

**CodeRight™**

DRYFRAME PROTIM MICRO H.3  
PRODUCTS FROM

**NORTH SAWN TIMBER**

www.nslumber.co.nz

**02 7574 3394**

CodeRight  
50  
YEAR  
DURABILITY

**CodeMark»»»**  
(CMNZ70136)

 **NORTHTSAWN  
TIMBER**



# North Sawn Timber Ltd.

## CodeRight

### Dryframe Protim Micro

This **KD** Timber Product is suitable for use Hazard class **H3.2** or less is specified.

Protim Micro is referenced in AS/NZS 1604:2021 for hazard classes H3, H4 and H5.  
Under the North Sawn Timber CodeMark certification the H3 hazard class is approved as  
a substitute for H3, H3.2 or any lower hazard class.

**CodeMark»»»**  
(CMNZ70136)

## Installation Manual

V1.1 February 2023

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## 1 Scope

North Sawn Timber Ltd produce CodeRight Dryframe Protim Micro structural framing and timber products. These products are treated with Protim Micro.

# CodeMark»»»

(CMNZ70136)

North Sawn Timber Ltd hold CodeMark certification for this product, Certificate number CMNZ70136. This certifies that the CodeRight Dryframe Protim Micro timber products produced by North Sawn Timber Ltd comply with the requirements of the New Zealand Building Code.

Protim Micro treated products do not contain the heavy metals of Chromium and Arsenic like traditional H3 or H3.2 treated framing products.

The New Zealand Building Code B2/AS1 specifies that timber framing products shall provide 50 years of durability. The CodeRight Dryframe Protim Micro timber products are backed by a limited 50-year durability provided by the manufacturer of the chemical Koppers Performance Chemicals. This provides superior durability and Warranty then timber treated to a lower hazard class.

These products are manufactured in accordance with the following standards:

- **NZS 3622-** Verification of Timber Properties
- **AS/NZS 1748:2:2011** Timber Solid Stress Graded
- **NZS 3631** New Zealand Timber Grading Rules

The manufacture of these structural timber products is licensed under the Grade Right (NZ) who are an independent Verification Authority, qualified under **AS 1720.1** and **AS/NZS 1328:1998**.

Manufacturing process for these CodeRight Dryframe Protim Micro structural timber products follows the procedures as set out in the North Sawn Timber Ltd SG System quality manual.

These CodeRight Dryframe structural timber products are treated with Protim Micro.

Protim Micro is referenced in **AS/NZS 1604:1:2021** for Hazard classes H3, H4 and H5.

Under this CodeMark certification the H3 hazard class is approved as a substitute for H3, H3.2 or and lower hazard class.

The treatment process is in accordance with the following standards.

### AS/NZS 1604:1:2021

The treatment of the structural timber products is licensed under Treat Right (NZ), who are an independent Verification Authority, qualified under **NZS 3640:2003** and **AS/NZS 1604**.

Treatment procedures are these structural products follows the procedures as set out in the North Sawn Timber Treatment Plant Quality Systems Manual.

Structural Timber products treated with Protim Micro comply with clause B2/AS1 of the New Zealand Building Code and comply with **NZS 3602:2003**, Timber and Wood Based Products for use in Building.

## 1.1 Structural Timber Framing Sizes and Grades

North Sawn Timber produce timber products treated with Protim Micro in the following structural grades:

- SG6,
- SG8,
- SG10 and
- SG12.

Standard timber sizing is per **NZS 3604:2011, 2.3.5**

Call Sizes	25	40	50	75	100	150	200	250	300
Actual minimum Dried size	19	35	45	70	90	140	190	240	290

Timber sizing is not limited to the above sizes as customer sizing is available.

Solid timber cavity batten and castellated cavity batten are also manufactured in prescribed profiles.

Cavity Batten treated with Protim Micro under the Standard AS/NZS 1604:1:2021 meet the durability requirements of E2/AS1, paragraph 9.1.8.4(d) and these battens will comply with B2/AS1.

Cavity Battens treated with Protim Micro must not be in direct contact with metal wall cladding. This may cause corrosion of the cladding. A suitable separation layer must be used.

## 2 Fixings and Durability

### 2.1 Exposure Definitions NZS 3604:2001

CodeRight Dryframe Timber products treated with Protim Micro conform with the durability requirements of the New Zealand building Code B2/AS1.

Protim Micro preservative is manufactured by Koppers Performance Chemicals Ltd and is backed by a 50-year Limited Guarantee (see appendix 1). The treatment contains proven Micronised copper and tebuconazole preservative actives for effective protection against decay fungi, termites, and other wood boring insects.

#### Cut Ends

Property treated wood may contain areas of untreated heartwood that can be exposed when the wood is cut or drilled after treatment. It is recommended that a suitable brush on wood preservative is applied to freshly exposed surfaces.

## 2.2 Fixings NZS 3604:2001

- 2.2.1 For wood-based building components, preservative treatment, in-service moisture range and their end use environment shall comply with NZS 3602
- 2.2.2 All timber and wood-based building components shall be protected against damage from moisture, and against significant variations of moisture content, both before and after installation or enclosure.
- 2.2.3 Timber Framing timber shall be separated from concrete or concrete masonry in accordance with 2.3.3.

## 2.3 Copper Based Timber Preservatives

Steel fixings and fasteners in contact with timber treated with copper-based timber preservatives (H3, H3.2 or higher) shall be as per Durability Table 4.1 and Durability Table 4.3, but shall be a minimum of;

- (a) Type 304 stainless steel for fixings in contact with timber treated with Copper Azole preservatives where used in exposed or shelter locations
- (b) Hot Dipped galvanized for all other applications.

## CodeRight Figure Ref: 1 Durability Figure 4.3b Exposure Definitions

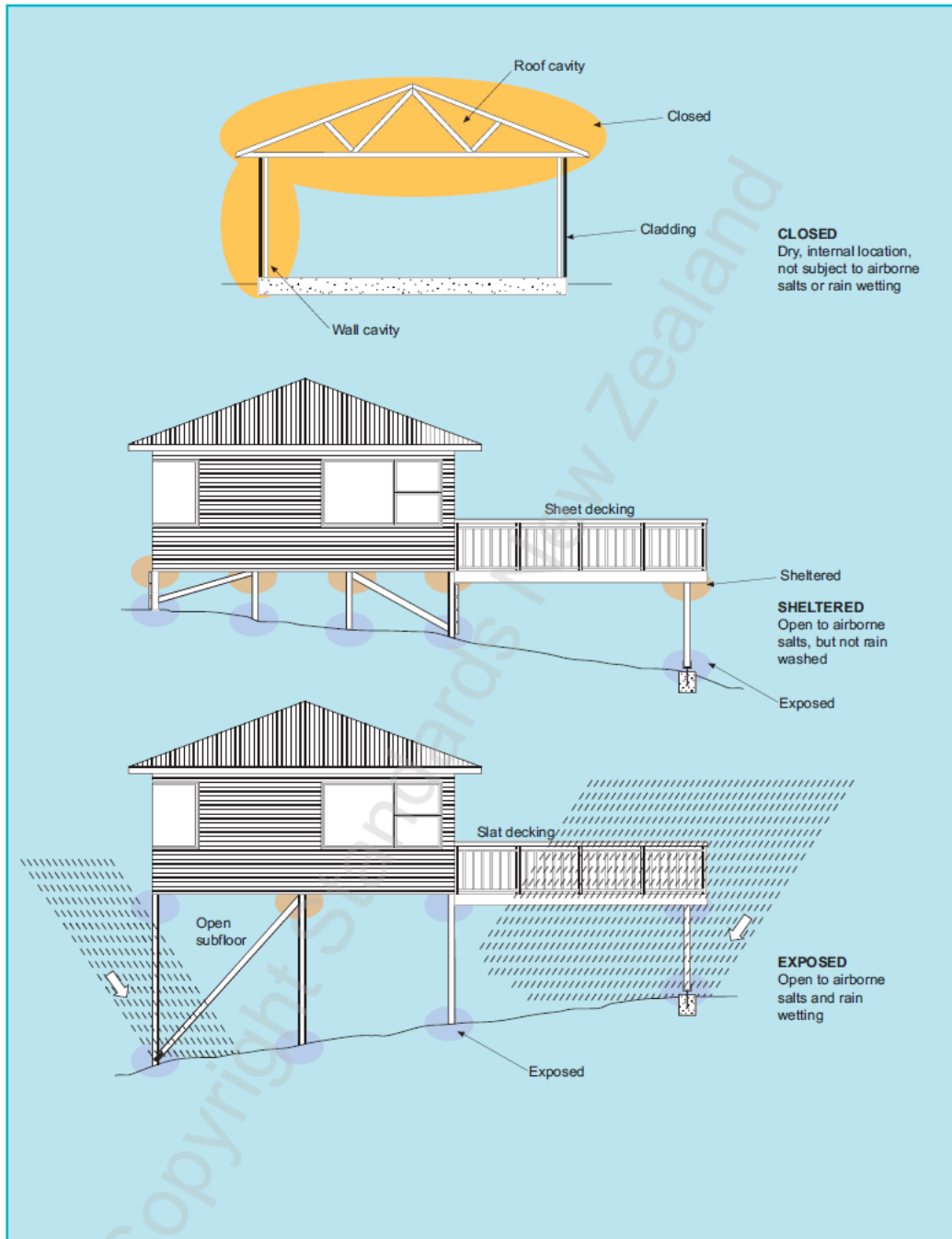


Figure 4.3(b) – Exposure definitions (see [table 4.1](#) and [figure 4.3\(a\)](#))

CodeRight Table Ref: 1 Durability Table 4.1 Protection required for steel fixings and fastenings excluding nails and screws

Table 4.1 – Protection required for steel fixings and fastenings excluding nails and screws<sup>(1)</sup> (see 4.4.1)

ZONES	FIXING FASTENING	ENVIRONMENT		MATERIAL
ALL ZONES	Nail plates	CLOSED AND ROOF SPACES		Continuously coated galvanized steel <sup>(2)</sup>
	Wire dogs & bolts			Hot-dipped galvanized steel <sup>(2)</sup>
	All other structural fixings	CLOSED		Mild steel (uncoated, non-galvanized) <sup>(3)</sup>
ZONE D	All structural fixings	SHELTERED <sup>(4)</sup> AND EXPOSED		Type 304 stainless steel <sup>(5)</sup>
ZONES B AND C	Treated timber pile connections more than 600 mm from the ground and all subfloor connections	Subfloors vented 7000 mm <sup>2</sup> or less	SHELTERED <sup>(4)</sup>	Hot-dipped galvanized steel <sup>(2)</sup>
		Subfloors vented more than 7000 mm <sup>2</sup>	EXPOSED	Type 304 stainless steel <sup>(5)</sup>
	Treated timber pile connections within 600 mm of the ground	SHELTERED <sup>(4)</sup> AND EXPOSED		Type 304 stainless steel <sup>(5)</sup>
	All other structural fixings, except fabricated brackets <sup>(6)</sup>	SHELTERED <sup>(4)</sup>		Hot-dipped galvanized steel <sup>(2)</sup>
EXPOSED		Type 304 stainless steel <sup>(5)</sup>		

(1) Items described in this table are steel fasteners required to last not less than 50 years, used for joining timber, such as nail plates, bolts, brackets, wire dogs and similar, but not including nails or screws (which are described in table 4.3).

(2) All galvanizing weights to steel shall be as given in table 4.2.

(3) Steel fixings in timber treated with copper-based timber preservatives shall be as per 4.4.4.

(4) "Sheltered" shall be that above a 45° line drawn from the lower edge of a projecting weathertight structure such as a floor, roof or deck. "Exposed" shall be below that 45° line. See figure 4.3(a) and (b).

(5) Type 304 stainless steel is sufficient to comply with NZBC requirements, but may have surface rust. Type 316 may be used where appearance is a consideration but exceeds the requirements of the NZBC.

(6) "Fabricated brackets" shall be made from 5 mm (minimum thickness) mild steel and shall be hot-dipped galvanized.

#### 4.4.2

Galvanized steel components shall have galvanized coating masses in accordance with table 4.2.



CodeRight Table Ref: 2 Durability Table 4.3 Steel item such as nails and screws used for framing and cladding

#### 4.4.3 Nails

The materials for nails and screws shall be as given in table 4.3.

**Table 4.3 – Steel items such as nails and screws used for framing and cladding (see 4.4.3)**

Building location	Nail or screw use				
	Cladding that acts as bracing (50-year durability)	Non-structural cladding (15-year durability)	Framing in “Closed” areas <sup>(1)</sup> including roof spaces	Framing in “Sheltered” areas <sup>(1)</sup>	Framing in “Exposed” areas <sup>(1)</sup>
<b>Zone D</b>	Stainless steel <sup>(2)</sup> or silicon bronze or protected galvanized steel <sup>(3)</sup>	Galvanized steel <sup>(4)</sup>	Mild steel <sup>(5)</sup>	Galvanized steel <sup>(6)</sup>	Stainless steel <sup>(2)</sup>
<b>Zones B &amp; C</b>	Galvanized steel <sup>(4)</sup>	Galvanized steel <sup>(4)</sup>	Mild steel <sup>(5)</sup>	Galvanized steel <sup>(6)</sup>	Galvanized steel <sup>(6)</sup>

(1) For definitions of “closed”, “sheltered”, and “exposed” see [table 4.1](#) and [figure 4.3\(a\)](#) and [\(b\)](#).  
 (2) Stainless steel nails shall be minimum Type 304 and shall have annular grooves to provide similar withdrawal resistance to hot-dipped galvanized nails.  
 (3) Protection of galvanized steel nails shall consist of putty and an exterior painting system consisting of a primer undercoat and 2 top coats of oil-based or acrylic paint.  
 (4) Where the cladding is a corrosive timber, such as western red cedar or redwood, or is treated with copper-based ACQ or CuAz preservatives, use stainless steel<sup>(2)</sup> or silicon bronze.  
 (5) Steel fixings in timber treated with copper-based preservatives shall be as per [4.4.4](#).  
 (6) Irrespective of the above, nails and screws shall be compatible with any fixing plate that is used with them.  
 (7) Nails and screws and other fixings into piles within 600 mm of the ground shall be stainless steel.  
 (8) Galvanized nails shall be hot-dipped galvanized to a minimum of 320 g/m<sup>2</sup>; galvanized screws shall be mechanically zinc plated in accordance with [AS 3566: Part 2](#), Class 4.  
 (9) Type 304 stainless steel is sufficient to comply with [NZBC](#) requirements, but may have surface rust. Type 316 may be used where appearance is a consideration but exceeds the requirements of the [NZBC](#).

CodeRight Table Ref: 3 Durability Table 2.2 Fixing type and capacity reference guide

Table 2.2 – Fixing type and capacity reference guide (see 2.4.4.1)

Fixing type	Description	Alternative fixing capacity (kN)	See table
A	2 / 90 x 3.15 end nails	0.7	<u>8.18</u>
B	2 / 90 x 3.15 end nails + 2 wire dogs	4.7	
C	2 / 90 x 3.15 end nails + strap fixing (see figure 8.12)	8.5	
D	4 / 90 x 3.15 end nails + 2 strap fixing (double stud)	16.0	
E	2 / 90 x 3.15 skew nails + 2 wire dogs	4.7	<u>10.1, A10.1</u> <u>10.7, A10.7</u> <u>10.11, A10.11</u> <u>10.14</u> <u>10.15</u>
F	2 / 90 x 3.15 skew nails + strap fixing (see figure 10.6)	7.0	<u>15.6, A15.6</u> <u>15.10, A15.10</u>
G	10 / 90 x 3.15 nails (5 each side)	4.7	<u>10.2, A10.2</u> <u>15.7, A15.7</u>
H	1 / M12 bolt	8.5	
I	2 / M12 bolts	16.0	
J	2 / M16 bolts	24.0	
K	6 / 90 x 3.15 nails	3.0	<u>10.5, A10.5</u>
L	2 / M12 bolts	9.8	
M	2 / M16 bolts	13.0	
N	6 / 100 x 4.0 HDG nails (hand driven)	4.7	<u>10.8, A10.8</u> <u>15.8, A15.8</u>
O	2 / M12 bolts (see figure 9.3 (C))	6.8	
P	2 HDG 'flat' straps (see figure 9.3 (B))	13.7	
Q	2 HDG 'tee' straps (see figure 9.3 (A))	25.5	<u>10.10, A10.10</u> <u>10.12,</u> <u>15.9, A15.9</u>
R	1 / 90 x 3.15 nail	0.55	
S	2 / 90 x 3.15 nails	0.8	
T	1 / 10g self-drilling screw, 80 mm long	2.4	
U	1 / 14g self-drilling Type 17 screw, 100 mm long	5.5	

NOTE – Capacities are associated with fixing type, not fasteners. See individual selection tables for the appropriate fixing type for the application.

#### 2.4.4.2

The length of nails passing through sheet material thicker than 10 mm shall be the length specified in the nailing schedules, or three times the sheet thickness, whichever is the greater.

#### 2.4.4.3

The joints listed in the nailing schedule tables shall be made with the number of connectors of the specified type, length, and diameter driven in the specified locations into both pieces of timber at right angles, unless skewed nails are specified.

#### 2.4.4.4

The depth of penetration into the point side piece of timber shall be at least 45 % of the length of the nail.

#### 2.4.4.5

Where the nail size specified would cause splitting, the nail holes shall be pre-drilled to a diameter of 80 % of the nail diameter.

#### 2.4.4.6

Nails in structural joints shall be fully driven.

#### 2.4.4.7

Members in this Standard, except for *jack studs*, *bottom plates* and *top plates*, may be substituted with built-up members comprising up to six *framing* members nailed together, provided the following conditions are satisfied:

- (a) For the individual *framing* members comprising the built-up member:
  - (i) All *framing* members match the width and grade of the member being substituted, and
  - (ii) The combined thickness of the *framing* members equals or exceeds the thickness of the member being substituted.
- (b) For nailing requirements of the built-up member, where the built-up member comprises up to three members:
  - (i) *Spacings* of nails along the built-up member shall not exceed six times the thickness of the thinnest *framing* member, and
  - (ii) All nails shall penetrate at least three-quarters of the thickness of the last *framing* member and the nails shall be driven alternatively from either face of the built-up member, and
  - (iii) For members of width 140 mm or more there shall be at least two rows of nails across the member width at the centres required in (i) above.
- (c) For nailing requirements of the built-up member, where the built-up member comprises more than three members (see 8.5.1.2):
  - (i) The first three members shall be built up as described in 2.4.4.7. Additional members shall be fixed with nails twice as long, and *spaced* at six times the thickness of the additional member being added.

#### 2.4.5 Bolts and coach screws

In bolted joints, washers shall be provided at each timber surface under the bolt or coach screw head and the nut. For M12 and M16 bolts the washers shall be not less than 50 mm x 50 mm x 3 mm if square or not less than 55 mm diameter x 3 mm if round. (Bolts shall comply with the requirements of [AS 1111 Parts 1 and 2](#) and coach screws to [AS/NZS 1393](#).)

