



# BODYGUARD®

real wood made better

Trimboards

Sidings

Mouldings



# TECHNICAL MANUAL



INSECT / ROT PROTECTED



FINGER-JOINTED STRENGTH



DOUBLE COATED



NON-CORROSIVE



USA EPA APPROVED



FIRE TESTED PROFILES

Wood is one of the world's most exceptional building materials. It's strong, versatile, easy to use and practical. A renewable resource that has protected mankind from the elements for generations. Now Bodyguard®, with its added durability, is real wood made better.

This manual describes the properties and instructions for working with Bodyguard® wood products.

The manual is intended to provide guidance to people who handle, specify or use Bodyguard® product.

Please take the time to carefully review this manual and become familiar with the proper handling and installation instructions for the use of Bodyguard® product. Please do not hesitate to contact Bodyguard® whenever assistance is needed.

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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](http://www.bodyguardwood.com)

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





### Trimboards | Sidings | Mouldings

#### 30-YEAR LIMITED WARRANTY

A 30-year limited warranty is provided on all Bodyguard<sup>®</sup> products against termite attack, rot or fungal decay.

#### INDOOR AND EXTERIOR USE

Bodyguard<sup>®</sup> is safe for indoor use, as well as exterior use (above ground only).

#### DURABLE

Bodyguard<sup>®</sup> is treated under pressure, achieving total active penetration protection. The addition of waxes and resins into the formulation enhances its water protection properties. The active ingredients used in the treatment process are insoluble in water and will not be removed through leaching.

#### TERMITE RESISTANT

One of the active protective ingredients in Bodyguard<sup>®</sup> is permethrin, a food-crop protection product that is proven effective against all known species of termite

#### PAINT-READY FINISH

The machined finish of Bodyguard<sup>®</sup> is enhanced by a two-coat primer system, with a performance warranty. Finish your Bodyguard<sup>®</sup> surface with a good-quality acrylic paint system to the manufacturer's specification

#### TREE-FARMED FORESTS

All Bodyguard<sup>®</sup> products are sourced from well-managed plantation forests, sustainably grown in New Zealand.

#### GREEN BUILDING CREDITS

Bodyguard qualifies for credit points under the following schemes:

- LEED for Homes
- NAHB Model Green Home Building Guidelines
- GreenPoint Rated (California only)

#### FSC CERTIFIED

By buying products with an FSC label you are helping to promote responsible forest management worldwide. Ask for our supply availability of FSC certified products (SGS-COC-003178 / SCS-COC-00538 / SGS-COC-2410 / SGS-COC-004276).

#### ENVIRONMENTALLY FRIENDLY

Bodyguard<sup>®</sup> preservative system is based on organic biocides and is registered in the United States of America by the EPA.

#### SAFE TO HANDLE

As Bodyguard<sup>®</sup> is real wood and contains no hazardous additives it's safe to work with; just follow normal work-place safety practises.

#### EASE OF USE

No special tools, cutting equipment or fixing methods are required.

#### DEFECT FREE

Bodyguard<sup>®</sup> is a natural wood product manufactured from kiln-dried timber. All defects are removed prior to finger-jointing, then surfaced for a paint-ready finish.

#### NON-CORROSIVE

As the organic 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 practise for exterior applications.

#### CALIFORNIAN FIRE APPROVAL

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

Sidings: Tested in accordance with Californian 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.

Listed on the Building Materials Listing Program with the California State Fire Marshall.

