

The following step-by-step guide shows how to select timber for a deck and pergola using **Porta Spanman** software. The software is accessible free-of-charge through the Porta website.

Spanman software enables the user to design beams, rafters, beams and joists for a range of building applications. The free-to-access **Porta Spanman** software covers the application of Porta Cumaru. Other material options can be accessed with a paid subscription to Spanman at www.spanman.net.

Firstly, go to Porta website at www.porta.com.au

Then hover over **Products** and navigate go to the **Porta Cumaru – Hardwood Decking and Landscaping**. Scroll down to find the **Access Porta Span Table** link. You will be re-directed to the Spanman custom Porta site.

The direct link is at at: <https://www.porta.com.au/porta-cumaru-2/>

Scroll down to Span Table. Click on **Access Porta Span Table**, which will re-direct to Spanman custom Porta site.

Resources

How to specify

Product + Profile + Length + Species + Code + Certification. For full specification details see Specifying section of the Install Guide.

Brochure

Porta Cumaru hardwood is the ideal timber to meet the requirements for contemporary exteriors, sustainable design and the National Construction Code.

[Download Porta Cumaru Brochure](#)

Sample Request

Porta Cumaru has beautiful mid-brown tones and an interlocking grain.

[Order a sample of Porta Cumaru](#)

Install Guide.

This install guide outlines key design, construction and maintenance issues for domestic timber decks. It is recommended that timber decking is installed 400mm above ground level to provide adequate ventilation.

[Download Decking Install Guide.](#)

Span Table

Calculate appropriate sizes and stress for decking, beams and posts.

[Access Porta Span Table](#)

Technical Data

[Porta Cumaru Durability Statement](#)
[Porta Cumaru Termite Resistance Statement](#)
[Porta Cumaru Fire Performance Technical Note](#)
[Porta Cumaru Safety Data Sheet](#)

Maintenance

Porta recommends factory applied pre-coating to protect the timber during transport and installation.

Porta Cumaru is supplied with end grain sealer on exposed end-grains before delivery. Porta recommends applying an end grain sealer to cuts on site.

[End Sealing Guidance](#)

A maintenance schedule is recommended to preserve the dimensional stability of timber and protect the timber from UV and moisture. Apply coatings as per the manufacturers recommendations. To retain colour regularly apply a tinted pigmented coating, for a silver-grey appearance, select a clear unpigmented coating.

Species Information


Porta Cumaru is a very dense, extremely hard-wearing Class 1 sustainable timber.

[Cumaru Timber Species Information](#)

Certification

Porta Cumaru is FSC® certified as responsibly sourced.

[Sustainability Information.](#)



[ROOF](#)
[LINTELS](#)
[FLOOR](#)
[ABOUT](#)
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[LOGIN](#)

Porta

PORTA

Welcome to the Porta online design tool created by Spanman.

This free tool gives construction industry professionals the ability to design wall, floor and roof members using the Porta F34 product.

If you have any questions about how to use the tool please contact the Porta customer and support team.

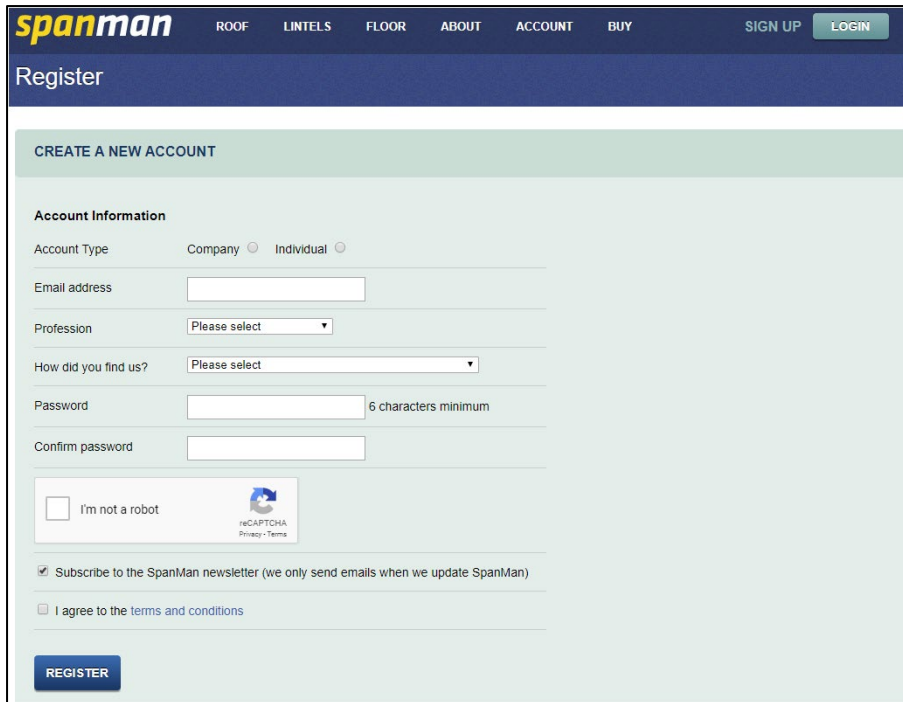
P: +61 3 9488 3222
 F: +61 3 9489 6684
info@porta.com.au
sales@porta.com.au

