« For a proven and reliable termite protection solution for your structural timber or engineered wood product, contact Lonza Wood Protection »

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Pay now, save later

For most people, their house is the biggest single investment they will ever make. And yet every year, Australians pay $1.3 billion in termite repair costs because some people fail to invest adequately in protection.

The CSIRO estimates 32% of Australian homes have a termite presence. There are about 350 termite species here, including some of the world’s most destructive. Add to that the risks of borers and rot and suddenly it makes sense to spend a little more while you’re building for adequately treated timber in your frame, flooring, linings, decking and more. Even steel frames can act as a bridge for termites to get to your floors and mouldings.

Timber suppliers offer a huge range of treated product designed to stop insects and rot from causing you problems. But what’s right for you? Read on to find out which timbers work best in what situations.

Making sense of all the labels and terms can be hard, so we’ve included a glossary that explains all the major terms and six of the country’s leading treatment companies also offer their expert advice on products from pine framing, to LVL and outdoor timbers.

Treated timbers may cost a little more upfront, but by making an educated choice and investing in the appropriate product, you’ll save huge amounts later on.

The following information is general only. For authoritative information, visit the Timber Preservers Association of Australia at www.tpaa.com.au

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Timber threats

While timber is the most sustainable building material around and can survive for centuries under the right conditions, many common timbers are at risk of damage from insect attack and moisture. Problems usually aren’t easy to spot and can be extremely costly and difficult to fix. Naturally durable timber species are often expensive and can be hard to source. Treated timber is more affordable and deals effectively with common risks: the cost increase is minuscule compared to repairing damage. These are the main threats treated timber can combat.

TERMITES

Also known as white ants, these voracious little creatures can eat their way through softwood timbers commonly used in houses and decks. Mainland Australia is home to multiple highly destructive species, and the risk is especially high around the coast – where most of our major cities are situated – as termites love damp. They can bypass physical barriers such as brick foundations and concrete slabs, even tunnelling under tiles to get to wall framing timbers. Termite-specific insecticides added during treatment can stop them dead in their tracks.
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BORERS
These beetle larvae feed on timber as they grow. Some types do little damage, leaving only a single hole and some sawdust to show where they emerged, and many won’t survive in cut timbers. But others are more serious. Lycoids will eat through the sapwood of some hardwoods, leading to cosmetic damage as these timbers are often used for skirting boards and decorative trims. Furniture (Anobium) beetle and Queensland pine beetle both attack pine vigorously and will chew through floorboards, weatherboards and even roof joists. Insecticides used in treatment are effective against common borers.

DAMP
Modern home designs tend to be very good at preventing one of the main dangers water presents but, ironically, likely to worsen the other. We’ve become experts at dealing with moisture-rich soils, with many protective options – including treatment – to stop mould and decay rising through housing timbers (though these are sometimes forgotten when it comes to choosing appropriate timbers for decks or landscaping).

However, many contemporary homes seal up very tightly, so condensation has become a challenge that can lead to rot and mould from the inside. Climate change is making the problem worse, as fungi thrive in warm temperatures and fewer homes have adequate ventilation. Fungicides applied during treatment can easily stop problems before they start.
Different jobs require different timbers, so make sure what you’re buying is fit for purpose. Some timbers are naturally durable against one or more threats, but still require treatment for others. Treatment also helps cheaper timbers to last as long as costly ones.

Treated timber is divided into hazard classes. These range from H1, where timber will be completely protected from the weather, damp and termites and only needs protection against borers, to H6, where the timber will be submerged in marine waters. Read on or talk to your supplier to see what best suits your use. For more details and FAQs, visit www.tpaa.com.au/timber-treatment. For terms in red, see the glossary on page 20.

**FRAME AND TRUSS**

Timber framing is one of the most economical, adaptable and sustainable choices you can make. A combination of groundline systems and treated timbers make affordable species such as pine effective for use as house frames that are able to resist insect and moisture attack. High-value engineered timbers can also be protected with treatments.

Because these timbers are protected in the average home, H2 is effective against termites and borers across Australia, with H2F and H2S also used south of the Tropic of Capricorn. In more challenging conditions and designs, H3 stands up to the occasional moderate wetting. Remember that insurers...
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While termites don’t eat steel frames, they do use them as a handy bridge to access timber flooring, boards, mouldings and furniture, so steel-framed homeowners shouldn’t be complacent when it comes to protecting other timber in the house.

