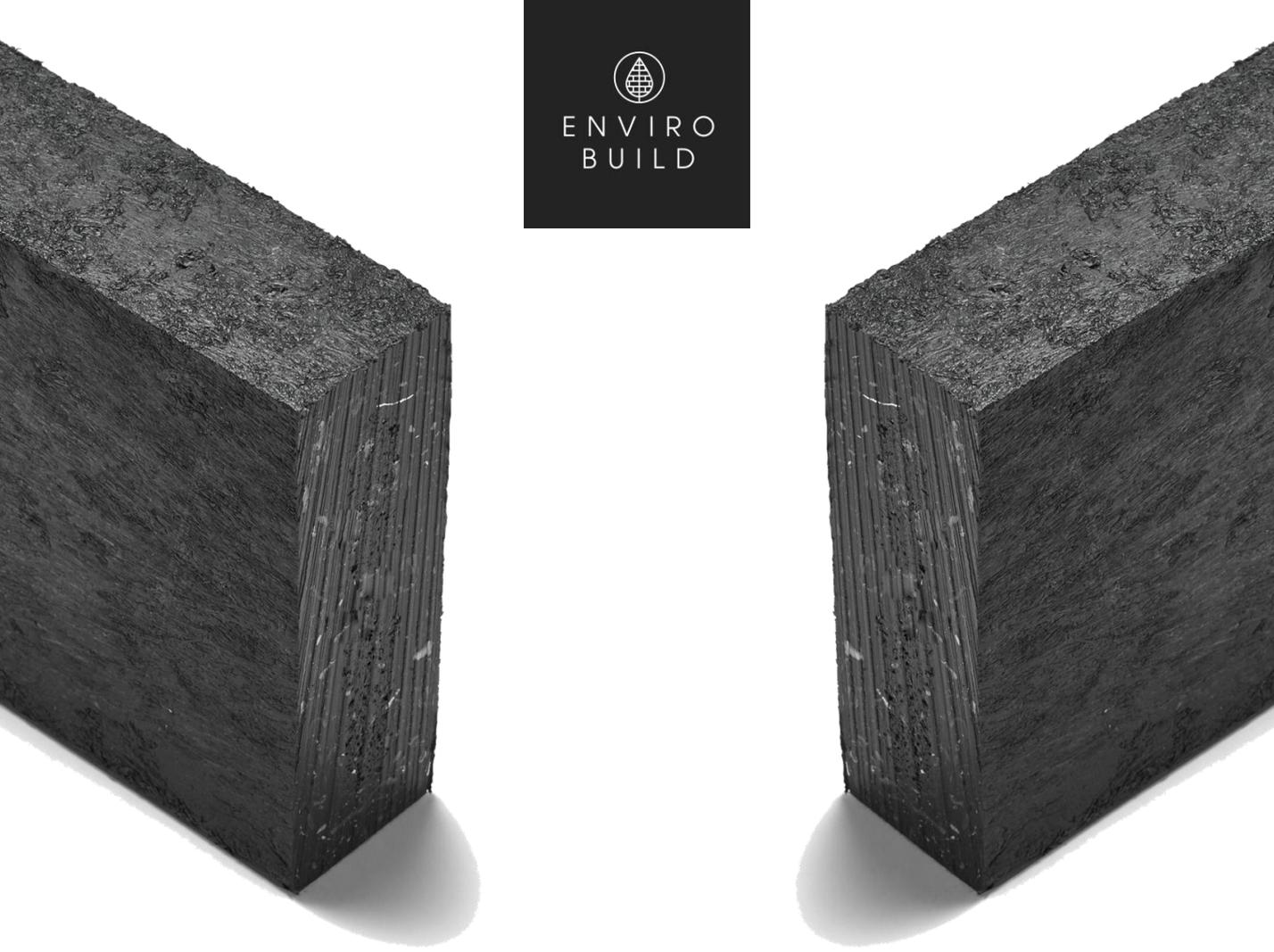




ENVIRO
BUILD



INSTALLATION & MAINTENANCE GUIDE



MANTICORE

L U M B E R

ENVIROBUILD.COM



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STORAGE & HANDLING

While composites are highly durable, to ensure their lasting beauty, please follow these important guidelines when storing, moving and working with Hyperion Decking products.



