and vertical design and application options

- System design = incorporation of 4'' and 6" nominal cladding profile widths and associated design flexibility

- Specialized screw thread design = superior clip to sheathing connection and performance

- Marine Grade Aluminum Clip and Stainless Steel Fasteners = low galvanic reaction and superior life cycle system performance.

- Wood Species Options = Aesthetic Flexibility

- USGBC/LEED/FSC Compliant Species Options = LEED Certification

Design Basics

Consult your local building code and architect/designer for specific requirements.

- Consult/Review Vanish Rain Screen CSI Specification Language for more detailed specification information.

- Vanish Rain Screen can be applied over most exterior envelope design types.

- Some type of moisture barrier or membrane is required.

- It is imperative that you consider the combined depth of rain screen siding, clip, and or batten when designing window, door and trim specifications.

- Proper ventilation is essential for long term stability of cladding materials. Rain screen systems must be allowed to drain and dissipate moisture.

- Allow a minimum of ¾'' clearance between the roofing and the bottom edges of rain screen and trim to allow for ventilation. Flashing and counter flashing should be installed at the intersection of the roof and vertical surfaces as recommended by the roofing manufacturer.

- Vanish Rain Screen should not be installed in contact with the ground at grade, concrete slab, deck materials or standing water.

- Rain Screen Systems are designed to breath and as such will allow some level of insect nesting behind the cladding.

- Vanish Rain Screen can be applied horizontally, vertically or diagonally.

- Vanish Rain Screen is ideal for used in both interior and exterior wall, soffit and ceiling applications.

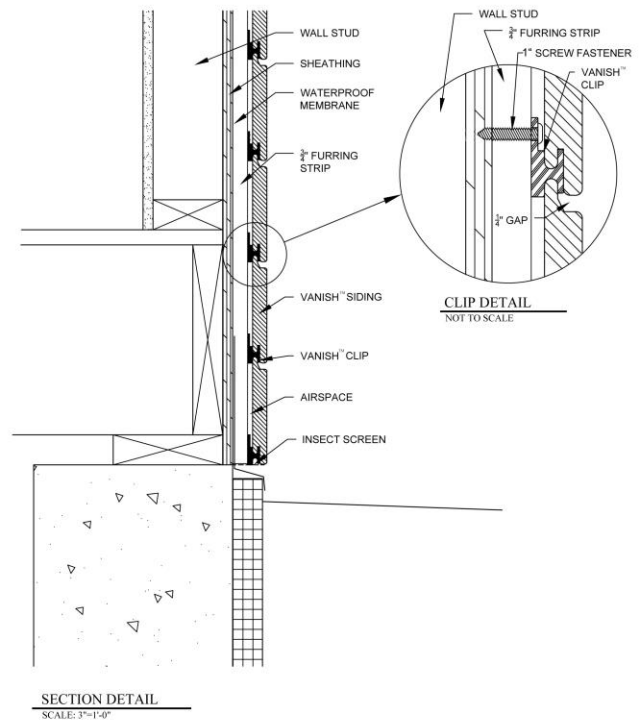- Vanish Rain Screen can be used to create noise absorbing walls.

The System

Section details are available in PDF, DWG and DXF files upon request.
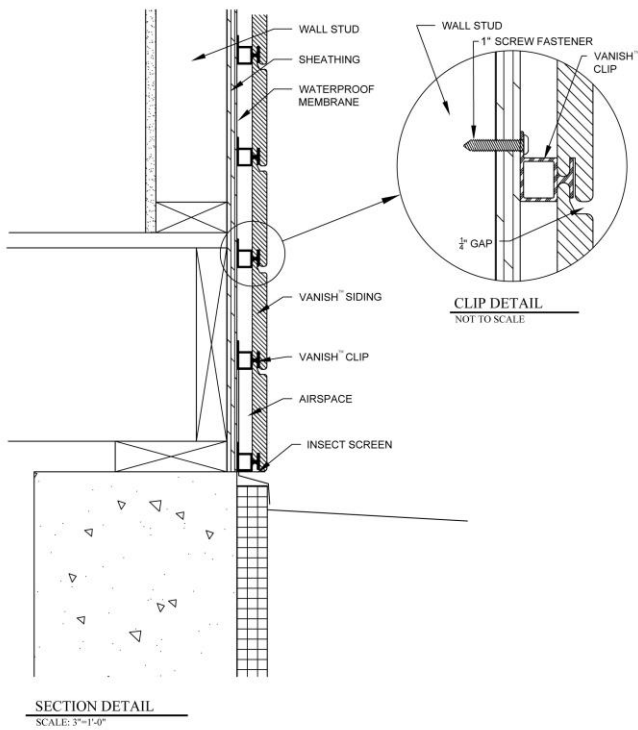
High Profile NB Clip

Low Profile OB Clip

System Installed Relief

- NB Clip On Sheathing = 1-7/16"; clip is ¾"to siding back, plus 11/16" thick siding
- OB Clip On Sheathing = 15/16"; clip is ¼" to siding back, plus 11/16" thick siding
- OB Clip On Batten = 1-11/16''; clip is ¼" to siding back, plus 11/16" thick siding plus ¾'' thick batten

Insect Screen

- NB Clip On Sheathing – Install Core-A-Vent™ SV-5 ' Or Equal' on top of the starter row of clips.