Please [login](#) or [create an account](#) to continue

[Disclaimer](#)
[Privacy](#)
[Contact](#)
[Spanman by Spanware Pty Ltd](#)

1. **First time login:**

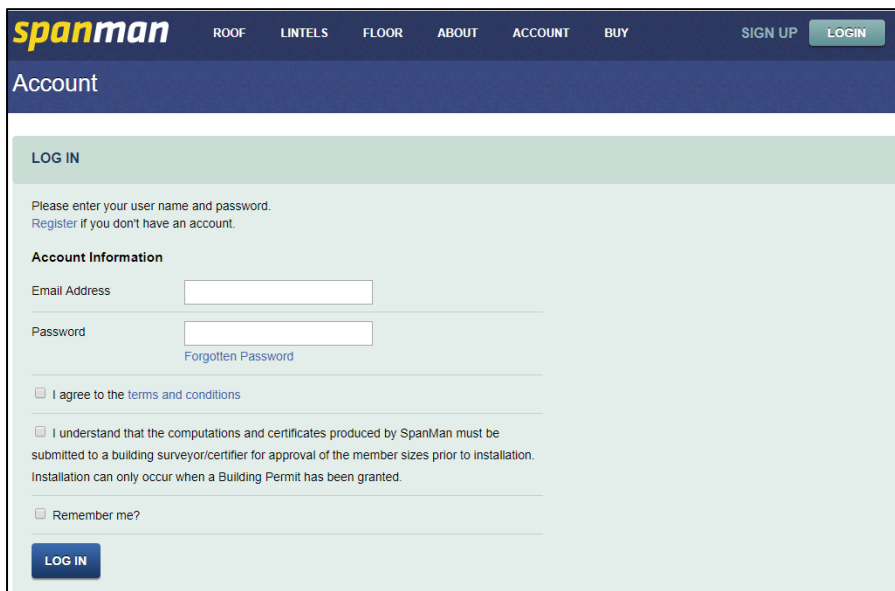
Click **create an account**. Complete the detail (remember to check **I agree to the terms and conditions**).



The image shows the 'Register' page of the Spanman website. The header includes the Spanman logo and navigation links: ROOF, LINTELS, FLOOR, ABOUT, ACCOUNT, BUY, SIGN UP, and LOGIN. The main heading is 'Register'. Below it is a section titled 'CREATE A NEW ACCOUNT'. Under 'Account Information', there are radio buttons for 'Company' and 'Individual'. The form includes fields for 'Email address', 'Profession' (a dropdown menu), 'How did you find us?' (a dropdown menu), 'Password' (with a note '6 characters minimum'), and 'Confirm password'. There is a reCAPTCHA widget with the text 'I'm not a robot'. Below the reCAPTCHA, there is a checked checkbox for 'Subscribe to the SpanMan newsletter (we only send emails when we update SpanMan)' and an unchecked checkbox for 'I agree to the terms and conditions'. At the bottom is a blue 'REGISTER' button.

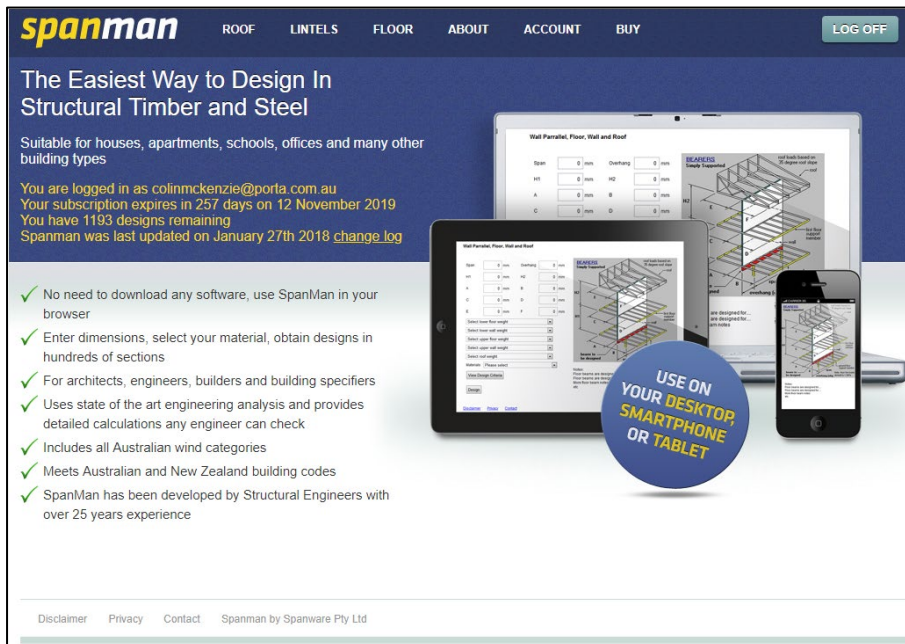
2. **Login:**

Enter **Email address** and **Password**; remember to check **I agree to the terms and conditions, I understand that ... and Remember me?**.



