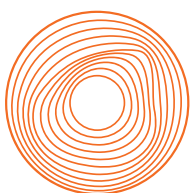




# 9 Basic Timber Specifications and Design Tips

A collaboration between Sawmilling South Africa and Stellenbosch University, the Wood App is South Africa's leading educational platform for the design and use of wood products in the built environment. Free online courses are available to all wood users and designers. In-person workshops are CPD-accredited for architects.



**SAWMILLING  
SOUTH AFRICA**  
We saw the future

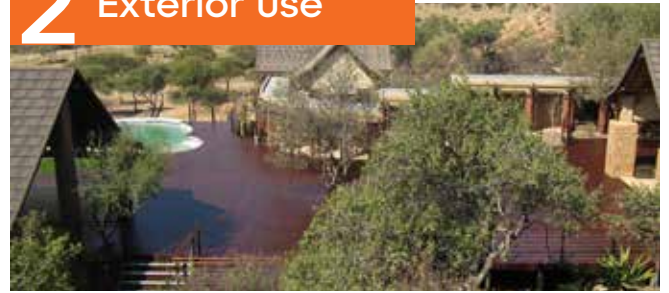


## 1 General use



Select or specify kiln dried timber (except if you know how to design with and use green timber).

## 2 Exterior use



Select or specify treated SANS certified timber (or as alternative use naturally durable and FSC® certified timber).

## 3 Structural use

Select or specify SANS graded timber\* according to structural requirements.

Avoid using wet off-saw timber for structural use – this has not been graded, and quality could be compromised.

\*Alternatively you will need to proof load the timber.

### Sawn timber sizes

Common South African structural pine sizes.

Thickness (mm)	Width (mm)	Length (metres)														
		0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
38	38	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
38	50	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
38	76	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
38	114	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
38	152	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
38	228	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
50	76	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
50	114	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
50	152	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
50	228	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
76	76	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
76	114	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6
76	228	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.2	4.8	5.4	6.0	6.6

## Characteristic grade stresses for SA pine (obtained from SANS 10163-1)

Grade	Branding	Tension parallel to grain	Tension perpendicular to grain	Compression parallel to grain	Compression perpendicular to grain	Shear parallel to grain	Rolling shear	Minimum modulus of elasticity	Mean modulus of elasticity
	<i>fb</i>	<i>ft</i>	<i>ftp</i>	<i>fc</i>	<i>fcp</i>	<i>fs</i>	<i>f.</i>	<i>Emin</i>	<i>E</i>
5	11,5	6,7	0,36	18,0	4,7	1,6	0,36	4 875	7 800
7	15,8	10,0	0,51	22,8	6,7	2,0	0,51	6 000	9 600
10	23,3	13,3	0,73	26,2	9,1	2,9	0,73	7 500	12 000
EH	20,8	14,1	0,30	19,3	3,9	2,2	0,51	7 041	9 826

Values in megapascals. These stresses apply to visually, mechanically or proof-graded timber that complies with SANS 1783-2 (grades 5,7 or 10), SANS 1460, grades 5, 7 10 or SANS 1707 as appropriate, or any other grading rules by the SANS for special purposes.

## Additional resources



The Wood App  
strength and stiffness  
properties course



Visual  
grading

## 4 Storage of timber



Cover kiln dried wood with plastic wrap / above ground / level surface / protected from elements.

Allow freshly treated timbers to dry and equalize at site, before use.

## 5 Installation

Image: eCo post



Install wood above ground and avoid water traps (except if H4/H5 treated wood for ground contact are required). It is recommended to cover laminated beams – and not use exposed where possible.

## 6 Moisture barriers and waterproofing



Image: Rotho Blaas

Cover wood with water-proof system / moisture barrier / coating – before external cladding or roof.

## 7 Timber connections



Image: Rotho Blaas

Specify proper bracing and connections in timber structural design / remember to elevate from ground contact.



