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.

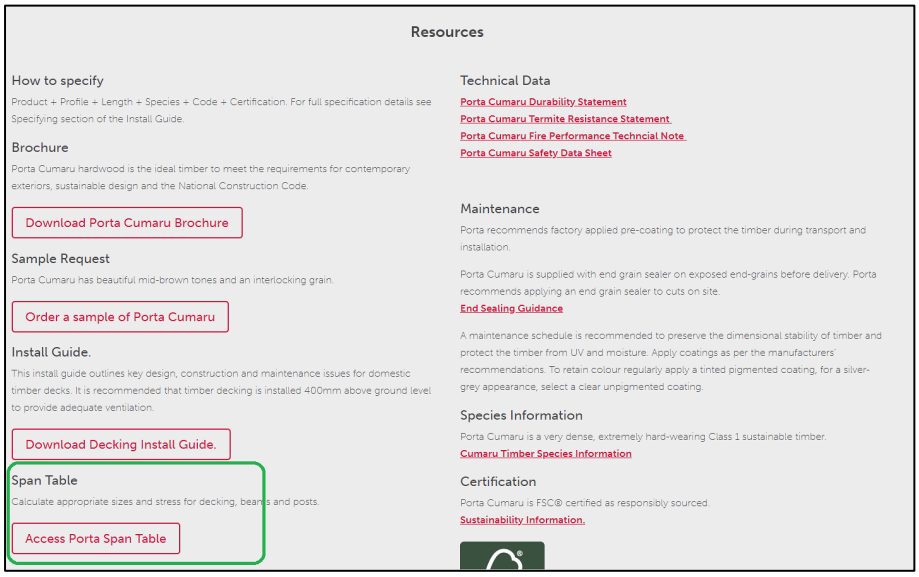
Spanman software enables the user to design beams, rafters, beams and joists for a range of building applications. The free-to-access **Porta Spanman** software covers the application of Porta Cumaru. Other material options can be accessed with a paid subscription to Spanman at www.spanman.net.

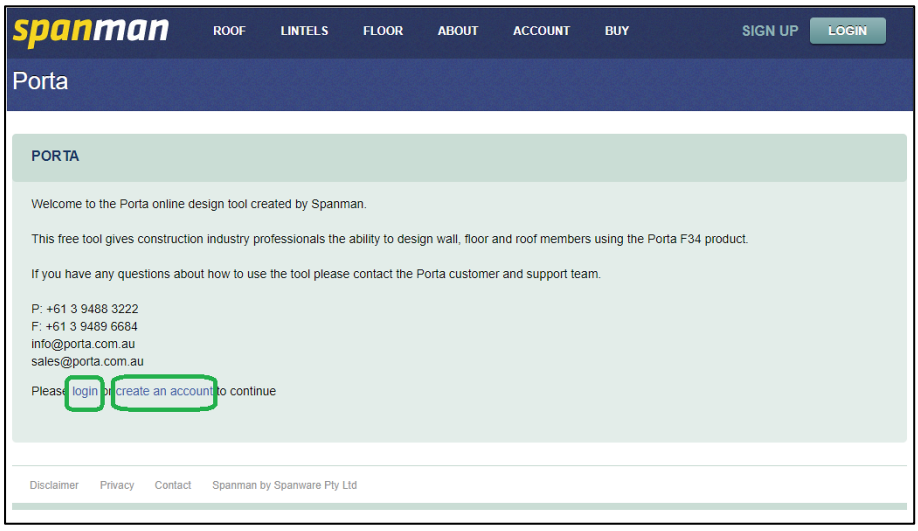
Firstly, go to Porta website at www.porta.com.au

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/

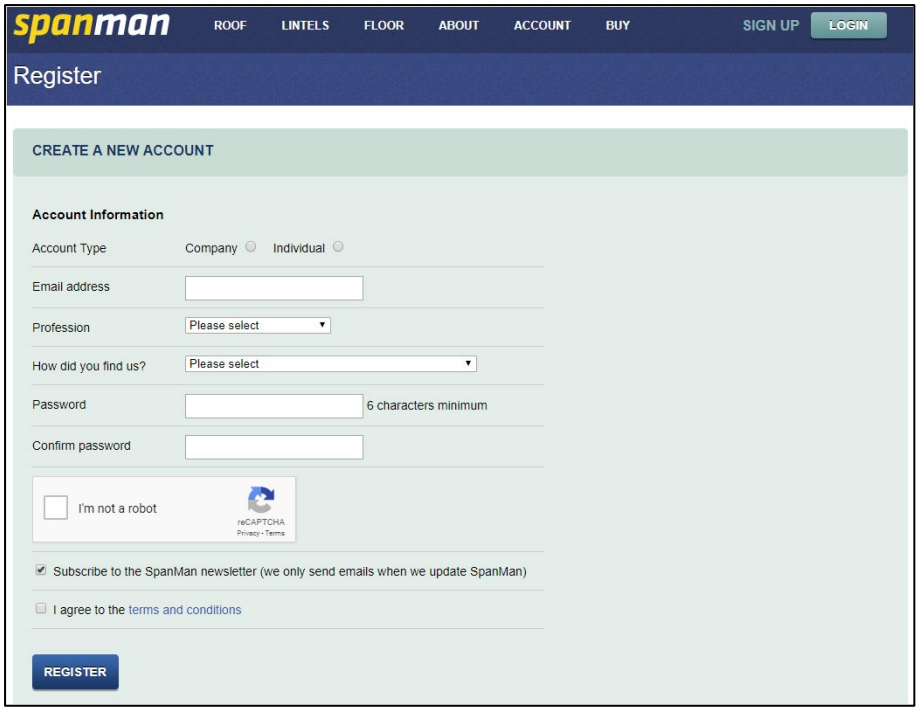
Scroll down to Span Table. Click on **Access Porta Span Table**, which will re-direct to Spanman custom Porta site.