Storage

- All products should be stored flat and level, supported above the ground at 500mm intervals
- Battens used to separate and support any stored decking material should be spaced no more than 500mm apart, to ensure the boards don't bow
- Stack units with banding and bottom supports aligned
- Pallets of decking boards should not be stacked more than 4 pallets or 3m in height



Handling

- Hyperion Decking materials should be placed and not dumped when unloading
- When removing boards from a unit, lift the boards and set them down, do not slide boards against each other when moving them
- Carry Hyperion Decking boards on the edge for better support
- During construction, do not slide or drag any equipment across the boards
- The surface of the boards should be kept free of construction material and waste to prevent damage
- Each 4m decking board can weigh between 9.5Kg and 14.5Kg, please ensure they are handled safely. we recommend that two people handle the boards during transportation





Recommended Tools To Install Hyperion Decking

Standard woodworking tools can be used when working with Manticore Lumber. If you are unsure on how to use any tool, please consult the tool's manufacturer's user manual.

- Circular Saw – when cutting Manticore plastic lumber use a tungsten carbide blade (small metal fragments can get through the recycling process).
- Power Mitre Saw with tungsten carbide tipped blade (can also be useful for efficiency and bevelled edges)
- Jig Saw
- Hand Drill - 3mm and countersink drill bits (can use all-in-one smart bit)
- Impact
- Tape Measure
- Carpentry Square
- Spirit Level
- Safety Glasses and relevant Personal Protection Equipment (PPE)
- Chalk Line

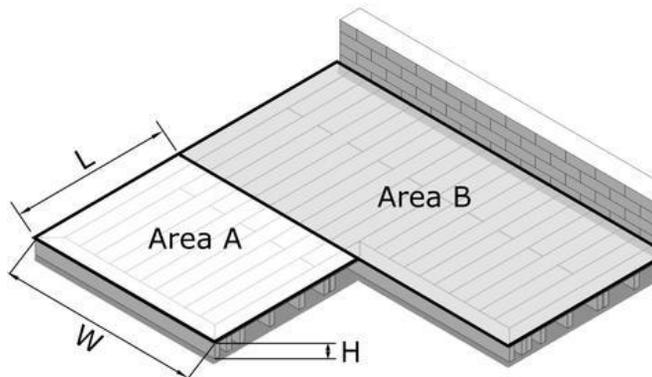




CALCULATING MATERIALS

To determine how much Manticore Lumber material will be required, you can either use detailed plans or follow the method below. Alternatively, feel free to use our [online calculator](#) or speak to one of our technical experts on 0208 088 4888.

fig.01



Start off by measuring the height, width and length of your proposed decking area(s). Plan which direction to lay your decking.

Based on the square meterage of the area(s), multiply this by 4 and add 10% for wastage to determine the total linear meters of deck bearers required

The following example will use a decking area of 20m²

(20m² x 4) x 1.1 = 88 liner meters of bearer

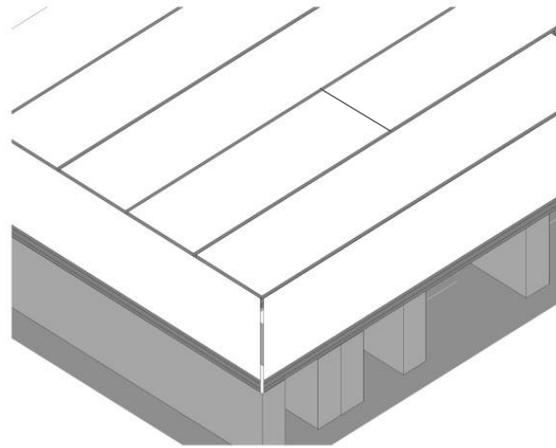
Divide the total linear meters of bearers, by the individual length of bearer you require (3.1 or 3.4m) to get the total quantity of bearers

