



BODYGUARD
WOOD PRODUCTS

TECHNICAL MANUAL

REAL WOOD MADE BETTER

2012

INSTALLATION GUIDE INCLUDED

REAL WOOD MADE BETTER

This manual describes the properties and guidelines for working with Bodyguard® wood products. It is intended to provide guidance to people or enterprises that use, handle, store, specify or provide detailed building plans using Bodyguard products.

Please take the time to carefully review this manual and become familiar with the proper handling, design requirements and installation instructions when using Bodyguard products. To achieve the best in service performance from this exceptional product it is important to follow all guidelines and instructions.

Wood. It has sheltered mankind from the elements for generations. It is one of the world's most exceptional building materials: renewable, strong, versatile, easy to use and practical. Over centuries we have marveled at it, hewn it, fashioned it for own purposes.

WE'VE TAKEN NATURE'S WONDERFUL RESOURCE AND ENHANCED IT.

Bodyguard is real wood made better. Using pristine New Zealand radiata pine from carefully managed forest farms, we've infused the wood with carbon-based biocide protection, offering durability that extends the life of each Bodyguard product beyond the timeframe it takes to grow resources to replace it.

That's true sustainability in action.

CONTENTS



Why Choose Bodyguard	5
Exterior Building Solutions	8
The Bodyguard System	12
Handling & Customer Care	15
Installation & Application Information	16
Fixing & Installation	22
Bodyguard End Seal	23
Frequently Asked Questions	24
Performance Summary	26
Warranty	27

Disclaimer: This manual remains the property of registered Bodyguard suppliers. The information in this manual is provided in good faith, based upon trials and experience with the product.

Bodyguard Wood Products Ltd will accept no liability or responsibility if the information contained in this manual is incorrectly or inappropriately applied or interpreted, nor if used in a manner other than as explicitly set out in this document or in referenced documents available on the website www.bodyguardwood.com

The information contained in this manual was correct at the time of writing. However, Bodyguard reserves the right to make changes or improvements to Bodyguard without prior notice.



**REAL
WOOD
MADE
BETTER**

Why Choose Bodyguard

Until now, it's been hard for contractors (and homeowners) to find genuine wood building solutions they can trust to last and look great. Existing softwood products on the U.S. market could not offer long-term durability and were susceptible to rot, exposure, decay and termite degradation.

Bodyguard is the first protected softwood product to meet the exacting demands of U.S. contractors and specifiers for whom durability and sustainability is paramount.

The Bodyguard range of trimboards, sidings and moldings are comprised from premier quality radiata pine products. Its strong finger-joint construction produces defect-free timber lengths of clear straight wood, ideal for achieving a naturally finished look for any home.

The wood is sourced from the clean, green sustainable pine forests of New Zealand, and treated under pressure with Light Organic Solvent-borne Preservatives (LOSP's) that achieve active penetration of a very accepting wood. The result is total protection and long-lasting durability.

Bodyguard can be installed with total confidence.

It carries a 30-year warranty against termite attack and fungal decay; it's environmentally safe and easy to use.

By installing Bodyguard, not only are you choosing to build with a natural product, you're also making a sustainable choice, and that's great news for the planet.

Choose naturally protected Bodyguard, we guarantee it.

A renewable resource that has protected mankind from the elements for generations.

HERE ARE 15 REASONS FOR CHOOSING BODYGUARD®



Protected

Bodyguard is protected by a proven pressure treatment that achieves total penetration of the wood. The addition of waxes and resins enhance its moisture resistant properties. Active ingredients used in the treatment process (known as Light Organic Solvent-borne Preservatives (LOSP's)) do not dissolve in water and will not be removed through leaching.



FSC certified

By purchasing Bodyguard FSC labeled product you are helping to promote responsible worldwide forest management. Specifically ask for Bodyguard FSC certified products (SCS-COC-000538/SW-COC-004440/SGS-COC-003178/SW-COC-005483).



Green Building credited

Bodyguard qualifies for credit points under the following schemes:
LEED for Homes
NAHB Model Green Home Building Guidelines
GreenPoint Rated (California only).



Environmentally friendly

Bodyguard preservative system is based on carbon-based biocides and is registered in the United States of America by the EPA.



Indoor and exterior use

Bodyguard is safe for indoor use, as well as exterior use (above ground only).



Paint-ready finish

The machined finish of Bodyguard is enhanced by a two-coat oil based primer and undercoat system, backed by a performance warranty. Finishing your Bodyguard surface with premium quality 100% exterior acrylic or alkyd coating, applied to the manufacturer's specification, will result in a quality durable paint film and lasting protection.



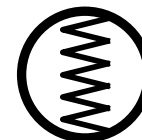
Ease of use

No special tools, cutting equipment or fixing methods are needed when using Bodyguard.



Tree-farmed forests

Bodyguard wood products come from the well-managed pine plantation forests in clean, green New Zealand.



Defect free

Bodyguard is a natural wood product manufactured from kiln-dried timber. All defects such as knots and resin pockets are removed prior to finger-jointing.

NB: After profiling treatment and priming coats application, Bodyguard is ready for final topcoating. If damage has occurred during Bodyguard installation and the surface has been contaminated or damaged, please clean or repair BEFORE applying final topcoats.



Safe to handle

As Bodyguard is real wood and contains no hazardous additives, it's safe to work with; just follow normal work-place safety practices for handling wood products.



Easy maintenance (for longer life)

A quality paint system should last in excess of 10 years. Basic maintenance of a gentle annual wash of the exterior, especially under eaves and overhangs will remove marine salts and contaminants.

When maintenance is required to repair mechanical or weathering damage, prepare fill and sand the damaged surface as required, then prime and undercoat, and finish with two topcoats.



Guaranteed with a 30-year limited warranty

Bodyguard carries a 30-year limited warranty (on all products) against termite attack, rot or fungal decay.



California Fire Approval

Bodyguard has had profiles successfully tested by Western Fire Center Inc., to California State Fire Marshall Regulations.