Flooring and Linings
Interior timbers can be protected from borers with H1 treatment in non-termite areas and with H2 treatment in areas where termites are also a risk.

North and south
A lot of products are sold for use ‘south of the Tropic of Capricorn’. This is because Australia’s worst termite, Mastotermes darwiniensis was traditionally found only north of that line. Climate change has seen it head south, with some even popping up on the Gold Coast, so if you live in warmer areas, it might be worth using a higher hazard class of timber to protect against its future spread.
CLADDING
Exposed to the weather, exterior timbers need a higher treatment class: **H3** products fit the bill as they are able to stand up to the rigours of rain in much of the country. In extremely wet areas, a higher class may be appropriate. Ask your supplier.

DECKING AND RAILS
H3 timbers will stand up to above-ground outdoor conditions. These can be used with higher-rated timber uprights or steel bearers. Because these timbers come into close contact with people, **CCA**-treated timber cannot be used: it has precautionary restrictions in place that limit its use to structures with minimal human contact, see [www.apvma.gov.au/node/11751](http://www.apvma.gov.au/node/11751) for full details.

Left and below: Outdoor timbers need H3 and above treatments that cope with repeated wetting.
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PHOTOS: (TOP) CAPTUREPB/SHUTTERSTOCK.COM; (BOTTOM LEFT) GOODLUZ/SHUTTERSTOCK.COM; (BOTTOM RIGHT) YMGERMAN/SHUTTERSTOCK.COM
PLAY EQUIPMENT AND GARDEN FURNITURE
For play equipment, a wide range of environmentally friendly treatments are on the market. Talk with your supplier about preservatives, insecticides and low-VOC treatment methods that are favoured for use around children. As for decking, CCA can’t be used for furniture and play equipment.

FENCING AND LANDSCAPING
Because these timbers are in direct contact with the soil, they need to be able to withstand serious wetting. Look for H4-treated timbers for fence posts, landscaping and retaining walls less than 1m high. For sites with significant water, or for use in critical applications including house stumps, building poles and retaining walls more than 1m high, use H5 timbers, which can withstand severe decay.
Why more Australian home builders and owners choose timber framing

Proven and Popular
Lightweight timber framing is the popular choice for Australian homes. Decades of experience have ensured that the system is safe, reliable, cost-effective and well understood by designers, professional builders and even experienced DIY’ers. Owners and occupants can be assured that they are gaining the advantages of a proven building method.

Ease of renovation
When a family outgrows their home, more space is needed, or you buy a home requiring renovation, timber framing is simple and easy to work with. Whether it’s removing existing framing, adding more timber framing or both, the ready availability of designers, materials and tradespeople familiar with the material make it an easier process.

Fire predictable
A home’s timber framing is usually protected by cladding, often brick on the exterior and plasterboard on the interior. Timber maintains its structural integrity for a long time as it chars at a predictable rate.

Termites and Durability
In designated termite areas, it is important to install a termite barrier system to build termites out. This is because, regardless of the material used for the frame, termites can still eat through other items such as flooring, joinery and plasterboard if they have access. They can also cause damage to electrical cabling. Today, in areas subject to termite attack, timber framing is made from wood safely treated to resist termites, so that is no longer a worry. In fact, many Australian timber framed houses are well over 100 years old which shows the longevity of wood.

Strong, stable and quiet
Since the properties of timber are so well understood, a timber-framed house won’t be noisy, as it doesn’t expand and contract during temperature changes and risk premature cracking in plaster linings.

Low-cost flexibility
Today, most framing systems are prefabricated or built offsite. However, any last-minute changes or variations are easily made onsite by carpenters equipped with all the tools they need. Of course, if they need extra timber, it’s as close as the nearest hardware store.

Fast to assemble
Prefabration, flexibility and builders’ knowledge of how timber frames are assembled, (joints, connections, tie-downs and bracing) combine to deliver fast, efficient buildings to lock up stage.

Simple installation of services
Timber frames can be easily drilled to install plumbing and electric cables, unlike some materials that require cushioning grommets to protect cable insulation during installation and limit longer term damage to plumbing due to expansion and contraction or corrosion.