#### 2.4.6 Timber connectors or fixings

##### 2.4.6.1

Manufacturers of a timber connector or fixing shall provide the following information on each package of fixings, or on a label securely attached thereto:

- The name, or registered trade name, or make and address of manufacturer;
- The materials used in manufacture including fasteners and corrosion protection;
- The *capacity* of the timber connector or fixing in kN determined in accordance with 2.4.7;
- Fastener's requirements;
- Details of intended use.

##### 2.4.6.2

Timber connectors to be tested for compliance with this Standard shall be sampled at random from a particular package and the test results recorded.

#### 2.4.7 Connector capacity and durability

The *capacity* of a connector or fixing shall be calculated in accordance with the following equation:

$$R = \phi \times Q_k \times n \times k$$

where

- $R$  = connector *capacity* in kN  
 $\phi$  = *capacity* reduction factor from [NZS 3603](#)  
 $Q_k$  = characteristic value obtained by test in accordance with [BRANZ evaluation Method EM1](#) or [AS/NZS 2699: Part 2](#) as appropriate  
 $n$  = number of tested elements making up the complete joint  
 $k$  = modification factors from [NZS 3603](#) (section 4) as appropriate to the specific application.

In addition to verifying the *load* carrying *capacity* the manufacturer shall also demonstrate that the fixings shall conform with the durability requirements of clause B2 of the NZBC.

#### 2.4.8 Wire dogs

*Wire dogs* shall be of steel of at least 4.9 mm diameter and shall penetrate at least 30 mm into each piece of timber. [Figure 2.2](#) shows the minimum dimensions required between the edge of the timber and the spike of the *wire dog*.

## CodeRight Figure Ref: 2 Durability Figure 2.2 Wire Dogs

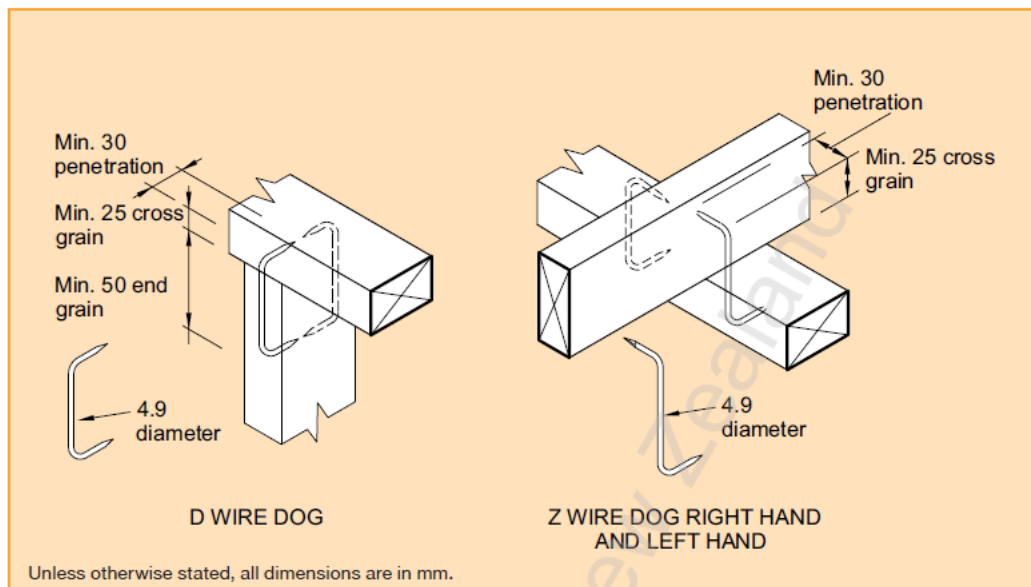


Figure 2.2 – Wire dogs (see 2.4.8)

## 2.5 REINFORCING STEEL

Reinforcing bars and steel mesh shall comply with [AS/NZS 4671](#).  
Reinforcing bars shall be grade 300E. Mesh shall be grade 500N or 500E.

## 2.6 CONCRETE

Concrete shall comply with [NZS 3104](#) for manufacture and with [NZS 3109](#) for construction.

## 2.7 CONCRETE MASONRY

Concrete masonry shall comply with [AS/NZS 4455 Part 1](#) for manufacture and with [NZS 4210](#) for construction.

## 2.4 Durability Guidelines for timber elements are found within provisions of NZS 3602:2003

<b>107</b>	<b>Requirements for wood-based building components exposed to exterior weather conditions and dampness, to achieve a 50-year durability.</b>
<b>107.1</b>	Table 1B lists the species or type, grade, moisture content and preservative treatment required for wood-based building components exposed to exterior weather conditions and dampness and not in contact with the ground.
<b>108</b>	Requirements for wood-based building components protected from the weather but exposed to ground atmosphere, to achieve a 50-year durability.
<b>108.1</b>	Table 1C lists the species or type, grade, moisture content and preservative treatment required for wood-based building components protected from the weather but exposed to ground atmosphere.
<b>108.2</b>	The durability of suspended timber and wood-based products floors is dependent on the subfloor space being ventilated throughout the life of the building to the provisions of NZS 3604 or E2/AS1.
<b>108.3</b>	Vapour barriers required by E2/AS1 to control moisture content in subfloor areas shall be maintained in effective condition throughout the life of the building.
<b>109</b>	Requirements for wood-based building components not exposed to weather or ground atmosphere but with risk of moisture content conducive to decay, to achieve a 50-year durability.
<b>109.1</b>	Table 1D lists the species or type, grade, in service moisture content and preservative treatment required for wood-based building components not directly exposed to the weather but at risk of raised moisture content conducive to decay.
<b>109.2</b>	This section applies to situations where there is a risk of timber framing or wood-based products becoming damp and staying damp during the service life of the building. This section applies to at least the following risk situations.

- a) Members supporting or those within enclosed decks or balconies (see figure 1)
  - i. Members with enclosed decks or balconies with a risk of decay.
  - ii. Members supporting enclosed decks or balconies with a risk of decay, such as walls supporting decks.
  - iii. Members supporting enclosed decks or balconies with the risk of decay where failure is potentially life threatening, such as when the support is enclosed post and beam construction
- b) Timber framed elements exposed to exterior weather conditions on one face, but where the penetration of moisture during the life of the building is likely and detection of elevated moisture levels is difficult such as;
  - i. Members within enclosed flat roofs or skillion roofs.
  - ii. Sarking or framing not protected from solar driven moisture.
  - iii. Battens used behind cladding to form a cavity.
  - iv. Framing members to which shelf angles and lintel angles supporting masonry veneers are fixed, and their supporting and adjoining members including lower studs.
  - v. Framing and other members in exterior walls including boundary joists, that are not clad in masonry veneer described in 110.2(b)

- 2.4.1 All timber and wood-based products shall either be protected from the effects of condensation and moisture or be treated to the appropriate hazard class. See tables 1,2 and 3.

## 2.5 New Zealand Building Code B2/AS1

Table 2A lists the species or type, in service moisture content and preservative treatment required for wood-based building components exposed to exterior weather conditions and dampness. Table 2B lists the requirements for wood based building components protected from the weather and dampness.

The acceptable solutions Section B2/AS1 of the New Zealand building code outlines the durability requirements for building materials including timber-based products.

- Tables 1A and 2A specify the minimum durability requirements
- Figure 1 outlines the pathway to durability
- Table 1 Identifies the durability required for elements within the NZBC

CodeRight Figure Ref: 3 NZS 3602:2003 Figure 1

## NZS 3602:2003

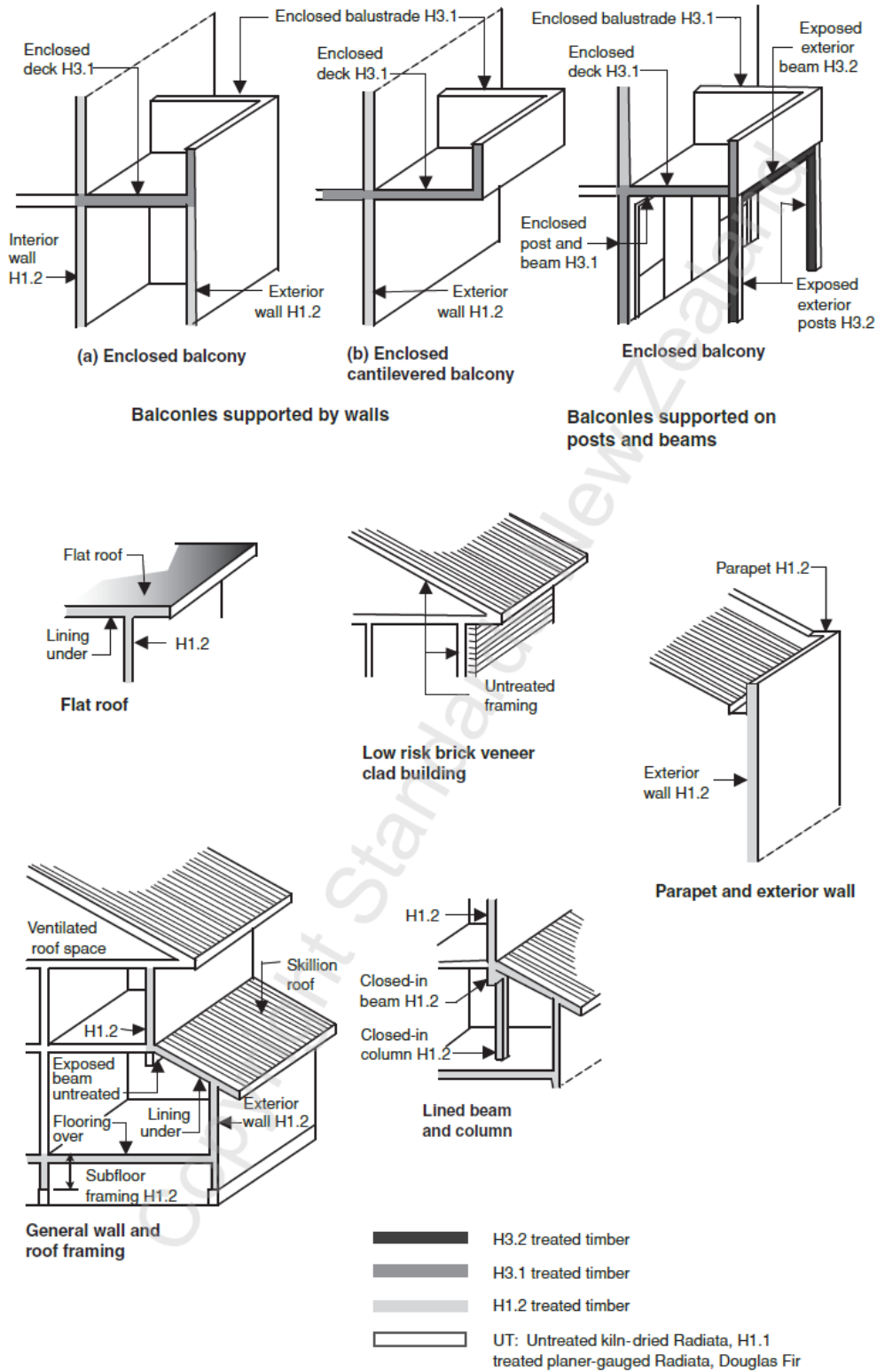


Figure 1 – Examples of treatment requirements for timber-framed buildings



CodeRight Figure Ref: 4 NZS 3602:2003 Figure 2

NZS 3602:2003

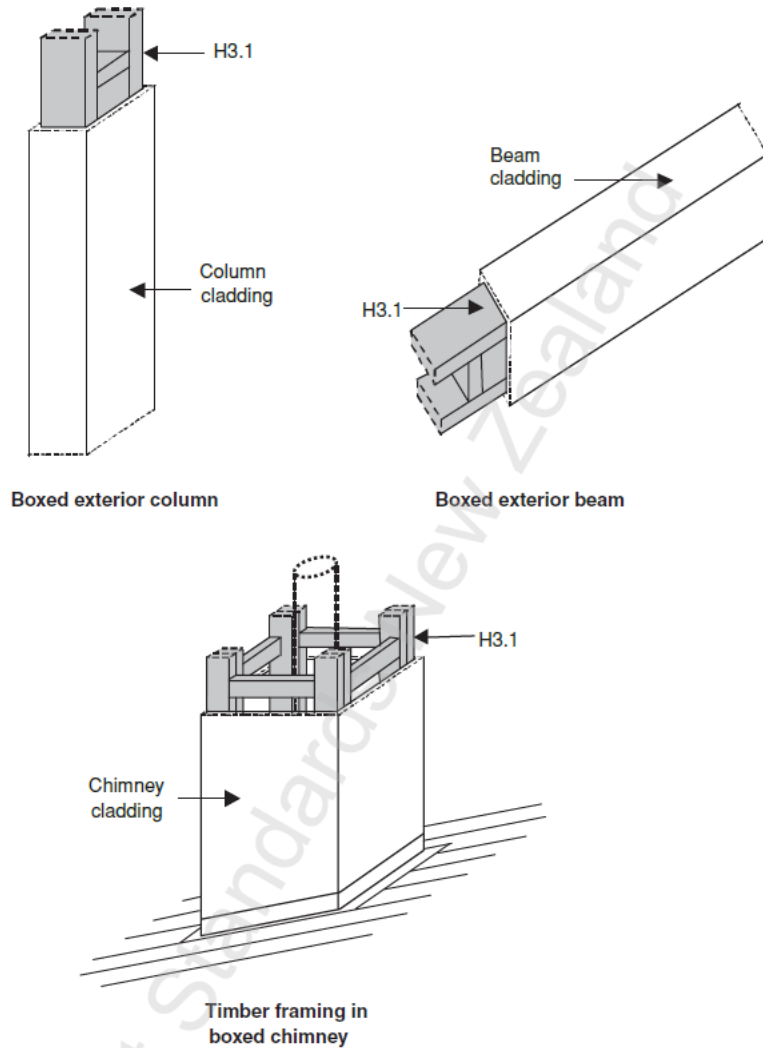


Figure 2 – Examples where H3.1 or higher treatment level is required for enclosed exterior elements

### 109.3

Timber battens are used behind some claddings to form a drained ventilated cavity. Treatment of these battens must be carried out in final shape and cross section to the level required in table 1D. Refer to E2/AS1 for claddings that are required to have a drained ventilated cavity.

## NZS 3602:2003

### 110 REQUIREMENTS FOR WOOD-BASED BUILDING COMPONENTS PROTECTED FROM THE WEATHER AND IN DRY CONDITIONS AND NOT EXPOSED TO GROUND ATMOSPHERE, TO ACHIEVE A 50-YEAR DURABILITY

#### 110.1

Table 1E lists the species or type, grade, in-service moisture content and preservative treatment required for wood-based building components protected from the weather and in dry conditions and not exposed to ground atmosphere.

#### 110.2

This section applies to situations where there are dry conditions or a low risk of moisture content conducive to decay and applies to the following risk situations:

- (a) All roof trusses, roof framing, ceiling and eaves framing, and sarking excluding that on enclosed skillion and flat roofs, or that not protected from solar-driven moisture e.g. through absorbent roofing materials. All mid-floor framing members and associated ceiling framing but excluding boundary joists;
- (b) Timber framing (including boundary joists) in exterior walls clad with masonry veneer complying to SNZ HB 4236 on a single-storeyed building with no restriction on size but including the following conditions (see figure 3):
  - (i) Eaves all around of not less than 450 mm, and
  - (ii) Not more than 10 % of other type of cladding complying with E2/AS1 at recessed porches, panels above windows, or gable ends built out to the face of the brick
  - (iii) Hipped roof or gable end roof with masonry veneer gable
  - (iv) No habitable space below the floor;
- (c) Internal walls excluding those supporting decks and balconies;
- (d) Sheet materials providing bracing to internal walls;
- (e) Interior flooring;
- (f) Unlined buildings, except where used for purposes involving high humidity or moisture (such as saunas, spa pools or agricultural purposes where there is elevated moisture content conducive to decay).

#### **C110.2**

*Ground adjacent to unlined boundary including garages and agricultural and industrial buildings should be shaped so as to direct surface water away from the building floor in order that the bottom plate is not at risk of prolonged elevated moisture content unless it is of appropriately treated timber.*

