

# **Engineering Specification Timber Sleepers and Bearers**

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## Document information

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## Document history

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Version 2.0	30/01/2022	First full UGLRL issue.

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## **1. Scope and application**

This Specification sets out requirements for the purchase of timber sleepers and turnout bearers.

It is applicable for all sleepers and turnout bearers used on the CRN Network to meet the requirements of CRN Engineering Standard CRN CS 230 – Sleepers and Track Support.

## **2. References**

### **2.1. Australian and International Standards**

AS 3818.1 Timber - Heavy structural products - Visually graded; Part 1: General requirements

AS 3818.2 Timber - Heavy structural products - Visually graded; Part 2: Railway track timbers

AS 2400.13 - Packaging - Tensional strapping

Unless otherwise specified, all references relate to the latest standard versions, including amendments and relevant superseding standards.

### **2.2. CRN documents**

CRN CS 230 – Sleepers and Track Support

### **2.3. Other references**

Nil

## **3. Definitions**

For the purpose of this specification, the definitions in AS 3818.1 apply.

## **4. Timber sleepers**

### **4.1. General requirements**

All sleepers shall conform to the requirements of AS 3818.2 Timber – Heavy Structural Products – Visually Graded Part 2: Railway Track Timbers – Section 3 “Sleepers” unless otherwise specified in this document.

Timber sleepers shall meet the grading requirements for Grade 1 (AS 3818.2 Section 3.2.1) unless otherwise specified in this document.

## 4.2. Specific requirements

### 4.2.1. Timber species

Timber sleeper species shall be in accordance with CRN CS 230 "Sleepers and Track Support", which are shown in Table 1

**Table 1 – Approved timber species for sleepers**

Group	Common name	Scientific Name
Group 1	Ironbark Grey	E. Siderophloia
Group 1	Ironbark Grey	E. Paniculata
Group 1	Ironbark Grey	E. Drepanophylla
Group 1	Ironbark Red (Broad Leaved)	E. Fibrosa
Group 1	Ironbark Red (Narrow Leaved)	E. Crebra
Group 1	Ironbark Red	E. Sideroxylon
Group 1	Gum Slaty or Box Slaty	E. Dawsonii
Group 1	Box White	E. Albens
Group 2	Box Grey	E. Microcarpa
Group 2	Box Grey	E. Moluccana
Group 2	Tallow wood	E. Microcorys
Group 2	Gum Grey	E. Punctata
Group 2	Gum Grey	E. Propinqua
Group 2	Gum Forest Red	E. Tereticornis
Group 2	Mahogany White	E. Acmeniodies
Group 3 <sup>(1)</sup>	Gum River Red	E. Camaldulensis
Group 3 <sup>(1)</sup>	Blackbutt	E. Pilularis

Note 1: Sleepers cut from Group 3 timber shall not be accepted unless specifically requested on the Purchase Order.

### 4.2.2. Sleepers cut from dead timber

Sleepers cut from DEAD timber are NOT acceptable.

### 4.2.3. Want, wane and sapwood

Want, wane and sapwood, separately or in combination, shall not exceed 10% (ten percent) of the width of the face in or below the rail seat area.

### 4.2.4. Standard sleeper sizes

Minimum dimensions and tolerances for sleepers shall be in accordance with Table 2.

**Table 2 – Timber sleeper dimensions**

	<b>Dimension (mm)</b>	<b>Acceptance Tolerance (mm)</b>
Length	2 440	(+75)- 0
Width	230	(+25) - 0
Thickness	130	+ 10 - 0

#### **4.2.5. Sleeper squareness**

Sleeper squareness shall comply with Table 2.1 in AS 3818.2 i.e.  $\pm 2$  degrees. End stock shall be square

#### **4.2.6. Approval of timber sleepers**

All timber sleepers shall be inspected for compliance, and passed, by a competent timber Inspector prior to delivery for use on the CRN Network. Certificates of Inspection shall be presented for each sleeper delivery. Those sleepers that pass the inspection shall be deemed approved.

Sleepers shall not be coated before inspection.

Notes:

1. Competency shall comprise at least a Certificate III in Sawmilling and Processing and must include the competency FPICOT3240B - Grade heavy structural/engineered products unless otherwise approved by the Principal Signal & Comm. & Network Control Engineer.
2. Competency of the inspector shall be reviewed and accepted prior to undertaking inspections

#### **4.2.7. Marking of sleepers**

All approved sleepers shall be marked on one end with a paint dot in accordance with Table 3. The dot shall be a nominal 25mm diameter.

**Table 3 – Marking of timber sleepers**

<b>Group</b>	<b>Common name</b>	<b>Mark</b>
Group 1	Ironbark	1 white dot
Group 1	Gum Slaty	1 white dot
Group 1	Box Slaty	1 white dot
Group 1	Box White	1 white dot
Group 2	Tallow wood	1 red dot
Group 2	Box Grey	1 red dot

Group	Common name	Mark
Group 2	Gum Grey	1 red dot
Group 2	Mahogany White	1 red dot
Group 2	Gum Forest Red	1 red dot
Group 3 <sup>(1)</sup>	Gum River Red	1 blue dot
Group 3 <sup>(1)</sup>	Blackbutt	1 blue dot

Approved sleepers shall be branded with the Inspector's and supplier's personal identification. The brand must be clearly legible and stamped on the end grain section

#### **4.2.8. End treatment**

A single coat of clear timber sealant shall be applied to the ends of sleepers. This process shall not obscure the natural features of the timber. The sealant to be used shall be Caltex "Timber Sealer", Product Code 1101, or equivalent.