- OB Clip On Sheathing - Install WallNet™ WN.4 'Or Equal' on top of starter row of clips.

- OB Clip On Batten – Install Core-A-Vent™ between battens with WallNet™ on top of starter row of clips.

Waterproof Membrane Options

- Benjamin Obdyke Flat Wrap™ (Mechanically Attached) Black

- VaproShield Wrap Shield SA™ (Self Adhesive) Black *Not for use with OSB

- VaproShield Wrap Shield RS™ (Rain Screen Mechanically Attached) Black

- Intelliwrap SA™ (Self Adhesive) Black *Not for use with OSB

- Intelliwrap MA™ (Mechanically Attached) Black

- Hydro Tex™ (Mechanically Attached)

- Or Equal

The Cladding

The Vanish Rain Screen System utilizes a proprietary "clip-eclipsing" wood profile that conceals the fastener system while allowing maximum air flow and water evaporation. The unique profile also facilitates ease of handling and installation. With no nail or screw heads to detract from the rich, natural beauty of the Vanish Rain Screen System, it is clear that no rain screen or cladding solution on the market today is more appealing to the eye than our unique Vanish Rain Screen System.

- Standard Thickness - Nominal 1 inch (net 11/16'' thick)
- Standard Profile Reveal is ¼".

Standard Widths and Coverage Estimates

- o Nominal 6 inch (4.75'' Coverage) 2.52 linear feet per square foot approx.

    2.1 clips/SF, installed 16"o.c.

    1.5 clips/SF, installed 24"o.c

- o Nominal 4 inch (2.75'' Coverage) 4.36 linear feet per square foot approx.

    3.6 clips/SF, installed 16"o.c.

    2.5 clips/SF, installed 24"o.c.

Note: Estimates are approximate. Actual usage will vary depending on run lengths, window openings, doors, butt joints, etc.

Battens

Typically used when covering masonry walls, batten options include solid naturally durable wood, high density polyethylene (stainless steel self-drilling screws), galvanized steel hat, box or C channel (galvanized self –tapping screws).

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Species Options

Vanish Rain Screen can be special ordered in a wide range of lumber species kiln dried (pre stabilized) to between 12 and 14% moisture content which is in the equilibrium range in most geographic locations. It is important that you check your regional equilibrium to determine what level of acclimation may need to take place prior to installation. An equilibrium chart is available on our website. It is the responsibility of the specifier to determine the suitability of any given species for their application.

Cladding is generally supplied random in random lengths 6' and longer. It is important to note that shorter lengths with typically be straighter, less prone to bow and easier to handle than longer lengths. Bow in longer boards can easily be removed by cutting the longer boards to shorter lengths.

Species stability impacts the suitability of cladding width and length specifications. The Vanish cladding profile can be run from virtually any wood species available in the market. The following list will give you some indication of possible species, width and length options. USGBC/LEED compliance will significantly limit available species options. Please contact us to discuss species options, LEED compatibility (if required) and supply lead times prior to specification or selection.

Ipe (Iron Woods®) - Premium Select Mixed Grain (1x4, 1x6,), (6ft to 11'ft Random Length) Stock. Clip placement up to 24" on center.

Garapa (Iron Woods®) - Premium Select Mixed Grain (1x6), (6ft to 11'ft Random Length) Stock. Clip placement up to 16" on center

Cumaru (Iron Woods) - Premium Select Mixed Grain (1x6), (6ft to 11'ft Random Length) Stock. Clip placement up to 16" on center.

Massaranduba (Iron Woods®) – Premium Select Mixed Grain (1x6), (6ft to11ft Random Length) Special Order. Clip placement up to 16" on center.

Teak– (1x6), (6ft to10ft random lengths) Special Order. Clip placement up to 16" on center.