CodeRight Figure Ref: 5 NZS 3602:2003 Figure 3

NZS 3602:2003

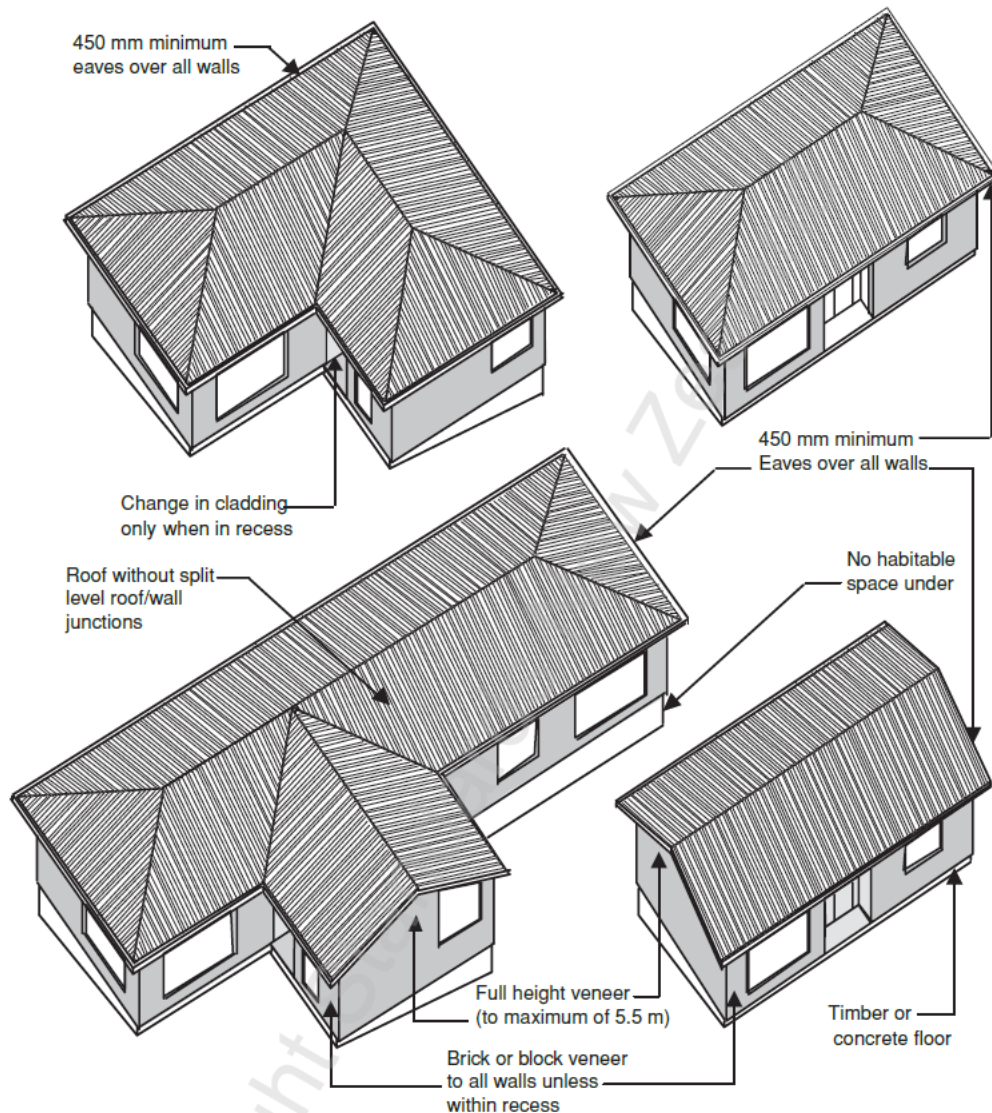


Figure 3 – Examples of low risk masonry veneer buildings

### 110.3 Protection of interior flooring

#### 110.3.1

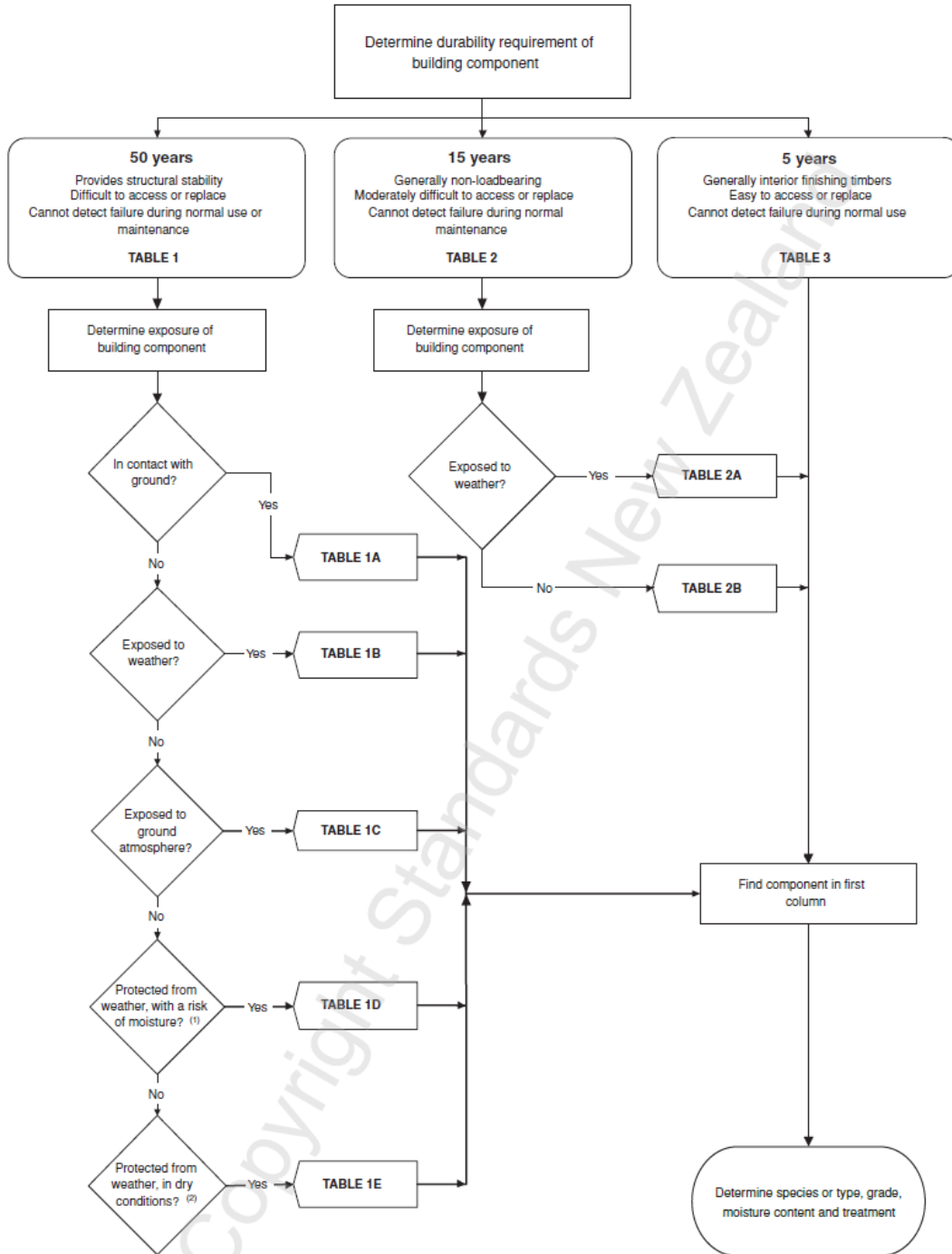
Floor coverings in "wet areas" such as laundries, bathrooms, kitchens and toilets shall be as set out in E3/AS1. Where maintenance of an impervious coating cannot be assured in wet areas plywood or timber flooring that has been treated to a minimum of H3.1 shall be used.

##### **C110.3.1**

*Considerable undetected water damage to particleboard and surrounding wall floor framing can occur under baths used as a shower and under certain types of shower trays. It is recommended that H3 treated plywood be used under such fittings where maintenance cannot be assured. Adjoining timber framing and timber supporting these fittings should be treated.*

CodeRight Figure Ref: 6 NZS 3602:2003 Figure 4

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NOTE –

(1) See section 109.

(2) See section 110.

Figure 4 – Flow chart guiding the use of tables 1, 2 and 3

CodeRight Table Ref: 4 NZS 3602:2003 Table 1 Requirements for wood-based building components to achieve a 50-year durability performance

## NZS 3602:2003

**Table 1 – Requirements for wood-based building components to achieve a 50-year durability performance**

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	In-service moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	See clause/ section
<b>B Members exposed to exterior weather conditions and dampness but not in ground contact (see section 107)</b>						
1B.1	Laminated beams	Radiata pine	AS/NZS 1328 & NZS 3606	Not limited	H3 <sup>(3)(4)</sup> or specific design	104.4
1B.2	Laminated posts				H3 <sup>(3)(4)</sup>	104.4
1B.3	Posts, bearers, beams, floor joists, rafters, guardrails, stair stringers	Radiata pine	Structural grades		H3.2 <sup>(5)</sup>	–
1B.4	Cladding as wall bracing	Plywood <sup>(4)</sup>	AS/NZS 2269		H3 <sup>(3)(4)</sup>	107.2
<b>C Members protected from the weather but exposed to ground atmosphere (see section 108)</b>						
1C.1	Jackstuds, subfloor braces, bearers, wall plates, floor joists to the subfloor, blocking, subfloor wall studs, walings and battens, wall studs and noggs, diagonal boards	Radiata pine	Structural grades	20 % or less	H1.2	108
		Larch	Structural grades		None	
		Cypress species <sup>(6)</sup>	Structural grades sapwood		H1.2	
		Cypress species <sup>(6)</sup>	Structural grades heart		None	
		Douglas fir	Structural grades		H1.2	
	LVL	AS/NZS 4357	18 % or less	None	–	
1C.2	Plywood sheet bracing	Radiata pine	AS/NZS 2269	18 % or less	H1.2	108.4
1C.3	Interior flooring, suspended ground floors	Plywood <sup>(7)</sup>	AS/NZS 2269	18 % or less	None	108.2
		LVL	AS/NZS 4357		None	108.2
		Particleboard and other wood-based products <sup>(7)</sup>	AS/NZS 1859.1 AS/NZS 1859.2		None	104.3 108.2
		Radiata pine	Dressing		H1.1	108.2
		Cypress species <sup>(6)</sup>	Dressing sapwood		H1.1	
		Cypress species <sup>(6)</sup>	Dressing heart		None	
		Matai	Dressing sapwood		H1.1	
		Matai	Dressing heart		None	
		Rimu	Dressing sapwood		H1.1	
		Rimu	Dressing heart		None	
		Eucalyptus species	Dressing		None	
Tawa	Dressing	H1.1				

**NOTES to table 1A to 1C**

- Wood-based building components made from wood species other than those listed may also achieve the required durability but there is not enough data on their durability to permit their inclusion in this Standard. Refer to C101.2.
- Throughout table 1, timber treated to a higher level than the minimum satisfies the minimum requirements.
- NZS 3640 specifies treatment for round and sawn timber. Plywood shall be treated to AS/NZS 1604:Part 3. Laminated beams and posts shall be treated to AS/NZS 1604: Part 5.
- H3 LOSP treated items exposed to the exterior must be painted to achieve a 50-year durability.
- H3.1 refers to tin-based Light Organic Solvent Preservatives (LOSP). H3.2 refers to CCA, Alkaline Copper Quaternary, Copper Naphthenate and Copper Azole preservatives. See also Note 2.
- Cypress species include Cupressus macrocarpa (macrocarpa), C. lusitanica (Mexican cypress) and Chamaecyparis lawsoniana (Lawson's cypress). Refer to AS/NZS 1148.
- In wet areas where maintenance of an impervious coating cannot be assured plywood or timber flooring that has been treated to a minimum of H3.1 shall be used. (Refer to 110.3.1.)

## NZS 3602:2003

Table 1 – Requirements for wood-based building components to achieve a 50-year durability performance (continued)

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	In-service moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	See clause
<b>D Members protected from the weather but with a risk of moisture penetration conducive to decay (see section 109)</b>						
<b>Roof members (In or associated with)</b>						
1D.1	Sarking and framing not protected from solar driven moisture through absorbent claddings materials <sup>(6)</sup>	Plywood	AS/NZS 2269	20 % or less	H3 <sup>(3)</sup>	104.2
		Radiata pine	Merchantable		H3.1	
		Larch	Structural grades		None	109.2
		Cypress species	Structural grades heart		None	
Structural grades sapwood	H1.2					
1D.2	Enclosed flat roof framing and associated supporting members	Radiata pine	Structural grades	20 % or less	H3.1	102.6
1D.3	Enclosed skillion roof framing and associated members	Radiata pine	Structural grades	20 % or less	H1.2	102.6
		Douglas fir	Structural grades		H1.2	
		Larch	Structural grades		None	109.2
		Cypress species	Structural grades heart		None	
Structural grades sapwood	H1.2					
1D.4	Valley boards and boards supporting flashings or box gutters, and flashings to roof penetrations and upstands to roof decks <sup>(10)</sup>	Radiata pine	Merchantable	20 % or less	H3.1	109.2
		Plywood	AS/NZS 2269		H3 <sup>(3)</sup>	
		Larch	Structural grades		None	
		Cypress species	Structural grades heart		None	
Structural grades sapwood	H1.2					
<b>Wall members (In or associated with)</b>						
1D.5	Framing and other members within or beneath a parapet except in situations detailed in 1D.13	Radiata pine	Structural grades	20 % or less	H1.2	109.2
		Douglas fir	Structural grades		H1.2	
		Larch	Structural grades		None	
		Cypress species	Structural grades heart		None	
Structural grades sapwood	H1.2					
1D.6	Framing and other members within enclosed decks or balconies <sup>(9)</sup> (see figure 1)	Radiata pine	Structural grades	20 % or less	H3.1	109.2
		Larch	Structural grades		None	
		Cypress species	Structural grades heart		None	
			Structural grades sapwood		H1.2	
1D.7	Framing and other members supporting enclosed decks or balconies where failure is potentially life threatening, such as when the support is enclosed post and beam construction	Radiata pine	Structural grades	20 % or less	H3.1	109.2
		Larch	Structural grades		None	
		Cypress species	Structural grades heart		None	
			Structural grades sapwood		H1.2	
1D.8	Framing and other members supporting enclosed decks or balconies <sup>(9)</sup> (see figure 1)	Radiata pine	Structural grades	20 % or less	H1.2	109.2
		Douglas fir	Structural grades		H1.2	
1D.9	Sheet material providing wall bracing	Plywood	AS/NZS 2269		H3 <sup>(3)</sup>	104.2

## NZS 3602:2003

**Table 1 – Requirements for wood-based building components to achieve a 50-year durability performance (continued)**

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	In-service moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	See clause
1D.10	Battens used behind cladding to form a cavity	Radiata pine	Merchantable	20 % or less	H3.1	109.2
1D.11	Framing and other members to which shelf angles and lintel angles supporting masonry veneers are fixed and their adjoining and supporting members, including lower storey studs	Radiata pine	Structural grades		H3.1	109.2
1D.12	Framing and other members in exterior walls including boundary joists, where monolithic claddings are fixed directly to the framing and do not comply with E2/AS1	Radiata pine	Structural grades		H3.1	109.2
1D.13	Framing and other members in exterior walls including boundary joists, where monolithic claddings are fixed directly to the framing and comply with E2/AS1	Radiata pine	Structural grades		H1.2	109.2
		Douglas fir	Structural grades		H1.2	109.2
1D.14	All other exterior wall framing and other members including exterior and boundary joists <sup>(11)</sup> , except those clad in masonry veneer covered by 110.2(c) <sup>(12)</sup>	Radiata pine	Structural grades		H1.2	109.2
		Douglas fir	Structural grades	H1.2		

**NOTE –**

- (1) Wood-based building components made from wood species other than those listed may also achieve the required durability but there is not enough data on their durability to permit their inclusion in this Standard. Refer to C101.2.
- (2) Throughout table 1, timber treated to a higher level than the minimum satisfies the minimum requirements.
- (3) NZS 3640 specifies treatment for round and sawn timber. Plywood shall be treated to AS/NZS 1604:Part 3. Laminated beams and posts shall be treated to AS/NZS 1604: Part 5.
- (4) H3 LOSP treated items exposed to the exterior must be painted to achieve a 50-year durability.
- (5) H3.1 refers to tin-based Light Organic Solvent Preservatives (LOSP). H3.2 refers to CCA, Alkaline Copper Quaternary, Copper Naphthenate and Copper Azole preservatives. See also Note 2.
- (6) Cypress species include *Cupressus macrocarpa* (macrocarpa), *C. lusitanica* (Mexican cypress) and *Chamaecyparis lawsoniana* (Lawson's cypress). Refer to AS/NZS 1148.
- (7) In wet areas where maintenance of an impervious coating cannot be assured plywood or timber flooring that has been treated to a minimum of H3.1 shall be used. (Refer to 110.3.1.)
- (8) Timber shakes and shingles, and similar absorbent claddings, absorb moisture that can be driven into frame cavities by evaporation. Unless the cavities are adequately drained and ventilated, continuing condensation caused by solar driven transfer increases the moisture content in the cavities and timber framing requiring a higher level of timber treatment to resist decay.
- (9) Such as joists, lintels, wall plate and studs, together with parapets, enclosed balustrades, boxed columns and chimneys.
- (10) Any metal flashing shall be separated from the treated timber with building paper.
- (11) Exposed ends of joists shall be protected by a boundary joist.
- (12) Refer to table 1 row 1E. 4.

## NZS 3602:2003

**Table 1 – Requirements for wood-based building components to achieve a 50-year durability performance (continued)**

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	In-service moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	See clause
<b>E Members not exposed to weather or ground atmosphere and in dry conditions (see section 110)</b>						
1E.1	All roof trusses, including gable end trusses, roof, ceiling and eaves framing, purlins and battens excluding skillion roof framing, and sarking described in 1D.1	Radiata pine	Structural grades	20 % or less	H1.1	–
		Douglas fir	Structural grades		None	
		Larch	Structural grades		None	
		Cypress species <sup>(6)</sup>	Structural grades sapwood		H1.1	
		Cypress species <sup>(6)</sup>	Structural grades heart		None	
1E.2	All midfloor framing excluding boundary joists but including associated ceiling framing	Kiln dried and gauged Radiata pine	Structural grades	18 % or less	None	105.5
		LVL	AS/NZS 4357	18 % or less	None	104.4.2
1E.3	Unlined buildings except those not allowed in 110.2(f)					
1E.4	Timber framing (including boundary joists) in exterior walls clad with masonry veneer complying to SNZ HB 4236 on a single storeyed building but with restrictions set out in 110.2(b) and in figure 3	Radiata pine	Structural grades	20 % or less	H1.1	110.2
		Douglas fir	Structural grades		None	
		Larch	Structural grades		None	
		Cypress species <sup>(6)</sup>	Structural grades sapwood		H1.1	
		Cypress species <sup>(6)</sup>	Structural grades heart		None	
		Kiln dried and gauged Radiata pine	Structural grades	18 % or less	None	104.4.2
		LVL	AS/NZS 4357		None	
1E.5	Internal walls excluding those supporting decks and balconies	Radiata pine	Framing - No. 2 or Structural grades	20 % or less	H1.1	–
		Douglas fir	Structural grades		None	
		Larch	Structural grades		None	
		Cypress species <sup>(6)</sup>	Structural grades sapwood		H1.1	
		Cypress species <sup>(6)</sup>	Structural grades heart		None	
		Kiln dried and gauged Pinus species	Framing - No. 2 or Structural grades	18 % or less	None	105.5
		LVL	AS/NZS 4357		None	–
1E.6	Internal wall bracing	Plywood	AS/NZS 2269	18 % or less	None	104.4.2
		Particleboard and wood-based products	AS/NZS 1859		None	104.3



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**Table 1 – Requirements for wood-based building components to achieve a 50-year durability performance (continued)**

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	In-service moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	See clause
1E.7	Interior flooring	Plywood	AS/NZS 2269	18 % or less	None <sup>(7)</sup>	104.4.2
		Particleboard and wood-based products <sup>(13)</sup>	AS/NZS 1859		None <sup>(7)</sup>	104.3
		Pinus species	Dressing	16 % or less	H1.1	-
		Cypress species <sup>(6)</sup>	Dressing sapwood		H1.1	
		Cypress species <sup>(6)</sup>	Dressing heart		None	
		Matai	Dressing sapwood		H1.1	
		Matai	Dressing heart		None	
		Rimu	Dressing sapwood		H1.1	
		Rimu	Dressing heart		None	
		Beech – silver, red, hard	Dressing sapwood		H1.1	
		Beech – silver, red, hard	Dressing heart		None	
		Eucalyptus species	Dressing sapwood		H1.1	
		Eucalyptus species	Dressing heart		None	
		Tawa	Dressing		H1.1	

NOTE –

- (1) Wood-based building components made from wood species other than those listed may also achieve the required durability but there is not enough data on their durability to permit their inclusion in this Standard. Refer to C101.2.
- (2) Throughout table 1, timber treated to a higher level than the minimum satisfies the minimum requirements.
- (3) NZS 3640 specifies treatment for round and sawn timber. Plywood shall be treated to AS/NZS 1604:Part 3. Laminated beams and posts shall be treated to AS/NZS 1604: Part 5.
- (6) Cypress species include *Cupressus macrocarpa* (macrocarpa), *C. lusitanica* (Mexican cypress) and *Chamaecyparis lawsoniana* (Lawson's cypress). Refer to AS/NZS 1148.
- (7) In wet areas where maintenance of an impervious coating cannot be assured plywood or timber flooring that has been treated to a minimum of H3.1 shall be used. (Refer to 110.3.1.)
- (13) Wood-based panels must have a proven durability performance against dampness.