[www.osfm.fire.ca.gov/pdf/fireengineering/bml/wuiproducts.pdf](http://www.osfm.fire.ca.gov/pdf/fireengineering/bml/wuiproducts.pdf)

Trimboards | Sidings | Mouldings



The Bodyguard<sup>®</sup> 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<sup>®</sup> range include:

#### TRIMBOARDS

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- 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

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- 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

#### MOULDINGS

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- Utility: Brick, stucco, shingle, watertable, sill
- Decorative: Crown, casing, cove, gutter, 1/4 round, corner guard, architrave, base cap
- Handrails and components (Specific design available on request)
- Exterior doorframes

Trimboards | Sidings | Mouldings

**The Bodyguard<sup>®</sup> range of New Zealand radiata pine products are treated with an organic biocide system. Bodyguard<sup>®</sup> is manufactured from New Zealand radiata pine grown in tree farmed forests. The preservative system is based on organic biocides only and does not contain any corrosive heavy metals.**

Bodyguard<sup>®</sup> is treated with an organic wood preservative based on three active ingredients, tebuconazole, propiconazole and 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 grapes, wheat, barley, oats, bananas, cherries, peaches, nectarines, and peanuts.
- 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 that 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.

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

This involves the application of the preservative fluid under low-pressure using a computer-controlled process to ensure consistent and accurate control over penetration and absorption. The process achieves 100% sapwood penetration and a variable degree of heartwood penetration, and generally results in an absorption of 30 litres of preservative per cubic metre of wood.

Sophisticated quality control procedures are utilised to ensure that the desired minimum retentions are consistently achieved.

The organic biocides used in Bodyguard<sup>®</sup> product are insoluble in water; any potential for leaching is further reduced by the product being painted.

The preservative formulations used in Bodyguard<sup>®</sup> have been commercially used in the United Kingdom for many years. New Zealand radiata pine treated with these preservatives has been tested under extreme conditions by the New Zealand Forest Research Institute and have been found to provide excellent resistance to decay.

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

The preservative formulation is selected to ensure the required retention of active ingredients is obtained in this process. Bodyguard<sup>®</sup> is supplied in a dry form that is safe to handle.

After treatment, the wood products are allowed to air-dry for a suitable period to enable the bulk of the solvent to evaporate before priming.

Bodyguard<sup>®</sup> 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.

Wood protection systems for Bodyguard<sup>®</sup> products are supplied by the world's leading wood preservative manufacturers, Arch Chemicals<sup>®</sup> and Osmose<sup>®</sup>.

Bodyguard<sup>®</sup> is supported by a 30-year limited warranty against rot/decay and insect attack. See the Bodyguard<sup>®</sup> 30-year Limited Warranty for details on page 12.

Bodyguard<sup>®</sup> is supplied in a kiln-dried form at around 10-15% moisture content and is protected with a double coating system.

Bodyguard<sup>®</sup> is coated with alkyd primers to further protect the wood and provide a suitable surface for subsequent over-coating after installation.

The application of a 2-coat alkyd system provides resistance to weathering during the construction process. The first coat penetrates the substrate and provides water resistance and limits cracking. The second coat adds to this bond and provides a smooth, paint-ready finish. Paint systems used are provided by leading surface coating companies.

### USE CATEGORY SYSTEM

**Bodyguard<sup>®</sup> wood products are most relevant to UC2 and UC3A categories, as determined by the American Wood Preservers Association (AWPA). (Refer to [www.awpa.com](http://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 Mouldings.

**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 075101 & 074405-1

**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.

### STABILITY OF BODYGUARD<sup>®</sup> PRODUCT

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 use kilns and kiln technology that are of a very high standard, and the drying process is continually being improved based on research.

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.

The use of finger-jointing further enhances the dimensional stability throughout the Bodyguard<sup>®</sup> product range.

However, like all wood products, Bodyguard<sup>®</sup> will experience dimensional change with changes in moisture content. To minimize dimensional change users should strictly adhere to the product storage guidelines and the painting recommendations.

### CONTAINER OPENING

#### Precautions when opening containers containing Bodyguard® products.

Bodyguard® may contain residual amounts of the white spirits used as the carrier in the treatment process. The white spirits remaining after treatment rapidly evaporates from the wood and disperses, and it is expected that under normal conditions the vast majority would evaporate during holding time at the treatment plant, and during handling and transport prior to shipping. However in the confined shipping space of a container some remaining white spirits could evaporate from the wood and collect to a noticeable degree. Accordingly when opening a container some simple precautions must be taken.