Thermally Modified Ash – (1x6), (6ft to10ft random lengths) Special Order. Clip placement up to 16" on center.
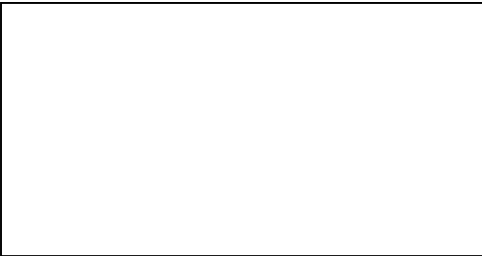
Softwood Options

Cedar – Clear Mixed or Vertical Grain (1x4, 1x6, 1x8) (6ft to 15ft Random Length) Stock. Clip placement up to 24" on center.
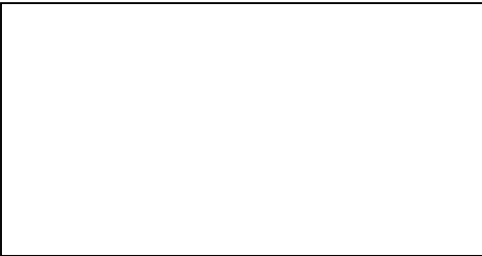
Acetylated Wood – (1x6) (6'ft to 15ft Random Length) Special Order. Clip placement up to 16" on center.

Composite Options

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Iron Woods XTR Fused Bamboo Fused Bamboo - (1x6) (6ft Lengths Only) Special Order. Clip placement up to 24" on center.

True Grain Resysta LEED – (1x6) (12ft Lengths Only) Special Order. Clip placement up to 24" on center. * Note: This product is under development.

Note: Use these materials in combination with conventional wood corner and widow trim treatments or create unique designs utilizing alternative materials. Stainless steel finish screws with colored heads or stainless steel finish screws with species matching wood plugs are available for installation of wooden trim.

Pre-Finish Options - First Coat™

Hardwood
Penetrating Oil Based Pre-Finish Options

Penofin –Exotic Hardwood Formula (Natural)

Cedar
Penetrating Oil Based Pre-Finish Options

Cabot Clear Solutions – All Finish Colors Offered

Cabot Australian Timber Oil – All Finish Colors Offered

*Field applied second coat required after installation.

*There are no manufacturer warrantees on penetrating oil pre-finishes.

Cedar
2 Coat Factory Applied Pre--Finish

Base Coat – Cabots or PPG Tinted Oil Primer

Second Coat – Cabots or PPG Latex Factory Applied Top Coat

*Field applied top coat required after installation to avoid breach of coating manufacturer warranty.
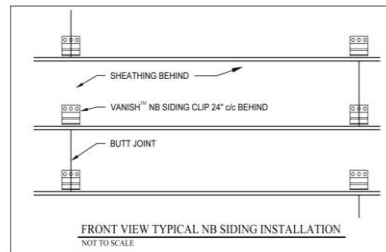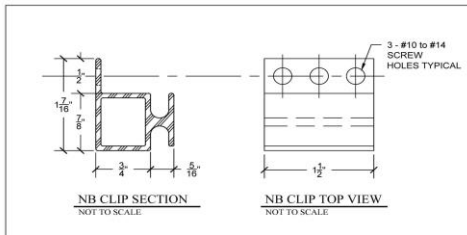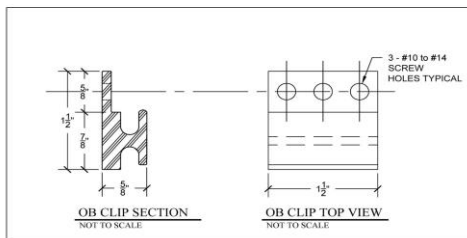
The Clips

Vanish™ Rain Screen Clips are manufactured from 6063 aluminum and are available in 4 models:

Model # VRSC OBW (Wide) (Low Profile) * Patent Pending

Model # VRSC OBN (Narrow) (Low Profile) * Patent Pending

Model # VRSC NBW (Wide) (High Profile) * Patent Pending

Model # VRSC NBN (Narrow) (High Profile) * Patent Pending

The Fasteners

Fasteners are specific to clip application. Requirements will be project and application specific.

Typical Applications –

Sheeting Attachment (1/2"): SPHMS75M (.75") (two screws per clip 24" OC).

Sheeting Attachment (¾"): SPHMS1M (.1") (two screws per clip 24" OC).

Batten Attachment (3/4"): SPHMS1M (1") (one screw per clip 16" OC).

Batten Attachment (1.5"): SPHMS1.5M (1.5") one screw per clip 16" OC).

Stud Attachment: SPHMS2M (2") (one screw per clip 16" OC).

Galvanized Steel Attachment: SPHMQG75M (3/4'') (one screw per clip 16" OC).

All Vanish Rain Screen Screws are self-drilling. Screw length and type will ultimately be determined by envelope design.

