Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

2.3a: Simple wooden steps, part (i)

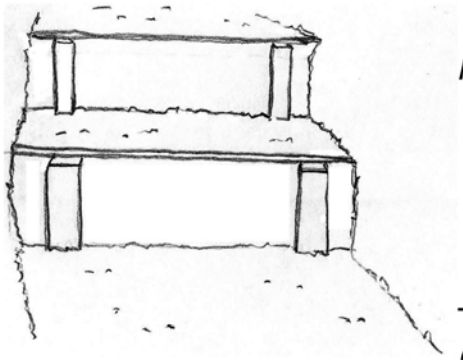
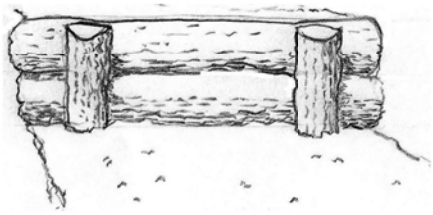


Fig.1

fig.2

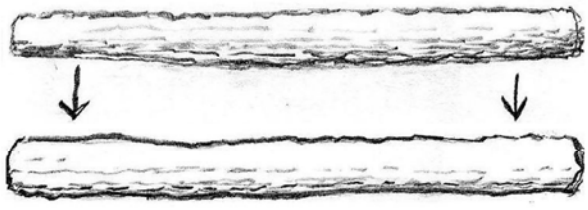


These may be made from construction wood (fig.1) or from logs (fig.2).

Scrape out a level shallow channel.

Place the first piece of timber in it, making sure it is level.

Then place the second timber on top of it.



When fitting timbers together choose ones that will not have gaps between them. Roll them around to get the best fit.

(Continued, *Guide to Construction 2.3b: Simple Wooden Steps Part (ii)*)

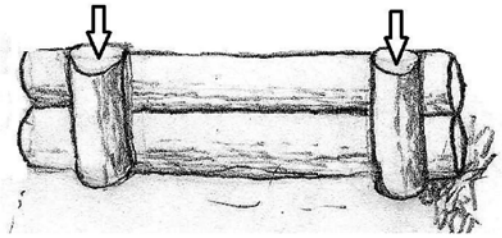
Roger Whysall

Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

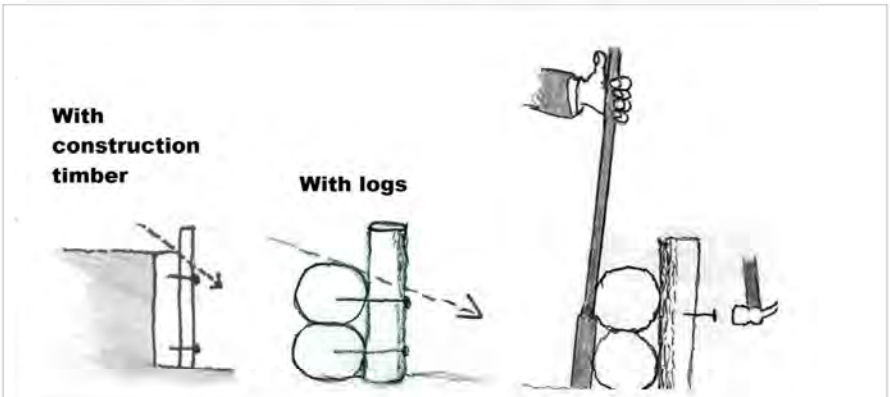
2.3b: Simple wooden steps, part (ii)

A large gap between the timbers would allow soil to leak through.

Hammer in two stobs. These should be close to the ends of the timbers. They should be no less than 6cm diameter and need to be hammered in as far as possible – 45cm is good.

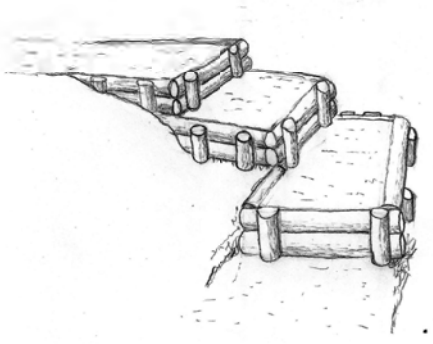


Use a saw or an axe to **make a point** on the stob, to make it easier to hammer in. When it is in, **cut the top at an angle** to allow water to run off. (below).