Sidings: *Tested in accordance with California State Fire Marshall Regulation 12.7A-1. This approval is for horizontal applications only and requires installation over OSB with a minimum thickness of 7/16".*

Under Eaves: *Tested in accordance with California State Fire Marshall Regulation 12.7A-3. This approval is for T&G beaded product (#801 & #802) and must be mounted over a minimum of 1/2" exterior grade gypsum board.*



Non-corrosive

As the carbon-based treatment does not contain any corrosive heavy metals it will not cause corrosion to nails and other fastening systems. Durable fasteners are recommended as good building practice for exterior applications.



Termite resistant

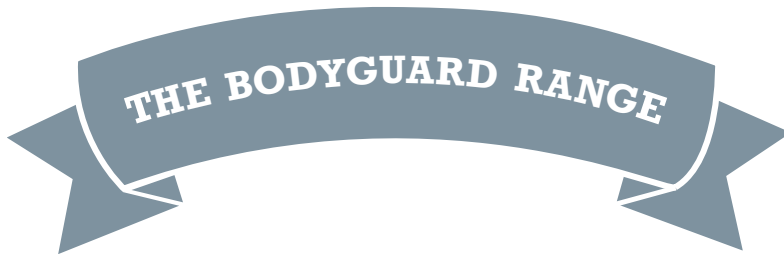
One of the active protective ingredients in Bodyguard is Permethrin, a food-crop protection product that is proven effective against all known species of termite.

We've taken nature's resource and enhanced it.



BODYGUARD EXTERIOR

BUILDING SOLUTIONS



The Bodyguard product range is suitable for all exterior non-structural applications where the product is not in direct ground contact. Examples of products in the Bodyguard range include:



Trimboards

Fascia; a range of patterns and profiles

S4S Boards 4/4 5/4 & 8/4 by 2", 3", 4", 6", 8", 10" & 12"

S1S2E Boards (Reversible – Resawn/Surfaced) 1" & 2" by 2", 3", 4", 6", 8", 10" & 12"



Sidings

Available in an extensive range of profiles including V-Rustic, Lap, Cove, Bevel, T&G Beaded and Drop Sidings – see your distributor/outlet for details.



Moldings

Utility: Brick, Stucco, Shingle, Water Table, Sill

Decorative: Crown, Casing, Cove, Gutter, 1/4 round, Corner guard, Architrave, Basecap

Handrails and components (specific design available on request)

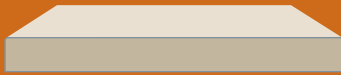
Exterior doorframes



TRIMBOARDS

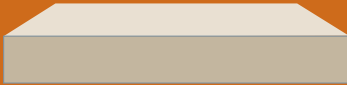
1" Resawn Trim and Fascia(S1S2E)

1x2, 1x3, 1x4, 1x6, 1x8, 1x10, 1x12
Length: 16', 20'



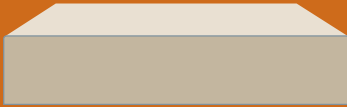
5/4" Resawn Trim and Fascia(S1S2E)

5/4x4, 5/4x6, 5/4x8
Length: 16', 20'



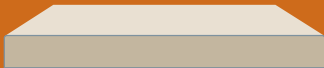
2" Resawn Trim and Fascia(S1S2E)

2x2, 2x4, 2x6, 2x8, 2x10, 2x12
Length: 16', 20'



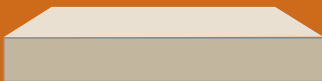
1 Trim

1x2, 1x3, 1x4, 1x5, 1x6, 1x8, 1x10, 1x12
Length: 16', 20'



5/4 Trim

5/4x4, 5/4x5, 5/4x6, 5/4x8, 5/4x10, 5/4x12
Length: 16', 20'



Rabbeted Casing

1x4
Length: 16'



Rabbeted Casing

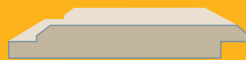
1x5
Length: 16'



SIDINGS

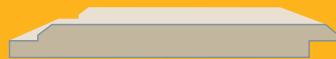
#793 V-Rustic Siding

1x6
Length: 16', 20'



#794 V-Rustic Siding

1x8
Length: 16', 20'



#795 V-Rustic Siding

1x10
Length: 16', 20'



#430 Lap Siding

1x6 (2 Lap)
Length: 16', 20'



#432 Lap Siding

1x8 (3 Lap)
Length: 16', 20'



#433 Lap Siding

1x10 (3 Lap)
Length: 16', 20'



#774 Bevel Channel Siding

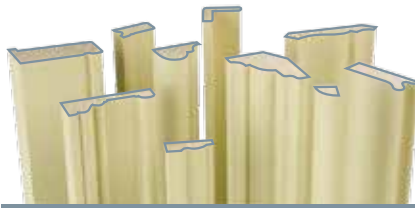
1x8
Length: 16', 20'



#773 Bevel Channel Siding

1x10
Length: 16', 20'





MOLDINGS

#771 Cove Siding

1x8
Length: 16', 20'



#772 Cove Siding

1x10
Length: 16', 20'



#801 T&G Beaded – Ceiling Molding

5/8x4
Length: 16'



#802 T&G Beaded – Beaded Siding

1x6
Length: 16'



#372 R/S Back Siding RAB Smooth Face

3/4x8
Length: 16', 20'



#371 R/S Back Siding RAB Smooth Face

3/4x6
Length: 16', 20'



#024 Bead & Nose Coving

1-1/4x1-3/4



#224 Basecap

6/16x3/4



#606 Cove

11/16x11/16



#607 Pediment Crown

1-1/4x1-1/2



Edge & Center Bead

1x6
Length: 16', 20'



#614 Quarter Round

1/4x1-1/12



#604 Corner Guard

1-7/16x1-7/16



#638 Gutter Mold

1-3/8x3-5/16



#286 Crown

5/8x3-5/8



#639 Bead & Cove

3/4x4-5/16



Cornice

2-1/4
Length: 16'



#387 Howe Casing

1-1/16x3-1/4



#619 Brick Mold

1-1/4x1-1/2



#381 Brick Mold

1-1/4x2



#381K Brick Mold

1-1/4x2



#388 Carolina Casing

11/16x3-1/4



Subsill

8/4
Length: 16'



#618 Stucco Mold

13/16x1-1/2



#629 Stucco Mold

1x2-5/8



#627 Step Stucco

15/16x1-15/16



#630 Water Table

1-7/16x2-1/16



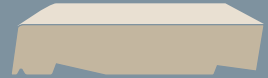
#634 Water Table

1-7/16x3-1/4



#642 Detailed Sill

2x8



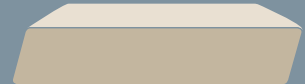
#640 Reversible Sill

2x8



#641 Bevelled Sill

2x8



#616 Shingle Mold

11/16x1-5/8



#1400 Architrave

1-3/16x4-1/4



Bed

1-3/4
Length: 16'



THE BODYGUARD SYSTEM

Bodyguard is a natural wood product, manufactured from New Zealand radiata pine grown in well-managed forest-farms.