88LM / 3.4m length bearer = 26 bearers (rounded up)





CALCULATING MATERIALS



You now need to decide on the type of bearer profile you require: 50x50, 50x100 or 50x150mm, as this will determine the required structure support. The allowable deck height and the ground conditions will also determine what support system would best suit your build, either:

- **100x100mm posts to be cement into soft ground, or;**
- **Adjustable support pedestals placed on hard flat ground**

One factor to take into account will be how often the bearer profiles require supporting:

fig.05

Plastic Lumber Bearer Profile	Max. Support Span
50x50mm	500mm
50x100mm	750mm
50x150mm	1500mm

Calculation Recommendations

- It is recommended that you add at least 10% to the total material required for a wastage factor. It is unlikely you will use the Lumber lengths perfectly
- A drawing to scale may help you determine how much more material will be required
- Always round UP the number of lengths required
- For multiple decking areas, follow the steps for each above and sum the quantities together





SUB-FRAME INSTALLATION OVERVIEW

Hyperion Decking can be installed on various sub frame choices; treated timber or plastic lumber anti-rot joists. For all types of sub frame you must adhere to the following rules to ensure the warranty validity

Before You Start

- The joists are designed to take live loads, any static loads must be placed over the supports
- **Only use tungsten carbide tipped drill bits and saw blades for working with plastic lumber, we do not recommend diamond tipped blades** (small metal fragments can get through the recycling process)
- To allow sufficient drainage a drainage slope of **0.5% (5ml per meter)** should be incorporated
- Due to temperature induced expansion and contraction with plastic lumber, you should never fix bearers directly to foundations; if you have to fix the bearers to the foundations, use expansion clips.
- Plastic bearers should be installed with the greatest dimension as the upright
- The bearer must not overhang a support by more than 50mm
- Where lumber ends abut a cross beam, you must leave min. 5mm gap from the bearer end to the cross beam. These can be joined using expansion L-brackets over a support or joist hangers
- A joist must be used under deck board ends, and a double joist structure for deck butt joints (fig.02)

Spacing & Supports

The range of decking you use will determine the joist centres used for the project. Ensure widths between joist centres are no greater than below table:

Hyperion Range	Max. Support Span	Diagonal Support Span
Pioneer	300mm	250mm
Frontier	400mm	300mm

If you plan on using Manticore Plastic lumber the height dimension of the bearer will determine how often the joist need to be supported. Ensure widths between supports under joists are no greater than below:

Plastic Lumber Bearer Profile	Max. Support Span
50x50mm	500mm
50x100mm	750mm
50x150mm	1500mm





SUB-FRAME ON HARD CONCRETE & FLAT ROOFS

With solid flat foundations and flat roof areas the decking substructure can be supported with adjustable support pedestals (**fig.06**). ground (**fig.07**) These are simply placed straight onto the ground with a protective rubber pad (flat roofs) and the height of each is adjusted by rotating the pedestal top.

Preparing The Area

- The foundations should incorporate a drainage slope of 5mm per meter to avoid water pooling
- The installation condition should be flat and stable in order to avoid deformation of the decking surface
- A gutter or scupper should be made in the foundations
- Composite boards must be a min. of 50mm off the
- In areas of potential excessive water and debris build up, we recommend either Manticore plastic bearers or min. 90mm off the ground for pressure-treated timber joists to ensure good air ventilation and water passage

Roof Terrace Preparation

- Ensure the roofing membrane is 100% water tight and free of debris
- On flat roofs, protective rubber mats should be placed under pedestals to avoid damaging the roofing membrane (**fig.06**)
- Where a waterproof membrane is in place , pedestals cannot be bolted to the ground; the weight of the decking should be sufficient to keep all in place