Put a nail through the stob to each timber to secure it. Keep the top one low so it does not get in the way of the saw when you trim the stob. Get a helper to push a rock bar against the timbers to resist the impact of the hammer.

If necessary you can put a side or sides on the step. Fit the side timbers behind the front ones.



Fill the step with earth and put on a top layer of bark chippings, or pine needles if woodchip is not available.

(See also 2.*5a: Working with Wood - tips; 2.5b: Working with wood – logs and landscaping*)

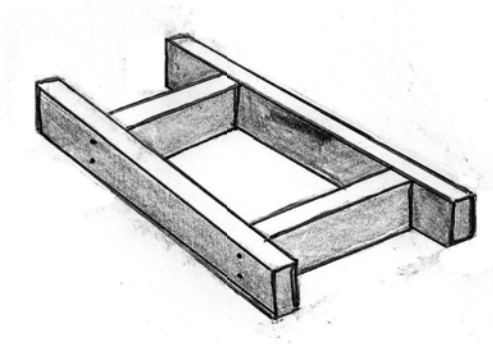
Roger Whysall

Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

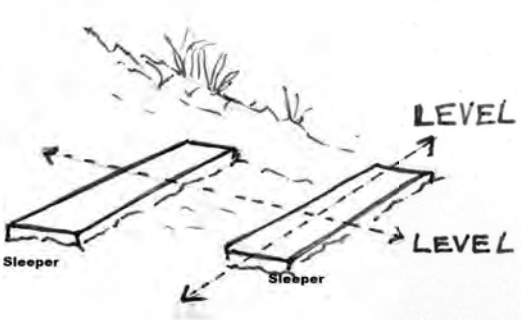
2.3c: Wooden box steps – making the frame; starting the first step

Make a strong frame.

(For details see 2.*3g: Wooden Box Steps - Measurements and Sizes*)

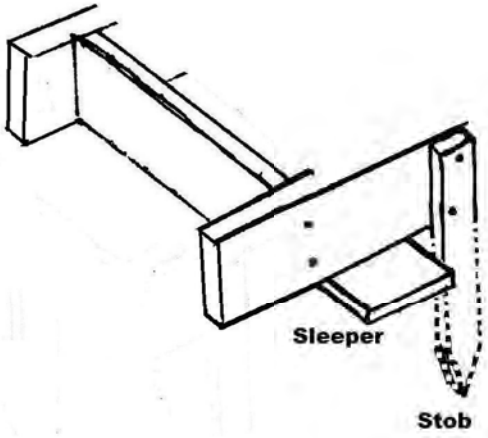


Level the ground for the first step.
Lay 2 flat sleepers.



Lay the frame on the sleepers.

To prevent movement, secure it with stobs.



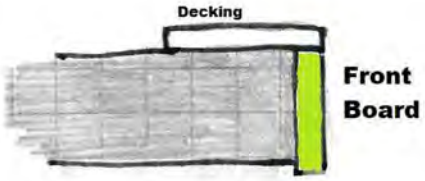
(Continued: – *Guide to Construction Box Steps 2.3d*)

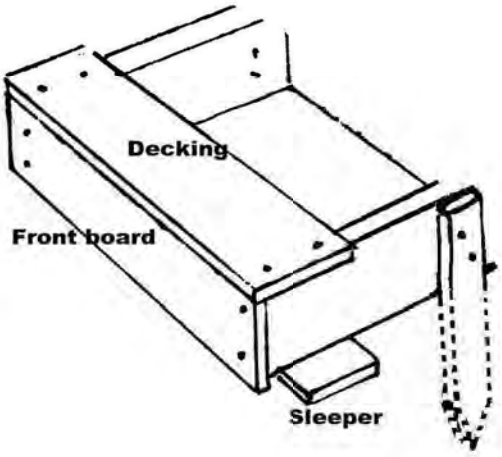
Roger Whysall

Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

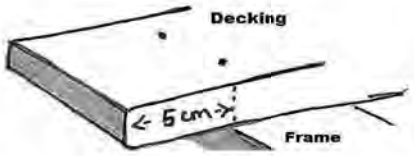
2.3d: Wooden box steps – second and subsequent steps

Fit one piece of *decking* and a *front board*. The front board is the same width as the decking. The decking lays over the top of the front board.