CodeRight Table Ref: 5 NZS 3602:2003 Table 2 Requirements for wood-based building components to achieve a 15-year durability performance

## NZS 3602:2003

**Table 2 – Requirements for wood-based building components to achieve a 15-year durability performance**

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	Installation moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	See clause		
<b>A Members exposed to exterior weather conditions and dampness (see section 111)</b>								
2A.1	Weatherboards	Radiata pine	Dressing	18 % or less	H3.1	111.2		
		Larch	Dressing heart		None			
		Cypress species <sup>(4)</sup>	Dressing heart		None			
2A.2	Base battens	Redwood	Dressing heart	18 % or less	None		111.2	
		Western red cedar	Dressing heart		None			
2A.3	Fascia, barge, and coverboards	Plywood	AS/NZS 2269	18 % or less	H3 <sup>(3)</sup>			111.2
		Wood-based panels <sup>(5)</sup>	Exterior		H3 <sup>(7)</sup>			
2A.4	Sheet cladding not providing bracing	Plywood	AS/NZS 2269	18 % or less	H3 <sup>(3)</sup>	111.5 104.2.1		
2A.5	Exterior joinery, including windows frames, sills, and sashes, exterior door frames, sills and doors	Radiata pine	Select A	18 % or less	H3 <sup>(3)</sup>	-		
		Redwood	Select A heart		None			
		Western red cedar	Select A heart		None			
2A.6	Timber reveals for aluminium windows	Cypress species <sup>(4)</sup>	Select A heart	18 % or less	None		-	
2A.7	External stairs, stair handrails and balustrades, verandah floors, unroofed decking (which can be easily replaced) with either a paint, stain, clear or no finish	Radiata pine	Merchantable	Not limited	H3.2			111.7
		Cypress species <sup>(4)</sup>	Dressing heart		None			
		Vitex, Kwila	Dressing heart		None			
		Rimu	Dressing heart		None			
		Eucalyptus <sup>(6)</sup>	Dressing heart		None			
		Beech – silver, red, hard	Dressing heart		None			
		Plywood	AS/NZS 2269		H3 <sup>(3)</sup>	104.2.1 111.7		
Wood-based panels <sup>(5)</sup>	Exterior	H3 <sup>(7)</sup>	104.3 111.7					
<b>B Members protected from the weather and dampness (see section 111)</b>								
2B.1	Non-loadbearing <sup>(8)</sup> interior wall framing	Radiata pine	Structural grades or Framing – No. 2	20 % or less	H1.1	-		
		Douglas fir	Structural grades or Framing – No. 2		None			
		Larch	Structural grades or Framing – No. 2		None			
		Cypress heart <sup>(4)</sup>	Structural grades or Framing – No. 2		None			
		Kiln dried and gauged Radiata pine or Corsican pine	Structural grades or Framing – No. 2	18 % or less	None	105.5		

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**Table 2 – Requirements for wood-based building components to achieve a 15-year durability performance (continued)**

Ref No.	Wood-based building components	Species or type <sup>(1)</sup>	Grade or Standard ref.	Installation moisture range %	Level of treatment <sup>(2)</sup> to NZS 3640 or AS/NZS 1604 <sup>(3)</sup>	Clause reference
2B.2	Stair treads, risers and handrails	Radlata pine	Select A	16 % or less	None	–
		Douglas fir	Select A			
		Cypress species <sup>(4)</sup>	Select A			
		Yaka	Select A			
		Rimu	Premium			
		Eucalyptus species <sup>(6)</sup>	Premium			
		Beech – silver, red, hard	Premium			
		Tawa	Premium			
		Plywood	AS/NZS 2269			
		Wood-based products <sup>(5)</sup>	AS/NZS 1859			
<p>NOTE –</p> <p>(1) Wood-based building components made from wood species other than those listed may also achieve the required durability but there is not enough data on their durability to permit their inclusion in this Standard. Refer to C101.2.</p> <p>(2) Throughout table 2, timber treated to a higher level than the minimum satisfies the minimum requirements.</p> <p>(3) NZS 3640 specifies treatment for round or sawn timber. Plywood shall be treated to AS/NZS 1604: Part 3. Laminated beams and posts shall be treated to AS/NZS 1604: Part 5.</p> <p>(4) Cypress species include <i>Cupressus macrocarpa</i> (macrocarpa), <i>C. lusitanica</i> (Mexican cypress) and <i>Chamaecyparis lawsoniana</i> (Lawson's cypress). Refer to AS/NZS 1148.</p> <p>(5) Wood-based products must have a proven durability performance against dampness.</p> <p>(6) Eucalyptus species include <i>E.botryoides</i>, <i>E.saligna</i>, <i>E.globoidea</i>, <i>E.muellerana</i>, <i>E.obliqua</i>, <i>E.pitularis</i>.</p> <p>(7) NZS 3640 specifies treatment for round or sawn timber. Other products are to be treated to AS/NZS 1604.</p> <p>(8) Walls that provide bracing are load-bearing walls.</p>						

CodeRight Table Ref: 6 NZS 3602:2003 Table 3 Requirements for wood-based building components to achieve a 5-year durability performance

## NZS 3602:2003

**Table 3 – Requirements for wood-based building components to achieve a 5-year durability performance**

Ref No.	Wood-based building components	Species or type	Grade or Standard ref.	In-service moisture range %	Level of treatment	See section
3.1	All interior finishing timbers, such as mouldings, skirtings, architraves, panelling, decorative sarking	Radiata pine	Dressing	16 % or less	None	112
		Douglas fir	Dressing			
		Cypress species (1)	Dressing			
3.2	Shelves	Eucalyptus species	Dressing			
		Beech – silver, red, hard	Dressing			
3.3	Any other timber component that can be easily replaced and not specified in tables 1, 2 and 3	Tawa	Dressing			
		Wood-based products	AS/NZS 1859			
		Plywood	AS/NZS 2269			

NOTE –  
(1) Cypress species include *Cupressus macrocarpa* (macrocarpa), *C. lusitanica* (Mexican cypress) and *Chamaecyparis lawsoniana* (Lawson's cypress). Refer to AS/NZS 1148.

## Acceptable Solution B2/AS1

### 1.0 Durability Applications

**1.0.1** This acceptable solution applies to materials and components required to satisfy the performances specified in other NZBC clauses.

**COMMENT:**

All *building work* shall comply with the NZBC. This means that *building elements*, both individually and as part of a system, shall meet all the performances required by the applicable NZBC clauses and shall continue to do so for the required durability period. In some cases, *building elements* (e.g. decorative coatings and trim) are not required to satisfy an NZBC performance criterion. Such *building elements* will then have no B2 durability requirement. However, where a *building element* serves two purposes, only one of which must satisfy the NZBC, it shall have the durability appropriate to its location and use. For example, a decorative finish applied to a *building element* required by the NZBC to have an impervious easily cleaned surface will need to satisfy the 5 year durability performance.

### 1.1 Acceptable Solutions and Verification Methods

**1.1.1** *Building elements*, including materials, components and systems, complying with a publication referenced in the Acceptable Solutions and Verification Methods, satisfy B2 requirements only when the conditions of use stated in the publication and Acceptable Solutions and Verification Methods prevail.

**COMMENT:**

It is not practicable within the Acceptable Solutions and Verification Methods to cover all possible combinations, uses and conditions which may be applied to a *building element*. In special circumstances and where elements are called up but are used outside the scope of the application in the Acceptable Solution or Verification Method, durability shall be verified by B2/NM1.

Amends  
6 and 8

### 1.2 Assessing required durability

**1.2.1** Evaluation of *building elements* shall be based on the following concepts:

- a) **Difficult to access or replace** – applies to *building elements* where access or replacement involves significant removal or alteration of other *building elements*. Examples are works involving the removal of masonry or concrete *construction*, or structural elements or repair of buried tanking membranes. A 50 year durability is required.

- b) **Moderately difficult to access or replace** – applies to *building elements* where access or replacement involves the removal or alteration of other *building elements*. Examples are the replacement of services reticulation in wall cavities and skillion roofs, or of plant and hotwater cylinders built into roof spaces without adequately sized access openings. A 15 year durability is required.
- c) **Easy to access and replace** – applies to *building elements* where access or replacement involves little alteration or removal of other *building elements*. Examples are linings, trim, light fittings, hotwater cylinder elements and door hardware, or where specific provision for removal has been made. A 5 year durability is required.
- d) **Failure to comply with the NZBC would go undetected during both normal use and maintenance of the building** – applies where the *building elements* are hidden from view with no provision for inspection access, and failure would not be apparent until significant damage had occurred to other *building elements*. Examples are building paper behind a masonry veneer cladding, and insulation in a skillion roof. A 50 year durability is required.
- e) **Failure to comply with the NZBC would go undetected during normal use of the building but would be easily detected during normal maintenance** – applies where normal maintenance will identify faults unlikely to be observed by *building* occupants until significant damage has occurred. Examples are degradation of exterior claddings on roofs and walls, sealant filled joints, flashings, services with specific provision for inspection access, chimneys and flues. A 15 year durability is required.

## DURABILITY

## Acceptable Solution B2/AS1

- f) **Failure to comply with the NZBC would be easily detected during normal use of the building** – applies where the failure is obvious to the *building* occupants. Examples are exposed *building elements* which are damaged or inoperative such as protective finishes, essential signs, sticking doors, slip resistant surfaces, stair treads and surface-run *building* services equipment. A 5 year durability is required.

1.2.2 Figure 1 provides a means of assessing the durability requirements for *building elements*.

### 1.3 Examples of durability requirements

1.3.1 Table 1 is an acceptable solution establishing durability requirements of nominated *building elements*.

## 2.0 Maintenance

### 2.1 Normal maintenance

2.1.1 Normal maintenance is that work generally recognised as necessary to achieve the expected durability for a given *building element*. The extent and nature of that maintenance will depend on the material, or system, its geographical location and position within the *building*, and can involve the replacement of components subject to accelerated wear.

2.1.2 It is the responsibility of the person specifying the *building element* to determine normal maintenance requirements. These may be based on the manufacturer's recommendations and may also include periodic inspections of elements not readily observable without a specific effort (e.g. access to roof or subfloor spaces).

2.1.3 Basic normal maintenance tasks shall include but not be limited to:

- Where applicable, following manufacturers' maintenance recommendations,
- Washing down surfaces, particularly exterior *building elements* subject to wind driven salt spray,

- Re-coating interior and exterior protective finishes,
- Replacing sealant, seals and gaskets in joints,
- Replacing valves, washers and similar high wear components in easily accessed service equipment and other *building elements*,
- Cleaning and replacing filters in *building* services systems,
- The regular servicing of boilers, cooling towers, lifts, escalators, emergency lighting and *fire* protection equipment, and
- The maintenance of signs for access, *escape routes*, emergency equipment and *hazardous* areas.

#### COMMENT:

Maintenance does not include such things as upgrading *building elements* to meet the demands of new technology or the increased environmental expectations of users.

### 2.2 Scheduled maintenance

2.2.1 Scheduled maintenance comprises the inspection, maintenance and reporting procedures for *building elements* required to have a *compliance schedule* in terms of section 44 of the Building Act. By those procedures the *building elements* concerned are effectively deemed to have a durability of the life of the *building* because they are required to perform as designed at all times. The relevant maintenance procedures may include total replacement.

## 3.0 Generic Materials

### 3.1 Concrete

3.1.1 NZS 3101: Part 1 Section 3 is an acceptable solution for meeting the durability requirements of concrete building elements subject to the following modification:

Provisions in this Standard that are in non-specific or unquantified terms do not form part of the Acceptable Solution. Non-specific

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or unquantified terms include, but are not limited to, special studies, manufacturer's advice and references to methods that are appropriate, adequate, suitable, relevant, satisfactory, acceptable, applicable, or the like. Such provisions must be treated as the basis of an alternative solution proposal.

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### 3.2 Timber and wood-based building products

**3.2.1** The following Standards form an *Acceptable Solution* for B2/AS1 meeting the durability requirements of timber and wood-based *building elements*,

- a) NZS 3602 Part 1 as modified by Paragraph 3.2.2.
- b) NZS 3640 as modified by Paragraph 3.2.3.
- c) NZS 3604, with reference to NZS 3602 (and NZS 3640), as modified by Paragraph 3.2.1 a) and b) above.

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#### COMMENT:

The use of different timbers or timber treatments to those referred to in NZS 3602 are outside the scope of this *Acceptable Solution*. Where the use of a different timber or timber treatment is proposed, it shall be separately assessed for compliance with the *Building Code*. For example, if imported hard-wood is to be used to surface a deck, evidence that the timber was *durable* for a minimum of 15 years in the expected exposure conditions is required.

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### 3.2.2 Modification to NZS 3602

**3.2.2.1** Level of treatment references to radiata pine and Douglas fir solid timber in Table 1 categories 'C', 'D' and 'E' and Table 2 category 'B' shall be replaced by Tables 1A and 2A below. Table 1A and Table 2A are to be read with NZS 3602 sections 108 to 111 inclusive, with the amendments in Paragraph 3.2.2.3 below.

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Other references to radiata pine, Douglas fir solid timber and engineered wood products in NZS 3602, including Table 1 categories 'A', & 'B'; Table 2 category 'A'; and Table 3 are unaltered.

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Laminated veneer lumber (LVL) treated using LOSP borne azoles as specified for H3.1 in NZS 3640 Table 6.2 satisfies the minimum treatment requirement of H 1.2.

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**Table 1A** Requirements for radiata pine and Douglas fir solid timber to achieve a (minimum) 50 year durability performance

Ref No.	Wood-based building components	Species or type	Level of treatment <sup>(2)</sup> to NZS 3640
<b>C – Members protected from the weather but exposed to ground atmosphere</b> (see section 108 of NZS 3602)			
1C.1	Jackstuds, subfloor braces, bearers, wall plates, floor joists to the subfloor, blocking, subfloor wall studs, wallings and battens, wall studs and nogs, diagonal boards	Radiata pine Douglas fir	H1.2
1C.3	Interior flooring, suspended ground floors	Radiata pine Douglas fir	H1.2
NOTE			
(2) Throughout Table 1A, timber treated to a higher level than the minimum satisfies the minimum requirements			
<b>D – Members protected from the weather but with a risk of moisture penetration conducive to decay</b> (see section 109 of NZS 3602)			
<b>Roof members (in or associated with)</b>			
1D.1	Sarking and framing not protected from solar driven moisture through absorbent cladding materials <sup>(8)</sup>	Radiata pine Douglas fir	H1.2
1D.2	Enclosed flat roof framing and associated roof members	Radiata pine Douglas fir	H1.2
1D.3	Enclosed skillion roof framing and associated roof members	Radiata pine Douglas fir	H1.2
1D.4	Valley boards and boards supporting flashings or box gutters and flashings to roof penetrations and upstands to roof decks <sup>(10)</sup>	Radiata pine Douglas fir	H1.2
<b>Wall members (in or associated with)</b>			
1D.5	Framing and other members within or beneath a parapet	Radiata pine Douglas fir	H1.2
1D.6	Framing, and other members within enclosed decks or balconies	Radiata pine Douglas fir	H1.2
1D.7	Cantilevered enclosed deck joists and associated framing including joist trimmers, nogs, and blocking <sup>(5)</sup>	Radiata pine Douglas fir	H3.2
1D.8	Framing and other members supporting enclosed decks (including enclosed cantilevered decks) or balconies	Radiata pine Douglas fir	H1.2
1D.10	Battens used behind cladding to form a cavity	Radiata pine Douglas fir	H3.1
1D.14	All other exterior wall framing and other members including exterior and boundary joist <sup>(9) (11)</sup>	Radiata pine Douglas fir <sup>(14)</sup>	H1.2

NOTE

(5) H3.2 refers to preservative treatments outlined in NZS 3640.

(8) Timber shakes and shingles, and similar absorbent claddings, absorb moisture that can be driven in frame cavities by evaporation. Unless the cavities are adequately drained and ventilate, continuing condensation caused by solar driven transfer increases the moisture content in the cavities and timber framing requiring a higher level of timber treatment to resist decay.

(9) Such as joists, lintels, wall plate and double top plates, studs, together with parapets, enclosed balustrades, boxed columns and chimneys

(10) Any metal flashing shall be separated from the treated timber with building paper.

(11) Exposed ends of joists shall be protected by a boundary joist.

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15A

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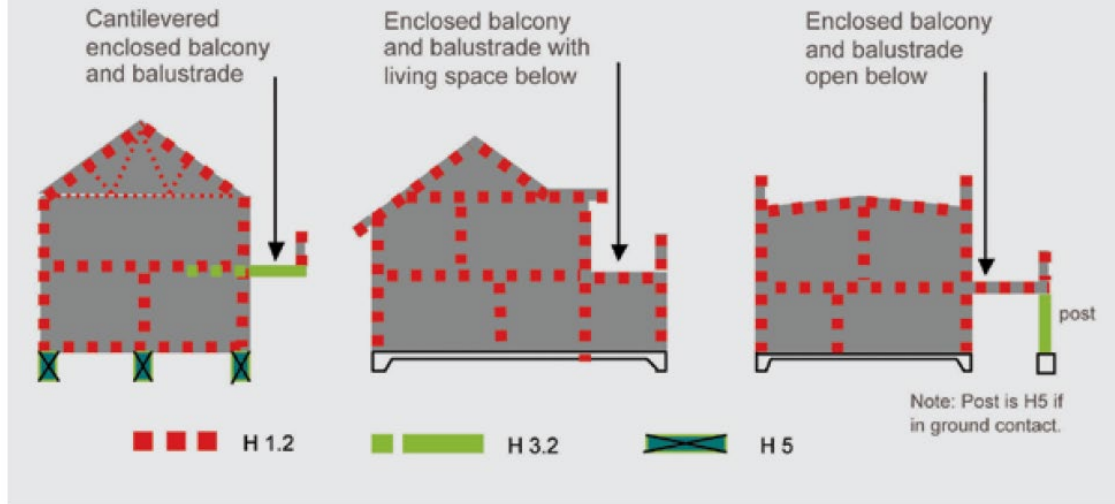
Ref No.	Wood-based building components	Species or type	Level of treatment <sup>(2)</sup> to NZS 3640
<b>Table 1A (continued)</b> Requirements for radiata pine and Douglas fir solid timber to achieve a (minimum) 50 year durability performance			
E – Members not exposed to weather or ground atmosphere and in dry conditions (see section 110 of NZS 3602)			
1E.1	All roof trusses, including gable end trusses, roof framing, ceiling and eaves framing, purlins and battens	Radiata pine Douglas fir <sup>(14)</sup>	H1.2
1E.2	All midfloor framing including boundary joists, ceiling framing, ceiling battens, and double top plates	Radiata pine Douglas fir <sup>(14)</sup>	H1.2
1E.3	Wall framing and roof framing (including trusses) protected from the weather, in unlined and unoccupied farm buildings and outbuildings except those not allowed in 110.2(f) of NZS 3602	Radiata pine Douglas fir	None
1E.5	Internal walls	Radiata pine Douglas fir <sup>(14)</sup>	H1.2
1E.7	Interior flooring	Pinus species Douglas fir <sup>(14)</sup>	H1.2
NOTE (14) Exceptions to the levels of treatment for Douglas fir are provided in Paragraph 3.2.2.2 of this <i>Acceptable Solution B2/AS1</i> .			