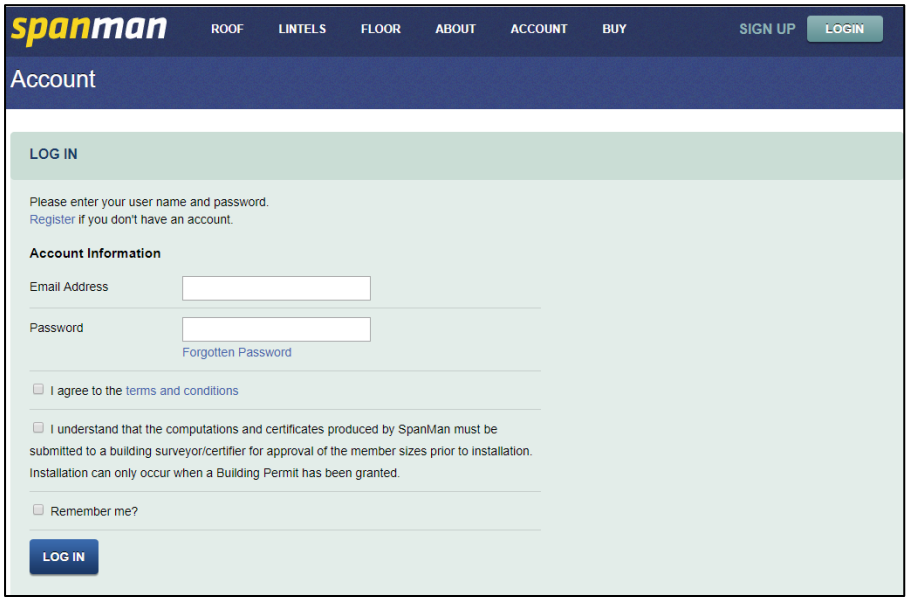
1. **First time logon**:

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

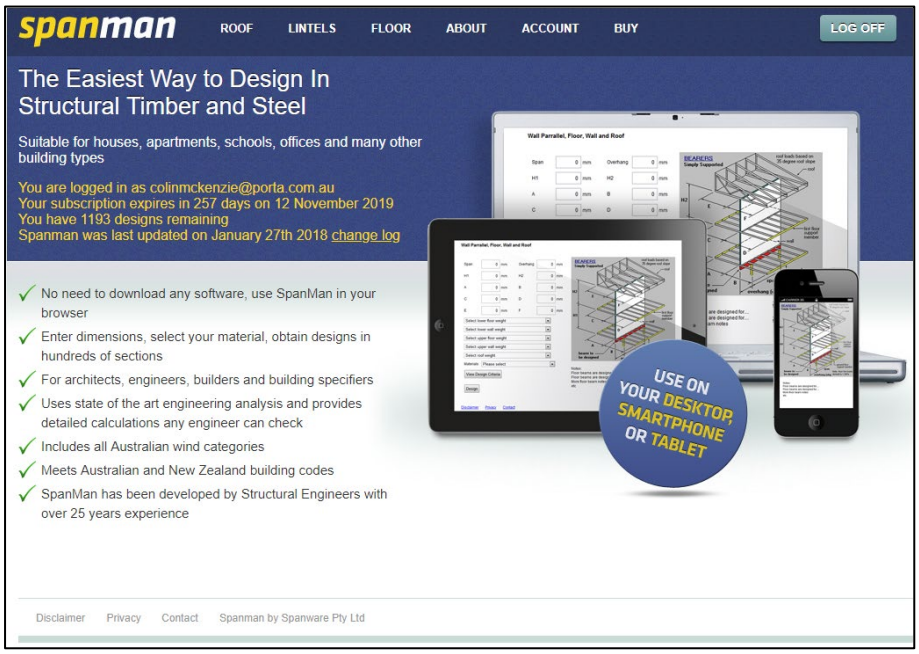


2. Login:

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



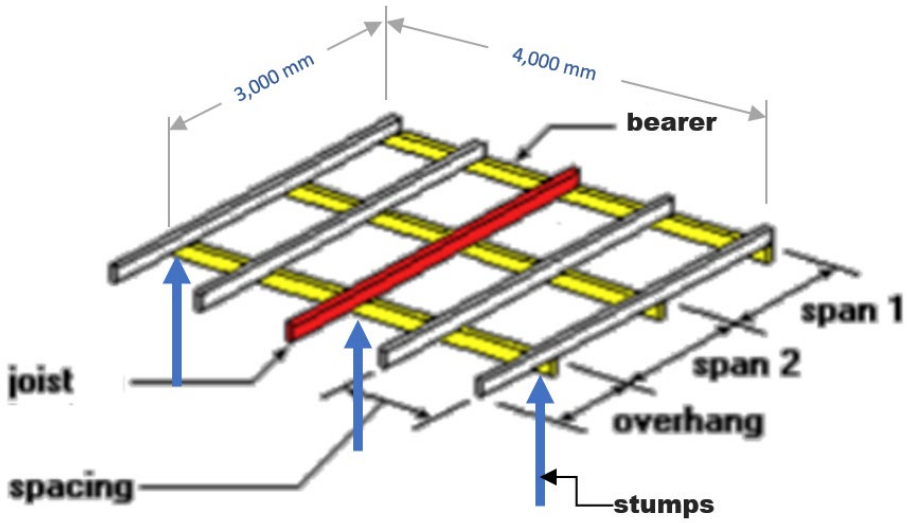
Now, you are in the **Spanman HOME screen**.



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.

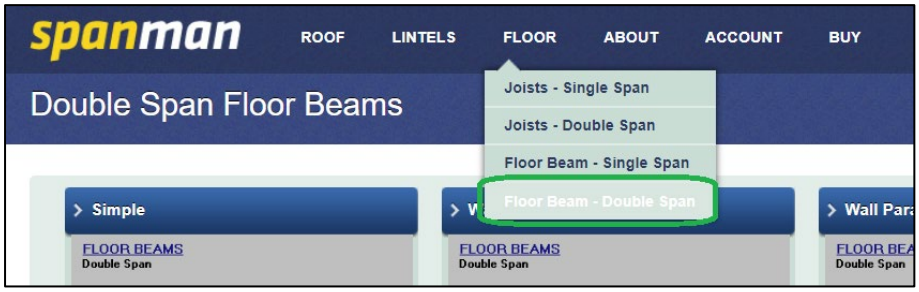
Bearers will be running along the 4m length. Stumps at each end & centre. No over hangs. 600mm spaced joists.



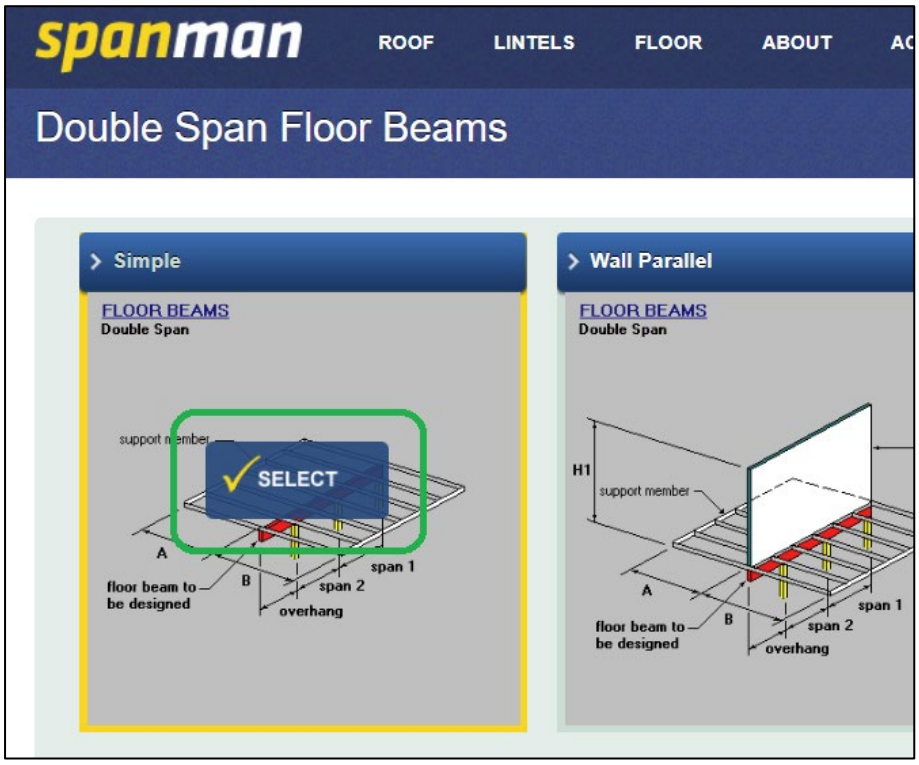
Distance between stumps: 2,000mm (span 1 & 2 for bearer beam). Overhang: 0mm
Span across deck: 1,500mm (shown as span 1 & span 2 above)

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/m^2) being Cumaru domestic decking