The image shows the 'Account' page of the Spanman website. The header is the same as the Register page. The main heading is 'Account'. Below it is a section titled 'LOG IN'. The text says 'Please enter your user name and password.' and 'Register if you don't have an account.' Under 'Account Information', there are fields for 'Email Address' and 'Password'. Below the password field is a link for 'Forgotten Password'. There are three checkboxes: 'I agree to the terms and conditions', 'I understand that the computations and certificates produced by SpanMan must be submitted to a building surveyor/certifier for approval of the member sizes prior to installation. Installation can only occur when a Building Permit has been granted.', and 'Remember me?'. At the bottom is a blue 'LOG IN' button.

Now, you are in the **Spanman HOME** screen.



spanman ROOF LINTELS FLOOR ABOUT ACCOUNT BUY LOG OFF

The Easiest Way to Design In Structural Timber and Steel

Suitable for houses, apartments, schools, offices and many other building types

You are logged in as colinmckenzie@porta.com.au
 Your subscription expires in 257 days on 12 November 2019
 You have 1193 designs remaining
 Spanman was last updated on January 27th 2018 [change log](#)

- ✓ No need to download any software, use SpanMan in your browser
- ✓ Enter dimensions, select your material, obtain designs in hundreds of sections
- ✓ For architects, engineers, builders and building specifiers
- ✓ Uses state of the art engineering analysis and provides detailed calculations any engineer can check
- ✓ Includes all Australian wind categories
- ✓ Meets Australian and New Zealand building codes
- ✓ SpanMan has been developed by Structural Engineers with over 25 years experience

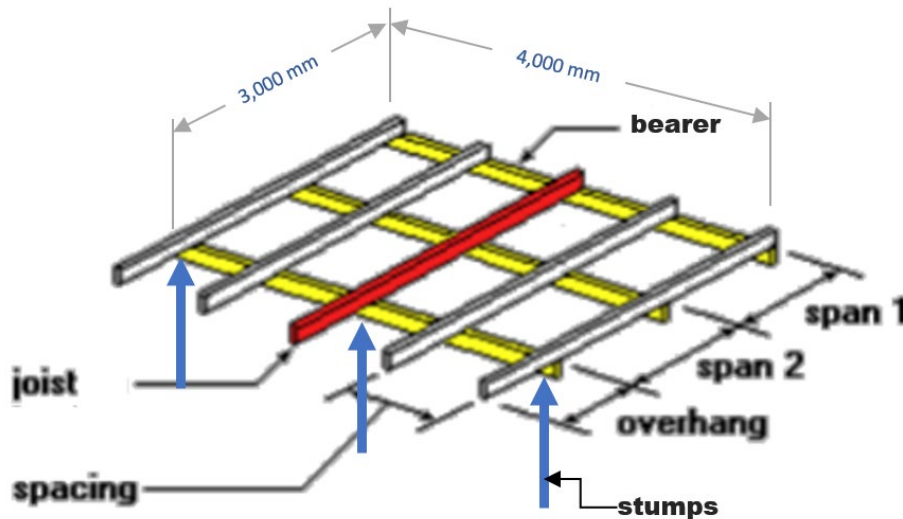
USE ON YOUR DESKTOP, SMARTPHONE OR TABLET

Disclaimer Privacy Contact Spanman by Spanware Pty Ltd

Senerio 1: Deck Sub-floor design

Select Porta CUMARU Bearers & Joists timber sizes for a 4m x 3m deck, using CUAMRU domestic 21mm thick decking boards.

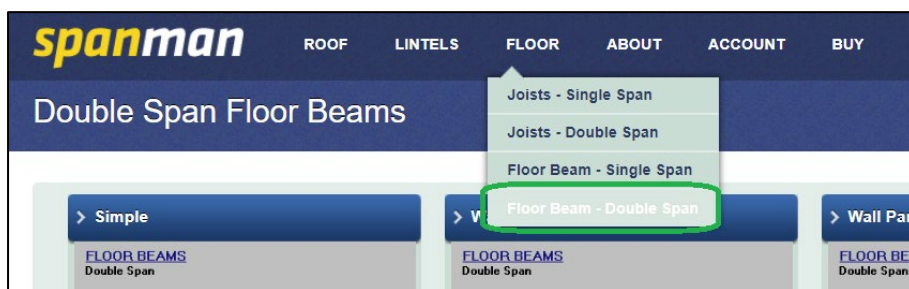
Bearers will be running along the 4m length. Stumps at each end & centre. No over hangs. 600mm spaced joists.