Ref No.	Wood-based building components	Species or type	Level of treatment <sup>(2)</sup>
<b>Table 2A</b> Requirements for radiata pine and Douglas fir solid timber to achieve a 15-year durability performance			
B – Members protected from the weather and dampness (see section 111 of NZS 3602)			
2B.1	Non-load bearing interior wall framing	Radiata pine Douglas fir <sup>(9)</sup>	H1.2
2B.2	Stair treads, risers and handrails	Radiata pine Douglas fir <sup>(9)</sup>	None
NOTE (2) Throughout Table 2A, timber treated to a higher level than the minimum satisfies the minimum requirements (9) Exceptions to the levels of treatment for Douglas fir are provided in Paragraph 3.2.2.2 of this <i>Acceptable Solution B2/AS1</i> .			

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## COMMENT:

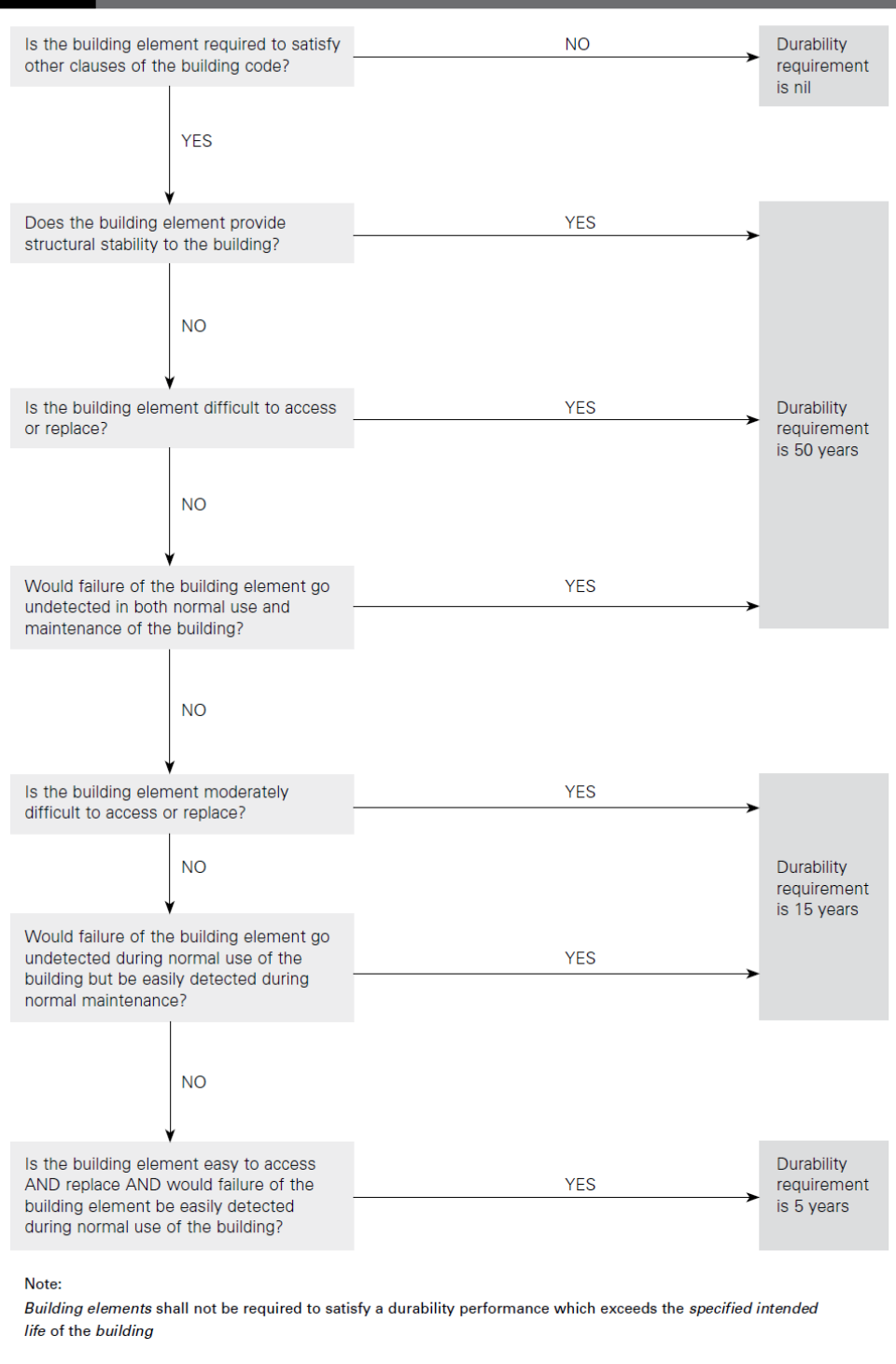
Summary of requirements for radiata pine and Douglas fir framing for B2/AS1



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**Figure 1: Assessment of Durability Requirement**  
Paragraph 1.2.2



**Table 1: Durability Requirements of Nominated Building Elements**

Note: Clause B2.3.2 requires that all hidden elements have at least the same durability as that of the element that covers it (i.e. must have the same expected life) which may be more than the requirement in clause B2.3.1. For example, the reason that a brick tie has a requirement of not less than 50 years in this table, instead of the 15 year requirement for *cladding*, is that the brick veneer that hides it has an expected durability of 50 years or more.

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
<b>Acoustic elements</b>		Covered by or integral with structural elements or bracing panels	✓		
		Behind non-structural <i>claddings</i> or linings	✓		
		Surface mounted		✓	
<b>Balustrade</b>	(Refer to safety barrier)				
<b>Battens</b> (Cavity battens for wall <i>cladding</i> systems) (See note at top of table)	Battens	Where wall <i>cladding</i> durability requirement is 15 years		✓	
		Where wall <i>cladding</i> provides bracing	✓		
<b>Bracing Elements</b>		All – includes the bracing element and fixings	✓		
<b>Building wraps</b> (See also wind barriers) (See note at top of table)	Roof underlay	Access requires removal of roof tiles or structural elements	✓		
		Where roof <i>cladding</i> durability requirement is 15 years		✓	
	Wall underlay	Where wall <i>cladding</i> durability requirement is not less than 50 years (e.g. providing bracing, or where the <i>cladding</i> is very durable e.g. brick veneer)	✓		
		Where wall <i>cladding</i> durability requirement is 15 years		✓	
Wind barriers	Providing bracing (i.e. rigid wind barriers)	✓			
	Not providing bracing (non-rigid wind barriers)		✓		
<b>Cladding</b> (including jointing systems)	Roof	Structural	✓		
		Non-structural		✓	
	Wall	Structural including bracing elements	✓		
Non-structural			✓		
<b>Curtain walling</b>	Frames and fixings	All <i>buildings</i>	✓		
	Gaskets, glazing or panelling and beads			✓	
	Internal hardware				✓
<b>Damp-proof course (DPC)</b>	DPCs under timber members	Under structural framing	✓		
		Under non-structural framing		✓	
<b>Damp-proof membranes (DPM)</b> (See note at top of table)	Damp-proofing generally	DPMs under concrete floor slabs	✓		

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**Table 1:** Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Insulation	Sub-floor		✓		
	Walls		✓		
	Ceiling or roof	Skillion roof	✓		
Accessible ceiling or roof space		✓			
Interior wall linings		Structural linings (e.g. bracing elements)	✓		
		Shower linings (excluding behind tiled showers)		✓	
		Linings behind tiled showers		Same durability as tile covering it	
		Easy to access and replace			✓
Lintels	Steel angle (brick veneer)	All situations	✓		
	Flat steel	All situations	✓		
Plumbing and piping	Piping and fittings	Cast into concrete	✓		
		Under slabs	✓		
		Installed in a masonry cavity and not ducted or provided with maintenance access	✓		
		Concealed behind wall linings or installed in maintenance ducting		✓	
		Surface mounted and easy to replace			✓
	Valves	Concealed or moderately difficult to replace		✓	
		Surface mounted and easy to replace			✓
	Fixtures			✓	
	Outlets			✓	
Protective Coatings		Paint systems that are difficult to access or replace	✓		
		Roofing membranes		✓	
		Paint systems that are easy to access and replace			✓
Roof framing including trusses, purlins, tile battens and bracing members			✓		
Roofing tile battens			✓		
Safety barrier (balustrade, baluster, and handrail)	Support posts, handrails		✓		
	Balusters			✓	
Septic tanks		Built into or under the structure of a building	✓		
		Easy to access units (e.g. in-ground but accessible)		✓	
		Effluent field		✓	

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**Table 1:** Durability Requirements of Nominated Building Elements (cont'd)

Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
<b>Stairs and ladders</b> (for <i>balustrades</i> refer to safety barriers)	Stringers		✓		
	Treads	Difficult to replace	✓		
		Moderately difficult to replace		✓	
	Ladders including rungs			✓	
<b>Tiling</b>	Walls and floors (including showers)	Tiling in wet areas		✓	
	Walls and floors	Decorative finish only	No durability requirement under the <i>building code</i>		
<b>Under-floor heating</b>	Heating coils	Buried in concrete slabs	✓		
		Accessible coils		✓	
	Cables and fittings	Buried in concrete slabs	✓		
		Accessible cables and fittings		✓	
<b>Vapour barriers</b>		Behind structural elements or difficult to access and replace	✓		
		Behind non-structural internal linings		✓	
		High gloss paint finish			✓
<b>Ventilation</b>	Plant	All		✓	
	Ducting	Built-in ducting		✓	
		Easy to access and replace			✓
	Fittings				✓
<b>Vermin proofing</b>		Built into structure	✓		
		Moderately difficult to access or replace		✓	
		To drained ventilated cavity	Same durability as the <i>cladding</i> covering it		
<b>Water heaters</b>	Continuous flow heaters	Moderately difficult to access or replace (e.g. installed in cupboard)		✓	
		Easy to access or replace (e.g. on internal or <i>external wall</i> )			✓
	Storage water heaters	Moderately difficult to access or replace (e.g. installed in cupboard)		✓	
		Easy to access but moderately difficult to replace		✓	
<b>Wall framing including dwangs or nogging</b>	Timber or steel	Load-bearing framing	✓		
		Easy to access lined, non-load-bearing partitions		✓	
		Easy to access unlined, non-structural partitions or non-load-bearing demountable partitions			✓
	Structural Steel	All	✓		
<b>Windows</b>	Frame and interior reveals	Structural units	✓		
		External window/door joinery		✓	
		Internal window joinery			✓

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## 3 Installation Guidelines

### 3.1 Handling of treated timber products

It is recommended that the following actions and procedures are followed.

- Wear a dust mask when cutting or sanding treated timber
- Wear gloves when working with timber
- Wash hands and areas of exposed skin after handling treated timber
- Do not burn treated timber offcuts

### 3.2 Storage of CodeRight Protim Micro Treated Timber

It is recommended that the following procedures be followed to ensure that the quality of the timber products are maintained. This structural timber is kiln dried with a moisture content which allows for it to be used in both internal and external framing applications.

- Keep timber wrap on the product during storage
- If wrap is removed during use and the timber is stored outside recover the timber with the wrap
- Store the timber on flat ground
- Avoid storing timber in areas where water can pool or in areas where there is a high moisture content
- Do not stack timber with direct ground contact, always use bearers or another product to keep the timber away from ground contact

### 3.3 Identification of North Sawn Timber CodeRight framing

The CodeRight Dryframe Protim Micro structural timber framing products will be identified using the following branding along the edge of the timber.

**CodeMark»»»**  
(CMNZ70136)

- The CodeMark accreditation Number CMNZ70136
- The Chemical identification code 88
- The North sawn Timber treatment plant identification numbers 408 or 500
- The Treatment Tag identifies the hazard Class, which reads suitable to applications where H3, H3.2 or any lower hazard class
- The structural (SG) grade along with reference to the NZS 3631

**KILN DRY 500 88 H3****CODEMARK CMNZ70136**

This product is treated in accordance with  
AS/NZS1604.1:2021

Suitable to use where Hazard Class  
H3.2 or less is specified.

Backed by a 50 year limited warranty against  
decay, insect and termite attack.

CodeRight Timber Products should be installed by a suitably qualified person in accordance with the provisions of all relevant sections contained with the New Zealand Building Code, NZS and AS/NZS standards, including but not limited to NZS 3604:2011, NZS3602:2003 and AS/NZS1604.1:2021.

NZS 1604:2011 specifies the application for structural framing according to the relevant SG grade of the structural framing timber.

These tables are used to identify the correct SG grade and dimension of timber required to achieved compliance with the NZBC.



## 3.4 Floors

CodeRight Table Ref: 7 Floors Table 7.1 Floor joists – SG 8 up to 2 kPa floor loads

Table 7.1 – Floor joists – SG 8 up to 2 kPa floor loads (see 7.1.1.1)

<b>(a) 1.5 kPa floor load SG 8 (dry in service)</b>			
Floor joist size	Maximum span* of joists at a maximum spacing (mm) of:		
	400	450	600
(mm x mm)	(m)	(m)	(m)
90 x 45	1.45	1.40	1.25
140 x 35	2.10	2.00	1.80
140 x 45	2.70	2.60	2.00
190 x 45	3.55	3.45	3.15
240 x 45	4.40	4.30	3.90
290 x 45	5.20	5.05	4.60
<b>(b) 2 kPa floor load SG 8 and SG 8 (Wet) (wet in service)</b>			
Floor joist size	Maximum span* of joists at a maximum spacing (mm) of:		
	400	450	600
(mm x mm)	(m)	(m)	(m)
90 x 45	1.60	1.50	1.30
140 x 35	2.20	2.05	1.80
140 x 45	2.50	2.35	2.05
190 x 45	3.40	3.20	2.75
240 x 45	4.30	4.05	3.50
290 x 45	5.20	4.90	4.25

\* Spans may be increased by 10 % for joists continuous over 2 or more spans.

CodeRight Table Ref: 8 Floors Table A7.2 Cantilevered floor joists – SG 6 up to 2 kPa floor loads

Table A7.2 – Cantilevered floor joists – SG 6 up to 2 kPa floor loads (see 7.1.5)

Joist size	Joist spacing	Maximum cantilever length of joist supporting:						
		Wall, 1.5 kPa floor load						2 kPa floor load
		Light roof of span: (m)			Heavy roof of span: (m)			Balcony* floor and balustrade only
		4.0	8.0	12.0	4.0	8.0	12.0	
(mm x mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
90 x 45**	600	100	50	50	50	50	50	400
	450	100	50	50	100	50	50	500
	400	100	150	50	100	50	50	550
140 x 45**	600	200	100	100	150	100	100	700
	450	300	150	100	200	150	100	850
	400	300	150	100	250	150	100	900
190 x 45	600	400	200	150	300	200	150	1000
	450	550	300	200	400	300	200	1200
	400	550	350	200	450	300	250	1250
240 x 45	600	650	350	250	500	350	250	1300
	450	800	450	300	650	450	350	1500
	400	850	550	350	700	500	400	1600
290 x 45	600	950	550	350	750	500	400	1600
	450	1150	700	450	950	700	550	1850
	400	1150	800	550	950	700	550	2000

\* Applies to balconies of domestic self-contained dwellings only. Only these joists may be wet in service.  
\*\* 90 and 140 joist depth is insufficient where cantilevered balustrades are used.

CodeRight Table Ref: 9 Floors Table A7.2 Cantilevered floor joists – SG 10 up to 2 kPa floor loads

Table A7.2 – Cantilevered floor joists – SG 10 up to 2 kPa floor loads

Joist size	Joist spacing	Maximum cantilever length of joist supporting:						
		Wall, 1.5 kPa floor load						2 kPa floor load
		Light roof of span: (m)			Heavy roof of span: (m)			
		4.0	8.0	12.0	4.0	8.0	12.0	Balcony* floor and balustrade only
(mm x mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	
90 x 45**	600	150	50	50	100	50	50	550
	450	150	100	50	100	50	50	650
	400	150	100	50	100	50	50	700
140 x 45**	600	300	200	100	250	150	150	900
	450	350	250	150	250	200	150	1100
	400	350	300	200	300	200	150	1150
190 x 45	600	550	350	250	450	300	250	1300
	450	600	500	300	500	350	250	1500
	400	650	500	350	500	350	300	1600
240 x 45	600	850	600	400	700	500	400	1650
	450	950	750	500	750	550	450	1900
	400	1000	800	600	800	600	450	2050
290 x 45	600	1200	850	600	1000	750	600	2000
	450	1300	1050	750	1050	800	650	2350
	400	1350	1100	850	1100	850	650	2500

\* Applies to balconies of domestic self-contained dwellings only. Only these joists may be wet in service.  
\*\* 90 and 140 joist depth is insufficient where cantilevered balustrades are used.

CodeRight Table Ref: 10 Floors Table A7.1 Floor joists – SG 6 up to 2 kPa floor loads

Table A7.1 – Floor joists – SG 6 up to 2 kPa floor loads (

<b>(a) 1.5 kPa floor load (dry in service)</b>			
<b>Floor joist size</b>	<b>Maximum span* of joists at a maximum spacing (mm) of:</b>		
	<b>400</b>	<b>450</b>	<b>600</b>
(mm x mm)	(m)	(m)	(m)
90 x 45	1.30	1.25	1.10
140 x 35	1.90	1.80	1.60
140 x 45	2.45	2.35	1.80
190 x 45	3.20	3.10	2.85
240 x 45	3.95	3.90	3.50
290 x 45	4.70	4.55	4.15
<b>(b) 2 kPa floor load (wet in service)</b>			
<b>Floor joist size</b>	<b>Maximum span* of joists at a maximum spacing (mm) of:</b>		
	<b>400</b>	<b>450</b>	<b>600</b>
(mm x mm)	(m)	(m)	(m)
90 x 45	1.25	1.20	1.05
140 x 35	1.75	1.65	1.45
140 x 45	2.00	1.85	1.60
190 x 45	2.70	2.55	2.20
240 x 45	3.45	3.25	2.80
290 x 45	4.15	3.90	3.40

\* May be increased by 10 % for joists continuous over 2 or more spans.