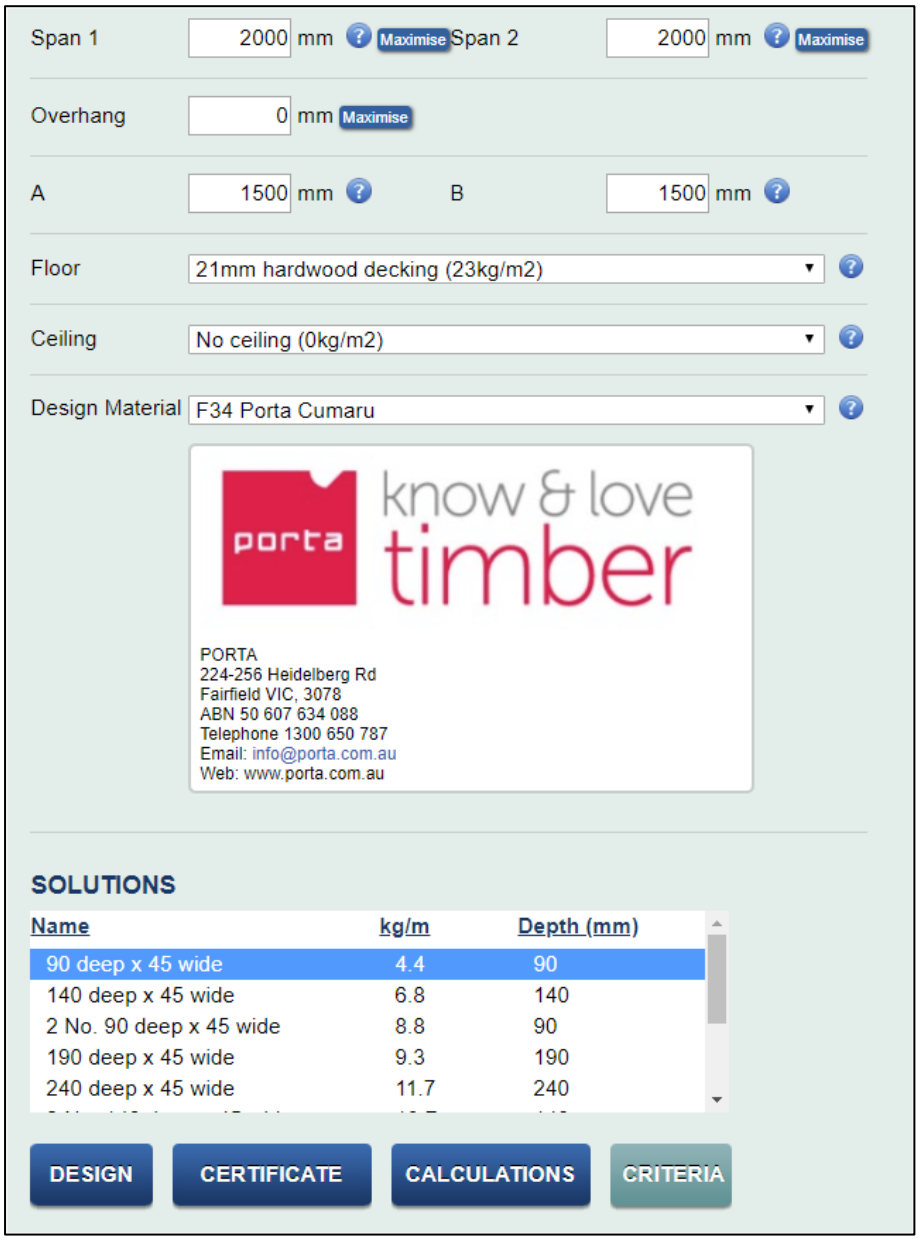
Select Ceiling (use the drop-down): **No ceiling (0kg/m2)**

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**

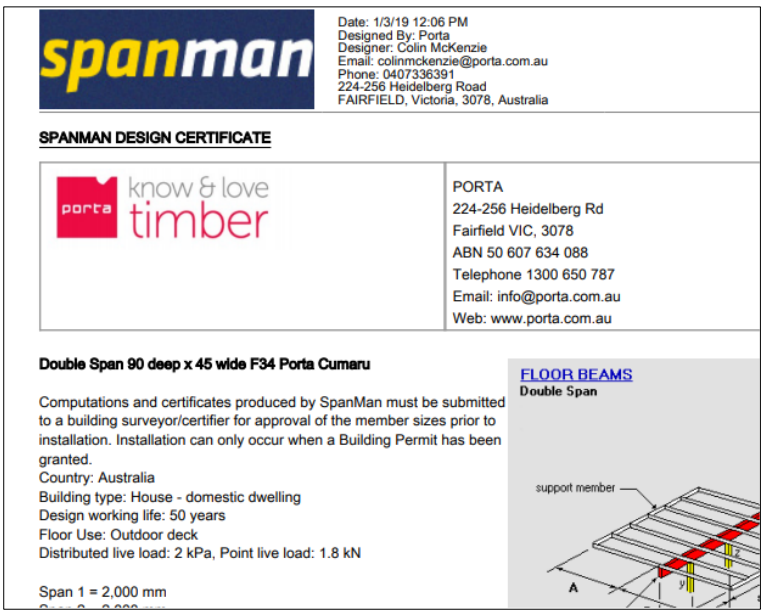
Select on 90 deep x 45 wide, a typical and available size of Porta Cumaru.