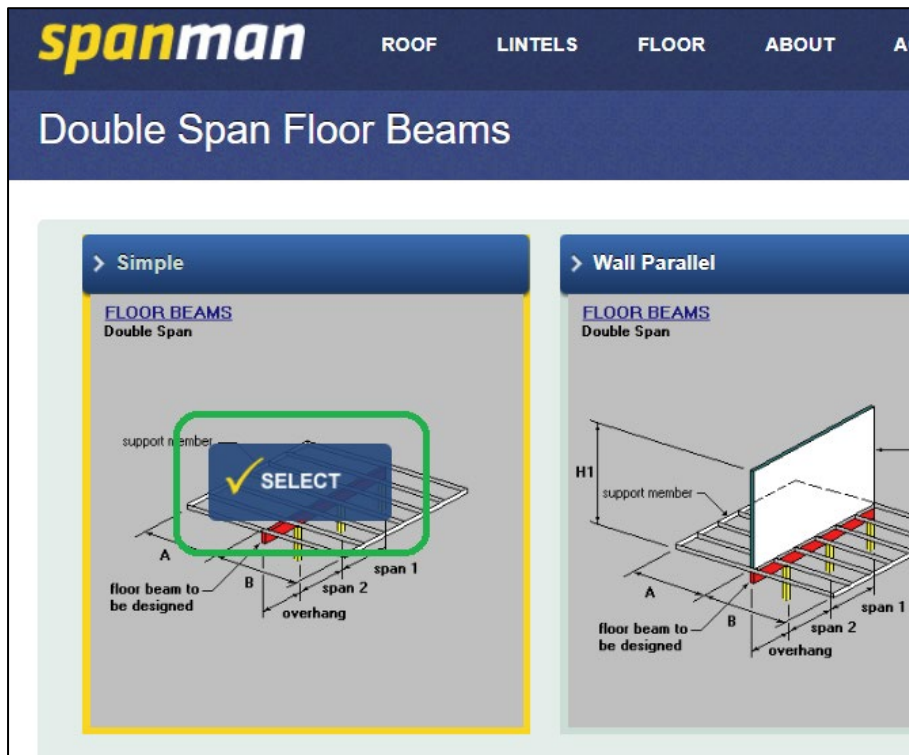
Distance between stumps: 2,000mm (span 1 & 2 for bearer beam). Overhang: 0mm
Span across deck: 1,500mm (shown as span 1 & span 2 above)

Start with selecting Bearers for a Double Span (or Multiple span design).

Hover over **FLOOR**, on the **HOME** screen and click on **Floor Beam – Double Span**.



Hover over **> Simple**, click on **SELECT** in the grey box.



You have arrived at the **Floor Beam Double Span** design screen (below).

Select Country (use the drop-down): **Australia**

Select Building Type (use the drop-down): **House – domestic dwelling**

Select Floor Use (use the drop-down): **Outdoor deck**

Span 1 & Span 2: Distance between stumps, **2,000mm**

Overhang: **0mm**

A: Span across deck, **1,500mm**

B: Span across other side of deck **1,500mm**

Select Floor (use the drop-down): **21mm hardwood decking** (23kg/m²) being Cumaru domestic decking

Select Ceiling (use the drop-down): **No ceiling** (0kg/m²)

Select Design Material (use the drop-down): **F34 Porta Cumaru**

*Note: The Porta Spanman site is restricted to **F34 Porta Cumaru**. Selecting All .. will provide an error. Other species etc. are available on the Paid Licenced Spanman site.*

Click on **DESIGN**

Select on 90 deep x 45 wide, a typical and available size of Porta Cumaru.

Span 1

2000 mm

?

Maximise

Span 2

2000 mm

?

Maximise

Overhang

0 mm

Maximise

A

1500 mm

?

B

1500 mm

?

Floor

21mm hardwood decking (23kg/m2)

?

Ceiling


No ceiling (0kg/m2)

?

Design Material

F34 Porta Cumaru

?



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 Web: www.porta.com.au

SOLUTIONS

| Name | kg/m | Depth (mm) |
|-------------------------|------|------------|
| 90 deep x 45 wide | 4.4 | 90 |
| 140 deep x 45 wide | 6.8 | 140 |
| 2 No. 90 deep x 45 wide | 8.8 | 90 |
| 190 deep x 45 wide | 9.3 | 190 |
| 240 deep x 45 wide | 11.7 | 240 |

DESIGN

CERTIFICATE

CALCULATIONS

CRITERIA

Note:

By clicking on **MAXIMISE** on either **Span 1** or **Span 2** or **Overhang**, the selection will be recalculated to maximise the selected dimension. This is useful to judge the safety factor or propose changes to the size of the deck.

