

TIMBER TREATMENT

The treatment requirements for timber framing were changed in 2011, so it's a good time to recap the required levels of treatment for different timber members.

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In April 2011, B2/AS1 Amendment 7 introduced new tables for radiata pine and Douglas fir to replace those in NZS 3602:2003, an Acceptable Solution for choosing timber and wood-based products for use in buildings. H3.1 LOSP treatment was no longer permitted for framing timber. H1.2 boric treatment became the minimum requirement for radiata pine and Douglas fir framing timbers – the exception being H3.2 treatment for cantilevered floor joists and associated framing (see Table 1). Amendment 7 also allows the use of untreated Douglas fir framing within clearly defined building design parameters.

Use of any other framing timber or treatment must be submitted for consent, together with supporting information to show the timber will be sufficiently durable as framing, as an alternative method. Naturally durable timbers are seldom used for timber framing, but western red cedar or redwood can be used untreated for finishing, exterior joinery and claddings (see the BRANZ book *Selecting timber*).

Preservative treatment

NZS 3640: 2003 *Chemical preservation of round and sawn timber* sets out the preservative treatment and identification of timber to provide protection from insect attack and decay. This is based on six hazard classes:

- H1.1 and H1.2 apply to all species for which classes H1.1 and H1.2 are specified in NZS 3602:2003 *Timber and wood-based products for use in building*.

- H3.1, H3.2, H4, H5 and H6 apply only to *Pinus* species.

The standard includes a specification for each hazard class and lists the preservative type(s) approved to achieve each one. →

Table 1: Required treatment levels for different end uses of radiata pine and Douglas fir in timber-framed buildings.

Timber to be used for	Minimum required treatment	Timber to be used for	Minimum required treatment
External timber use			
deck jack-studs supported clear of ground	H3.2	deck piles in ground	H5
exposed subfloor framing	H3.2	piles	H5
veranda posts supported clear of ground	H3.2	poles	H5
		veranda posts in ground	H5
Clear of ground			
exterior plywood unpainted or used as bracing	H3 CCA	balcony barrier exposed	H3.2
exterior plywood painted	H3 LOSP	roof framing weather exposed	H3.2
cladding or exterior trims painted	H3.1	wall framing weather exposed	H3.2
cladding or exterior trims unpainted, clear finished or stained	H3.2	shingles/shakes	H3.2
deck joists/bearers	H3.2	fence rails and palings	H3.2
decking	H3.2	fence posts	H4
Framing timbers^{1,2}			
external wall framing direct-fix cladding	H1.2	roof framing – low slope/skillion	H1.2
external wall framing E2/AS1 cavity cladding	H1.2	roof framing – roof space including trusses and ceiling battens	H1.2
balcony wall framing enclosed	H1.2	roof sarking timber	H1.2
parapet framing	H1.2	cavity battens	H3.1
interior wall framing including double top plates	H1.2	roof sarking plywood membrane roof	H3 CCA
enclosed subfloor framing	H1.2	enclosed cantilevered floor joists	H3.2
Interior timbers			
plywood	untreated	joinery (interior)	untreated
furniture	untreated	flooring	H1.2
finishing timbers	untreated	window reveals to aluminium windows	H3.1
Note:			
1. Douglas fir may be used untreated on low-risk design buildings as defined in Amendment 7 to B2/AS1.			
2. H1.2 boric-treated Douglas fir may be used in all framing applications where H1.2 boric-treated radiata pine is permitted.			

(Adapted from NZS 3602:2003 *Timber and wood-based products for use in buildings* with the permission of Standards New Zealand.)