They project beyond the sides of the frame by about 5cm.

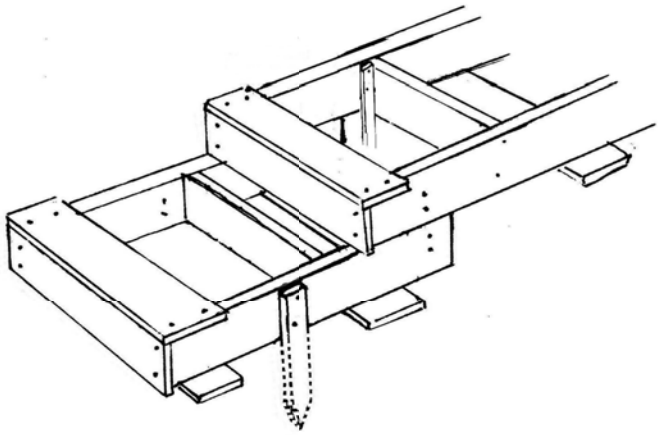


This is done to hold the frame rigid during handling. With care, it can be left until later if wished.

Second and subsequent steps:

Lay 1 sleeper for the back of the step. (The front will rest on the lower step.)

Put the second step in place. If possible, adjust its position so that a whole number of decking boards will fit on the lower frame. (See *2:3e* below.)



Secure it with stobs.

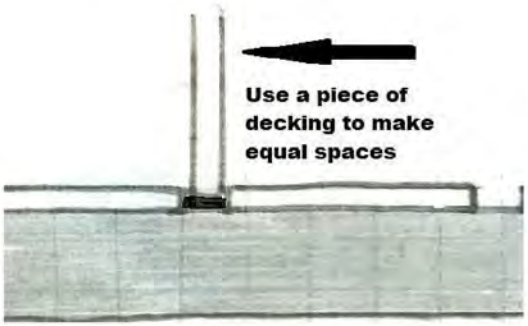
(Continued: - *Guide to Construction - 2:3e Wooden box steps – decking*)

Roger Whysall

Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

2.3e: Wooden box steps – decking

This is made much easier if you position the higher step so that it leaves space for a whole number of decking boards. Otherwise you will have to cut a piece along its length to make it fit.



Nail the rest of the decking pieces onto the lower step. Lay out the decking boards to get them equally spaced before nailing. A spare piece of decking board can help with this.

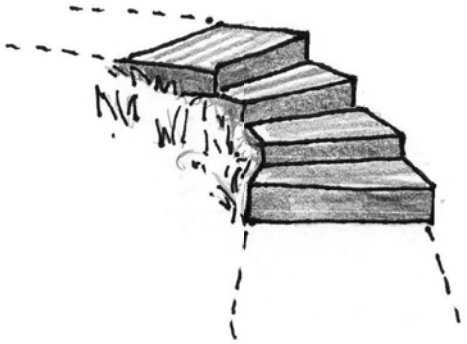
Place the third step and continue as before.

See also *2.3g: Wooden Box Steps - Measurements and Sizes; 2.3h: How Many Box Steps Do I Need? and 2.5a: Working with Wood - tips*

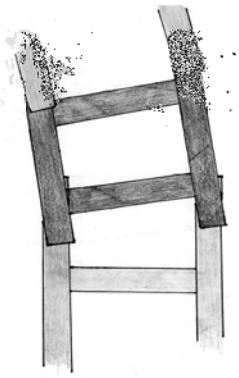
Roger Whysall

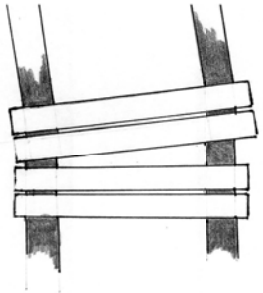
Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

2.3f: Wooden box steps – constructing a curve



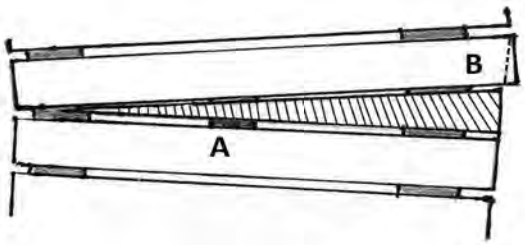
A flight of box steps can be made to go round a curve by turning each frame by a small amount.