Click **CERIFICATE**. This will download the **SPANMAN DESIGN CERTIFICATE** for the section, providing all the necessary design information (for a building certificate) including deflections.

Date: 1/3/19 12:06 PM
Designed By: Porta
Designer: Colin McKenzie
Email: colinmckenzie@porta.com.au
Phone: 0407336391
224-256 Heidelberg Road
FAIRFIELD, Victoria, 3078, Australia

SPANMAN DESIGN CERTIFICATE

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Double Span 90 deep x 45 wide F34 Porta Cumaru

Computations and certificates produced by SpanMan must be submitted to a building surveyor/certifier for approval of the member sizes prior to installation. Installation can only occur when a Building Permit has been granted.
Country: Australia
Building type: House - domestic dwelling
Design working life: 50 years
Floor Use: Outdoor deck
Distributed live load: 2 kPa, Point live load: 1.8 kN

Span 1 = 2,000 mm
Span 2 = 2,000 mm

FLOOR BEAMS
Double Span

Click **CALCULATIONS** will download the complete calculations for the selection (17 pages) which explains how the calculation & selection was made. This is useful for design approval submissions.

Date: 1/3/19 12:13 PM
Designed By: Porta
Designer: Colin McKenzie
Email: colinmckenzie@porta.com.au
Phone: 0407336391
224-256 Heidelberg Road
FAIRFIELD, Victoria, 3078, Australia

Double Span 90 deep x 45 wide F34 Porta Cumaru

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Computations and certificates produced by SpanMan must be submitted to a building surveyor/certifier for approval of the member sizes prior to installation. Installation can only occur when a Building Permit has been granted.

Design Parameters
Country: Australia
Building type: House - domestic dwelling
Design working life: 50 years
Floor Use: Outdoor deck
Distributed live load: 2 kPa, Point live load: 1.8 kN

Span 1 = 2,000 mm
Span 2 = 2,000 mm

FLOOR BEAMS
Double Span

Click **CRITERIA**, provide an explanation of the assumptions (which can be modified by an experienced designer) – only offered for information.

Criteria for Floor Beam Double Span (only modify if you are an experienced, competent building designer)

SAVE **DEFAULT** **CANCEL**

Main Span Deflection

Dead load maximum
Dead load span on
Live load maximum
Live load span on

Overhang Deflection

Dead load maximum
Dead load span on for downward deflection
Live load maximum
Live load span on for downward deflection

Imposed Loads

Additional dead load kPa ?
Live load main span kPa ?
Live load overhang kPa ?
Live load point load kN ?