Insulating
Timber framing helps insulate your home as it has a higher R-value than many other materials. This means that it doesn’t act as a ‘thermal bridge’, conducting energy (heat) from one side of a wall to the other.

Renewably and responsibly sourced
Most Australian-sourced timber is covered by either one or both certification systems, Australia’s Responsible Wood, which is endorsed by the world’s largest certification system the Programme for the Endorsement of Forest Certification (PEFC), or the Forest Stewardship Council. This means that the wood you use has been produced in an environmentally responsible and sustainable manner.

Environmental advantage: Low embodied energy
Wood has the lowest embodied energy of all common building materials. This is a measure of the energy (usually produced by greenhouse gas-emitting generators) that is used to convert the wood in trees to framing timber.

Environmental advantage: Stores carbon from the atmosphere
Choosing wood removes greenhouse gasses from the air. Approximately half the dry weight of wood is carbon, absorbed from the atmosphere by a growing tree. Using timber in buildings stores the carbon for as long as the building exists or the timber is reused or recycled.

To find out more visit www.akd.com.au
The website for wood
IN THE WATER

Whether you need uprights in a boggy part of the garden, a bridge on a rural property or a jetty by the seaside, in-water is definitely the most challenging place for timber and so serious treatments are required. Choose **H5** for freshwater or **H6** for marine waters. Concerns re arsenic leaching from **CCA**-treated timbers have seen **ACQ** and **azole-based** treatments become popular for freshwater use.

Safety

Treated timber requires the same safety precautions as untreated timber, particularly the use of breathing protection when you’re cutting and drilling. When it comes to other handling and disposal of waste, read the safety advice sheet for the product you are using. Never burn treated timbers.
Protect your valuable assets to the core
NO ROT. NO BORERS. NO TERMITES.

Fisher’s treat your timber and engineered wood products using the most advanced wood treating technology in the world.

• Water-based treatment
• Low odour
• Penetrates to the core - not just surface spray!
• Available in H2 and H3 hazard levels

Timber species we treat:
✔ Victorian Ash  ✔ Radiata Pine  ✔ Red & White Baltic  ✔ Douglas Fir/Oregon

Call us (03) 5134 5155
www.fisherstimberpreservation.com.au
Expert guide

If you’re worried about getting it right with treated timber, trusted suppliers can help you make the right choices. Here’s how to find what’s right for the job from some of the nation’s leading experts. For terms in red, turn to the glossary on page 20.

INCREASING TIMBER USE

When building, there are always options for what to use. Timber is one of the most versatile construction materials and has many benefits over alternatives with regard to net environmental impact, cost effectiveness and ease of use. Unlike steel and concrete, timber is commonly carbon positive and much of what we use today is grown in sustainably managed plantation forestry. It’s more naturally insulative than steel and does not corrode. It’s also vastly easier to make changes in your design with timber, especially during and after construction of your home.

Advertisements from steel frame suppliers emphasise timber’s susceptibility to insect and water attack as its weakness, however, lasting protection can be delivered with treatment. This increases the areas in which timber can be used. Builders and homeowners can then take advantage of the environmental, practical and cost benefits of timber framing.

Different regions – and even different sites in particular regions – will require different protections, so it’s important to give your
timber supplier as much detail as possible to ensure the recommendations for framing timbers are as accurate as they can be.  

Lonza Wood Protection tailors solutions for protecting timber by working closely with businesses to ensure the right solution is used for the intended application. Tanalith®, Vacsol® and Permatek® brand insecticides have been used to meet tailored customer needs in Australian hazard class H2 conditions for many years. The result is effective protection of concealed structural components.  

Permatek is added to engineered veneer laminated and reconstituted wood products such as LVL, plywood, strand board, particle board and MDF as a glueline additive or in the resin system.  

Vascol-treated framing products are available in options suitable for Australia-wide or south of the Tropic of Capricorn use. Tanalith-treated products are suitable for H2F protection south of the Tropic of Capricorn. Talk with your supplier about what’s right for you. For more, visit www.lonzawoodprotection.com/apac/  

COMPLIANCE  
Being able to show that a timber product has Proof of Compliance is important for every step in the construction chain, from builders, to owners, to building inspectors.  
Requests for Proof of Compliance with regard to structural timber termite protection are often required urgently. A truss plant needs to know it is using the right option for a frame, truss or flooring system; or a certifier may require more details before they can sign off. Providing this information needs to be relatively seamless, even with a vast array of structural building components in a house frame from numerous suppliers.  