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.



spanman

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

PORTA
224-256 Heidelberg Rd
Fairfield VIC, 3078
ABN 50 607 634 088
Telephone 1300 650 787
Email: info@porta.com.au
Web: www.porta.com.au

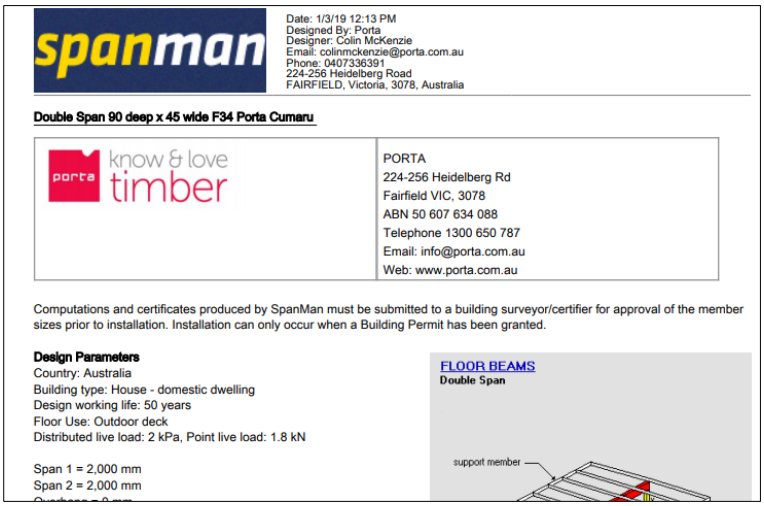
Double Span 90 deep x 45 wide F34 Porta Cumaru

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

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.



spanman

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

PORTA
224-256 Heidelberg Rd
Fairfield VIC, 3078
ABN 50 607 634 088
Telephone 1300 650 787
Email: info@porta.com.au
Web: www.porta.com.au

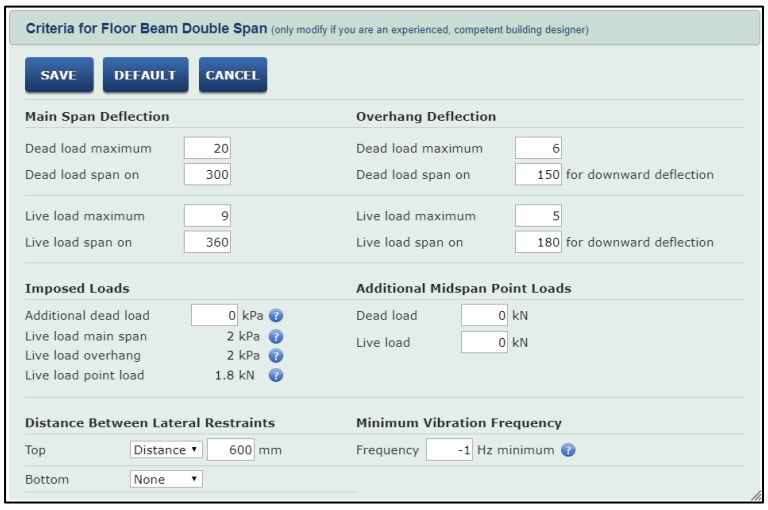
Computations and certificates produced by SpanMan must be submitted to a building surveyor/certifier for approval of the member sizes prior to installation. Installation can only occur when a Building Permit has been granted.

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)

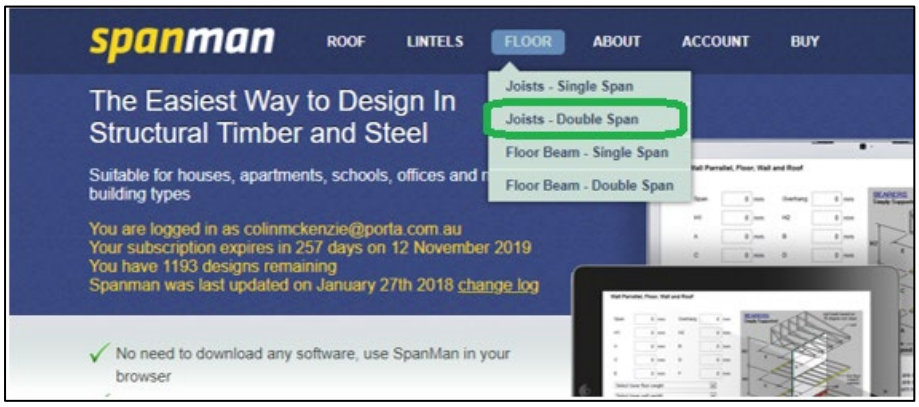
SAVE | DEFAULT | CANCEL

Main Span Deflection		Overhang Deflection	
Dead load maximum	20	Dead load maximum	6
Dead load span on	300	Dead load span on	150 for downward deflection
Live load maximum	9	Live load maximum	5
Live load span on	360	Live load span on	180 for downward deflection