- Opening the container should be done in an exposed situation, and not in an enclosed area (e.g. building), to allow any such confined vapours 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 vapours to disperse. As the vapour 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 vapours 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 vapours do not build up.

### 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 treated 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.

**Always adhere to highest industry standards and best practices when installing Bodyguard<sup>®</sup> product.**

For fixing and installation guidelines refer to:

[www.bodyguardwood.com/installation\\_tec.php](http://www.bodyguardwood.com/installation_tec.php)

- Do not install Bodyguard<sup>®</sup> sidings, trimboards or mouldings that have a moisture content of over 14%.
- We do not warrant any product which has not been kept dry or which has not been painted in accordance with the specifications below.

## 1. END-SEALING

Use a brush-on or spray-on wood preservative containing zinc naphthenate on all saw cuts and into drill holes during construction of wood projects. This is also recommended for any areas where moisture can collect. **Using an end cut preservative is required under the Bodyguard<sup>®</sup> warranty.**

We recommend Bodyguard<sup>®</sup> End Seal (available in spray cans & quarts).

## 2. NAILING & FIXING \*See detail section for more information

Bodyguard<sup>®</sup> 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<sup>®</sup> products.

Building construction features that maximize performance of exterior wood products include: wide roof overhang, wide flashing at roof edges, correctly installed flashings around doors, windows and other openings, effective vapor barriers, adequate eave troughs and downspouts, exhaust fans to remove excessive moisture, and adequate attic insulation and ventilation.

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 aluminium or stainless fasteners are also recommended. The active ingredients in the Bodyguard<sup>®</sup> treatment are non-corrosive to nails and fastening but these systems are recommended for general use in exterior applications.

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 1/16", sealed with an End Sealer then filled with an exterior grade putty to obtain a smooth surface. Pre-drilling near the ends is always recommended as a precaution to avoid any possibility of end splitting.

1. For best results we recommend the use of miter/scarf joints. However standard butt joints can be used without an expansion gap, but it is recommended these joints be flashed. Joints should be staggered up the wall (not lined up vertically). Miter joints to be facing away from prevailing winds.
2. 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.
3. 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.

## 3. GLUING

Sidings, trimboards and exterior mouldings are not normally glued onsite but, if the occasion should arise, then any standard wood glue, with the exception of casein containing glues, may be used with Bodyguard<sup>®</sup> products. Bodyguard<sup>®</sup> 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 advice should be sought from Bodyguard<sup>®</sup>.

[www.bodyguardwood.com](http://www.bodyguardwood.com)

## 4. PUTTIES, MASTICS, SEALANTS

Sealants are used to assist with weathering at joints – sealants must not be relied upon for primary weather protection. Exterior formulation putties, mastics and sealers should be compatible with alkyd (oil-based) paints to be suitable for use with Bodyguard<sup>®</sup>. Always seek advice from a reputable manufacturer, or contact Bodyguard<sup>®</sup> for clarification.

## 5. 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 degrees F in direct sunlight, while light colors under the same conditions can be as much as 95 degrees F cooler. (LRV of white is 95-100, LRV of black is 0-5).

Bodyguard is supplied pre-primed (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 14% or less).
  - Apply top coat 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.
  - We recommend application of the first top coat prior to installation.
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. 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 24hrs between coats.

### 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.

An alternative is to apply the first top coat prior to installation. This coat must be applied in the wood's dried state.

### Moisture uptake after installation

Application of the recommended painting specification will provide protection against moisture uptake and therefore minimize 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.

## 6. 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 5. Painting)

Should resin bleed occur, please contact Bodyguard or your supplier for a remedial information sheet.