Note Galvanic reaction does not allow for direct contact between aluminum clips and treated lumber.*

Installation

Important: Read and understand these instructions before installing rain screen. These installation instructions are based on manufactures experience with normal applications. They are not intended to cover every installation or building code requirement, detail or variation. If questions arise concerning the product or its suitability for a particular use, contact your architect or engineer. Any unapproved deviation from these procedures shall be solely at the risk of the installer. The project architect or engineer or designer has the responsibility to design a proper building envelope for moisture control. Our wood is properly milled and inspected to meet the material requirements. These building materials are grown in nature and will vary in color, grain, weight and density. Expansion/contraction, checking, dimensional variance and movement are normal when exposed to the elements and moisture in the air. Always use proper safety equipment when installing the rain screen. Follow all local building codes and obtain permits as required in your community.

Storage and Handling

Vanish Rain Screen must be stored out of direct sunlight and must be allowed to acclimate and stabilize to installation area moisture levels before installation. Keep siding loosely covered with tarps and protected from water, flat, well off the ground and banded until ready to install. Allow for air flow around the unit to assist in drying.   Siding should be kept dry before and during installation.

Cutting

Use carbide tipped finish cut saw blades. Seal all ends immediately after cutting with a wax based end grain sealer, similar to "Anchorseal". To improve transitions when butting boards use a small hand router and apply 1/16" radius to the face of the board ends.
If boards are bowed at time of installation, cut boards to shorter lengths to eliminate bow.

Trim

Windows and doors should be properly installed before starting the installation of the clips and siding profile. Leave a minimum 1/8'' gap at all abutment points to allow for expansion/contraction of the siding.

Fastening

Set elevation lines across the wall surface to assure that required level is maintained during installation. When installing start at the base moving upward in complete rows. Check your alignment and level siding after installation of each row.   The final/top siding board may need to be ripped to the proper width, pre-drilled, and face screwed for fastening the top of the siding.

- Position Vanish Clips so that fasteners are placed 16'' On Center over studs for stud attachment or at a maximum of 24'' on center for Panel attachment.
- The fastener should be driven perpendicular to the board surface and must be long enough to penetrate at least 3/4''into solid wood.
- Always begin Clip application at one end and proceed to the other end. If a board is bowed it is recommended that you cut the board in half to eliminate the bow, re- square the ends and install.
- Use 1 clip at butt joints.
- Utilize T305 or T316 stainless steel fasteners when fastening to untreated wood sheeting or battens. Most clip applications can use our 1" long screw. Use two screws per clip when fastening to Sheeting, use one screw per clip when fastening to a solid wood batten or stud. Install screws so they lie flat to the clip and the screw head does not interfere with the insertion of cladding into the clip.

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Finishing

It is recommended that wood rain screen siding be sealed on all four sides prior to installation. To maintain the natural wood color: apply a transparent penetrating oil based sealer or stain with UV inhibitors in a trans-oxide pigmented tint and reapply annually or as needed. Consider brands similar to:

Penofin /www.penofin.com
Superdeck /www.superdeck.com
Messmers /www.messmer.com
Cabot's Timber Oil /www.cabotstain.com

If a natural weathering to a silvery gray is desired: apply clear water based sealers similar to:
Seasonite / www.flood.com
Olympic Clear Wood Preservative / www.olympic.com

Sealer selection is the responsibility of the architect.

- Before application of sealers, brush and clean the surface to remove dirt and dust.
- Periodic cleaning with simple soap and water will enhance the appearance of your siding.
- To return silver gray wood to the original color, use a "wood brightener". Careful power washing and/or sanding can help to remove the grayed wood. Allow to dry and apply a UV inhibitive sealer.
- Other types of oil and water based coatings have been used. However, fully test samples from several boards to determine their compatibility your siding.
- Follow all coating manufactures application recommendations.
- Pre finishing services are available

Cost Estimating

Material Usage Comparison Iron Woods Vanish VS Competition
Basis:
Cladding Specification - 1x6 Iron Woods
Vanish Cladding - Ipe
Wall Dimension - 10' high x 18' long

	Vanish	Z Cip	Ipe Clip
Rain Screen Dimension	1x6	5/4x6	5/4x6
Lineal feet required to cover	414	437	437
Clips required to cover	216	382	382
Screws required to cover	432	382	382
Lineal feet battens required	0	140	140
Approximate cost per sq. ft. of materials	$15.37	$16.74	$ $16.74

Estimating Labor Costs

Labor costs are of course variable project to project. What we know from past projects is as follows…

Two experienced carpenters should be able to install and average of approximately 1500 square feet of 1x6 Vanish Rain Screen in a forty hour work week.

Budget for additional labor when battens are required.

Note: Estimates are approximate and do not include finishing or pre-finishing. Actual usage and costs will vary depending on species selection siding width, run lengths, window openings, doors, butt joints, etc.
The above estimates are based upon pricing information provided by others. Cost analysis and material selection are ultimately the responsibility of the designer and contractor.