













TECHNICAL INFORMATION

CALCULATING DECKING SCREWS

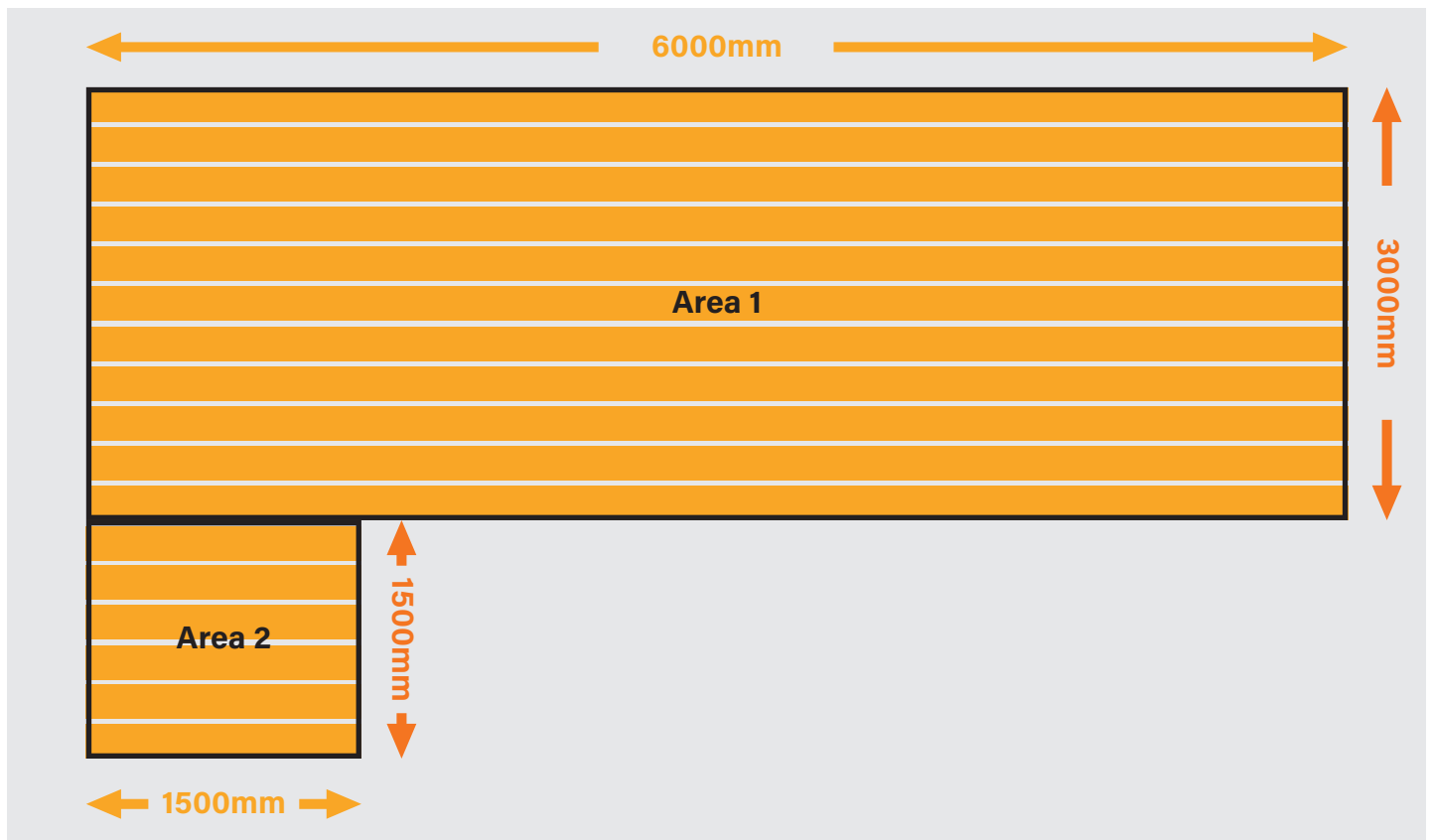
Colour Key

-  Deck width
-  Deck length
-  Number of joists
-  Board width & board spacing combined
-  Number of boards per width of deck
-  Length of the decking boards
-  Joist spacing
-  Usable length of decking boards
-  Number of joins per length of decking board
-  Screws per intersection of decking board and joist

The amount of screws that you will need will depend on:

- A. The number of joists
- B. The amount of decking boards along the **width** of the deck
- C. The amount of joins you will have
- D. How many screws per joist intersection

Figure 1



A. Calculating the number of joists

The number of joists required will be determined by the joist spacing. Joist spacing can be determined by the following factors:

- The requirements of the decking board
- The load rating of the deck itself
- Local council or building requirements

Joist spacing is measured from the centre of the joist. It is best practice to consult your building professional to ensure the correct joist spacing is followed. The joists should run perpendicular to the decking boards.