It's treated with a carbon-based biocide system that contains no corrosive heavy metals, so there's no corrosion to any fastening systems used with Bodyguard.

The ingredients are also insoluble in water; and any potential for leaching is further prevented by the paint coating system.

There are three active ingredients used in the treatment process, these are referred to as Light Organic Solvent-borne Preservatives, or LOSP's. They are Tebuconazole, Propiconazole and Permethrin.

These have been commercially used in the United Kingdom for many years. Radiata pine subjected to this treatment process has a successful 30-year history of durable use in New Zealand and Australia and continues to be the treatment of choice for products and profiles similar to Bodyguard.

In addition, New Zealand radiata pine treated with these preservatives has been tested under extreme conditions by the New Zealand Forest Research Institute and provides excellent resistance to decay and insect attack.

The preservative formulation also includes water repellent components (paraffin wax, hydrocarbon resin) dissolved in a low boiling point hydrocarbon solvent.

What do these active ingredients do?

Active ingredients: Tebuconazole | Propiconazole | Permethrin

Tebuconazole and Propiconazole are fungicides that control wood-destroying fungi. Tebuconazole is a systemic fungicide with USA Environmental Protection Agency (EPA) approval for use on: *mushrooms, corn, wild rice, peanuts, almonds, sorghum, oats, pecans, apricots, peaches, nectarines, plums and prunes.*

Tebuconazole and Propiconazole belong to the class of fungicide called Triazoles. A number of anti-fungal medicines use Triazoles in their formulation.

Propiconazole is also a systemic fungicide with USA EPA approval for use on: *food crops e.g. cereals, bananas, coffee, peanuts, stone fruit, corn, pineapples, and cherries.*

Permethrin is a USA EPA-approved insecticide. It controls wood destroying borers, termites and carpenter bees.

Permethrin can also be found in such products as fly sprays, head lice shampoos, and is used to provide insect control for stored fruits and grains.

Bodyguard treatment process

The dry, machined, finger-jointed products are treated using a specialized low-pressure wood treatment facility.

The preservative fluid is introduced under low-pressure or vacuum conditions. The computer-controlled process ensures consistent and accurate penetration and absorption control. The process achieves 100% sapwood penetration and a variable degree of heartwood penetration.

The control process is rigorous. Specialized quality control procedures are employed to ensure that the desired minimum retentions are consistently achieved, and all Bodyguard treatment facilities are stringently audited by an independent quality standard authority to ensure strict application of the New Zealand Treatment Standard NZS 3640.

The target minimum retentions in the wood are:

Tebuconazole. 0.03% mass of ingredient/mass of oven-dry wood substance.

Propiconazole. 0.03% mass of ingredient/mass of oven-dry wood substance.

Permethrin. 0.02% mass of ingredient/mass of oven-dry wood substance.

The preservative formulation ensures the required retention of active ingredients is obtained in this process.

Priming protection

Bodyguard is supplied in a safe-to-handle kiln-dried form at approximately 10-15% moisture content. After treatment, Bodyguard products are left to air-dry for a 5 to 10 day period to allow the solvent to evaporate before priming.

During the construction process Bodyguard is protected with a double coat alkyd primer/undercoat system, which provides excellent resistance to associated weather and moisture effects on the installed product. The first coat penetrates the substrate providing water resistance and limiting cracking. The second coat adds additional film build, which increases durability, moisture protection and also provides a quality substrate for final coats.

Important Bodyguard information – please read

Bodyguard should only be used in above ground, exterior non-structural applications, for example in door and window frames, siding and other exposed millwork and trimboards. The products are not suitable for use in contact with the ground.

During warehousing and construction site storage it is critical to the performance and stability of Bodyguard that the product is protected from the elements and remains in a perfectly dry state up until the time of installation. Exposure to moisture during storage will elevate moisture content, cause dimensional change and temporary swelling.

It is important NOT to install Bodyguard when its moisture content and dimensions are above manufactured measurements. If it is installed with high moisture content and in a resultant swelled state then exposed primer lines at laps and open miter joints may result until the Bodyguard product dries back to its equilibrium moisture content and original manufactured dimensions.

Bodyguard should only be used in above ground, exterior non-structural applications, for example in door and window frames, siding and other exposed millwork and trimboards.

THE BODYGUARD SYSTEM

Bodyguard peace of mind

Wood protection systems for Bodyguard products are supplied by the world's leading wood preservative manufacturers, Lonza Wood Protection and Osmose.

Bodyguard is also supported by a 30-year limited warranty against rot/decay and insect attack. See the Bodyguard 30-year Limited Warranty for details on page 27.

Use category system

Bodyguard wood products are most relevant to UC2 and UC3A categories, as determined by the American Wood Preservers Association (AWPA). (Refer to www.awpa.com for details).

UC2

Wood and wood-based materials used for interior construction, which are not in contact with the ground, but may be subject to occasional dampness.

Applications: Millwork, Sill Plates.

Service Conditions: Interior construction, damp above ground.

Use Environment: Protected from the weather but subject to occasional sources of moisture.

Biological Hazard: Decay fungi, wood borers and termites.

UC3A

Wood and wood-based materials used in exterior construction that are coated and not in contact with the ground.

Applications: Millwork, Siding, Trim, Exterior Moldings.

Service Conditions: Exterior construction, coated, above ground.

Use Environment: Exposed to all weather cycles, coated, rapid water run off.

Biological Hazard: Decay fungi, wood borers and termites.