### \*NAILING DETAIL

Refer to siding drawings for nailing positions. To achieve the best holding power use annular-ringed, 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 ensure they are  $\frac{1}{16}$ " below the siding surface to allow for filling and end sealing 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 prior to painting.

Ensure nails penetrate solid wood sheathing and studs or blocking  $1\frac{1}{2}$ ".

**Refer to your local building regulations.**

Trimboards | Sidings | Mouldings

**TONGUE & GROOVE – INSTALLATION**

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.

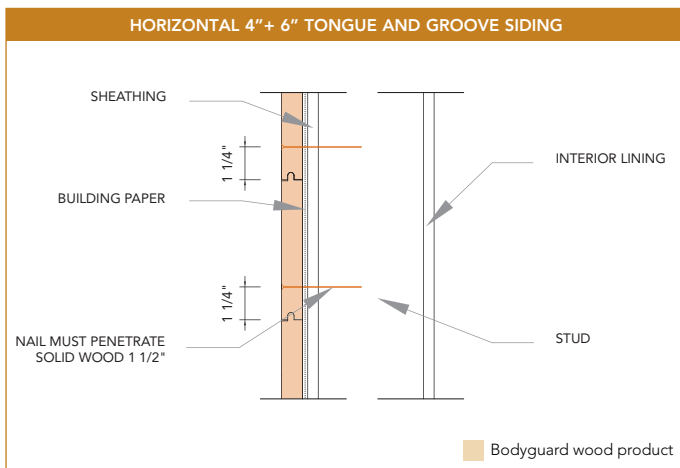
**SHIPLAP – INSTALLATION**

For V-Rustic, Cove, Bevel Channel, Lap and Bevel. Note the requirement for 1/8" expansion clearance at each lap.

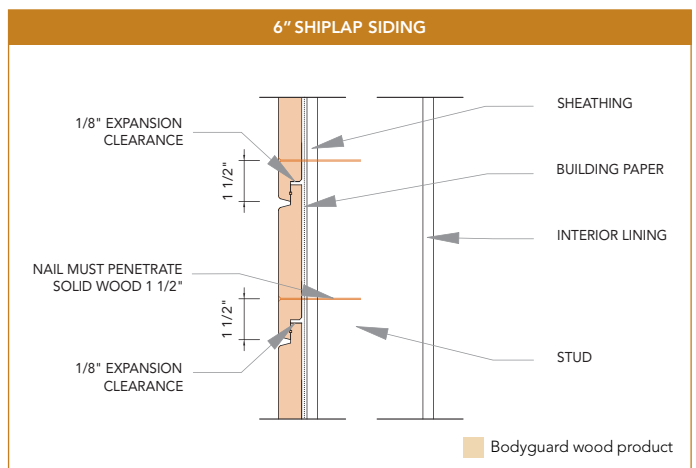
For vertical channel shiplap, nail through siding into each blocking line. Alternatively vertical siding can be nailed to 1" x 3" furring strips and solid wood sheathing.

In both these vertical siding applications, nailing should not exceed 24" centers in the vertical plain.

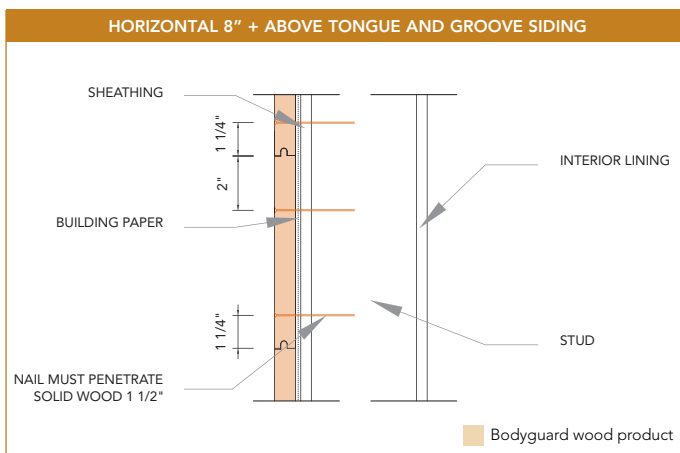
For horizontal vertical shiplap, nail through each siding into each stud line. Nailing should not exceed 24" centers in the horizontal plain.