Additional Midspan Point Loads

Dead load kN
Live load kN

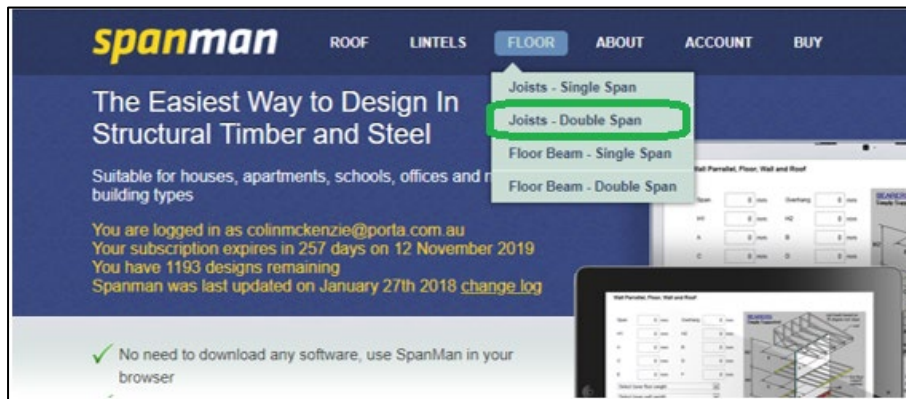
Distance Between Lateral Restraints

Top mm
Bottom

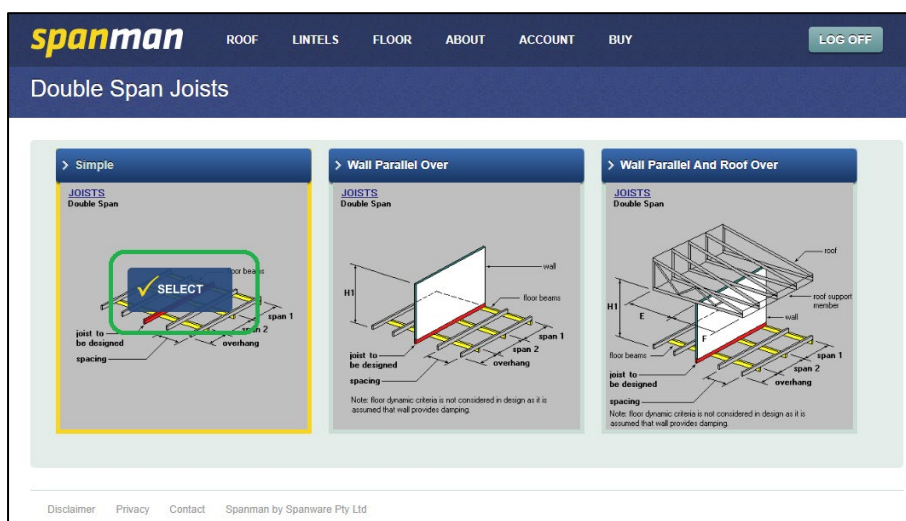
Minimum Vibration Frequency

Frequency Hz minimum ?

Hover over **FLOOR**, on the **HOME** screen and click **Joists – Double Span**.



Hover over **Simple**, click on **SELECT** in the grey box.



You will arrive at the design screen (below).

Select Country (use the drop-down): **Australia**

Select Building Type (use the drop-down): **House – domestic dwelling**

Select Floor Use (use the drop-down): **Outdoor deck**

Span 1: **1500**mm, Span 2: **1500**mm, Overhang: **0**mm, Spacing (joists): **600**mm

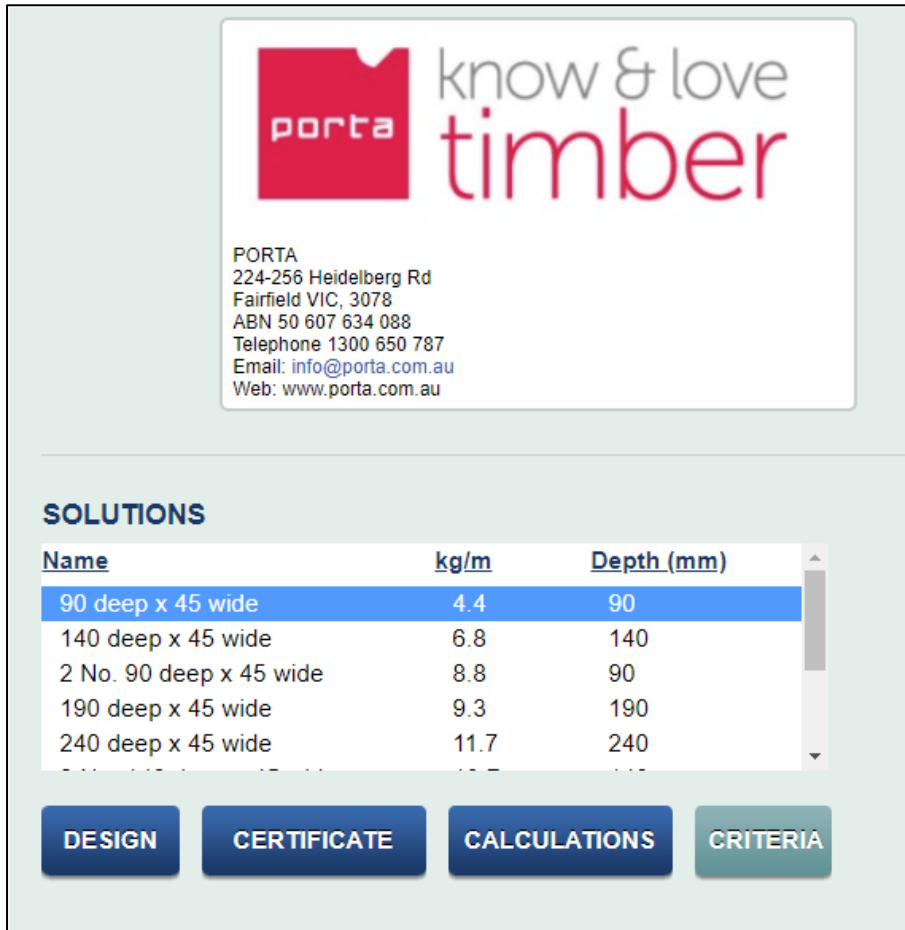
Select Floor: **19mm hardwood strip flooring (21kg/m²)** i.e. Porta Cumaru domestic decking


Select Ceiling: **No ceiling (0kg/m²)**

Select Design Material: **F34 Porta Cumaru**

Click **DESIGN**

Make a selection. Select say **90 deep x 45 wide**.