Environmental approvals

USA-ENVIRONMENTAL PROTECTION AGENCY (EPA) Registration No's 75101 & 74405-1

NZ ENVIRONMENTAL RISK MANAGEMENT AGENCY (ERMA) HSR2001 and HSR2002

California Proposition 65

This product may contain Formaldehyde (CAS #50-00-0), a chemical known to the State of California to cause cancer.

Bodyguard stability

Dimensional stability is a critical wood property for cladding, joinery and exterior millwork and trimboard use.

One key element that contributes to the stability of wood products is the kiln drying process. New Zealand radiata pine can be dried rapidly from green with no degradation.

New Zealand manufacturers have developed kilns and kiln technology to a very high standard and the drying process is continually researched and improved. The introduction of final steaming to eliminate drying stresses and improve stability is one example of this.

Compared to North American softwoods, New Zealand radiata pine has comparable shrinkage to ponderosa pine and less shrinkage than hemlock, loblolly pine and douglas fir.

Finger-jointing further supports the dimensional stability of Bodyguard as it removes the stress and distortion experienced with similar solid timber products.

The solvent-based treatment and alkyd priming and undercoating enhance it further, resulting in a stable durable product that outperforms similar products.

Bodyguard really is 'real wood made better'.

HANDLING AND CUSTOMER CARE

Container opening

Simple venting advice when opening shipping containers.

In the confined shipping space of a container residue paint or treatment solvents could evaporate from the wood and collect to a detectable degree.

When opening the container some simple venting precautions should be followed.

- Opening the container should be done in an exposed situation, and not in an enclosed area (e.g. building), to allow any such confined vapors to dissipate.
- Open containers away from any naked lights or flames. No smoking is to be allowed in the immediate vicinity.
- Once the container is opened, and prior to devanning it should be left with the doors open for a period of 10 minutes to allow any confined vapors to disperse. As the vapor is heavier than air, it will quickly disperse from the open container.

In confined storage spaces there is a small possibility that residual white spirits vapors may accumulate. If present, these will be far below the lower explosive limit (0.6%) for white spirits and so present no combustion hazard, but may be detectable to people in the area.

For this reason it is recommended that Bodyguard products are stored where air can freely circulate so that vapors do not build up.

Removing Bodyguard product wrap

When Bodyguard products are stored on site within an enclosed building some odor could be detected. It will be minimal and will quickly disperse by simply ventilating the area by opening doors and windows.

Storage and handling

At the warehouse Bodyguard product should be stored and protected in its packaged form within a roofed building that provides complete weather protection. At the job site and prior to installation Bodyguard product must remain dry at all times by storing completely under cover and clear of the ground, however the product protection should allow the wood to breathe.

Keeping the product clean and dry during warehousing and job site storage is an important element in achieving a quality and visually appealing finished result.

On site practices

All sawdust and construction debris should be cleaned up and disposed of after construction (see Disposal below).

Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such sites would be cutting boards, counter tops, animal bedding, and structures or containers for storing animal feed or human food.

Do not use protected wood for construction of those portions of beehives which may come into contact with honey.

Disposal

Dispose of treated wood off-cuts and sawdust by ordinary trash collection. Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers. Treated wood from commercial or industrial use (e.g. construction sites) may be burned only in commercial or industrial incinerators or boilers in accordance with State and Federal regulations.

Disclaimer: Although every effort has been made to ensure the information in this brochure complies with existing building standards and recognized codes of practice, no responsibility is accepted for any errors and omissions in this manual, nor for any specifications or work undertaken that is based on this information. Please refer to your local building authority and permitting agent.

INSTALLATION & APPLICATION INFORMATION



1 Weather proofing

Construction detailing maximizes the performance of exterior cladding products: detailing roof overhangs; flashing at roof edges; head sill and jamb flashings around doors, windows and openings; weatherproofing external and internal cladding corners and butt joints; all these improve the performance of the product.

It's also important to include effective vapor barriers, drainage cavities, adequate eave troughs and downspouts. Insulation and ventilation throughout the building are important elements in achieving the designed performance of exterior products.

There is variability in building design and weatherproof detailing, so it is the responsibility of the designer or builder to ensure that Bodyguard products are installed with appropriate water management flashings and systems.

It is vital to eliminate any areas of the exterior cladding or trim that have the potential for water or moisture entrapment; continual water or moisture entrapment will eventually cause the product to rot or fail.

2 End-sealing

Use a brush-on or spray-on wood preservative containing zinc naphthenate on all saw cuts, drilled, notched and punched holes, screw, nail and fastener penetrations, during installation. Using an end cut preservative is required under the terms of the Bodyguard warranty.

We recommend Bodyguard End Seal (available in spray cans & quarts).

3 Nailing & fixing

*See page 20 for more information

Bodyguard products should always be installed in accordance with the highest industry standards. The proper application and nailing practices are essential for maximizing the performance and appearance of Bodyguard products.

In order to allow for the normal seasonal movement, nailing should be such that it does not restrict movement so do not nail through overlapping pieces.

Selection of proper nails is important. Siding nails with annular-ringed shanks provide the best holding power. Hot-dipped galvanized, high tensile aluminum or stainless fasteners are also recommended. The active ingredients in the carbon-based treatment are non-corrosive to nails and fastenings.

Weatherproofing joints and corners

For best results we recommend the use of miter/scarf joints. However standard butt joints can be used without an expansion gap. We recommend that butt joints be covered with a flashing. Joints should be staggered up the wall (not lined up vertically). Miter joints should face away from the prevailing wind. All mitered corners should have concealed secondary flashings and a face flashing is recommended at all flat vertical joints, mitered or butt.

Do not install directly on top of foam sheathing. In warm humid climates this has been shown to retain moisture between the sheathing and siding.

All nailing should be over studs and total effective penetration into a solid wood base should be at least 1 1/2". Nailing patterns should comply with best industry practices.

Do not install Bodyguard sidings, trimboards or moldings that have a moisture content of over 15%.

The Warranty will not apply to any product which has not been kept dry or which has not been painted in accordance with the specifications following.