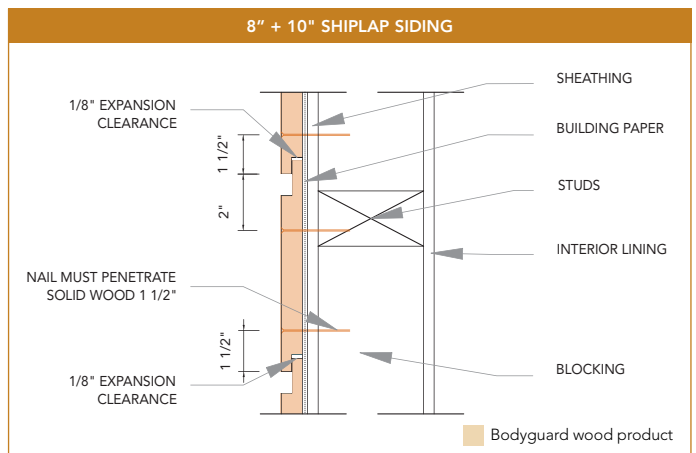
Face nail with one 2 1/2" nail.



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



Face nail with two 2 1/2" nails.



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

Nailing information for Channel Shiplap patterns is available at [www.bodyguardwood.com](http://www.bodyguardwood.com)

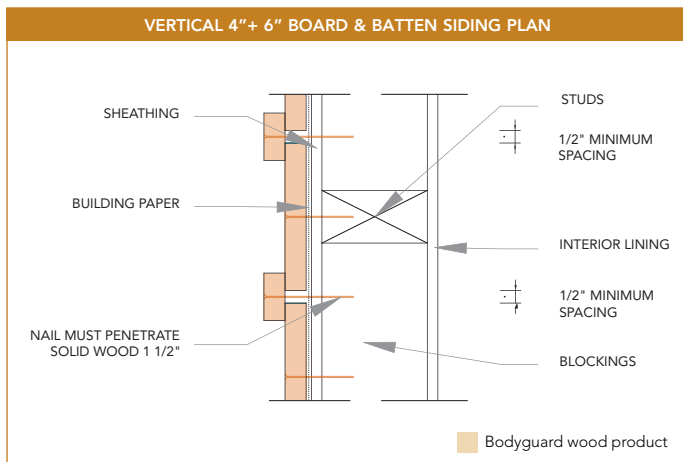
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**BOARD & BATTEN – INSTALLATION**

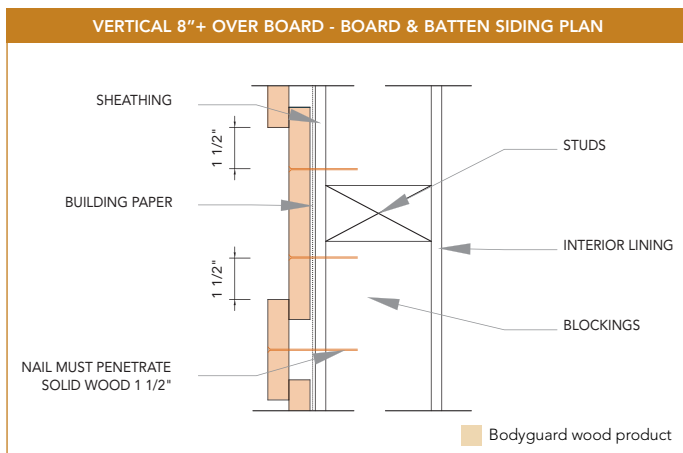
This form of siding should only be applied vertically. Battens must lap the underboard at a minimum of 1/2" both sides.

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 plain.



Face nail through centre of batten and siding.