fig.06

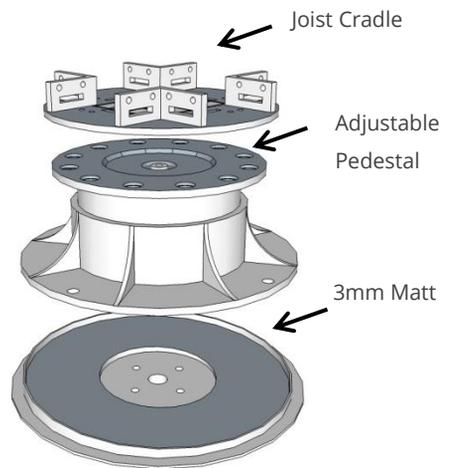


fig.07

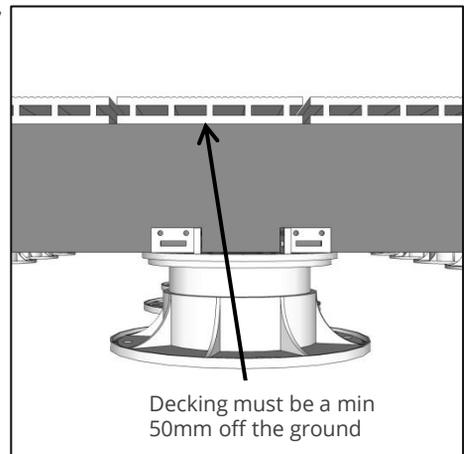
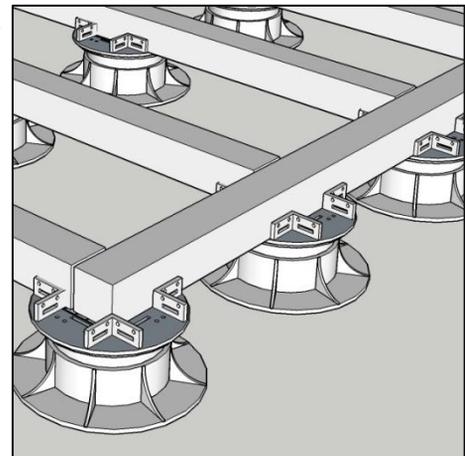


fig.08





SUB-FRAME ON HARD CONCRETE & FLAT ROOFS

Laying The Pedestals

- 1 Starting from the edge of the decking area, lay out the pedestals (**fig.09**)
 - Rotate the base clockwise to increase the pedestal height to your required size (**fig.10**)
 - Your joist size will affect how often you need to lay the pedestals (**fig.05**)
 - In corners or along edges where the top of the pedestal cannot fully support the joist, you can simply turn the pedestal upside down
- 2 For roof terraces it is recommended to use the rubber base mats to provide an extra layer of protection
- 3 Use a spirit level to check the level of the pedestals
- 4 To take account of a slope in the foundations, joist cradles can be used that can correct for the incline

Laying The joists

- 5 After laying the pedestals (**fig.09**), starting from the edge of your sub-frame, place the bearers on top of the pedestal centres
- 6 Ensure that each bearer/ joist is supported in a min. of 3 places, to the max. span as per **fig.05**. The decking range used will also determine the joist centres (**fig.04**)
- 7 If you have a joist butt joint, joists can be laid end to end when supported on a pedestal . Ensure to leave a 20mm expansion gap between joists ends (**fig.10**)
- 8 A full joist width and clip must be used under each deck board end, thus you must ensure to have a double joist structure for deck board butt joints (**fig.11**)