Hand nailing is recommended so that the factory applied coating system will not be broken. If a nail gun is used, precise adjustment of air pressure is necessary to achieve a flush finish. Alternatively, nails can be countersunk or punched 1/16", beneath the exterior surface and sealed with an end sealer then filled with an exterior grade putty, primed and undercoated to obtain a smooth surface. Pre-drilling near the ends is always recommended as a precaution to avoid the possibility of end splitting.

Punched or countersunk nailing exposes raw timber fibres and allows moisture direct entry into the wood. As a result, filling and sealing must immediately follow installation. If this is omitted then temporary dimensional change to the timber profile around the nail location will occur.

4 Gluing

Sidings, trimboards and exterior moldings are not normally glued onsite but, if the occasion should arise, then any exterior water resistant wood adhesive compatible with the Bodyguard treatment is appropriate.

Bodyguard is not intended for structural uses, and where impact adhesives are to be used or highly stressed glue joints are to be made (e.g. glue laminated beams) specific wood engineering advice should be sought.

5 Putties, mastics, sealants

Sealants are used to assist with weathering at joints but **MUST** not be relied upon for primary weather protection. Exterior formulation putties, mastics and sealers should be compatible with alkyd (oil-based) paints and the solvent-based treatment. If in doubt consult your sealant supplier or manufacturer.

If the surface is unsatisfactory and repair is necessary, this should be documented and completed before finish coating is applied.

Other instructions

1. Nail holes: if nails are countersunk, seal exposed wood with Bodyguard End Seal then fill nail holes with an exterior grade wood filler, then spot prime and undercoat. In temperatures less than 40°F use cold weather caulking sealants.
2. Remove all soft and chalky paint, dirt etc., and sand to a smooth even finish.
3. Apply two full coats of premium quality exterior acrylic house paint as per manufacturer's instructions. For best results allow 24 hours between coats.

6 Painting

The use of colors with a Light Reflectance Value (LRV) of 45 or more is recommended, as these lighter colors reflect significantly more heat. Testing has shown that dark colors can generate temperatures in excess of 185°F.

This level of heat can reduce the life of the paint film and cause cracks to appear in the timber surface. In direct sunlight, light colors under the same conditions can be as much as 95°F cooler. (LRV of white is 95-100, LRV of black is 0-5).

Bodyguard is supplied pre-primed and undercoated (double coated) and the following is recommended.

Recommended specification for painting pre-primed Bodyguard products

Bodyguard products must be painted as soon as practicable after installation.

Bodyguard products must be dry before commencing painting (a moisture content of 15% or less).

Apply the topcoat in warm, dry weather not below 50°F.

Painting with solid acrylic stains is not recommended as UV light will penetrate the transparent stain and damage the primer paint.

The painter or painting contractor should check the Bodyguard surface prior to applying paint coatings.

**Always adhere
to highest
industry
standards and
best practices
when installing
Bodyguard
product.**

Moisture uptake before installation

Kiln-dried radiata pine wood is hygroscopic. It will absorb moisture in a damp environment and release it in a dry environment. If wood absorbs moisture, some dimensional swelling may occur. This will disappear when the wood returns to its original moisture content.

Primers provide limited protection against moisture uptake so it is essential that Bodyguard products are kept dry and stored in a dry environment away from damp ground, until installed.

During the installation process all exposed unprimed surfaces resulting from cut ends, miters, notching, boring, punched nail holes or similar, should be sealed with Bodyguard End Seal. Then painted with a suitable oil-based or acrylic premium exterior wood primer.

If paint coatings are applied to primed wood in which moisture-related dimensional swelling has occurred, then the process of moisture release is slowed considerably.

Shrinkage lines will occur as the wood returns to its equilibrium moisture content and original machined dimensions. To prevent this, ensure the wood is dry and at original machined dimensions before applying paint coatings. This applies to all products, expressly sidings.

Moisture uptake after installation

Application of the recommended painting specification will provide protection against moisture uptake minimizing dimensional change.

The primer will not protect against moisture uptake when exposed to continued rain or extreme weather. Under these conditions temporary dimensional swelling may occur.

It is essential that if swelling is evident, the product should be given time to dry out and return to its equilibrium moisture content and manufactured dimensions before application of any final coating system.

7 Resin bleed

Wood is a natural product and resin is a natural constituent of the pine species. Resin bleed is rare, but most likely to occur in hot sheltered conditions, or where the product has been painted a dark color.

Adherence to the above painting specification will assist in minimizing the potential for resin bleed. It is also recommended that the product is not painted in dark colors or high gloss finishes. (see 6. Painting)

***Nailing detail**

Refer to siding drawings for nailing positions. To achieve the best holding power use annular ring shanked nails manufactured from hot dipped galvanized steel, stainless steel or aluminum. Do not use plain or electroplated steel nails or staples.

If flathead nails are used ensure these are driven flush. However, if nails are countersunk or punched use a countersunk conical head-shaped nail of the correct length and ensure they are 1/16" below the siding surface to allow for sealing and filling prior to painting. A punched nail damages the primer surface and will allow moisture penetration. Sealing and filling is required immediately after nailing to prevent this.

Ensure nails penetrate solid wood sheathing and studs or blocking by a minimum of 1 1/2".

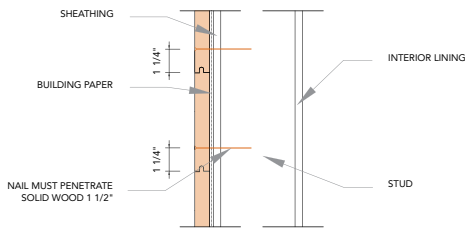
Always refer to your local building regulations.



FIXING AND INSTALLATION

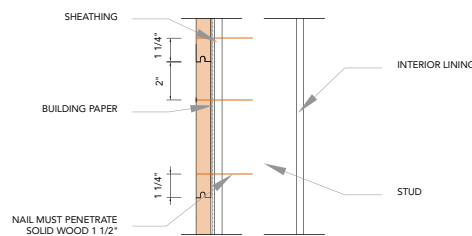
Tongue & Groove

HORIZONTAL 4" + 6" TONGUE AND GROOVE SIDING SECTION




Face nail with one 2 1/2" nail.

HORIZONTAL 8" AND ABOVE TONGUE AND GROOVE SIDING SECTION



Face nail with two 2 1/2" nail.