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SOLUTIONS

| Name | kg/m | Depth (mm) |
|-------------------------|------|------------|
| 90 deep x 45 wide | 4.4 | 90 |
| 140 deep x 45 wide | 6.8 | 140 |
| 2 No. 90 deep x 45 wide | 8.8 | 90 |
| 190 deep x 45 wide | 9.3 | 190 |
| 240 deep x 45 wide | 11.7 | 240 |

[DESIGN](#)
[CERTIFICATE](#)
[CALCULATIONS](#)
[CRITERIA](#)

The same as the Bearer design (above);

Click **CERIFICATE**. This will download the **SPANMAN DESIGN CERTIFICATE** for the section, providing all the necessary design information (for a building certificate) including deflections.

Click **CALCULATIONS** will download the complete calculations for the selection (17 pages) which explains how the calculation & selection was made. This is useful for design approval submissions.

Click **CRITERIA**, provide an explanation of the assumptions (which can be modified by an experienced designer) – only offered for information.

Conclusion for Deck Sub-floor design

Porta CUMARU 90x45mm can be used for the Bearers & Joists; Bearers: 3 x 4,000mm (or shorter lengths (2.4m) doubled-up at the intermediate stump). So, say $3 \times 2 = 6 \times 2.4\text{mm}$ lengths.

Joists: 4,000mm length / 600mm spacing = 6.7 rounded-up to 7 +1 (for end board) = 8 lengths required. Required length is 3,000mm or shorter when joined over a bearer. So, say use 1,800mm lengths. $8 \times 2 = 16 \times 1.8\text{m}$ lengths

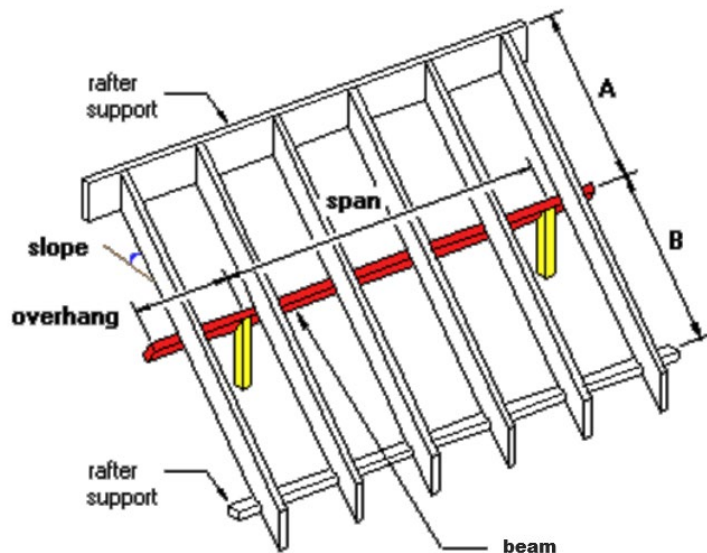
Cutting List:

- 6pc / 14.4LM P9045F34CUSL24
- 16pc / 28.8LM P9045F34CUSL18

Senerio 2: Pergola

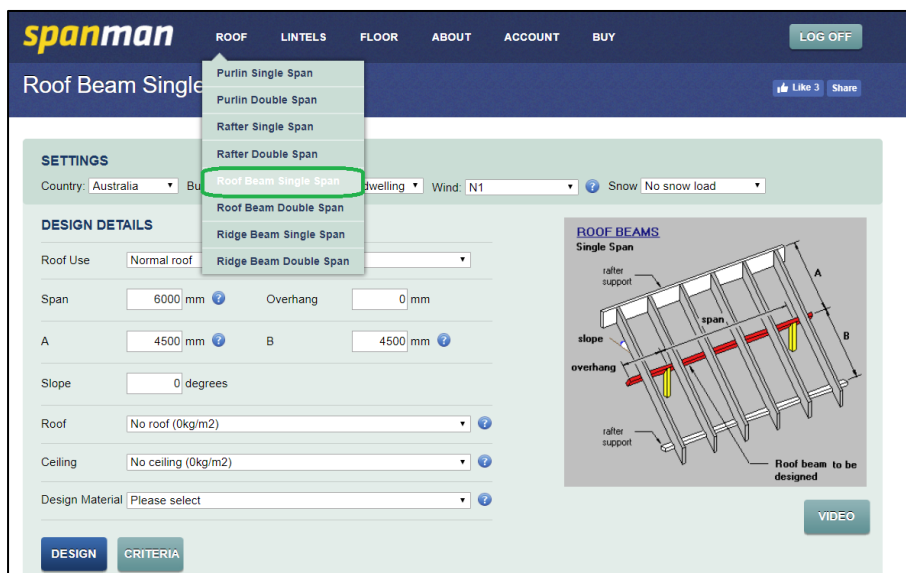
Select Porta CUMARU Roof Beam & Rafter timber sizes for a 4m x 3m Pergola.