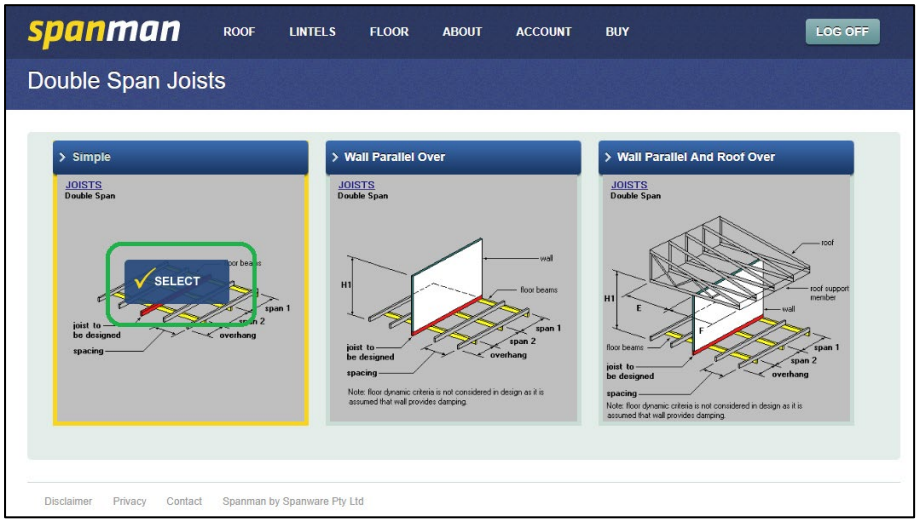
Imposed Loads		Additional Midspan Point Loads	
Additional dead load	0 kPa	Dead load	0 kN
Live load main span	2 kPa	Live load	0 kN
Live load overhang	2 kPa		
Live load point load	1.8 kN		

Distance Between Lateral Restraints			Minimum Vibration Frequency	
Top	Distance	600 mm	Frequency	-1 Hz minimum
Bottom	None			

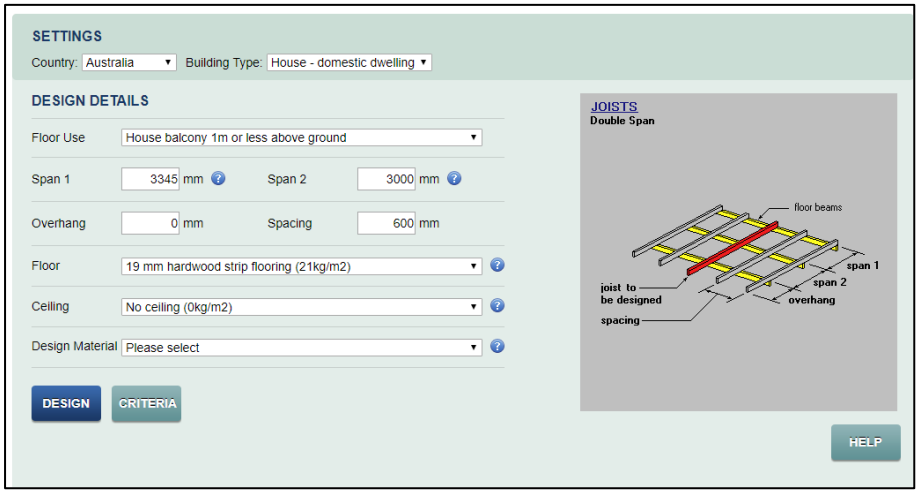
Hover over **FLOOR**, on the **HOME** screen and click **Joists – Double Span.**



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

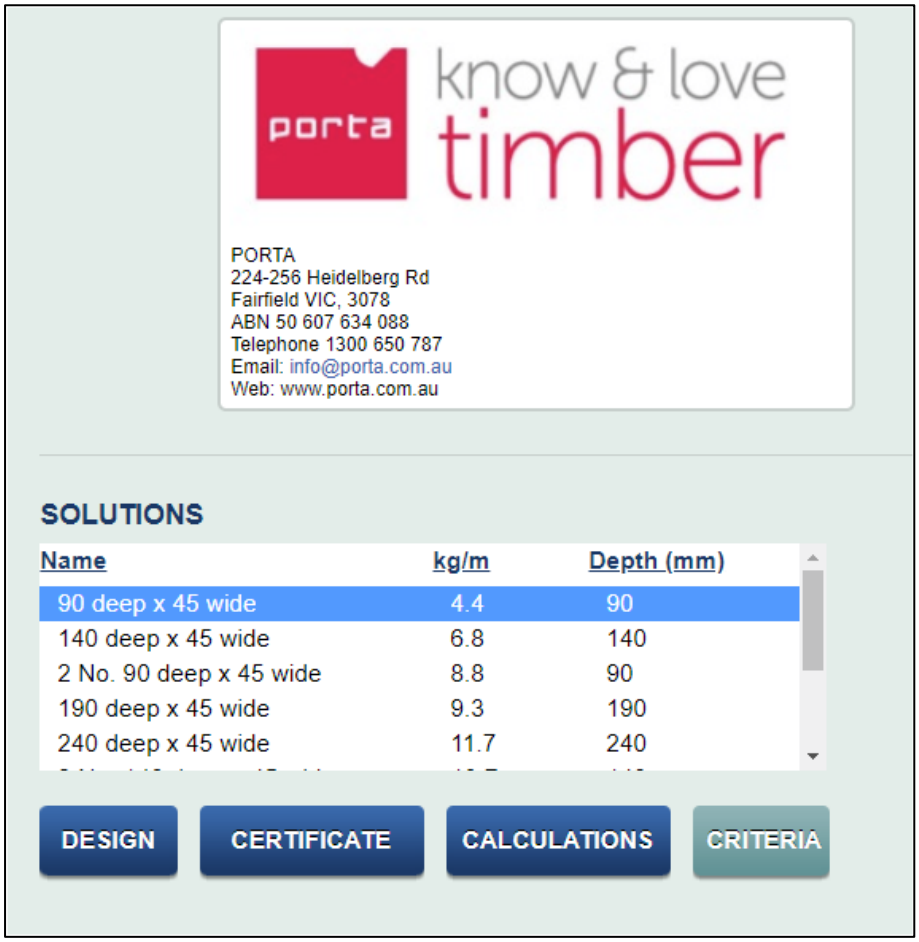
Select Floor: **19mm hardwood strip flooring (21kg/m2)** i.e. Porta Cumaru domestic decking