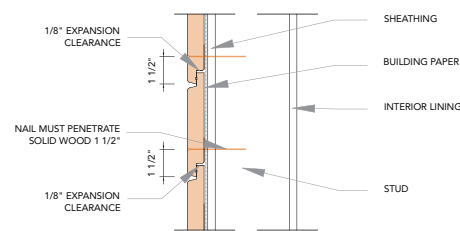
 Bodyguard wood products

When fixing, ensure the groove is positioned at the bottom of the siding. For horizontal fixing, nail through siding into each stud line.

Nailing should not exceed 24" centers in the horizontal plane. For vertical fixing, nail through siding into each blocking line. Alternatively vertical siding can be nailed to 1" x 3" furring strips and solid wood sheathing. Nailing in both vertical applications should not exceed 24" centers in the vertical plane.

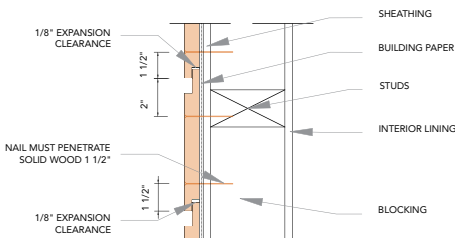
Shiplap

6" SHIPLAP SIDING



Face nail with one 1 1/2" from bottom overlap.

8" + 10" SHIPLAP SIDING



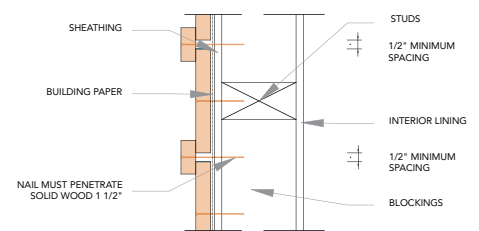
Face nail with two nails. Bottom nail 1 1/2" from overlap, top nail 2" from underlap.

For V-Rustic, Cove, Bevel channel, Lap and Bevel. Note the requirement for 1/16" expansion clearance at each lap. For vertical channel shiplap, nail through siding into each blocking line. Alternatively vertical siding can be nailed to 1" x 3" furring strips and solid wood sheathing.

In both these vertical siding applications, nailing should not exceed 24" centers in the vertical plain. For horizontal vertical shiplap, nail through each siding into each stud line. Nailing should not exceed 24" centers in the horizontal plane.

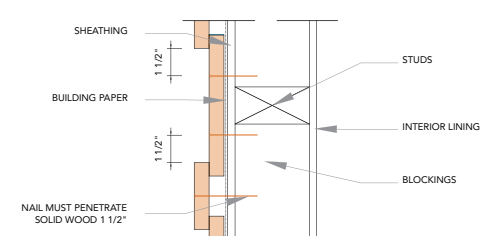
Board & Batten

VERTICAL 4" + 6" BOARD & BATTEN SIDING PLAN



Face nail through center of batten and siding.

VERTICAL 8" + OVER BOARD - BOARD & BATTEN SIDING PLAN



Face nail through center of batten and double nail siding.

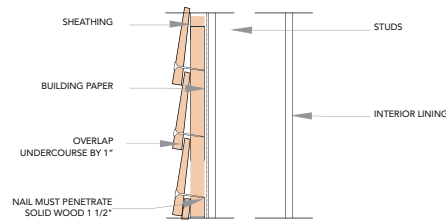
This form of siding should only be applied vertically.

Battens must lap the underboard at a minimum of 1/2" both sides. Nail board or batten into each blocking line. Alternatively the board and batten can be nailed to 1" x 3" furring strip and solid wood sheathing. In both these vertical siding applications, nailing should not exceed 24" centers in the vertical plane.

BODYGUARD END SEAL

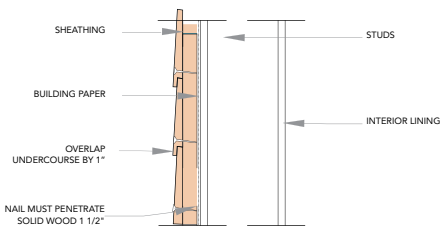
Bevel & Rabbeted Bevel Sidings

6" TO 8" BEVELLED SIDING



Face nail through siding above the lap.

6" TO 8" RABBETED BEVELLED SIDING



Face nail through siding above the lap.

This form of siding should only be applied horizontally. For horizontal fixing, nail through siding into each stud. Nailing should not exceed 24" centers in the horizontal plane.

End Sealing

Bodyguard End Seal is an easy-to-use wood sealer, for use with Bodyguard exterior siding, trim and molding products. It is specifically for the re-sealing of treated timber where cuts, notches, nail and drill holes have exposed fresh timber surfaces.

Bodyguard treated timber is for above ground non-structural use only.

Why use Bodyguard End Seal?

Warranty: using a zinc end cut treatment is a requirement of the Bodyguard 30-year limited warranty.

Convenience: cans (13 fl oz) or quarts, providing a choice of application method.

Tint: product has been applied to all areas where it is required.

Peace of mind: finished product is fully protected against rot and termite attack.

VOC Compliance

Bodyguard End Seal meets the VOC requirements set out by the California Air Resources Board (CARB).



FREQUENTLY ASKED QUESTIONS

What is Bodyguard?

Bodyguard is a range of premier finger-jointed New Zealand radiata pine products that incorporate a carbon-based biocide treatment system.

What is the difference in durability between Bodyguard products and other coated untreated products?

Bodyguard is protected by a proven pressure treatment that achieves total (100%) penetration of the sapwood. This wood preservative is effective against both fungi (rot) and insects (termites), so the underlying wood material in Bodyguard is resistant to degradation.

Where does the timber come from?

Bodyguard products are manufactured from New Zealand radiata pine grown in well-managed tree-farmed forests.

What is in Bodyguard products?

Bodyguard products are treated with a carbon-based wood preservative based on three active ingredients; Tebuconazole, Propiconazole and Permethrin.

The minimum retentions are:

Tebuconazole. 0.03% mass of ingredient/mass of oven-dry wood substance.

Propiconazole. 0.03% mass of ingredient/mass of oven-dry wood substance.