fig.09

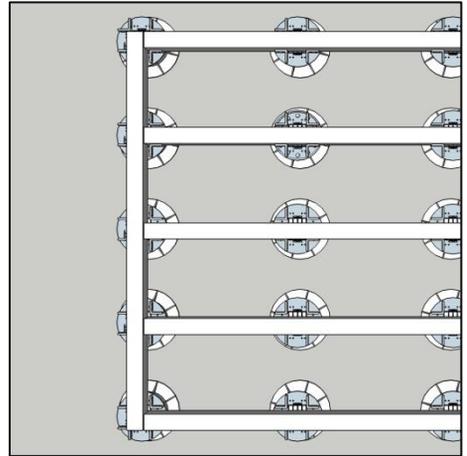


fig.10

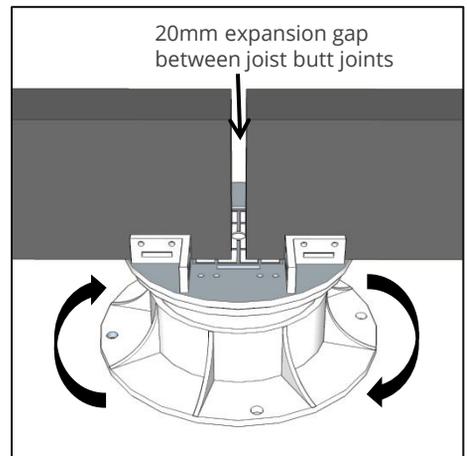
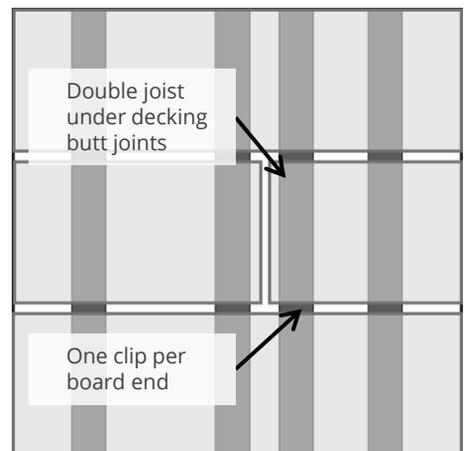


fig.11





SUB-FRAME ON SOFT/NON-CONCRETE FOUNDATIONS

On soft ground, post supports are recommended to support your deck

Preparing The Area

- Remove any top turf layer and scree/gravel should be laid to aid drainage; use weed control fabric to prevent plants growing below the decking
- Incorporate a drainage slope of 4mm per meter
- Composite decking must be a min. of 300mm off the ground when over soft ground
- Foundations must be higher than surrounding areas to avoid ponding

Installing The substructure

- 1 After prepping your area, start from the edge of the sub frame and plant you posts into the ground. These need to be cemented into the ground a min. of 500mm or a third of the total post height (**fig.12**)
- 2 Once set, you can attach the joist frame. Joists should be attached using good quality galvanised mushroom capped bolts which penetrate both the bearer and the upright post; typically with countersunk nuts where appropriate (**fig.13**)
- 3 Ensure that each bearer/ joist is supported in a min. of 3 places, to the max. span as per **fig.05**. The decking range used will also determine the joist centres (**fig.04**)
- 4 When using plastic lumber, bolt holes should be oversized by 3mm to allow for expansion and contraction (**fig.04**)