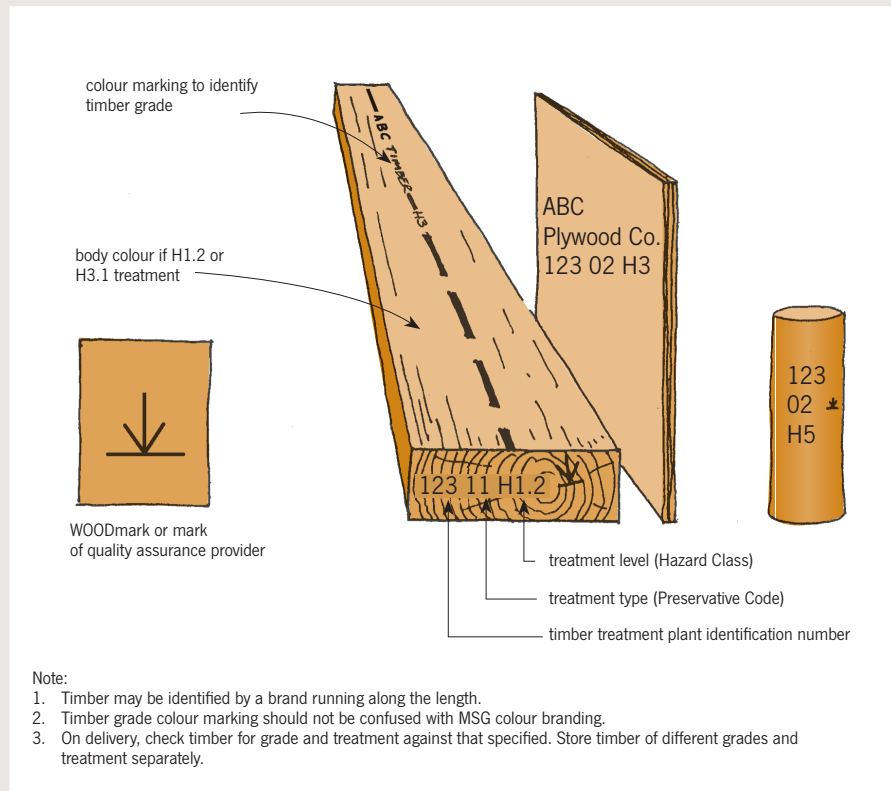


Figure 1. Identifying treated timber.

A few precautions

When using copper-based treated timber for exposed situations:

- site treat all cut ends of piles
- do not place cut ends in the ground
- do not burn off-cuts on barbecues or in domestic fireplaces (CCA-treated timber contains arsenates and chromium).

The supplier may require timber that is cut after treatment to have the cut site-treated before installation.

Treated timber branding

NZS 3640 requires every piece of treated timber (except defined packets of small items) to be clearly branded with the treatment plant number, preservative type code number (see Table 2) and the hazard class (see Figure 1). The addition of the WOODmark trademark is optional, but confirms the treatment has been carried out under the quality assurance standards of the New Zealand Timber Preservation Council.

Branding can be a permanent ink mark, an incised mark, a burnt mark or a plastic tag stapled to the timber. Every stick of timber must be marked, except for packets or bundles of small items of sawn timber such as fencing

battens or palings less than 1,500 mm long and not greater than 5,000 mm² in cross-section, which may have a branding on the packet.

Branding must be located as follows:

- Sawn or machined timber less than 1.5 m long and cross-section less than 5,000 mm² – on one end of each piece or on a broad face within 150 mm of an end or repetitively along the length at 1,500 mm centres or packet branded.
- Other sawn or machined timber – on a broad face either 150 mm from an end or repetitively along the length at 1,500 mm centres or one each of each piece.
- House piles – 1/3 of the length of the piece of the timber from and facing the top. For round timber, the brand must be placed on one end of each piece.
- Plywood – on the back or edge of each sheet.
- Timber less than 1,250 mm² cross-section – no branding required.

Colour of treated timber

In addition to end branding framing timber for H1.2 and H3.1, a general body tint colour is used:

- Pink – boron, H1.2.
- Green or no added colour – propiconazole and tebuconazole, permethrin, H3.1.

Table 2: Timber treatment codes.

Preservative types	Code No.
Copper based	
Copper chrome arsenate oxide	01
Copper chrome arsenate salt	02
CuAz (copper azole)	58
ACQ (ammoniacal/alkaline copper quarternary)	90
Boron (radiata pine)	11
LOSP treatments (battens and claddings)	
TBTO (tributyl tin oxide)	56
TBTN (tributyl tin naphthenate)	62
CuN (copper naphthenate)	57
IPBC (iodopropynyl butylcarbamate)	63
Propiconazole and tebuconazole	64
Permethrin	70

The use of off-site fabrication increases the difficulty in identifying timber treatment types on site. Designers and specifiers and anyone supervising construction should insist that all suppliers of all timber components arriving on site provide certification of the treatment used.

Although the majority of treatment plants in New Zealand are covered by the quality assurance systems administered by the Timber Preservation Council (NZTPC) and are licensed to use the Woodmark trademark as part of their identification brand, these are often not visible on assembled components. There are also other quality assurance systems in operation.

Timber sizes

Timber is available in three surface finishes: rough sawn, gauged or dry dressed. For a nominal (call) size, the actual (finished) dimension will vary depending on the way it is finished.

Sawn timber is generally available in sizes up to 300 × 100 mm and in lengths up to 6 m. Length is measured in 300 mm increments, usually starting at 1,800 mm for framing. ◀