Permethrin. 0.02% mass of ingredient/mass of oven-dry wood substance.

What do these active ingredients do?

Tebuconazole and Propiconazole are fungicides that control wood-destroying fungi. Permethrin is an insecticide that controls wood destroying borers and termites.

Where else are these active ingredients used?

All are used for other wood protection applications, but in addition their uses are:

Tebuconazole. A systemic fungicide with USA Environmental Protection Agency (EPA) approval for use on mushrooms, corn, wild rice, peanuts, almonds, sorghum, oats, pecans, apricots, peaches, nectarines, plums and prunes.

Propiconazole. A systemic fungicide with USA EPA approval for use on food crops e.g. cereals, bananas, coffee, peanuts, stone fruit, corn, pineapples, and cherries.

Permethrin. A USA EPA-approved insecticide found in such products as fly sprays, head lice shampoos, and used to provide insect control for stored fruits and grains.

What else is in the wood?

The preservative formulation includes water repellent components (paraffin wax, hydrocarbon resin and stearyl laurate) dissolved in a low boiling point hydrocarbon solvent.

Will preservatives leach from Bodyguard products?

No. The carbon-based biocides used in the Bodyguard process do not dissolve in water.

Are there any emissions to air from Bodyguard products?

Yes. When freshly treated and primed, minor quantities of the hydrocarbon solvent may evaporate from the ventilating wood. With exposure to good drying conditions, this will cease within days.

What handling precautions should I take when handling Bodyguard products?

As with all wood products, we recommend wearing leather gloves when working with Bodyguard products. Wear a dust mask and eye protection when using woodworking machinery.

See the Material Safety Data Sheet on our website for more detail.

Are Bodyguard products safe to handle?

Yes. The protected wood is safe to handle. As with all wood products we recommend wearing leather gloves as a standard safety precaution. The active ingredients are all approved for use on food crops. The USA EPA has specifically approved the preservative system for this application.

Where can I use Bodyguard products?

In doors and window frames, siding and other exposed millwork and trimboard. The preservative system is intended to protect the wood in above ground, exposed applications but **MUST NOT** be used in ground contact. Bodyguard is designed for a non-structural application unless otherwise specified.

Can Bodyguard be used indoors?

Yes, Bodyguard is safe for indoor use, as well as exterior (above ground only). With indoor use, there may be a noticeable odor following installation. Simply ensure the area where Bodyguard is installed is well ventilated and this odor will disappear after a short time.

Is the product warranted?

Yes, Bodyguard products are supported by a 30-year limited warranty against decay and insect attack.

See page 27 for the details of Bodyguard's 30-year limited warranty.

How long will Bodyguard products last?

Bodyguard products are warranted for 30 years against decay and insect (termite) attack, but based on experience and tests over a number of years in Europe, Australia and New Zealand the service life extends beyond 30 years. The better Bodyguard products are maintained, the longer they will last; so keep paint coatings in good order and follow recommended installation instructions with regard to end-sealing.

How do you know the treated wood will resist rotting?

The preservative formulations used in Bodyguard products have been commercially used in the United Kingdom for many years. It also has a successful 30-year history of durable use in New Zealand and Australia and continues to be the treatment of choice for products and profiles similar to Bodyguard.

New Zealand radiata pine treated with these preservatives has been tested under extreme conditions by the New Zealand Forest Research Institute and been found to provide excellent resistance to decay.

Why do I have to use a preservative on cut ends of Bodyguard products?

While the Bodyguard treatment process achieves 100% sapwood penetration, the heartwood penetration can be variable. Bodyguard products are made from New Zealand radiata pine, which has a low heartwood content. However if cutting or re-machining there is a slight risk that some untreated heartwood could be exposed. For this reason a brush-on or spray-on preservative containing zinc naphthenate should be used to provide additional protection. Bodyguard End Seal is recommended for this purpose.

Is maintenance required?

Like all wood products, the long-term appearance and performance of Bodyguard products can be extended through regular painting and washing. Refer to your paint supplier for suitable coatings.

Are Bodyguard products made from solid wood?

Yes. Bodyguard products are manufactured from finger-jointed solid New Zealand radiata pine.

What is finger-jointing?

Finger-jointing refers to a method of cutting out defects, like knots and resin pockets, then joining the remaining clear pieces of timber to make long lengths of clear, straight wood. The resulting joints are stronger than the wood around them, and the adhesive is unaffected by moisture.

What fasteners should I use for Bodyguard products?

Whilst there is no risk of corrosion to fasteners from the carbon-based biocide Bodyguard preservative system, when used outdoors, corrosion resistant fasteners should be specified, such as hot-dipped galvanised nails or stainless steel.

Will Bodyguard products shrink or swell in service?

Bodyguard products are supplied in a kiln-dried form at approximately 10-15% moisture content. However like all wood products Bodyguard will experience some dimensional change with changes in moisture content. Strict adherence to the product storage guidelines and the painting recommendations will minimize this.

Are Bodyguard sidings approved to California Wildfire Urban Interface building standards?

Yes, ten siding profiles have been approved. In addition our T&G profiles have been approved for use under eaves.

Can Bodyguard be used in structural situations?

The current standard Bodyguard range is non-structural. For structural solutions please contact Bodyguard directly with your requirements.

Can I paint Bodyguard with dark colors?

We recommend Bodyguard is painted with colors that have a Light Reflectance Value (LRV) of 45-100 (100 being pure white). Colors with a LRV of 44 to 0 (0 being pure black) progressively generate extreme surface heat when exposed to direct sunlight. Over time this heat can cause resin bleed, shrinkage, distortion and cracking and will also reduce the service life of the paint coatings.

For more detailed information please visit www.bodyguardwood.com

PERFORMANCE

SUMMARY

Bodyguard efficacy

Bodyguard describes a range of New Zealand radiata pine products protected by a wood preservative system based on carbon-based biocides.

When combined, the three active ingredients Tebuconazole, Propiconazole and Permethrin provide fungicidal and insecticidal protection to pine.

All three actives are approved by the USA Environmental Protection Agency (USA EPA) for a diverse range of other uses and are also approved in combination for the wood preservative formulations used to impregnate the Bodyguard product.