It’s vital that suppliers focus on compliance, because from the builder’s or owner’s perspective, it’s often a case of “someone is asking for proof and I need it now!”  
Documentation proving compliance assures the customer that the timber meets hazard levels as defined in AS/NZS1604 (and AS1684). This proof of compliance can take the form of:  
• The correct and visual branding of the product.  
• Documentation and Accreditations that display Compliance processes.  
• Treatment Proof of a Pack via an Ongoing Auditing and Quality Assurance system.  
Difficulties arise for end users when the processes and the communication between the timber seller and the treatment plant aren’t straightforward. In some cases, third parties are contracted to provide treatment. Each party may hold and/or supply different documentation, making it harder for you to show you have all the necessary proofs.  
Ideally, your timber supplier should be able to provide comprehensive documentation that will satisfactorily answer all compliance questions from any interested party.  

Meyer Timber’s MT2 Brand (for south of the Tropic of Capricorn) is overviewed in a Meyer Timber Statement for Structural Termite Protection encompassing the company’s in-house H2F-registered treatment plants, along with the many other products Meyer distributes. It covers:  
• What is MT2.  
• Where it can be used.  
• How it helps protect against termites.  
• The products it covers.
• The product guarantee.
• A list of FAQs.

MT2 also comes with builder Meter Stickers and matching Builder Record copies, making compliance easy by bundling all products and guarantees into a single document.

For more, visit www.meyertimber.com.au

TREATED VALUE
Timber treatment adds an extra cost to construction timbers, but this is a fraction of the cost of replacing damaged timbers. The wide range of treatment process options mean that most timber uses in the house and garden have several alternatives available, so you can choose the appropriate balance of results and expense for your needs.

Significant termite attacks and some types of rot often occur in the most inaccessible parts of a house, where access is minimal and in places that are rarely inspected. This makes sense – problems in commonly used areas are quickly seen and stopped.

Household insurance generally doesn’t cover termite damage, and specialist insurance products that do require you to have up-to-date termite protections in place. Treatment is a very large part of that. What costs you a little extra now can save many thousands in the future.

AKD Softwoods sells Australian Plantation Pine products that are suitable for a range of indoor and outdoor applications. As a leading Australian-owned forestry and timber processing company, their value-added timber products cover most domestic uses, and are strongly recommended by builders. AKD is a wholesale supplier and doesn’t sell direct to the public, but distributes widely – check the website for the stockist nearest you.

AKD plantations are managed sustainably under the Code of Forest Practice for the Production of Timber and timber is supplied with details for product usage, certification and building compliance information, to make approvals easier for builders and owners.

Above: Treatments for children’s play equipment are regulated and cannot include CCA.
AKD’s structural pine for house framing is offered in a termite-proof solution: H2F termi-blue is ideal for dry interior structural framing south of the Tropic of Capricorn. For the Australian outdoors, AKD’s H3 LOSP-treated eco-wood product is suitable for a range of outdoor above-ground uses including decking, pergolas and decking substructure. The company also offers a range of landscape products, with their Ironwood sleepers available in different treatments and a Sienna coloured option – all for H4 in-ground use in garden retaining walls less than 1m high.

For more, visit www.akd.com.au

**INNOVATIVE RESEARCH**

New timber treatment products are the result of years of research, as manufacturers need to be certain the active ingredients will stay bound to the timber, both for ongoing effectiveness and for safety. Research focuses on efficacy and environmental impacts, both in terms of the ingredients’ effects on humans and animals sharing the house and garden, and on the lifetime impacts of the product, including disposal.

Treatment plants are also part of this equation. In systems using solvents, vapour control and automation make for safe workplaces. Systems using water carriers, or applied to the surface (such as Blue envelope treated timber or in the glueline of engineered timber products) carefully manage their treatment chemicals and make sure water is uncontaminated before it leaves the site.

Each system has its particular applications and advantages. Some end users may prefer one system to another; for example, schools tend to favour water-based products over solvent-based products. Several water-based systems are now on the market, most using pressure-based application systems and one having an environmental accreditation. Some of these products are more expensive than older treatments but come with long guarantees and are highly approved for use around children and domestic animals.