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

Select Design Material: **F34 Porta Cumaru**

Click **DESIGN**

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



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 4,000m (or shorter lengths (2.4m) doubled-up at the intermediate stump). So, say 3x2=6 x 2.4mm 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. 8x2=16 x 1.8m lengths

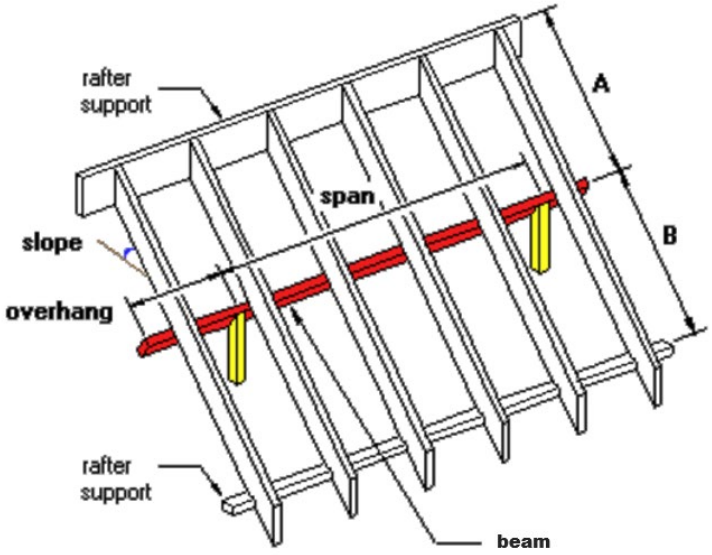
Cutting List:

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

Senerio 2: Pergola

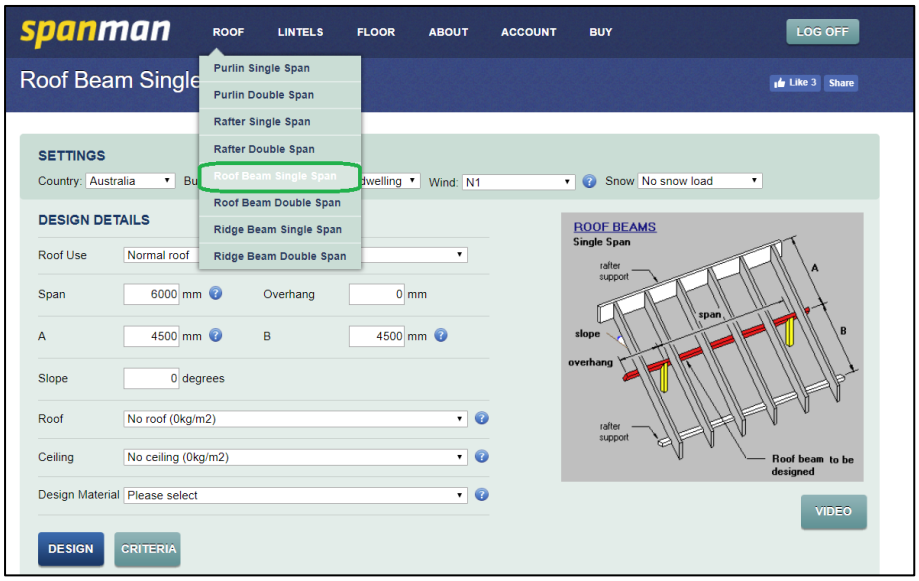
Select Porta CUMARU Roof Beam & Rafter timber sizes for a 4m x 3m Pergola.