To calculate the number of joists required, divide the joist spacing by the **length** of the deck. Using Figure 1 as an example and **450mm** joist spacing:

- Area 1: $6000 / 450 = 13.33$
- Area 2: $1500 / 450 = 3.33$
- If the result is not a whole number, round up to the nearest whole number
- Add 1 to the result as the above calculation does not account for the first joist
- **Area 1 = 15 joists**
- **Area 2 = 5 joists**

B. Calculating the decking boards per width

To calculate how many boards are required along the width of the deck, you must know the width of your decking boards and the spacing you will have between the decking boards.

Spacing is required allow air flow under the deck. It also lets the decking boards expand and contract freely. Different decking board material will expand and contract in different ways. Speak to the supplier of your decking boards to get the correct decking board spacing for your decking boards.

Add the spacing of your decking boards to the width of your decking boards. For the below example, the decking boards will be 135mm wide and have a 5mm spacing – **140mm** in total

Divide the width of the deck by the board width and board spacing

- Area 1: $3900 / 140 = 27.85$
- Area 2: $1500 / 140 = 10.71$
- If the result is not a whole number, round up to the nearest whole number
- **Area 1 = 28 boards per width**
- **Area 2 = 11 boards per width**

C. Number of joins

The number of joins is dependent on the **length of the decking boards**. Some decking boards (generally composites) will come in set lengths e.g. 3.6m, 4.2m etc. Natural timber will often come in random lengths. The average length of softwood decking boards is generally 4.2m and hardwood is generally 3m. Speak to your decking board supplier to find out the length of your decking boards.

To calculate the number of joins:

1. You must calculate the usable length of the decking boards. In most cases, the end of the board will not line up with a joist. In this example (with the board length of **3000mm** and **joist spacing** of **450mm**) there will only be **2700mm of usable length**. To determine your usable decking board length:
 - Divide the board length by the joist spacing
 - $3000 / 450 = 6.66$
 - If the result is not a whole number, round down to the nearest whole number
 - Multiply the result by the joist spacing
 - $6 \times 450 = 2700\text{mm usable decking board length}$
2. Divide the length of the deck by the **useable decking board length**
 - Area 1: $6000 / 2700 = 2.22$
 - Area 2: $1500 / 2700 = 0.56$
 - If the result is not a whole number, round **up** to the nearest whole number
3. Subtract 1 from the total as there will only be 1 join between 2 decking boards
 - Area 1 = 2
 - Area 2 = 0
4. Multiply the result by the **number of boards per width**
 - Area 1: $2 \times 28 = 56$ joins
 - Area 2: $0 \times 11 = 0$ joins

D. Screws per joist intersection

The width of the board will determine how many screws you will need to fix the decking board to the joist. In most cases, there will be 2 screws per intersection. Wider boards may require 3. For this example, there will be **2 screws per intersection**

Number of decking screws

With all of the information above, you can calculate how many decking screws you will need for your deck.

1. Multiply the **number of joists** by the **boards per width**. This will determine how many intersections there will be between the decking boards and the joists
 - Area 1: $15 \times 28 = 420$
 - Area 2: $5 \times 11 = 55$
2. Multiply the **number of intersections** by the **number of screws per intersection**
 - Area 1: $420 \times 2 = 840$
 - Area 2: $55 \times 22 = 110$
3. Multiply the **number of joists** by the **number of screws per intersection**
 - Area 1: $56 \times 2 = 112$
 - Area 2: $0 \times 2 = 0$
4. Add **step 2** with **step 3** to calculate the total number of screws
 - Area 1: $840 + 112 = 952$
 - Area 2: $110 + 0 = 110$
5. It is best practice to add 10% to the total to account for any losses or extra joins
 - Area 1: $952 \times 1.1 = 1047.2$
 - Area 2: $110 \times 1.1 = 121$
 - If the result is not a whole number, round **up** to the nearest whole number
 - Area 1 = **1048 screws**
 - Area 2 = **121 screws**

Blackhawk has made this process simple and easy. Check out the [BLACKHAWK CALCULATOR](#) page to use the decking screw calculator.