No other means of preservation is acceptable.

#### **4.2.9. Bundling of sleepers**

To ensure all OH&S requirements are met, all sleepers must be securely strapped in accordance with AS 2400.13.

Sleepers shall be strapped, after acceptance, in bundles of no more than 25, unless otherwise specified on the purchase order

#### **4.2.10. Boxed heart**

Boxed Heart timbers (AS 3818.2 Clause 4.2.4) are not approved for use for 150mm deep timbers.

### **5. Timber turnout switch and crossing bearers**

#### **5.1. General requirements**

All turnout timbers shall conform to the requirements of AS 3818.2 Timber – Heavy Structural Products – Visually Graded Part 2: Railway Track Timbers – Special Sleepers (Section 4).

#### **5.2. Specific requirements**

##### **5.2.1. Approved timber species - turnout switch and crossing timbers**

Turnout switch and crossing timber species shall be in accordance with Table 4.



**Table 4 – Marking of timber sleepers**

Group	Common name	Scientific Name
Group 1	Ironbark Grey	E. Siderophloia
Group 1	Ironbark Grey	E. Paniculata
Group 1	Ironbark Grey	E. Drepanophylla
Group 1	Ironbark Red (Broad Leaved)	E. Fibrosa
Group 1	Ironbark Red (Narrow Leaved)	E. Crebra
Group 1	Ironbark Red	E. Sideroxylon
Group 2	Tallow wood	E. Microcorys
Group 2	Box Grey	E. Microcarpa
Group 2	Box Grey	E. Moluccana
Group 2	Gum Grey	E. Punctata
Group 2	Gum Grey	E. Propinqua
Group 2	Mahogany White	E. Acmeniodies

### 5.2.2. Timber size

Minimum dimensions for turnout switch and crossing timbers shall be in accordance with Table 5.

**Table 5 – Timber turnout bearer dimensions**

Width (mm)	Depth (mm)	Standard Timber Lengths Turnouts and Crossovers (m)
250	150	2.8, 3.0, 3.2, 3.4, 3.6, 3.8
250	180	2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0, 5.2, 5.4, 5.8, 6.0, 6.2, 6.4
250	200	2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.8, 5.0, 5.2,

The dimensional tolerances shall be in accordance with Table 6.

**Table 6 - Timber turnout bearer dimensional tolerances**

Dimension	Tolerances
Length	+ 50 mm - 0 mm
Width	+ 25 mm - 0 mm
Thickness	+ 10 mm - 0 mm

### 5.2.3. Timber squareness

Timber squareness shall comply with Table 2.1 in AS 3818.2 i.e.  $\pm 2$  degrees. End stock shall be square”

## 5.2.4. Approval of timber bearers

All timber bearers shall be inspected for compliance, and passed, by a competent timber Inspector prior to delivery for use on the CRN Network. Certificates of Inspection shall be presented for each timber delivery. Those timbers that pass the inspection shall be deemed approved.

Timbers shall not be coated before inspection.

Notes:

1. Competency shall comprise at least a Certificate III in Sawmilling and Processing and must include the competency FPICOT3240B - Grade heavy structural/engineered products unless otherwise approved by the Principal Signal & Comm. & Network Control Engineer.
2. Competency of the inspector shall be reviewed and accepted prior to undertaking inspections

## 5.2.5. Marking of turnout switch and crossing timbers

All approved timbers shall be marked on one end in accordance with Table 7.

**Table 7 - Marking of turnout timbers**

Cross Section (mm)	Mark
250 x 150	Length Only
250 x 180	B - Length
250 x 200	D - Length

- Group 1 timbers are to be marked in white paint.
- Group 2 timbers are to be marked in red paint.

All timbers shall be branded with the supplier's personal identification. The brand must be clearly legible and stamped on the nail plate'.

## 5.2.6. End treatment

A single coat of clear timber sealant shall be applied to the ends of timbers. This process shall not obscure the natural features of the timber. The sealant to be used shall be Caltex "Timber Sealer", Product Code 1101, or equivalent.

Immediately following inspection and approval marking, the end of all approved timbers are to be thickly coated with an approved undiluted end coating and nail plates, covering at least two thirds (2/3) of timber cross section, shall be hammered into both ends.

### **5.2.7. Bundling of timbers**

To ensure all OH&S requirements are met, all timbers shall be securely strapped in accordance with AS 2400.13.

### **5.2.8. Boxed heart**

Boxed Heart timbers (AS 3818.2 Clause 4.2.4) are only approved for use for 180mm and 200mm deep timbers. They are not approved for use for 150mm deep timbers.