**Koppers Performance Chemicals** (known as Koppers PC) is one of the oldest companies operating in this area and accordingly has one of the widest ranges of timber preservative systems. Koppers PC’s latest generation MicroPro system impregnates micronised copper azoles (MCA) into timbers with a pressure application to create a highly durable product that comes with a range of environmental certifications ranging from EPP Status (an Environmentally Preferable Product) and Greenguard Children and Schools certified to a Global GreenTag PhD, which rates the health impacts of a final product as well as its ingredients.

Rated as as having low VOCs and with 90% less copper release into soil and water than amine copper preservative treated products, MicroPro treated timbers
are suitable for up to **H5** hazard class and can be used in applications from framing and cladding to decks and children’s play equipment. A micronised pigment can also be added in the process to produce an attractive and long-lasting coloured outdoor product marketed as MicroPro Sienna. Because they are suitable for contact with soil and fresh water, these timbers can also be used as house stumps and retaining walls. The very small amount of copper that is released bonds readily to soil to become biologically inactive.

Koppers PC’s wider product range extends from **H1** treatments for indoor above ground treatments to heavy duty dual treatments for **H6** marine applications.

**For more, visit www.kopperspc.com.au**

### LOW-EMISSION OPTIONS

One of the common questions about treated timber involves the chemical processes involved in treatment. While treated products have a high level of safety, some common processes rely on solvents to move the preservatives into the timber.

In recent years, non-solvent methods of timber treatment have come onto the market. These have greener credentials than older treated methods. Most use a combination of physical and chemical processes to bond the timber and preservatives and insecticides, giving a lasting result.

Tru-Core Wood for Life from Kop-Coat is a leading option. It combines **vacuum impregnation** with a non-volatile carrier that penetrates the cells of the wood, deep into the core of the timber. This process means that as well as treating common species such as radiata pine, it also works for ‘hard to treat’ species such as Douglas fir, Victorian ash and Baltic pine, all with no VOCs. It maintains the timber’s natural appearance, dimensional stability and mechanical properties, which makes it an ideal process for engineered timbers as well.

**Fisher’s Timber Preservation**, a family-owned business in Morwell, Victoria, offers Tru-Core preservation in a range of options. These include **H2** Red, which uses permethrin as an insecticide and is suitable for all engineered wood products, including glulam, LVL and I-joists. **H3** Clear uses **azole** with permethrin to protect appearance-grade structural timbers in a range of species. These are **branded** with tags rather than stamped, and managed with utmost care to preserve their finish. **H3** Green tint also uses azole with permethrin for treatment of non-appearance grade product.

Low-emission treatment is just one of Fisher’s sustainable practices, along with a zero waste policy and solar power for their plant. The plant can treat products up to 17m long, 1.1m wide and 1.4m high to Codemark standards, which exceed AS 1604.

**For more, visit www.fisherstimberpreservation.com.au**

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**Left:** Suppliers prefer low-odour treatments like Fisher’s Tru-Core.
**OUTDOOR TIMBERS**

Treated timber is important for more than just building homes: it’s an essential part of using timber in the garden – whether that be in decks and pergolas, retaining walls and fences or cladding. Higher hazard class ratings are needed for these uses, as the risk from both moisture and insect attack is substantially higher for timbers outside, and higher again for ones in contact with the soil.

Additionally, treatment methods for outdoor timbers need to bind the preservatives and insecticides strongly to the timber, so they aren’t removed by exposure. Some of the classic outdoor treatments were based on arsenical compounds. As a precaution, their use has been restricted to areas where they don’t come into contact with people as part of regular use.

New treatment options have taken their place for H3-H5 timbers. The best choices combine a naturally durable timber with a stable treatment option. In bushfire areas, you will also need to select options with the appropriate fire zone rating.

**Simmonds Lumber** sells a range of Australian hardwoods, including Spotted Gum ACQ H3. The long-lasting ACQ treatment is a copper-based method that is safe for family decks and children’s play areas and won’t leach chemicals out in rain runoff. It provides high-quality protection against decay and borer or termite attack and is perfect for external above-ground uses such as decking, boardwalks and railings.