CodeRight Table Ref: 11 Floors Table A7.1 Floor joists – SG 10 up to 2 kPa floor loads

Table A7.1 – Floor joists – SG 10 up to 2 kPa floor loads

<b>(a) 1.5 kPa floor load (dry in service)</b>			
Floor joist size	Maximum span* of joists at a maximum spacing (mm) of:		
	400	450	600
(mm x mm)	(m)	(m)	(m)
90 x 45	1.55	1.50	1.30
140 x 35	2.25	2.15	1.90
140 x 45	2.90	2.80	2.15
190 x 45	3.80	3.70	3.35
240 x 45	4.70	4.60	4.20
290 x 45	5.60	5.40	4.95
<b>(b) 2 kPa floor load (wet in service)</b>			
Floor joist size	Maximum span* of joists at a maximum spacing (mm) of:		
	400	450	600
(mm x mm)	(m)	(m)	(m)
90 x 45	1.60	1.50	1.30
140 x 35	2.20	2.05	1.80
140 x 45	2.50	2.35	2.05
190 x 45	3.40	3.20	2.75
240 x 45	4.30	4.05	3.50
290 x 45	5.20	4.90	4.25

\* May be increased by 10 % for joists continuous over 2 or more spans.

## 3.5 Walls

CodeRight Table Ref: 12 Walls Table 8.2 Studs in loadbearing walls for all wind zones – SG8

**Table 8.2 – Studs in loadbearing walls for all wind zones – SG 8**

Wind zone	Loaded dimension* of wall (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	
(width x thickness)										
<b>(a) Single or top storey – Light and heavy roof</b>										
Extra high	2.0	–	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	4.0	–	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	6.0	–	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
Very high	2.0	–	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	–	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	–	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
High	2.0	–	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
	4.0	–	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
	6.0	–	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
Medium	2.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	6.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
Low	2.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	6.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
Internal walls for all wind zones	2.0	–	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	4.0	–	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	6.0	–	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	(m)	3.6			4.2			4.8		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
		(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)
(width x thickness)										
Extra high	2.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	4.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	6.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
Very high	2.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 45	190 x 90
	4.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 45	190 x 90
	6.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 45	190 x 90
High	2.0	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	140 x 90	190 x 90
	4.0	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	140 x 90	190 x 90
	6.0	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	140 x 90	190 x 90
Medium	2.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	4.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	6.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
Low	2.0	90 x 35	90 x 70	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
	4.0	90 x 35	90 x 70	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
	6.0	90 x 35	90 x 70	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
Internal walls for all wind zones	2.0	90 x 35	90 x 70	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
	4.0	90 x 35	90 x 70	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
	6.0	90 x 35	90 x 70	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90

\* For definition of loaded dimension see 1.3.

NOTE –

- Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.
- 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.
- Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

Table 8.2 – Studs in loadbearing walls for all wind zones – SG 8 (continued)

Wind zone	Loaded dimension* of wall  (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm)										
(width x thickness)										
<b>(b) Lower of two storeys or subfloor beneath one storey</b>										
Extra high	2.0	-	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45
	4.0	-	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45
	6.0	-	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45
Very high	2.0	-	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	-	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 45	90 x 70	90 x 90
	6.0	-	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 45	90 x 70	90 x 90
High	2.0	-	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
	4.0	-	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	-	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Medium	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	6.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
Low	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 45
	6.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
Internal walls for all wind zones	2.0	-	70 x 45	90 x 35	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	4.0	-	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45	70 x 45	90 x 35	90 x 45
	6.0	-	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45	70 x 45	90 x 35	90 x 70

\* For definition of loaded dimension see 1.3.

NOTE –

- Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.
- 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.
- Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

Table 8.2 – Studs in loadbearing walls for all wind zones – SG 8 (continued)

Wind zone	Loaded dimension* of wall  (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm)										
(width x thickness)										
<b>(c) Subfloor beneath two storeys</b>										
Extra high	2.0	90 x 45	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	4.0	90 x 45	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45
	6.0	90 x 45	90 x 70	90 x 90	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45
Very high	2.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 45	90 x 70	90 x 90
	4.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	6.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
High	2.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Medium	2.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	4.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
Low	2.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	6.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
Internal walls for all wind zones	2.0	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45	70 x 45	90 x 35	90 x 70
	4.0	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45	70 x 45	90 x 35	90 x 70
	6.0	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45	90 x 35	90 x 35	90 x 70

\* For definition of loaded dimension see 1.3.

NOTE –

- Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.
- 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.
- Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.



CodeRight Table Ref: 13 Walls Table 8.4 Studs in non-loadbearing walls for all wind zones – SG8

Table 8.4 – Studs in non-loadbearing walls for all wind zones – SG 8

Wind zone	Maximum length (height) of stud	Stud size for maximum spacing of studs (mm) of:		
		300	400	600
	(m)	(mm x mm)	(mm x mm)	(mm x mm)
(width x thickness)				
Extra high	2.4	90 x 35	90 x 45	90 x 70
	2.7	90 x 45	90 x 70	90 x 90
	3.0	90 x 70	90 x 70	140 x 45
	3.3	90 x 90	140 x 45	140 x 45
	3.6	140 x 45	140 x 45	140 x 70
	3.9	140 x 45	140 x 70	190 x 45
	4.2	140 x 70	140 x 70	190 x 45
	4.8	190 x 45	190 x 70	–
Very high	2.4	90 x 35	90 x 35	90 x 70
	2.7	90 x 35	90 x 45	90 x 70
	3.0	90 x 45	90 x 70	90 x 90
	3.3	90 x 70	90 x 90	140 x 45
	3.6	90 x 90	140 x 45	140 x 45
	3.9	140 x 45	140 x 45	140 x 70
	4.2	140 x 45	140 x 70	190 x 45
	4.8	140 x 70	190 x 45	190 x 70
High	2.4	90 x 35	90 x 35	90 x 45
	2.7	90 x 35	90 x 35	90 x 70
	3.0	90 x 35	90 x 45	90 x 70
	3.3	90 x 70	90 x 70	140 x 45
	3.6	90 x 70	90 x 90	140 x 45
	3.9	90 x 90	140 x 45	140 x 70
	4.2	140 x 45	140 x 45	140 x 70
	4.8	140 x 70	190 x 45	190 x 45
Medium and low	2.4	90 x 35	90 x 35	90 x 35
	2.7	90 x 35	90 x 35	90 x 35
	3.0	90 x 35	90 x 35	90 x 70
	3.3	90 x 35	90 x 45	90 x 70
	3.6	90 x 70	90 x 70	140 x 45
	3.9	90 x 70	90 x 90	140 x 45
	4.2	90 x 90	140 x 45	140 x 70
	4.8	140 x 45	140 x 70	190 x 45
Internal walls for all wind zones	2.4	70 x 45	70 x 45	70 x 45
	2.7	70 x 45	70 x 45	90 x 35
	3.0	70 x 45	90 x 35	90 x 35
	3.3	90 x 35	90 x 35	90 x 70
	3.6	90 x 45	90 x 70	90 x 90
	3.9	90 x 70	90 x 70	140 x 45
	4.2	90 x 70	90 x 90	140 x 45
	4.8	140 x 45	140 x 45	140 x 70

NOTE –

- 90 x 35 may be substituted for 70 x 45.  
140 x 45 may be substituted for 90 x 90.
- Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

CodeRight Table Ref: 14 Walls Table 8.16 Top plates of loadbearing walls – SG8

Table 8.16 – Top plates of loadbearing walls – SG 8

Plate size (mm x mm)	Position of truss or rafter centre line relative to centre line of nearest stud	Maximum spacing of trusses or rafters (mm)	Light roof			Heavy roof			
			Stud spacing (mm)						
			300	400	600	300	400	600	
			Maximum loaded dimension* of wall (m)						
<b>(a) Single or top storey (Applies for any spacing of trusses or rafters)</b>									
70 x 45		Anywhere	600	6.0	6.0	5.8	6.0	5.4	3.2
			900	6.0	6.0	3.7	5.0	3.4	1.9
			1200	6.0	4.5	2.6	-	-	-
	Within 150 mm	600	6.0	6.0	6.0	6.0	6.0	4.8	
		900	6.0	6.0	4.6	5.2	4.3	3.0	
		1200	6.0	5.6	3.6	-	-	-	
90 x 45		Anywhere	600	6.0	6.0	6.0	6.0	6.0	4.2
			900	6.0	6.0	4.9	6.0	4.5	2.6
			1200	6.0	5.9	3.5	-	-	-
	Within 150 mm	600	6.0	6.0	6.0	6.0	6.0	6.0	
		900	6.0	6.0	5.8	6.0	5.7	4.1	
		1200	6.0	6.0	4.5	-	-	-	
90 x 45 plus 90 x 35 (or greater) or 2/90 x 45		Anywhere	600	6.0	6.0	6.0	6.0	6.0	6.0
			900	6.0	6.0	6.0	6.0	6.0	4.9
			1200	6.0	6.0	6.0	-	-	-
	Within 150 mm	600	6.0	6.0	6.0	6.0	6.0	6.0	
		900	6.0	6.0	6.0	6.0	6.0	6.0	
		1200	6.0	6.0	6.0	-	-	-	
90 x 45 plus 90 x 45 dwang		Anywhere	600	6.0	6.0	6.0	6.0	6.0	6.0
			900	6.0	6.0	6.0	6.0	6.0	6.0
			1200	6.0	6.0	6.0	-	-	-

\* For definition of loaded dimension see 1.3.  
\*\* Use of 90 x 35 shall be limited by the requirements of 8.7.4.2.  
NOTE – Substitution with built-up members is not allowed (see 5.4.6 and 8.7.4.2).

Table 8.16 – Top plates of loadbearing walls – SG 8 (continued)

Plate size (mm x mm)		Maximum loaded dimension of wall supporting floor (m)	Maximum spacing of trusses or rafters (mm)	Light roof			Heavy roof		
				Stud spacing (mm)					
				300	400	600	300	400	600
				Maximum loaded dimension* of wall (m)					
<b>(b) Lower of 2 storeys and subfloor stud walls supporting 1 storey</b>									
90 x 45		1.5	400	6.0	6.0	6.0	6.0	6.0	3.6
			450	6.0	6.0	4.8	6.0	6.0	2.7
			600	6.0	6.0	2.0	6.0	4.0	–
		3.0	400	6.0	6.0	1.5	6.0	5.2	–
			450	6.0	6.0	–	6.0	3.9	–
			600	6.0	2.2	–	4.5	–	–
90 x 45 plus 90 x 35 or 2/90 x 45	**  or 	1.5	400	6.0	6.0	6.0	6.0	6.0	6.0
			450	6.0	6.0	6.0	6.0	6.0	6.0
			600	6.0	6.0	6.0	6.0	6.0	4.6
		3.0	400	6.0	6.0	6.0	6.0	6.0	6.0
			450	6.0	6.0	6.0	6.0	6.0	4.6
			600	6.0	6.0	3.1	6.0	6.0	1.7
90 x 70		1.5	400	6.0	6.0	6.0	6.0	6.0	6.0
			450	6.0	6.0	6.0	6.0	6.0	6.0
			600	6.0	6.0	6.0	6.0	6.0	6.0
		3.0	400	6.0	6.0	6.0	6.0	6.0	6.0
			450	6.0	6.0	6.0	6.0	6.0	6.0
			600	6.0	6.0	6.0	6.0	6.0	5.4
<b>(c) Subfloor stud walls supporting 2 storeys</b>									
90 x 45 plus 90 x 35 or 2/90 x 45	**  or 	1.5	400	6.0	6.0	6.0	6.0	6.0	5.4
			450	6.0	6.0	6.0	6.0	6.0	3.9
			600	6.0	6.0	2.0	6.0	6.0	–
		3.0	400	6.0	6.0	–	6.0	6.0	–
			450	6.0	6.0	–	6.0	5.0	–
			600	6.0	–	–	6.0	–	–
90 x 70		1.5	400	6.0	6.0	6.0	6.0	6.0	6.0
			450	6.0	6.0	6.0	6.0	6.0	6.0
			600	6.0	6.0	6.0	6.0	6.0	4.8
		3.0	400	6.0	6.0	6.0	6.0	6.0	5.3
			450	6.0	6.0	5.5	6.0	6.0	3.2
			600	6.0	6.0	–	5.0	4.1	–
* For definition of loaded dimension see 1.3.									
** Use of 90 x 35 shall be limited by the requirements of 8.7.4.2.									
NOTE – Substitution with built-up members is not allowed.									

## CodeRight Table Ref: 15 Walls Table 8.2 Studs in loadbearing walls for all wind zones – SG6

(Normative)

Table A8.2 – Studs in loadbearing walls for all wind zones – SG 6

Wind zone	Loaded dimension* of wall (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(width x thickness)										
<b>(a) Single or top storey – Light roof and heavy roof</b>										
Extra high	2.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45	90 x 70	140 x 45	140 x 90
	4.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45	90 x 70	140 x 45	140 x 90
	6.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45	90 x 70	140 x 45	140 x 90
Very high	2.0	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 45
	4.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
	6.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
High	2.0	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 70	90 x 70	140 x 45
	4.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	6.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
Medium	2.0	90 x 35	70 x 45	90 x 45	70 x 45	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	4.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
Low	2.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	6.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
Internal walls for all wind zones	2.0	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	6.0	70 x 45	70 x 45	90 x 45	70 x 45	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	(m)	3.6			4.2			4.8		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
		(width x thickness)								
Extra high	2.0	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	190 x 90	190 x 90	190 x 90	–
	4.0	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	190 x 90	190 x 90	190 x 90	–
	6.0	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	190 x 90	190 x 90	190 x 90	–
Very high	2.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 90	190 x 45	190 x 90	190 x 90
	4.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 90	190 x 45	190 x 90	190 x 90
	6.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 90	190 x 45	190 x 90	190 x 90
High	2.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 45	190 x 90
	4.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 45	190 x 90
	6.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 45	190 x 90
Medium	2.0	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45
	4.0	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45
	6.0	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45
Low	2.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	4.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	6.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
Internal walls for all wind zones	2.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	4.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	6.0	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90

\* For definition of loaded dimension see 1.3.  
NOTE –  
(1) Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.  
(2) 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.  
(3) Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.  
(4) Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

Table A8.2 – Studs in loadbearing walls for all wind zones – SG 6 (continued)

Wind zone	Loaded dimension* of wall  (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(width x thickness)										
<b>(b) Lower of two storeys or subfloor beneath one storey</b>										
Extra high	2.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 90	90 x 90	140 x 45	140 x 90
	4.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 90	140 x 90	90 x 90	140 x 45	140 x 90
	6.0	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90	90 x 90	140 x 45	140 x 90
Very high	2.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
	4.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
	6.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
High	2.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	4.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	6.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
Medium	2.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Low	2.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	4.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
Internal walls for all wind zones	2.0	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	4.0	70 x 45	70 x 45	90 x 45	70 x 45	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	70 x 45	90 x 35	90 x 45	70 x 45	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70

\* For definition of loaded dimension see 1.3.

NOTE –

- Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.
- 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.
- Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

Table A8.2 – Studs in loadbearing walls for all wind zones – SG 6 (continued)

Wind zone	Loaded dimension* of wall  (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm)										
(width x thickness)										
<b>(c) Subfloor beneath two storeys</b>										
Extra high	2.0	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90	90 x 90	140 x 45	140 x 90
	4.0	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90	90 x 90	140 x 45	140 x 90
	6.0	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90	90 x 90	140 x 45	140 x 90
Very high	2.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
	4.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
	6.0	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45	90 x 70	90 x 90	140 x 90
High	2.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	4.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	6.0	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
Medium	2.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Low	2.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
	4.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
Internal walls for all wind zones	2.0	70 x 45	90 x 35	90 x 45	70 x 45	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
	4.0	70 x 45	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	70 x 45	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70

\* For definition of loaded dimension see 1.3.  
NOTE –  
(1) Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.  
(2) 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.  
(3) Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.  
(4) Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

CodeRight Table Ref: 16 Walls Table 8.2 Studs in loadbearing walls for all wind zones – SG10

Table A8.2 – Studs in loadbearing walls for all wind zones – SG 10 (see 8.5.1.1)

Wind zone	Loaded dimension* of wall (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm)										
(width x thickness)										
<b>(a) Single or top storey – Light roof and heavy roof</b>										
Extra high	2.0	-	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	-	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	-	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Very high	2.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	4.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
High	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	6.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
Medium	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	6.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
Low	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35
	6.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35
Internal walls for all wind zones	2.0	-	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35
	4.0	-	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35
	6.0	-	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35
	(m)	3.6			4.2			4.8		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
		(mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm)								
(width x thickness)										
Extra high	2.0	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	140 x 90	140 x 90
	4.0	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	140 x 90	190 x 90
	6.0	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	140 x 90	190 x 90
Very high	2.0	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45
	4.0	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45
	6.0	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45
High	2.0	90 x 70	90 x 70	140 x 45	140 x 45	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	4.0	90 x 70	90 x 70	140 x 45	140 x 45	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
	6.0	90 x 70	90 x 70	140 x 45	140 x 45	140 x 45	140 x 90	140 x 45	140 x 90	140 x 90
Medium	2.0	90 x 35	90 x 45	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
	4.0	90 x 35	90 x 45	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
	6.0	90 x 35	90 x 45	90 x 70	90 x 70	90 x 90	140 x 45	140 x 45	140 x 45	140 x 90
Low	2.0	90 x 35	90 x 35	90 x 70	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 45
	4.0	90 x 35	90 x 35	90 x 70	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 45
	6.0	90 x 35	90 x 35	90 x 70	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 45
Internal walls for all wind zones	2.0	90 x 35	90 x 35	90 x 70	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 45
	4.0	90 x 35	90 x 35	90 x 70	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 45
	6.0	90 x 35	90 x 35	90 x 70	90 x 70	90 x 70	140 x 45	90 x 90	140 x 45	140 x 45

\* For definition of loaded dimension see 1.3.  
NOTE –  
(1) Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.  
(2) 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.  
(3) Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.  
(4) Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

Table A8.2 – Studs in loadbearing walls for all wind zones – SG 10 (continued)

Wind zone	Loaded dimension* of wall  (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
(mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm) (mm x mm)										
(width x thickness)										
<b>(b) Lower of two storeys or subfloor beneath one storey</b>										
Extra high	2.0	-	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	-	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	-	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Very high	2.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	4.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	-	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70
High	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	6.0	-	90 x 35	90 x 45	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
Medium	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	6.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
Low	2.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35
	4.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35
	6.0	-	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
Internal walls for all wind zones	2.0	-	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	90 x 45
	4.0	-	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45
	6.0	-	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 45

\* For definition of loaded dimension see 1.3.  
NOTE –  
(1) Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.  
(2) 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.  
(3) Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.  
(4) Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.



Table A8.2 – Studs in loadbearing walls for all wind zones – SG 10 (continued)

Wind zone	Loaded dimension* of wall (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	
(width x thickness)										
<b>(c) Subfloor beneath two storeys</b>										
Extra high	2.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
Very high	2.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 45	90 x 90
	4.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 90
	6.0	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90
High	2.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70
	4.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
	6.0	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70	90 x 35	90 x 45	90 x 70
Medium	2.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 45
	6.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
Low	2.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	6.0	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
Internal walls for all wind zones	2.0	70 x 45	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 35
	4.0	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	6.0	70 x 45	70 x 45	90 x 35	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45

\* For definition of loaded dimension see 1.3.