# 8 Durability



Design for water to flow away from structure



Use end-caps / slanted top profile / edges profiled / flashing



Use treated or durable timbers



Follow SANS 10082 design code

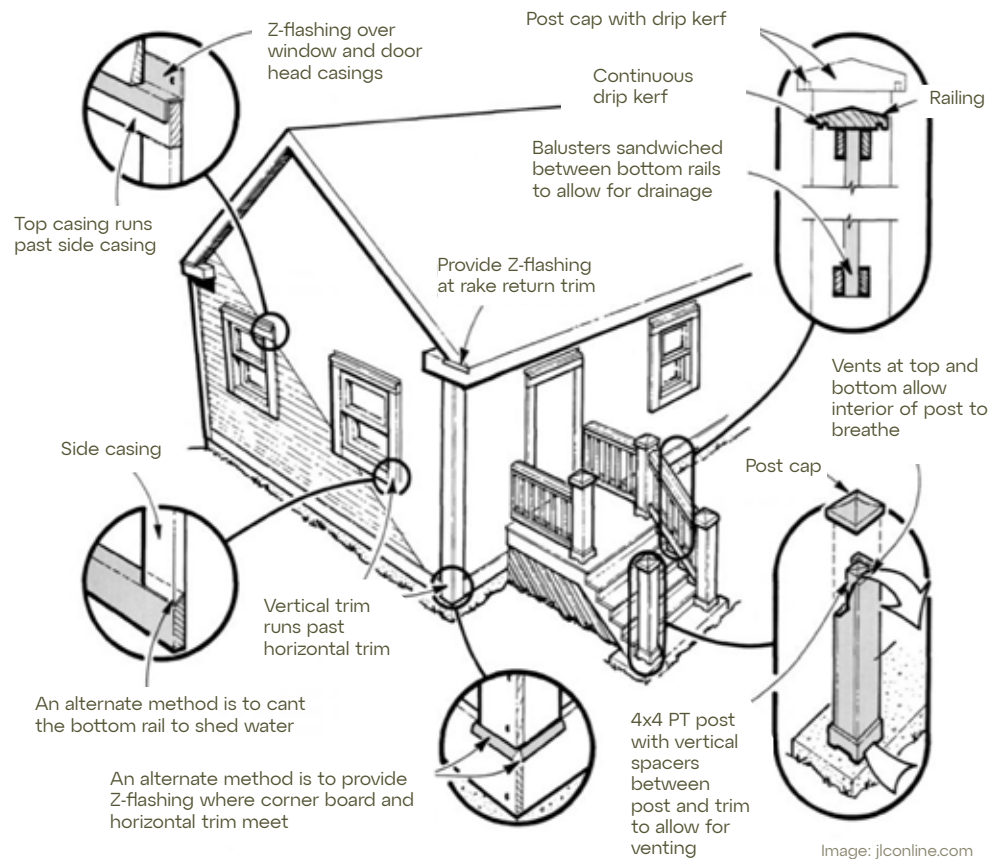


Image: jlconline.com

# 9 Design for fire

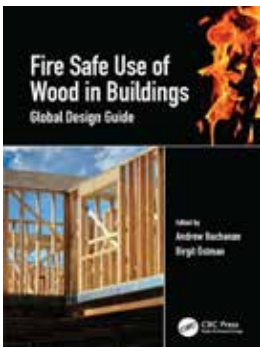


Image: Issuu



In large residential or multi-storey buildings, use large timber dimensions



Follow SANS codes



Consult fire experts



Find out more about design for fire

## For more information

Contact a timber consultant or expert, and follow SANS codes. Visit theWoodApp.com



Watch previous Talking Timber webinars

## Timber suppliers



South Africa has numerous timber suppliers and service providers.

*This list is mere an indication of some suppliers and not close to naming all contractors, builders, importers, consultants, re-manufactures, CLT plants, etc.*

[sawmillingsa.co.za](http://sawmillingsa.co.za)

[thewoodapp.com](http://thewoodapp.com)