The USA EPA approved wood preservative formulations also include proprietary water repellent systems to further enhance protection. Once the residual carrier solvent has evaporated following treatment, the pine products may also be coated with a paint primer, which provides additional protection for some uses.

Bodyguard product is intended for use in above ground, exposed applications. Examples are door and window frames, siding and exposed millwork. The registered Bodyguard suppliers support Bodyguard product with a 30-year limited warranty against decay and insect attack. This warranty is based on an assessment of the proposed end uses and the results from testing of the treated wood products by independent external organisations.

Bodyguard product is treated to a retention level to 0.27 kg/m³ (0.06% m/m) expressed as total azole (Tebuconazole plus Propiconazole) together with 0.09 kg/m³ (0.02% m/m) Permethrin. The efficacy of the preservative system has been evaluated in both laboratory and field tests.

The Permethrin retention in the Bodyguard product is already approved in Australia and New Zealand (AS 1604, NZS 3640) for protection of any softwood species to be used in above ground exposed to weather situations. Typically Bodyguard is used for cladding, decking, exterior joinery, fascia or barge boards. This Permethrin retention is effective against termites such as *Coptotermes acinaciformis* and *Mastotermes darwinensis*.

The azole biocides provide the fungicidal protection for Bodyguard product. A soil jar decay test has been undertaken at the Division of Forest Products, CSIRO, Australia. Test blocks of New Zealand radiata pine and eucalyptus regnans were impregnated then leached in water and artificially weathered in a vacuum oven prior to exposure to test fungi. The pine blocks were exposed to four brown rot fungi, the e. regnans blocks to two white rots.

The results after the 12 weeks exposure to the test fungi are available graphically on request. The toxic threshold is between 0.25 and 0.5 kg/m³ for the brown rot fungi and <0.125 kg/m³ for the two white rots. Bodyguard product is treated to a minimum retention of 0.27 kg/m³ (expressed as total azole).

In addition, L-joint field tests have been undertaken at the Queensland Forestry Research site in Australia. The L-joint test is designed to simulate joinery applications and to accelerate the rate of failure in test samples. To achieve this the L-joint unit is first assembled

then painted before the joint is opened to break the paint film. The break allows in moisture and the paint coating may also hinder the evaporation of any water further promoting a more severe decay hazard.

The oldest L-joints at a retention of 0.09 kg/m³ (0.018% m/m) total azole have slight attack after nine years exposure. This is considerably lower retention than commercially available Bodyguard product.

In contrast the untreated joints are severely decayed. A second L-joint test with New Zealand radiata pine was established in 1996. After seven years' exposure the untreated L-joints have severe decay at the internal tenon joint. Only a single joint from the original set of untreated controls now remains in service. Also in this test the benefit of adding a water repellent was demonstrated. All the 0.23 kg/m³ azole treated L-joints are in good condition with some slight discoloration or softening. This treatment level is less than Bodyguard product.

Summary

In summary, Bodyguard products are protected from termite attack by Permethrin, and from wood decay by a synergistic Propiconazole and Tebuconazole mixture. The preservative performance is further enhanced with the addition of a proprietary water repellent system.

Bodyguard is supported with a 30-year limited warranty against termite and decay damage.

For an updated copy of this manual either contact your registered Bodyguard distributor or visit www.bodyguardwood.com

WARRANTY

30-year limited warranty against insects and decay

Bodyguard products are proudly supported in all USA States, by a 30-year limited warranty against fungal decay/rot and insect attack (termites).

Where any Bodyguard product used in its recommended application becomes structurally unserviceable within 30 years of purchase due to rot, fungal degrade or termite attack, replacement material will be provided by the manufacturer. Replacement is for material only and is exclusive of product removal, installation and all other consequential processes including painting and painting materials. This warranty is applicable to all original consumer purchasers or 'first-owners'.

To qualify for the Bodyguard 30-year limited warranty, the 'first-owner' must be the recorded owner of the property at the time the Bodyguard products are installed by the builder or contractor.

The Bodyguard warranty is not transferable from the first-owner to subsequent owners of the property. Proof of purchase, in the form of a dated sales invoice and a Bodyguard end-tag will be required to validate any claim against this warranty.

This warranty is subject to certain terms and conditions, including:

- Adherence to Building Codes and Standards.
- Adherence to Hazard Class practices.
- Adherence to use of an end sealer for cuts, nail and drill holes at time of installation.
- Normal movement of materials caused by climate change is not covered under this warranty.

To make a claim under the terms of this warranty, send a photograph and a description of the damage, along with the Bodyguard end-tag for each piece of wood claimed to have been damaged and a copy of the original purchase invoice to Bodyguard Wood Products Ltd.

For further information concerning these terms and conditions please consult your registered Bodyguard supplier or distributor.

For best performance and results, please ensure that you follow all of the recommendations as set out in this Bodyguard Technical Manual. This notice does not constitute the legal warranty. For full details of the warranty, refer to

www.bodyguardwood.com

Limited 12-month primer warranty

The Bodyguard range of exterior timber products are treated to the American Wood Preservers Association (AWPA)* classification code of category UC3A (coated, but not in contact with the ground) and have a two-coat, machine applied, alkyd primer system covering all surfaces. Alkyd primers are more resistant to moisture penetration and are particularly suited to coastal environments.

Although it is recommended that Bodyguard products have the finishing paint system applied as soon as practicable after installation, the primer's durability is guaranteed for a period of twelve months following installation and exposure to the elements.

This warranty is limited to primer paint REPLACEMENT and is exclusive of application and all other consequential processes and/or coatings. The primer warranty is also contingent on adherence to the paint manufacturers finishing coat surface preparation specifications or requirements, including ongoing maintenance.

While Bodyguard has no control over subsequent finishing paint application, our coating partners PPG Industries (Monarch™, Olympic™, Porter™, Manor Hall™, and Pittsburgh Paints™ products) may offer extended warranties based on adherence to their own application guidelines. Details of these warranties are available from your paint supplier. These warranties are separate to the substrate or primer warranties. For warranty limitations, refer to

www.bodyguardwood.com



Disclaimer

For full details on these warranties, and their related disclaimers, please refer to:

www.bodyguardwood.com