The heartwood of Spotted Gum is naturally durable but the sapwood is not. It is essential when purchasing Spotted Gum that you ensure that the sapwood has been ACQ treated; this will ensure its longevity. Spotted Gum has historically been used for wharves and bridges and it’s common to find decades-old recycled boards on sale for premium prices. Despite its strength, it’s easier to work with than many hardwoods and is much less likely to stain adjacent bricks or paintwork. It can be used in conjunction with higher-rated treated or hardwood timbers as uprights where required for an extremely attractive finish, and it’s also rated to BAL 29 in bushfire areas.


![Simmonds Lumber decking is tough enough for coastal use.](image)
There are many specialised terms when it comes to timber treatment. The following is just a basic guide, ask your supplier for more details. More extensive details can be found at [www.tpaa.com.au/timber-treatment](http://www.tpaa.com.au/timber-treatment). Terms below in red have their own entry in the following list.

**TYPES OF TREATMENT**

**ACQ** Short for alkaline copper quaternary, ACQ is an arsenic-free alternative to **CCA**. Its formula protects against decay, borer and termite attack and provides a high-quality very durable protection similar to CCA, but is not restricted to low-contact usage. It’s insoluble, so suitable for conditions where timber will be exposed to rain. ACQ-treated timbers can be painted or stained but require hot-dipped galvanised, copper or stainless steel fixtures and fittings. Commonly available in **H3-H4**.

**Bifenthrin** This effective water-based pyrethroid insecticide is applied as part of the manufacturing process for engineered timbers to provide termite and borer protection. It also controls a wide range of common household pests. Bifenthrin in treated timber is not a risk to bees. Commonly used in **H2-H3** timbers.

**Boron** Low toxicity boron-based preservatives are used in timber framing for protection against borers and some also have termite protections that are suitable south of the Tropic of Capricorn. It’s not insoluble, so is not suitable for external applications or anywhere timber comes into contact with the ground. Commonly used for furniture, internal framing and similar applications.

**CCA** Short for chromated copper arsenate. The copper protects against decay, while arsenic acts as a termiticide and the chromium fixes the preservative to the wood. It’s insoluble and extremely durable, but concerns over the arsenic content in CCA have led to a precautionary restriction for its use in products that come in contact with people, especially children, making it unsuitable for play equipment, garden furniture and residential decking. Uncoated steel fastenings can cause black stains on CCA due to a reaction with the preservative, so use recommended fasteners. Up to **H6** combined with other treatments.

**Creosote** This oil-borne preservative (coal-tar based), is naturally water repellent and used for heavy-duty construction and marine applications. Up to **H6**.

**LOSP** A combination of insecticides and fungicides (often permethrin and azoles) designed to suit the end use are dissolved in a light solvent for application. While some
naturally change timber colour, others have colouring added. There are also low-odour processes and some that emulsiﬁe LOSPs into water-based solvents. Most LOSP-treated timbers are very dimensionally stable. Usually H2 and H3, though not in ground contact.

**MCA** Microscopic particles of copper are suspended in water with azole biocides in micronised copper azole (MCA) processes for a very effective and long-lasting treatment. MCA timbers need remedial treatment on cut ends, but are generally environmentally friendly, durable and attractive. Available from **H1-H5**, mostly used in H4 and H5 applications, particularly for landscaping and decking.

**Proprietary treatments** Sold under brand names rather than by treatment hazard level. Product sheets and installation guidelines make it clear where each product can be used, so check them carefully.

**Tanalith®/copper azole** Another arsenic-free copper formulation, Tanalith or copper azole (CuAz) is popular for use around children and animals. The copper is mixed with a synthetic azole biocide that combats fungi and insect infestation. Tanalith E has an extra water-repellent added to the formulation to increase its lifespan. A reliable, long-lasting option, it’s widely used for framing timbers, and non-corrosive, galvanised ﬁxtures and ﬁttings can be used. Available in H2-H5.

**GENERAL**

**Azoles** These compounds are widely used as fungicides in agriculture and are often used with copper, another natural fungicide.