Face nail through centre of batten and double nail siding.

**BODYGUARD<sup>®</sup> END SEAL**

Bodyguard<sup>®</sup> End Seal is an easy-to-use wood sealer, for use with Bodyguard<sup>®</sup> exterior siding, trim and moulding products. For the re-sealing of treated timber where cuts, notches, nail and drill holes have exposed fresh timber surfaces. Bodyguard<sup>®</sup> treated timber is for above ground non-structural use only.

**WHY USE BODYGUARD<sup>®</sup> END SEAL?**

- Warranty: using a zinc naphthenate end cut treatment is a requirement of the Bodyguard<sup>®</sup> 30 year limited warranty.
- Convenience: available in spray cans (13 fl oz) or quarts, providing a choice of application method.
- Tint: the white tint confirms the product has been applied to all areas where it is required.
- Peace of Mind: know that the finished product is fully protected against rot and termite attack.

**VOC COMPLIANCE**

Bodyguard<sup>®</sup> End Seal meets the VOC requirements set out by the California Air Resources Board (CARB).



### Trimboards | Sidings | Mouldings

#### WHAT IS BODYGUARD®?

Bodyguard® is a range of premier finger-jointed New Zealand radiata pine products that incorporates an organic biocide treatment system.

#### WHAT IS THE DIFFERENCE IN DURABILITY BETWEEN BODYGUARD® PRODUCTS AND OTHER COATED UNTREATED PRODUCTS?

Bodyguard® products are pressure treated to achieve 100% sapwood penetration with a wood preservative that is effective against both fungi (rot) and insects (termites). Hence the underlying wood material in Bodyguard® is resistant to degradation.

#### WHERE DOES THE WOOD COME FROM?

Bodyguard® products are manufactured from New Zealand radiata pine grown in tree farmed forests.

#### WHAT IS IN BODYGUARD® WOOD?

Bodyguard® products are treated with an organic 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 grapes, wheat, barley, oats, bananas, cherries, peaches, nectarines, peanuts.
- **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® WOOD?

The organic biocides used in the Bodyguard® process are insoluble in water; any potential for leaching is further reduced by the product being painted.

#### ARE THERE ANY EMISSIONS TO AIR FROM BODYGUARD® PRODUCTS?

When freshly treated, minor quantities of the hydrocarbon solvent may evaporate from the ventilated wood. This will cease within days of being exposed to good drying conditions.

#### 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* for more details.

#### ARE BODYGUARD® PRODUCTS SAFE TO HANDLE?

The treated wood is supplied in a form that is safe to handle. Like 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 preservative system has been specifically approved for this application by the USA EPA.

#### WHERE CAN I USE BODYGUARD® PRODUCTS?

The preservative system is intended to protect the wood in above ground, exposed applications, for example in door and window frames, siding and other exposed millwork and trimboard. The products must not be used in ground contact. Bodyguard® is designed for a non-structural application unless otherwise specified.

#### CAN BODYGUARD® BE USED INDOORS?

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

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### IS THE PRODUCT WARRANTED?

Yes, Bodyguard<sup>®</sup> products are supported by a 30-year limited warranty against decay and insect attack. See the *Bodyguard<sup>®</sup> 30-Year Limited Warranty* for details.

### HOW LONG WILL BODYGUARD<sup>®</sup> PRODUCTS LAST?

Bodyguard<sup>®</sup> 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 it is expected that the service life would be of the order of 40 years. Service life will depend on keeping paint coatings in good order and following recommended installation instructions with regard to end-sealing.

### HOW DO YOU KNOW THE TREATED WOOD WILL RESIST ROTTING?

The preservative formulations used in Bodyguard<sup>®</sup> products have been commercially used in the United Kingdom for many years. 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<sup>®</sup> PRODUCTS?