fig.12

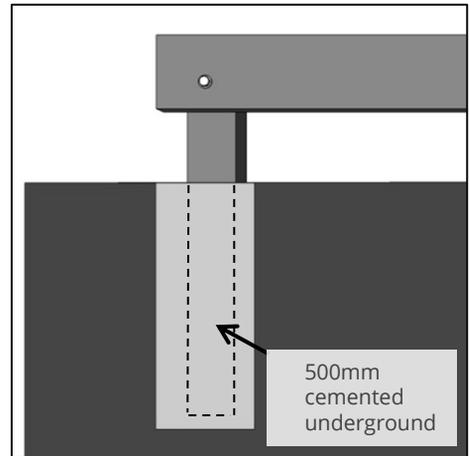


fig.13

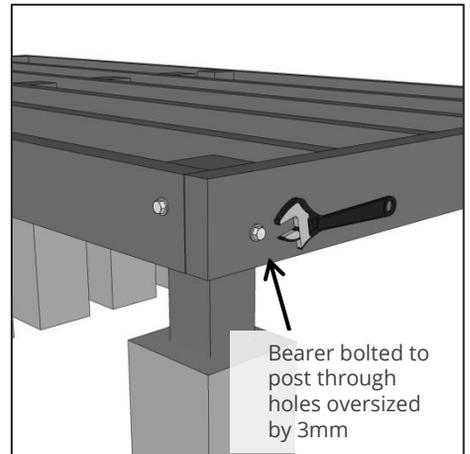
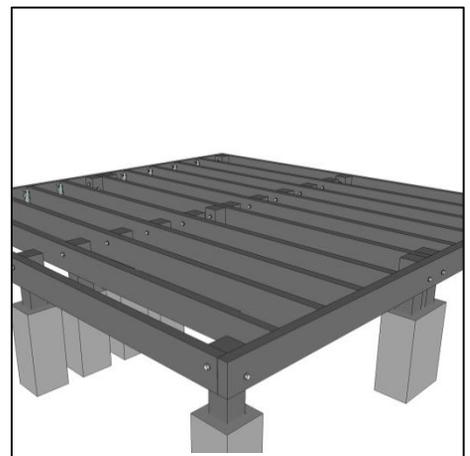


fig.14





SUB-FRAME ON SOFT/NON-CONCRETE FOUNDATIONS

- 5 To strengthen the deck and reduce the amount of posts required, you can use joist hangers to hold joists to cross beams (**fig.15**)
- 6 When using Manticore plastic lumber, where the joist end meets a cross beam, you must leave min. 10mm gap to allow for joist expansion (**fig.16**)
- 7 At butt joints the deck board ends should not share a single joist, each deck board end must be supported by a full joist. For deck board butt joints you must ensure to have a double joist structure underneath. For deck board butt joints you must ensure to have a double joist structure underneath. (**fig.17**)
 - One hidden fasteners should be per board end at butt joints . Butt joints should not share one clip (**fig. 17**)

fig.15

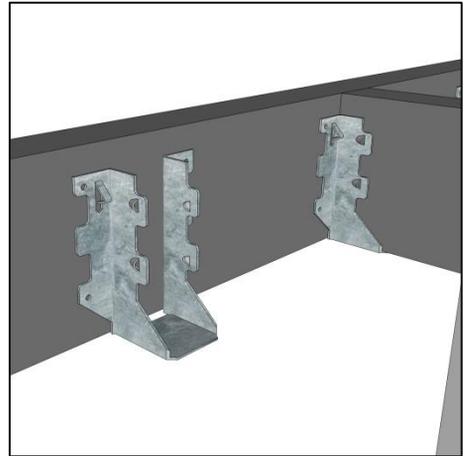


fig.16

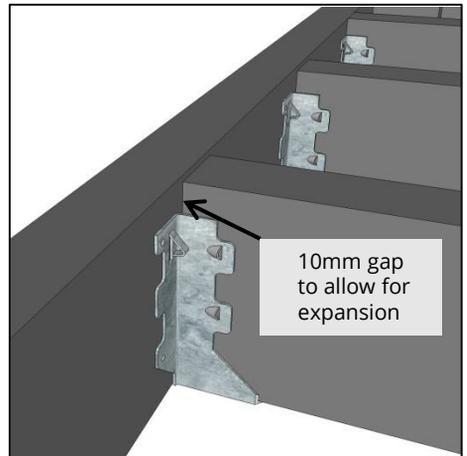
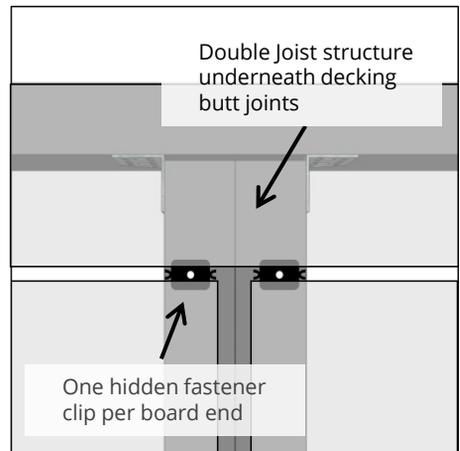