NOTE –

- Determine the loaded dimension of the wall at floor level and the loaded dimension of the wall above at roof level and use the greater value in this table.
- 140 x 45 may be substituted for 90 x 90. 90 x 35 may be substituted for 70 x 45.
- Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

CodeRight Table Ref: 17 Walls Table 8.4 Studs in non-loadbearing walls for all wind zones – SG6

Table A8.4 – Studs in non-loadbearing walls for all wind zones – SG 6

Wind zone	Maximum length (height) of stud (m)	Stud size for maximum spacing of studs (mm) of:		
		300	400	600
		(mm x mm)	(mm x mm)	(mm x mm)
(width x thickness)				
Extra high	2.4	90 x 45	90 x 70	90 x 90
	2.7	90 x 70	90 x 70	140 x 45
	3.0	90 x 70	140 x 45	140 x 70
	3.3	140 x 45	140 x 45	140 x 70
	3.6	140 x 45	140 x 70	190 x 45
	3.9	140 x 70	140 x 70	190 x 70
	4.2	190 x 45	190 x 45	190 x 70
	4.8	190 x 70	190 x 70	-
Very high	2.4	90 x 35	90 x 45	90 x 70
	2.7	90 x 45	90 x 70	90 x 90
	3.0	90 x 70	90 x 90	140 x 45
	3.3	90 x 90	140 x 45	140 x 70
	3.6	140 x 45	140 x 45	140 x 70
	3.9	140 x 45	140 x 70	190 x 45
	4.2	140 x 70	190 x 45	190 x 70
	4.8	190 x 45	190 x 70	-
High	2.4	90 x 35	90 x 35	90 x 70
	2.7	90 x 35	90 x 45	90 x 70
	3.0	90 x 45	90 x 70	90 x 90
	3.3	90 x 70	90 x 90	140 x 45
	3.6	90 x 90	140 x 45	140 x 70
	3.9	140 x 45	140 x 45	140 x 70
	4.2	140 x 45	140 x 70	190 x 45
	4.8	190 x 45	190 x 45	190 x 70
Medium and low	2.4	90 x 35	90 x 35	90 x 45
	2.7	90 x 35	90 x 35	90 x 70
	3.0	90 x 35	90 x 45	90 x 70
	3.3	90 x 45	90 x 70	90 x 90
	3.6	90 x 70	90 x 90	140 x 45
	3.9	90 x 90	140 x 45	140 x 70
	4.2	140 x 45	140 x 45	140 x 70
	4.8	140 x 70	190 x 45	190 x 45
Internal walls for all wind zones	2.4	70 x 45	70 x 45	70 x 45
	2.7	70 x 45	70 x 45	90 x 35
	3.0	90 x 35	90 x 35	90 x 70
	3.3	90 x 35	90 x 45	90 x 70
	3.6	90 x 70	90 x 70	140 x 45
	3.9	90 x 70	90 x 90	140 x 45
	4.2	90 x 90	140 x 45	140 x 70
	4.8	140 x 45	140 x 70	190 x 45

NOTE –

- (1) 90 x 35 may be substituted for 70 x 45.
- (2) 140 x 45 may be substituted for 90 x 90.
- (3) Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- (4) Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

CodeRight Table Ref: 18 Walls Table 8.4 Studs in non-loadbearing walls for all wind zones – SG10

Table A8.4 – Studs in non-loadbearing walls for all wind zones – SG 10

Wind zone	Maximum length (height) of stud (m)	Stud size for maximum spacing of studs (mm) of:		
		300	400	600
		(mm x mm)	(mm x mm)	(mm x mm)
(width x thickness)				
Extra high	2.4	90 x 35	90 x 35	90 x 45
	2.7	90 x 35	90 x 45	90 x 70
	3.0	90 x 45	90 x 70	90 x 90
	3.3	90 x 70	90 x 90	140 x 45
	3.6	90 x 90	140 x 45	140 x 70
	3.9	140 x 45	140 x 45	140 x 70
	4.2	140 x 45	140 x 70	190 x 45
	4.8	190 x 45	190 x 45	190 x 70
Very high	2.4	90 x 35	90 x 35	90 x 35
	2.7	90 x 35	90 x 35	90 x 45
	3.0	90 x 35	90 x 45	90 x 70
	3.3	90 x 70	90 x 70	140 x 45
	3.6	90 x 70	90 x 90	140 x 45
	3.9	140 x 45	140 x 45	140 x 70
	4.2	140 x 45	140 x 45	140 x 70
	4.8	140 x 70	190 x 45	190 x 70
High	2.4	90 x 35	90 x 35	90 x 35
	2.7	90 x 35	90 x 35	90 x 35
	3.0	90 x 35	90 x 35	90 x 70
	3.3	90 x 45	90 x 70	90 x 90
	3.6	90 x 70	90 x 70	140 x 45
	3.9	90 x 90	140 x 45	140 x 45
	4.2	140 x 45	140 x 45	140 x 70
	4.8	140 x 45	140 x 70	190 x 45
Medium and low	2.4	90 x 35	90 x 35	90 x 35
	2.7	90 x 35	90 x 35	90 x 35
	3.0	90 x 35	90 x 35	90 x 45
	3.3	90 x 35	90 x 45	90 x 70
	3.6	90 x 45	90 x 70	90 x 90
	3.9	90 x 70	90 x 70	140 x 45
	4.2	90 x 70	140 x 45	140 x 45
	4.8	140 x 45	140 x 45	140 x 70
Internal walls for all wind zones	2.4	70 x 45	70 x 45	70 x 45
	2.7	70 x 45	70 x 45	70 x 45
	3.0	70 x 45	70 x 45	90 x 35
	3.3	70 x 45	90 x 35	90 x 45
	3.6	90 x 35	90 x 45	90 x 70
	3.9	90 x 45	90 x 70	90 x 90
	4.2	90 x 70	90 x 90	140 x 45
	4.8	90 x 90	140 x 45	140 x 70

NOTE –

- (1) 90 x 35 may be substituted for 70 x 45.
- (2) 140 x 45 may be substituted for 90 x 90.
- (3) Studs 70 mm and 90 mm thick may be replaced with studs of 35 mm and 45 mm thickness respectively, provided they are placed at no more than one half the spacing required for the 70 mm and 90 mm stud they are replacing.
- (4) Studs 70 mm and 90 mm thick may be substituted with built-up members sized in accordance with 8.5.1.2 and nailed together in accordance with 2.4.4.7.

## 4 Warranty

### 4.1 Statutory Rights

If you are a consumer or a homeowner, you may have certain rights under consumer protection legislation, including the Consumers Guarantees Act 1993 and /or the Building Act 2004 (“Statutory Rights”).

When a Statutory Guarantee is breached, you may be entitled to a range of remedies including, in some cases, damages for reasonably foreseeable losses. For more information on your statutory rights, you can visit the Ministry for Business Innovation and Employment website at <https://www.consumerprotection.govt.nz> and ??

Nothing in this document is intended to exclude, restrict, or modify any of your statutory rights, except where you have purchased the treated wood product in trade. If you have purchased the treated wood product in trade, you agree that the provisions of the Consumers Guarantees Act 1993 do not apply in relation to the purchase, and it is fair and reasonable to exclude the application.

- 4.1.1 North Sawn Timber offer a 50-year limited durability Warranty from the date the CodeRight timber products were purchased. This limited Warranty is in conjunction with the Treated Timber Product Warranty offered by Koppers Performance Chemicals New Zealand Ltd. A full copy of this warranty can be found in section: [Koppers Performance Chemicals Limited Product Warranty](#).
- 4.1.2 This is a limited durability Warranty, restricted to the hazard classes and use as defined in pages 72-74.

### 4.2 Conditions of Warranty

This Warranty is strictly subject to the following conditions:

- The treated wood product must be used only in accordance with the approved conditions and specifications for the hazard class specified on the timber treatment tag attached to the product
- Installation must be completed by a suitably qualified person in accordance with the provisions of the New Zealand Building Code and all relevant laws and regulations
- The building works in which the product has been incorporated must be designed and constructed in strict compliance with all the relevant provisions of the current New Zealand Building Code, regulations and standards, and the building consent relating to the building work
- The Warranty is the owner of the building or structure but not to an occupier
- An appropriate preservative must be applied at the time of construction on all saw cuts and drill holes in the treated wood product for hazard classes H3.1 and above. This Warranty will not cover any product installed where it is found that an appropriate preservative was not applied in accordance with the manufacturer’s directions at the time of the initial install.

### 4.3 Limits on Liability

NST will not be liable to the customer for any breach of Warranty unless the customer gives NST written notice of any claim for breach of Warranty within 30 days of the defect becoming reasonably apparent.

In any event, the customer's sole remedy under the NST warranty is (at NST's discretion) that NST will either supply replacement products or rectify the affected product where such products are capable of rectification or pay the reasonable cost of the replacement or rectification of the affected product.

Aside from the remedy described in clause 3.2, NST will not be liable for any losses or damages (whether direct or indirect) including property damage, personal injury, consequential loss, economic loss, or loss of profits, whether arising under statute, contract, tort including negligence or otherwise arising. Without limiting the foregoing, NST will not be liable for any claims, damages or defects arising from, or attributed to:

- Poor workmanship.
- Poor design or detail.
- Incorrect design of the structure.
- Settlement or structural movement and/or movement of materials to which the products are attached.
- Non consent building activity.
- Acts of God including, but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions.
- Normal wear and tear.
- The growth of mildew, mold, fungi, bacteria, or any other organism on the surface of any products (weather on exposed or non-exposed surfaces)
- Where treated products have been used in contact with untreated material or treated material that has been used in an improper application or where it is in contact with older construction with any evidence of decay.
- Corrosion of fasteners, hardware, or any other materials including metal materials used in conjunction with or to wrap or encapsulate the treated timber product.

## 5 Producer Statement

### 5.1 CodeRight Dryframe Protim Micro Structural Timber

CodeRight structural products treated with Protim Micro are manufactured by North Sawn Timber Ltd.

Structural timber products are manufactured in accordance with the provisions of following standards

- NZS 3622 Verification of Timber Properties
- AS/NZS 1748:2:2011 Timber Solid Stress Graded
- NZS 3631 New Zealand Timber Grading Rules.

CodeRight Protim Micro Structural timber products are produced under licence according to the Grade Right (NZ) structural timber program. Grade Right are an Independent Verification Authority, qualified under AS 1720.1 and AS/NZS 1328:1998.

The CodeRight structural timber products are treated using Protim Micro.

Protim Micro is manufactured by Koppers Performance Chemicals New Zealand

Protim Micro is referenced in AS/NZS1604:1:2021 and is approved for hazard classes H3, H4 and H5.

The CodeMark certification number issued for the CodeRight Timber products, approves this product for use where H3, H3.2 or any lower hazards class is specified.

CodeRight Structural timber products are treated in accordance with AS/NZS1604:1:2021. The treatment of these CodeRight products is licenced under Treat Right (NZ), who are an Independent Verification Authority, qualified under NZS 3640:2003 and AS/NZS1604.

CodeRight Structural Products are supplied in the following structural grades, Sg6, SG8, SG10 and SG12. These are in standard timber sizes as prescribed in NZS 3604:2011, 2.3.5.

## 6 Koppers Performance Chemicals Safety Data Sheet

Koppers Performance Chemicals New Zealand 14 Mayo Road, Wiri, Auckland, New Zealand  
Telephone 64-9-277 7770 Facsimile 64-9-277 8011 Customer Support 0800 78 70 70 Emergency 0800 243 622



### SAFETY DATA SHEET

#### Section 1 Identification of the material and the supplier

Product: **Protim Micro Concentrate**  
Product Use: Timber preservative for protection against termite and insect attack and fungal decay  
Restriction for use: Refer to Section 15

New Zealand Supplier: **Koppers Performance Chemicals New Zealand**  
Address: **14 Mayo Road,  
Wiri  
Auckland, New Zealand**

Telephone: (09) 277 7770  
Fax Number: (09) 277 8011

**Emergency Telephone: 0800 243 622**

Date of SDS Preparation: 1 December 2019

#### Section 2 Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval No: HSR101272

#### Pictograms



Toxic



Corrosive



Chronic



Ecotoxic

Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
3.1D	H227	Combustible liquid.	Flam. Liq. 4
6.1D (inh)	H332	Harmful if inhaled.	Acute Tox. 4
6.1E (oral)	H303	May be harmful if swallowed.	Acute Tox. 5
6.1E (asp)	H304	May be fatal if swallowed and enters airways.	Asp. Tox. 1
6.3A	H315	Causes skin irritation.	Skin Irrit. 2
6.8B	H361	Suspected of damaging fertility or the unborn child	Repr. 2
6.9B	H373	May cause damage to organs through prolonged or repeated exposure	STOT RE 2
8.3A	H318	Causes serious eye damage.	Eye Corr. 1
9.1A	H400	Very toxic to aquatic life.	Aquatic Acute 1
9.3B	H432	Toxic to terrestrial vertebrates.	

Product Name: Protim Micro Concentrate  
Date of SDS: 1/12/19

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**Prevention Code    Prevention Statement**

P102                    Keep out of reach of children.  
P103                    Read label before use.  
P202                    Do not handle until all safety precautions have been read and understood.  
P210                    Keep away from heat, sparks, open flames, hot surfaces. No smoking.  
P260                    Do not breathe vapours or spray.  
P264                    Wash exposed skin thoroughly after handling.  
P271                    Use only outdoors or in a well-ventilated area.  
P273                    Avoid release to the environment.  
P280                    Wear protective gloves, clothing, and eye/face protection.  
P281                    Use personal protective equipment as required.

**Response code    Response Statement**

P101                    If medical advice is needed, have product container or label at hand.  
P310                    Immediately call a POISON CENTER or doctor/physician.  
P312                    Call a POISON CENTER or doctor/physician if you feel unwell.  
P314                    Get medical advice/attention if you feel unwell.  
P331                    Do NOT induce vomiting.  
P362                    Take off contaminated clothing and wash before re-use.  
P391                    Collect spillage.  
P301 + P310            IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P302 + P352            IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340            IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
P305 +  
P351+P338            IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313            IF exposed or concerned: Get medical advice/ attention.  
P332 + P313            If skin irritation occurs: Get medical advice/ attention.  
P370 + P378            In case of fire: Use chemical foam or dry powder for extinction.

**Storage Code    Storage Statement**

P405                    Store locked up.  
P403 + P235            Store in a well-ventilated place. Keep cool.

**Disposal Code    Disposal Statement**

P501                    Triple rinse and dispose of according to Local Regulations

**Section 3                    Composition / Information on Ingredients**

Ingredients	Wt%	CAS NUMBER.
Basic Copper Carbonate	40 – 50	12069-69-1
Dispersant Phospholan PS-131	10 – 15	--
Exxsol D80	25 – 35	64742-47-8
Tebuconazole	< 1	107534-96-3
Dowanol DPM	1 - 5	34590-94-8

Product Name: Protim Micro Concentrate  
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## Section 4 First Aid Measures

### Routes of Exposure:

If in Eyes	Hold eyes open and carefully rinse eyes with running water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention.
If on Skin	Remove/Take off immediately all contaminated clothing. Rinse skin with soap, water/shower. Wash contaminated clothing before reuse. If skin irritation persists: Get medical advice. Get medical advice if you feel unwell.
If Swallowed	Immediately call a Poison Centre or doctor for treatment advice. Rinse mouth. Do not induce vomiting. Never give anything to the mouth of an unconscious patient.
If Inhaled	Move person to fresh air, keep warm and in a position comfortable for breathing. Seek medical advice if ill-effects occur or if you feel unwell. If person is not breathing, begin artificial respiration. Use mouth-to-nose rather than mouth-to-mouth.

### Most important symptoms and effects, both acute and delayed

#### Symptoms:

Ingestion:	May be harmful if swallowed.
Inhalation:	Harmful if inhaled.
Skin:	Causes skin irritation. Redness, itchiness.
Eye:	Causes serious eye damage. Redness, itchiness, tingling, burning.
Chronic:	May cause damage to liver and kidneys through prolonged or repeated exposure.

## Section 5 Fire Fighting Measures

<b>Hazard Type</b>	Combustible
<b>Hazards from decomposition products</b>	Irritating or toxic gases (oxides of carbon, oxides of nitrogen) may be evolved in the event of a fire.
<b>Suitable Extinguishing media</b>	Foam, CO <sub>2</sub> , dry chemical.
<b>Precautions for firefighters and special protective clothing</b>	Wear self-contained breathing apparatus and personal protection clothing.
<b>HAZCHEM CODE</b>	3Z

## Section 6 Accidental Release Measures

**SPILLS:** Evacuate all personnel. Wear PPE as detailed on Section 8. Contain spill. Do not contaminate watercourses or the ground. Soak up liquid with inert absorbent, sand or earth. Collect in suitable container for disposal.

**DISPOSAL:** Dispose through an approved disposal company in accordance with local regulations. Refer Section 13.

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## Section 7 Handling and Storage

### HANDLING:

- Keep out of reach of children.
- Read label before use.
- Keep away from heat, sparks, open flames, hot surfaces. No smoking.
- Do not breathe vapours or spray.
- Wash exposed skin thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves, clothing, and eye/face protection.
- Agitate thoroughly before and during use.

### STORAGE:

- Store locked up.
- Store in a well-ventilated place. Keep container tightly closed.
- Store away from incompatible materials such as alkalis and mild steel.

## Section 8 Exposure Controls / Personal Protection

### WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Dipropylene glycol methyl ether	100	606	150	909

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2017 9TH EDITION.

### Engineering Controls:

Use in a well-ventilated area or where there is mechanical exhaust ventilation.

### Personal Protective Equipment:



<b>Eyes</b>	Wear safety glasses or a face shield where there is a risk of splashes or from spray mist.
<b>Hands and Skin</b>	Synthetic or PVC gloves. Overalls recommended to protect clothes from contamination. Wear impervious apron when handling concentrate. After use, wash protective equipment including inside of gloves. Dry before re-use.
<b>Respiratory</b>	Use in a well-ventilated area. Use mechanical ventilation in poorly ventilated or confined areas. Air respirator with organic vapour canister or self-contained breathing apparatus when exposed to vapours of heated material.

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## Section 9 Physical and Chemical Properties

Appearance	Pale Green liquid
Odour	Chemical Smell
Odour Threshold	N/A
pH	N/A
Initial Boiling Point	N/A
Melting Point	Not available
Freezing Point	Not available
Flash Point	> 65 °C
Flammability	Flammable
Upper and Lower Exposure Limits	Not applicable
Vapour Pressure	Not available
Density @ 20°C	1.263 g/ml
Solubility in water	Immiscible
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Kinematic Viscosity	Not available
Particle Characteristics	Not available

## Section 10 Stability and Reactivity

Chemical Stability:	Stable under recommended storage conditions.
Conditions to Avoid:	Extreme temperatures, moisture.
Incompatibility:	Incompatible with oxidising agents (e.g. hypochlorites, peroxides), acids (e.g. sulphuric acid), strong alkalis (e.g. hydroxides), heat and ignition sources.
Hazardous Decomposition: Products	May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.