While the Bodyguard<sup>®</sup> treatment process achieves 100% sapwood penetration, the heartwood penetration can be variable. Bodyguard<sup>®</sup> products are made from New Zealand radiata pine that 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<sup>®</sup> End Seal is recommended for this purpose.

### IS MAINTENANCE REQUIRED?

Like all wood products, the long-term appearance and performance of Bodyguard<sup>®</sup> products can be extended through the use of a well-maintained paint coating, including regular washing. Refer to your paint supplier for suitable coatings.

### ARE BODYGUARD<sup>®</sup> WOOD PRODUCTS MADE FROM SOLID WOOD?

Bodyguard<sup>®</sup> 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<sup>®</sup> PRODUCTS?

The use of Bodyguard<sup>®</sup> product outdoors means that corrosion resistant fasteners should be specified, for example, hot-dipped galvanised nails or stainless steel. The Bodyguard<sup>®</sup> preservative system does not create any additional corrosion risk.

### WILL BODYGUARD<sup>®</sup> PRODUCT SHRINK OR SWELL IN SERVICE?

Bodyguard<sup>®</sup> products are supplied in a kiln-dried form at around 10-15% moisture content. However like all wood products Bodyguard<sup>®</sup> will experience some dimensional change with changes in moisture content. To minimize dimensional change users should strictly adhere to the product storage guidelines and the painting recommendations.

### ARE BODYGUARD<sup>®</sup> SIDINGS APPROVED TO CALIFORNIA WILDFIRE URBAN INTERFACE BUILDING STANDARDS?

Yes, 10 siding profiles have been approved. In addition our T&G profiles have been approved for use under eaves.

### CAN BODYGUARD<sup>®</sup> BE USED IN STRUCTURAL SITUATIONS?

The current standard Bodyguard<sup>®</sup> range is non-structural. For structural solutions please contact Bodyguard<sup>®</sup> directly with your requirements.

### CAN I PAINT BODYGUARD<sup>®</sup> WITH DARK COLOURS?

We recommend Bodyguard<sup>®</sup> is painted with colours that have a Light Reflectance Value (LRV) of 45 - 100 (100 being pure white). Colours 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](http://www.bodyguardwood.com)



### 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. 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® wood 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](http://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 (12) 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](http://www.bodyguardwood.com)

### DISCLAIMER

For full details on these warranties, and their related disclaimers, please refer to [www.bodyguardwood.com](http://www.bodyguardwood.com)

**Trimboards | Sidings | Mouldings****EFFICACY DOCUMENT**

Bodyguard<sup>®</sup> describes a range of New Zealand radiata pine products protected by a wood preservative system based on organic 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 for a diverse range of other uses and are also approved in combination for the wood preservative formulations used to impregnate the Bodyguard<sup>®</sup> 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<sup>®</sup> product is intended for use in above ground, exposed applications. Examples are door and window frames, siding and exposed millwork. The registered Bodyguard<sup>®</sup> suppliers support Bodyguard<sup>®</sup> 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<sup>®</sup> product is treated to a retention level to 0.27 kg/m<sup>3</sup> (0.06% m/m) expressed as total azole (tebuconazole plus propiconazole) together with 0.09 kg/m<sup>3</sup> (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<sup>®</sup> 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. Typical end use applications are 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<sup>®</sup> 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/m<sup>3</sup> for the brown rot fungi and < 0.125 kg/m<sup>3</sup> for the two white rots. Bodyguard<sup>®</sup> product is treated to a minimum retention of 0.27 kg/m<sup>3</sup> (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/m<sup>3</sup> (0.018% m/m) total azole have slight attack after nine years exposure. This is considerably lower retention than commercially available Bodyguard<sup>®</sup> 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/m<sup>3</sup> azole treated L-joints are in good condition with some slight discolouration or softening. This treatment level is less than Bodyguard<sup>®</sup> product.

**SUMMARY**

In summary, Bodyguard<sup>®</sup> 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<sup>®</sup> is supported with a 30-year limited warranty against termite and decay damage.

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