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

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

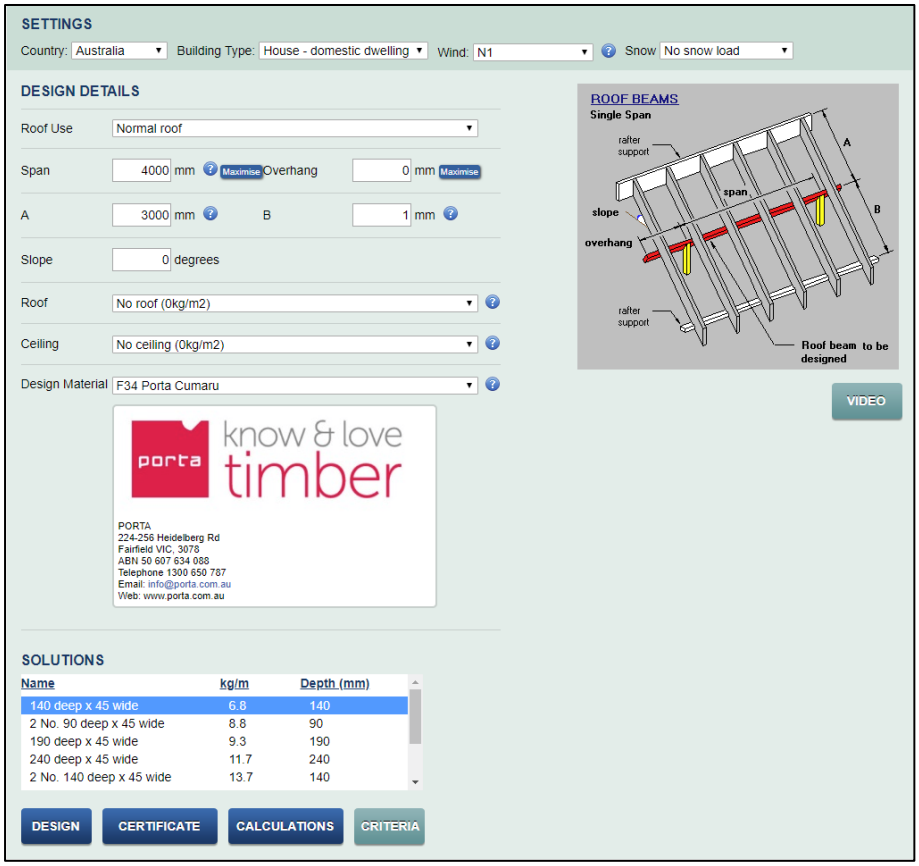
Slope: **0 degrees**

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**



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:

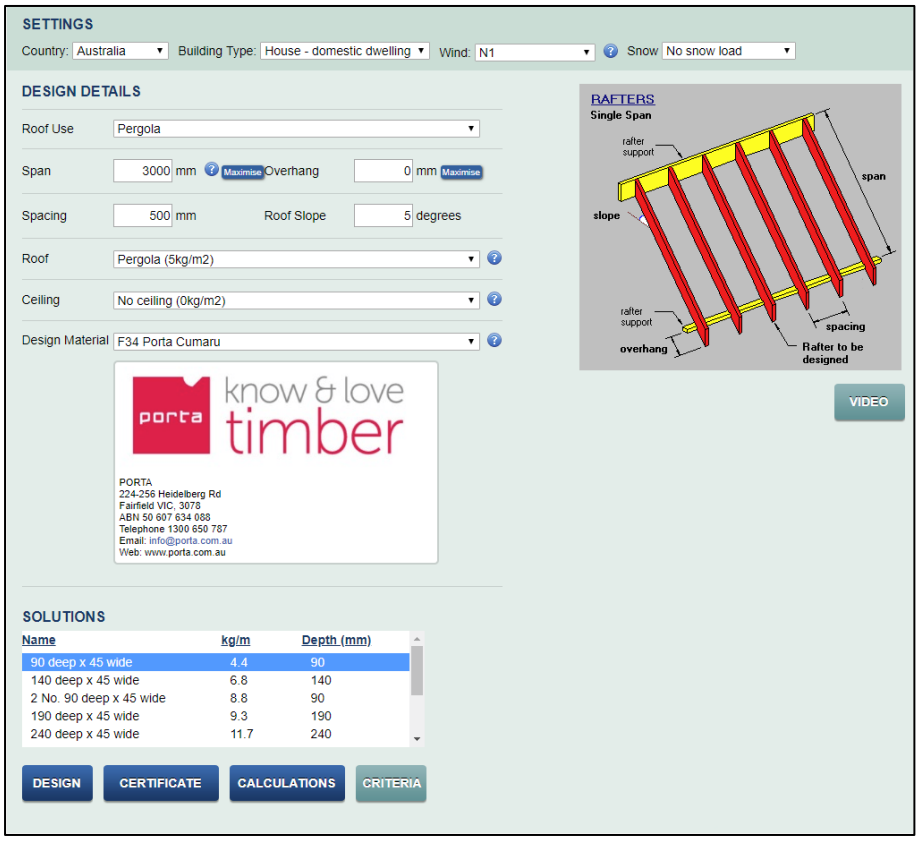
Country: **Australia**, Building Type: **House – domestic dwelling**, Wind: **N1** (or other loading, as required), Snow: **No snow load**

DESIGN DETAILS

Select Roof Use: Pergola, Span: **3000mm**, Overhang: **0mm**, Spacing: **500mm**, Roof Slope: **0 degrees**, Roof: **Pergola (5kgm2)**, Ceiling: **No ceiling (0kg/m2)**, Design Material: **F34 Porta Cumaru**.

Select **DESIGN**

Select **90 deep x 45 wide**



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 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