**BCA** The Building Code of Australia sets out binding requirements for materials and construction methods.

**Brands** All treated timbers must be labelled under the Australian Standards (AS 1604). This is a code on every length of treated timber, known as a brand. This is at least a four-part code: eg XXX XX HX X. The ﬁrst part is a three-digit code indicating the company and treatment plant number. The second is a two-digit code indicating the preservative code number. The third, HX indicates the **Hazard Class**. The ﬁnal part is a letter that tells you more about the penetration of the preservative and so on. Other information may also be marked, including “treated with chromium copper arsenate”, which is compulsory for CCA-treated timber.

**Brush-on** These treatments are applied with a brush and usually only penetrate up to 3mm into the timber. They require regular reapplication and cut timber must be retreated. Mostly used for furniture or as a re-sealing treatment for cut ends and drilled holes in other treated timbers.

**Cellulose** This is the main structural component of trees. It’s a complex carbohydrate and absolutely delicious to termites and other insects. Many fungi also attack the carbohydrates in timber.

**Compliance** Both the BCA and other building codes have strict rules about what timbers are to be used in house construction and other major builds. Suppliers have documentation to show that their timber is treated and/or tested to meet those rules, which is used to prove to inspectors the timber is fit for purpose.

**Diffusion** Wet (green) wood has preservative diffused via the water in the wood cells in the same way a tree would ‘drink’. The preservative doesn’t chemically react with the wood to become insoluble, so wood treated this way is mostly used for furniture, ﬂooring and mouldings. Diffusion preservatives are also used for remedial treatment.

**Durability** As well as being a term used to describe their general lasting quality, timbers are rated into four natural durability...
classes. This rating is given on the in-ground contact performance of the **heartwood** only. **Sapwood** is considered to be non-durable in all species and out-of-ground contact timbers have much longer lifespans. Class 1 is considered highly durable, with an expected service life of over 25 years. Class 2 is durable, with an expected service life of 15-20 years. Class 3 is moderately durable with an expected service life of over 8-15 years. Class 4 is non-durable with an expected service life of up to 8 years.

**Envelope treatments** Applied to the outside of timber, envelope treatments can be dipped or sprayed on and the preservative coating penetrates 2-10mm. Cut and drilled timber usually needs re-sealing.

**Glueline** Preservative treatments are added to the glues used while making engineered timbers such as LVL and plywood.

**Groundline systems** These stop the movement of termites and moisture into a building. They include dampcourses, waterproofing membranes, termite barriers, etc.

**Hardwood** Timber from slow-growing deciduous trees. In the building industry it describes a dense, durable timber that is usually naturally resistant.

**Hazard classes** These are the conditions that particular timbers can be exposed to. A timber that is rated H4 will be suitable for all conditions up to H4, for example. For a full description, including subclasses, visit the TPAA website. In short, they are as follows:

- **H1**: suitable for inside, above ground, protects against lyctid borers.
- **H2**: suitable for inside, above ground, protects against borers and termites.
- **H3**: suitable for outside, above ground, protects against moderate decay, borers and termites.
- **H4**: suitable for outside, in-ground, protects against severe decay, borers and termites.
- **H5**: suitable for outside, in-ground, contact with or in fresh water, protects against very severe decay, borers and termites.
- **H6**: suitable for marine waters, protects against marine wood borers and decay.

**Heartwood** The older, often darker wood at the centre of a tree is called the heartwood. It is much lower in carbohydrates and much more durable than **sapwood**. Water and sap no longer move through this part of the wood.

**Naturally resistant** Some species have timber that is naturally durable and resistant to termites and borers. They are often heavy, expensive and hard to cut and nail, but can be very useful in smaller applications such as decks and landscaping. White cypress, spotted gum and tallowwood are all naturally resistant. NB: termites can still climb over naturally resistant timbers to eat attached timbers and boards.

**Pressure/vacuum application** The preservative is pushed through the timber’s exterior sapwood using a liquid (water or solvent) through the same cellular pathways that once carried the tree’s sap.

**Sapwood** The ‘fresh’ part of a tree that transports food and water is called the sapwood. This is the least naturally durable timber of a tree when harvested, but it can be very useful for moving treatment through timber to create a durable product that is still light and cheap.

**Softwood** Timber from conifers. While some conifers have good durability, ‘softwood’ in the timber industry often refers to lightweight timbers that require treatment for most applications, especially pine and Douglas fir.

**Vacuum application/impregnation** See **Pressure application**
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