Posts will be located at the corners (Single span beams & rafters).
Beams will run along the 4m length.



Note: for this example, A=total width of pergola / B = zero (use 1mm in design)

To select the beams for the pergola, hover over **ROOF**, and select the **Roof Beam Single Span**.



Select Country (use the drop-down): **Australia**

Select Building Type (use the drop-down): **House – domestic dwelling**

Select Wind (loading): N1 (wind loading ranges from N1 to C2 being a combination of location, terrain, shielding & topography; refer to local Council, surveyor or AS 4055 Wind Load for Housing).

Select Snow (loading): **No snow loading**

DESIGN DETAILS

Select Roof Use: **Pergola**

Span: **4000mm**, Overhang: **0mm**

A (single span width): **3000mm** / B (non-span width): **1mm**

Slope: **0 degrees**

Select Roof: **No roof (0kg/m²)**, Ceiling: **No ceiling (0kg/m²)**,

Select Design Material: **F34 Porta Cumaru**

Click **DESIGN**

Select: **140 deep x 45 wide**

SETTINGS

Country: Australia Building Type: House - domestic dwelling Wind: N1 Snow: No snow load

DESIGN DETAILS

Roof Use: Normal roof

Span: 4000 mm [Maximise](#) Overhang: 0 mm [Maximise](#)

A: 3000 mm B: 1 mm

Slope: 0 degrees

Roof: No roof (0kg/m²)

Ceiling: No ceiling (0kg/m²)

Design Material: F34 Porta Cumaru

ROOF BEAMS
Single Span

Diagram labels: rafter support, span, slope, overhang, rafter support, Roof beam to be designed

[VIDEO](#)

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Web: www.porta.com.au

SOLUTIONS

| Name | kg/m | Depth (mm) |
|--------------------------|------|------------|
| 140 deep x 45 wide | 6.8 | 140 |
| 2 No. 90 deep x 45 wide | 8.8 | 90 |
| 190 deep x 45 wide | 9.3 | 190 |
| 240 deep x 45 wide | 11.7 | 240 |
| 2 No. 140 deep x 45 wide | 13.7 | 140 |

[DESIGN](#) [CERTIFICATE](#) [CALCULATIONS](#) [CRITERIA](#)

Note:

By clicking on **MAXIMISE** on either **Span** or **Overhang**, the selection will be recalculated to maximise the selected dimension. This is useful to judge the safety factor or proposed changes of the pergola.

To select the rafters for the Pergola, hover over **ROOF**, and select the **Roof Rafter Single Span**.

Select:

Country: **Australia**, Building Type: **House – domestic dwelling**, Wind: **N1** (or other loading, as required), Snow: **No snow load**

DESIGN DETAILS

Select Roof Use: Pergola, Span: **3000mm**, Overhang: **0mm**, Spacing: **500mm**, Roof Slope: **0 degrees**, Roof: **Pergola (5kg/m²)**, Ceiling: **No ceiling (0kg/m²)**, Design Material: **F34 Porta Cumaru**.

Select **DESIGN**

Select **90 deep x 45 wide**

SETTINGS

Country: **Australia** Building Type: **House - domestic dwelling** Wind: **N1** Snow: **No snow load**

DESIGN DETAILS

Roof Use: **Pergola**

Span: **3000** mm **Maximize** Overhang: **0** mm **Maximize**

Spacing: **500** mm Roof Slope: **5** degrees

Roof: **Pergola (5kg/m²)**

Ceiling: **No ceiling (0kg/m²)**

Design Material: **F34 Porta Cumaru**

BAFTERS
Single Span

rafter support
slope
span
spacing
overhang
Rafter to be designed

VIDEO

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|-------------------------|------|------------|
| 90 deep x 45 wide | 4.4 | 90 |
| 140 deep x 45 wide | 6.8 | 140 |
| 2 No. 90 deep x 45 wide | 8.8 | 90 |
| 190 deep x 45 wide | 9.3 | 190 |
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DESIGN **CERTIFICATE** **CALCULATIONS** **CRITERIA**

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Click **CALCULATIONS** will download the complete calculations for the selection (17 pages) which explains how the calculation & selection was made. This is useful for design approval submissions.

Click **CRITERIA**, provide an explanation of the assumptions (which can be modified by an experienced designer) – only offered for information.

Conclusion for the Pergola

Porta CUMARU 140x45mm can be used for the Beams.

Beams: 2 x 4,000m. Use 2 x P14045F34CUSL42 (or longer).

Porta CUMARU 90x45mm can be used for the rafters.

Rafters: 3,000mm length / 500mm spacing. $4,000 / 500 = 8 + 1$ (for end board) = 9 lengths.
Use 9 x P9045F34CUSL30

Cutting List:

- 2pc / 8.4LM P14045F34CUSL42
- 9pc / 27LM P9045F34CUSL30