## Section 11 Toxicological Information

### Acute Effects:

Swallowed	May be harmful if swallowed.
Dermal	Not applicable.
Inhalation/Respiratory	Harmful if inhaled.
Eye	Causes serious eye damage.
Skin	Causes skin irritation.

### Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Suspected of damaging fertility or the unborn child
Germ Cell Mutagenicity	Not applicable.
STOT/SE	Not applicable.
STOT/RE	May cause damage to organs through prolonged or repeated oral exposure.
Aspiration	May be fatal if swallowed and enters airways.

Product Name: Protim Micro Concentrate  
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## Section 12 Ecotoxicological Information

HSNO Classifications: 9.1A – Very toxic to aquatic life.  
9.3B – Harmful to terrestrial vertebrates

Persistence and degradability	No data available
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	No data available

Do not allow to enter waterways.

## Section 13 Disposal Considerations

Dispose of waste in accordance with Regional Authority or local council bylaws. Dispose of empty containers safely. Crush clean dry containers and send to an approved landfill. Do not use empty containers for storing other products. Refer to label for further disposal instructions.

Any unused product or contaminated spill media must be put in a suitable waste container and isolated from other products. Ensure waste container is labelled "Hazardous Waste – Combustible, Ecotoxic".

## Section 14 Transport Information

This substance is classified as a dangerous good for Land Transport in New Zealand according to NZS5433: 2012

### Road and Rail Transport

UN No 3082  
Class-primary 9  
Packing Group III  
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

### Marine Transport

UN No 3082  
Class-primary 9  
Packing Group III  
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
Marine Pollutant Yes

### Air Transport

UN No 3082  
Class-primary 9  
Packing Group III  
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

### Limited Quantities Statement:

If the product's individual container is below 1L/kg, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

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## Section 15 Regulatory Information

This substance is classified hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval Code: HSR101272

HSNO Classification: 3.1D, 6.1D (inh), 6.1E (oral), 6.1E (asp), 6.3A, 6.8B, 6.9B, 8.3A, 9.1A, 9.3B

HSW (HS) Regulations 2017	Trigger Quantity
Certified Handlers	Not required
Location Certificate	Not required
Signage Trigger Quantities (Schedule 3)	100L (9.1A)
Emergency Response Plan (Schedule 5)	100L (9.1A)
Fire Extinguishers (Schedule 4)	500L : 2 extinguishers
Secondary Containment (Schedule 5)	100L (9.1A)
Tracking (Schedule 26)	Not required
HSNO Additional Controls (Restrictions of use)	
77A – Use	No person may use this substance for any purpose other than the treatment of timber.
77A – Timber	Timber treated with this substance, when that timber is for use in New Zealand, must have a treatment specification meeting the requirements of NZS3640:2003 or an accepted alternative eg AS/NZ1604 series.
77A – Maximum Impurity	The following limits are set for impurities in copper carbonate hydroxide: <ul style="list-style-type: none"> <li>• lead: maximum 0.5 x X mg/kg, where X is the copper content.</li> <li>• arsenic: maximum 0.1 x X mg/kg, where X is the copper content.</li> <li>• cadmium: maximum 0.1 x X mg/kg, where X is the copper content.</li> </ul>
Hazardous Property Controls Notice 2017	
HPC Notice Part 1	Hazardous Property Controls preliminary provisions
HPC Notice Part 3	Hazardous substances in a place other than a workplace
HPC Notice Part 4 Subpart A	Site and storage controls for class 9 substances
HPC Notice Part 4 Subpart B	Use of class 9 substances in any place
Tolerable Exposure Level (TEL)	No TEL set
Environmental Exposure Level (EEL)	EEL <sub>water</sub> tebuconazole 0.24 µg/L EEL <sub>fresh water</sub> copper: 1.4 µg/L EEL <sub>marine</sub> copper: 1.3 µg/L.

## Section 16 Other Information

### Glossary

EC <sub>50</sub>	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC <sub>50</sub>	Lethal concentration that will kill 50% of the test organisms
or ingesting it.	inhaling
LD <sub>50</sub>	Lethal dose to kill 50% of test animals/organisms.

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LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

#### References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

#### Disclaimer

This document has been compiled by TCC (NZ) Ltd on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) Ltd has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

The information herein is given in good faith, but no warranty, express or implied is made.

Please contact the New Zealand proprietor, Koppers Performance Chemicals New Zealand, phone 64 9 277 7770, [www.kopperspc.co.nz](http://www.kopperspc.co.nz) if further information is required.

Issue Date: 1 December 2019 Review Date: 1 December 2024

Product Name: Protim Micro Concentrate  
Date of SDS: 1/12/19

Prepared by: Technical Compliance Consultants (NZ) Ltd  
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## 7 Koppers Performance Chemicals Limited Product Warranty



**TREATED WOOD PRODUCT WARRANTY**



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## Koppers Performance Chemicals New Zealand Ltd

### STATUTORY RIGHTS

If you are a consumer or a homeowner, you may have certain rights under consumer protection legislation, including the Consumer Guarantees Act 1993 and/or the Building Act 2004 ("Statutory Rights"). When a statutory guarantee is breached, you may be entitled to a range of remedies including, in some cases, damages for reasonably foreseeable losses. For more information on your Statutory Rights, you can visit the Ministry of Business, Innovation and Employment websites at [www.consumeraffairs.govt.nz](http://www.consumeraffairs.govt.nz) and <http://www.building.govt.nz/builditright-homeowners-building-warranties>.

Nothing in this document is intended to exclude, restrict or modify any of your Statutory Rights, except where you have purchased the Treated Wood Product in trade. If you have purchased the Treated Wood Product in trade, you agree that the provisions of the Consumer Guarantees Act 1993 do not apply in relation to the purchase, and it is fair and reasonable to exclude their application.

### WHAT IS COVERED

This Warranty covers wood products pressure treated with Timber Preservatives ("Treated Wood Product"). Koppers Performance Chemicals New Zealand Ltd ("KPC") warrants to Owners that, subject to the terms, conditions, limitations and exclusions in this Warranty, the Treated Wood Product will not Structurally Fail during the applicable period stated in the Warranty Table. By purchase, acceptance, receipt, or use of the Treated Wood Product, the Owner accepts the terms, conditions, limitations and exclusions contained in this Warranty.

Capitalised terms used in this Warranty are as defined under "Meanings" below or elsewhere in this Warranty.

This Warranty is granted to Owners, but not to any other occupier of the real property to which this Warranty relates.

### MEANINGS

"Hazard Class" means each of the following Hazard Classes, described in NZS 3640 issued by Standards New Zealand and in AS/NZS1604.1:2021 as issued by Standards Australia.

Hazard Class	Exposure	Specific Service Conditions	Typical End Use Applications
H1.1	Protected from the weather, above ground	Protected from the weather, always dry	Interior finishing timber - see NZS 3602
H1.2	Protected from the weather, above ground, but with a possibility of exposure to moisture	Protected from the weather, but with a risk of moisture content conducive to decay	Wall framing - see NZS 3602
H3	Outside, above ground	Subject to periodic moderate wetting	Plywood, Laminated posts/beams, LVL
H3.1	Exposed to the weather, above ground	Periodic wetting, not in contact with the ground	Cladding, fascia, joinery – see NZS 3602 for requirements on paint protection
H3.2	Exposed to the weather, above ground, or protected from the weather but with a risk of moisture entrapment	Periodic wetting, not in contact with the ground, more critical end uses	All H3.1 uses, plus structural and decking - see NZS 3602
H4	Exposed to the weather, in ground or in fresh water	Subject to extreme wetting and leaching and/or where the critical use requires a higher degree of protection	Fence posts, landscaping timbers
H5	Exposed to the weather, in ground or in fresh water	Ground contact, or conditions of severe or continuous wetting, where uses are critical and where a higher level of protection than H4 is required	House piles and poles, crib walling

"Owner" means:

- the owner-of-record of the real property on which the Treated Wood Product was installed at the time the Treated Wood Product was installed, or
- if the Treated Wood Product was installed by a builder/contractor/owner in connection with new construction on real property owned by such builder/contractor/owner, the first owner-of-record that acquires such real property from the builder/contractor/owner.

"Structurally Fail" or "Structural Failure" means the inability of the Treated Wood Product to perform its intended function due to Fungal Decay or termite attack. "Fungal Decay" means attack by wood destroying fungi that disintegrate the wood cell walls, but excludes surface mould, mildew, and/or fungi associated with the appearance or weathering of wood. "Weathering" of wood is not Fungal Decay of any type.



## Treated Wood Product WARRANTY

“Timber Preservative” means the following timber preservatives supplied by KPC:

- Lifewood® CCA - Chromated Copper Arsenate (“CCA”);
- Naturewood® ACQ® - Alkaline Copper Quat (“ACQ®”);
- MicroPro® - Micronised Copper Quaternary Compounds (“MicroPro®”);
- Protim® Optimum - Light Organic Solvent Preservatives (“Protim® Optimum”);
- Protim® Micro – Light Organic Solvent Preservative Micronised Copper Azole (“Protim® Micro”)
- Protim® Aquazole - Azole Micromulsion (“Aquazole”), or
- FramePro™, SureBor N or Liquid Boron (“Boron”).

“Warranty Table” means the following table:

1	2	3	4
TIMBER PRESERVATIVE	HAZARD CLASS	RESISTANCE LEVEL	WARRANTY PERIOD
			Subject to “Limitation of Remedies Available” (see below)
CCA	H1.1 to H5	H1.1: Insect activity only H3.1 to H5: Insect activity and fungal decay	50 years
ACQ	H3.1 to H5	H3.1 to H5: Insect activity and fungal decay	50 years
MicroPro	H3.1 to H5	H3.1 to H5: Insect activity and fungal decay	50 years
Protim Micro	H3 to H5	H3 to H5: Insect activity and fungal decay	50 years
Protim Optimum	H1.1 to H3.1	H1.1: Insect activity only H3.1: Insect activity and fungal decay	25 years
Aquazole	H1.2 to H3.1	H1.2 to H3.1: Insect activity and fungal decay	INTERNAL FRAMING: 15 years: Where a drainage plane wall cavity exists 5 years: Where a face sealed cladding system exists
			EXTERIOR USES: 25 years
Boron	H1.1 to H1.2	H1.1: Insect activity only H1.2 to H3.1: Insect activity and fungal decay	15 years: Where a drainage plane wall cavity exists 5 years: Where a face sealed cladding system exists

### TO IDENTIFY A TREATED WOOD PRODUCT, LOOK FOR THE END TAG OR STAMP

It's easy to identify the Treated Wood Product. Simply look for the end tag or stamp on each piece of Treated Wood Product. Make sure you receive and retain original end tag(s) for each piece of Treated Wood Product, as well as the original purchase receipt(s) from your dealer or contractor/builder.

In the event of a claim, it will be necessary to present this documentation for all Treated Wood Product that is claimed to have Structurally Failed.

## Koppers Performance Chemicals New Zealand Ltd

### WARRANTY CONDITIONS

This Warranty applies only if each of the following conditions is met:

- The Treated Wood Product must be used only in accordance with the approved conditions and specifications for that Hazard Class as specified on the stamp and/or end tag attached to the Treated Wood Product and, if applicable, the New Zealand Building Code and any other relevant building approvals and building standards;
- The Treated Wood Product must be treated with a Timber Preservative in New Zealand by a licensed or independently audited treating/manufacturing facility in accordance with the specifications set out in NZS3640 and/or joint standard AS/NZS1604.1 Parts 2 – 5;
- The Treated Wood Product must be treated only with a Timber Preservative supplied to the manufacturer by KPC;
- The Treated Wood Product must be used only within New Zealand; and
- An appropriate preservative must be applied at the time of construction on all saw cuts and drill holes in the Treated Wood Product treated to H3.1 or above. This Warranty will not cover Treated Wood Product for which there is no evidence that an appropriate preservative was applied in accordance with the manufacturer's directions at the time of the initial installation.

### WARRANTY EXCLUSIONS

This Warranty does not apply:

- if the Treated Wood Product is used for any Hazard Class 6 application;
- if the Treated Wood Product is used for salt water immersion;
- if the Treated Wood Product is used in utility or electricity poles, marine piles, wharves or bridges;
- to the Structural Failure of projects or structures containing any Treated Wood Product where some or all of the Treated Wood Product has been used in contact with untreated or treated material that has been used in an improper application, or in contact with any older construction with any evidence of decay;
- to the Structural Failure of Treated Wood Product where the Treated Wood Product has been sawn lengthwise (ripped) or surfaced (sanded/planed/etc.);
- to the Structural Failure of the Treated Wood Product caused by the weathering of wood, including but not limited to raised grain, splitting, checking, cupping, twisting, warping, shrinkage, swelling, or any other physical or aesthetic property of the wood;
- to the corrosion of fasteners, hardware, or any other material(s), including metal materials used, in conjunction with, or to wrap or encapsulate the Treated Wood Product, or Structural Failure resulting from such an occurrence;
- to the delamination of the Treated Wood Product including plywood and other laminated wood products;
- to mould, mildew, or fungal growth on the Treated Wood Product that is aesthetic; or
- to damage to the Treated Wood Product other than Structural Failure.

### HOW TO MAKE CLAIMS

To make a claim under this Warranty, the Owner must, at its own cost:

- within thirty (30) days of discovery of a defect, notify the retail outlet or supplier of the relevant Treated Wood Product that has Structurally Failed in writing of the claim;
- deliver to KPC written notice (the "Notice") to the address specified in the contact details at the end of this Warranty of the Owner's intention to make a claim under this Warranty, including a description of the Structural Failure and evidence of the date of purchase or supply of the Treated Wood Product that has Structurally Failed;
- within thirty (30) days after delivery of the Notice, deliver to KPC a sufficient sample of the Treated Wood Product that has Structurally Failed that will allow KPC to conduct identification testing; and
- within sixty (60) days after delivery of the Notice, provide KPC with access to view the Treated Wood Product that has Structurally Failed prior to the removal of that Treated Wood Product from service.

If access for inspection is denied or should the inspection reveal that in-service conditions were modified or changed prior to inspection, or that the requirements of this Warranty are not met, KPC shall have no obligation under this Warranty.

### LIMITATION OF REMEDIES AVAILABLE

Subject to any Statutory Rights, the exclusive remedies available under this Warranty are limited to, at KPC's sole discretion, one or more of the following during the Warranty Period set forth in column 4 of the Warranty Table:

- the replacement of the relevant Treated Wood Product (Treated Wood Product only) or the supply of equivalent goods;
- the repair of the relevant Treated Wood Product;
- the payment of the reasonable and actual cost of replacing the relevant Treated Wood Product (Treated Wood Product only) or of acquiring equivalent goods; or
- the payment of the reasonable and actual cost of having the relevant Treated Wood Product repaired,

(together, the "Exclusive Remedies").

Subject to any Statutory Rights, and except for the Exclusive Remedies, KPC disclaims any and all liability for any other loss or damage of any kind whether direct, indirect, punitive, incidental, special or consequential.

Subject to the other terms, conditions, limitations and exclusions in this Warranty and any Statutory Rights, any action for breach of this Warranty must be commenced within one (1) year after the Owner knew or should have known of the occurrence of the Structural Failure (as reasonably determined by KPC or its agent). The Owner must take all reasonable steps to mitigate any loss or damage resulting from the Structural Failure.

The parties agree that they will resolve their disputes on an individual basis, and that any claims brought under this Warranty or in connection with the Treated Wood Product must be brought in the parties' individual capacity, and not as a plaintiff or class member in any purported class, collective, or representative proceeding.

## Treated Wood Product WARRANTY

### LIMITATION OF REMEDIES AVAILABLE CONTINUED

The parties further agree that they shall not participate in any class action (existing or future) brought by any third party arising under this Warranty or in connection with the Treated Wood Product. If this class action waiver is found to be illegal or unenforceable as to all or some parts of a dispute, then it will not apply to those parts.

KPC's failure at any time to enforce any of the terms, conditions, limitations or exclusions stated in this Warranty shall not be construed to be a waiver of such provisions.

This Warranty constitutes the complete and exclusive agreement between the Owner and KPC with respect to the subject matter contained in this Warranty and supersedes any and all prior oral or written agreements or representations. Any and all representations, promises, warranties or statements by KPC or its agents that differ in any manner from the terms of this Warranty are of no force or effect unless in writing, signed by a duly authorised officer of KPC.

Invalidity or unenforceability of any provision of this Warranty shall not affect the validity or enforceability of any other provision, all of which shall remain in full force and effect.

This Warranty is valid only in New Zealand. This Warranty applies to Treated Wood Product purchased after 1 June, 2016, unless superseded.

It is recommended that the Owner obtain and fully read a copy of:

- KPC's brochure for the relevant Timber Preservative which will contain further information about use of that Timber Preservative; and
- KPC's Safety Data Sheet, or equivalent publication.

### IMPORTANT INFORMATION

#### USE SITE PRECAUTIONS

All sawdust and construction debris should be cleaned up and safely disposed of after construction. Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such sites include wood mulch, cutting boards, counter tops, animal bedding, and structures or containers for storing animal feed or human food.

Only treated wood that is visibly clean and free of surface residue should be used for patios, decks and walkways. Do not use treated wood for construction of those portions of beehives which may come into contact with honey. Treated wood should not be used where it may come into direct or indirect contact with drinking water, except for uses involving incidental contact such as docks and bridges.

If the treated wood is to be used in an interior application and becomes wet during construction, it should be allowed to dry before being covered or enclosed.

Treated Product treated by the manufacturer to Hazard Class H1.1 or H1.2 must be kept protected from the weather and clear of ground contact at all times, including before use.

Treated Product treated by the manufacturer to Hazard Class H3.1 or H3.2, must be kept clear of ground contact at all times, including before use.

If the treated wood is to have a finishing product applied to it, such as paint, stain, clear water repellent or other finish, follow the manufacturer's instructions and label of the finishing product. To ensure the finishing product provides the intended result, first apply the finishing product to a small exposed test area of the treated wood.

#### HANDLING PRECAUTIONS

Treated wood can be disposed of in accordance with applicable laws. For more information, contact relevant waste management authorities.

Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. 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 all applicable laws. Avoid frequent or prolonged inhalation of sawdust from treated wood.

When sawing, sanding or machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood. When power-sawing or machining treated wood, wear goggles to protect eyes from flying particles.

Wear gloves when working with the treated wood. After working with the treated wood, and before eating, drinking, toileting, or using tobacco products, wash exposed areas thoroughly. Because preservatives or sawdust may accumulate on clothes, they should be laundered before re-use. Wash work clothes separately from other household clothing.

#### WOOD TREATED WITH INORGANIC ARSENIC

Wood treated with inorganic arsenic, including CCA, should be used only where such protection is important.

Inorganic arsenic penetrates deeply into and remains in the pressure-treated wood for a long time. However, some chemical may migrate from treated wood into surrounding soil over time and may also be dislodged from the wood surface upon contact with skin.

Exposure to inorganic arsenic may present certain hazards. Therefore, the above precautions should be taken both when handling the treated wood and in determining where to use or dispose of the treated wood.

For more information call, or visit <http://www.kopperspc.co.nz>