fig.17

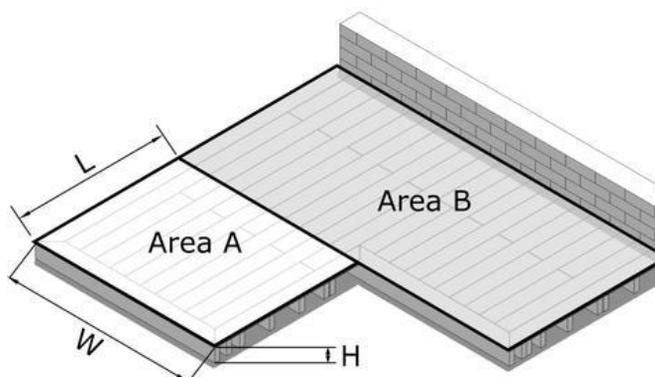




CALCULATING MATERIALS – FENCING

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fig.01



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Based on the square meterage of the area(s), multiply this by 4 and add 10% for wastage to determine the total linear meters of deck bearers required

The following example will use a decking area of 20m²

(20m² x 4) x 1.1 = 88 liner meters of bearer

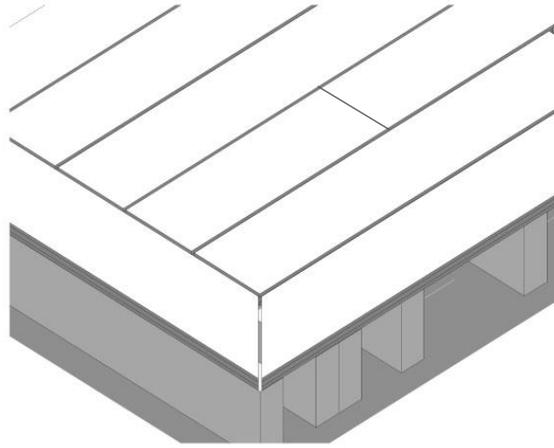
Divide the total linear meters of bearers, by the individual length of bearer you require (3.1 or 3.4m) to get the total quantity of bearers

88LM / 3.4m length bearer = 26 bearers (rounded up)





CALCULATING MATERIALS – FENCING CONTINUED



You now need to decide on the type of bearer profile you require: 50x50, 50x100 or 50x150mm, as this will determine the required structure support. The allowable deck height and the ground conditions will also determine what support system would best suit your build, either:

- **100x100mm posts to be cement into soft ground, or;**
- **Adjustable support pedestals placed on hard flat ground**

One factor to take into account will be how often the bearer profiles require supporting:

fig.05

Plastic Lumber Bearer Profile	Max. Support Span
50x50mm	500mm
50x100mm	750mm
50x150mm	1500mm

Calculation Recommendations

- It is recommended that you add at least 10% to the total material required for a wastage factor. It is unlikely you will use the Lumber lengths perfectly
- A drawing to scale may help you determine how much more material will be required
- Always round UP the number of lengths required
- For multiple decking areas, follow the steps for each above and sum the quantities together





MANTICORE FENCING

Before You Start

- Fencing rails when attached to posts, should be attached using good quality galvanised mushroom capped bolts which penetrate both the plastic lumber and the upright, typically with countersunk nuts where appropriate
- The bolt holes should be oversized by 3mm to allow for expansion and contraction
- A gap of min. 10mm must also be left between fence panel butt joints (fig.04)
- Upright posts (80x80mm or 100x100mm profiles only) should be installed with a third of the post below ground (min. 500mm). Dependent on weight and span of rails or palings, also site specific application (weather and ground conditions), you may require using a concrete surround for the posts in the ground
- When supporting plastic lumber profiles, please adhere to the following support span table **tbl.02** (the greatest dimension being used as the upright)
- For post and wire fencing, galvanised fencing staples (max. 25mm length) can be used, but it is important that two pilot holes are pre-drilled for each staple, as the plastic lumber outer surface is tough to penetrate and fencing staples may bounce off with the potential to cause injury
- Ideally screw fixings should be used instead of hammered nails or staples. Whilst fixing wire into plastic lumber may take slightly longer than hammering staples, plastic lumber will not require further maintenance or replacement for many years beyond the lifetime of traditional timber posts





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