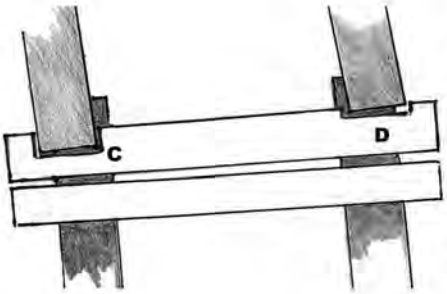


Decking needs to be adapted to fit in the space between frames.

A piece of decking can be cut to fit into the space. If one end is very narrow, or if if it does not reach all the way across, extra support can be placed underneath (A). For this, use a piece of frame timber standing on a a short length of sleeper wood.

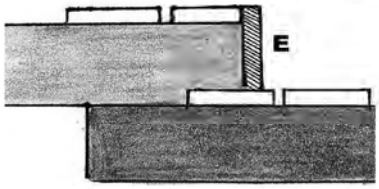


To finish, **trim the ends** of the decking so they line up neatly (B).



An **easier**, but less attractive, way of adapting the decking is to cut slots (C,D) to fit round the upper frame.

If you do this the front board will be lifted and will have to fit in **front** of the decking on the next step, not under it (E)

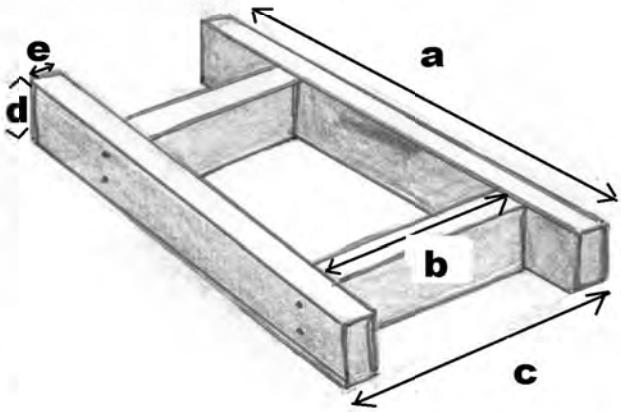


See also *2.3g: Wooden Box Steps - Measurements and Sizes;2.3h: How Many Box Steps Do I Need? and 2.5: Working with Wood – tips*

Roger Whysall

2.3g: Wooden box steps – measurements and sizes

Box Steps - Measurements and Sizes



Frame: Often we use recycled wood so we can't always choose the exact size we would prefer.

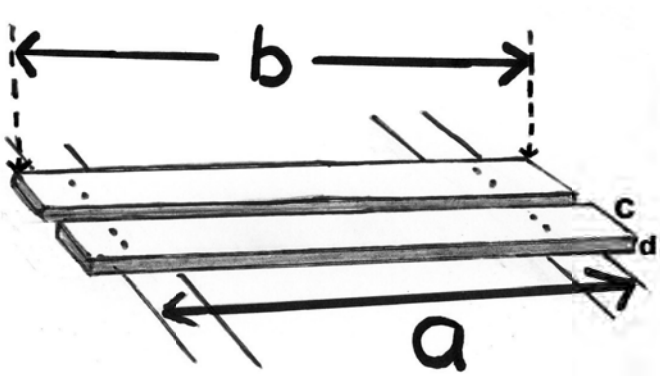
And the size of the steps needed may be different in different places.

So these measurements are for guidance only and it's OK to change them if you need to. (But see *Notes* at bottom of page.)

The sizes here are: **18cm**(d) x **7cm** (e), **1m** (a), **75cm** (c), **61cm** (b) – this is (75 -7-7)cm, i.e. total width less the thickness of the two side pieces.

Use 5 inch (125mm) nails to fix the cross pieces (b). (4 inch nails would only penetrate the ends of the cross pieces by an inch which would be too weak.)

Decking:



Decking should go beyond the frame by a few cm. Here the frame is 75cm wide (a), so the decking boards are 75cm + 5cm at each end = 85cm (b).

Decking boards should all be the same thickness: variations might cause a trip hazard. Here they are 2cm (d).

Ideally all decking boards should be the same width. Here they are 12cm (c). But this is not always possible. It's OK to use mixed widths, but if you do, do not group equal sized pieces together. Instead, mix them – it looks better. 3 inch (75mm) nails would be OK for fixing these 2cm boards.

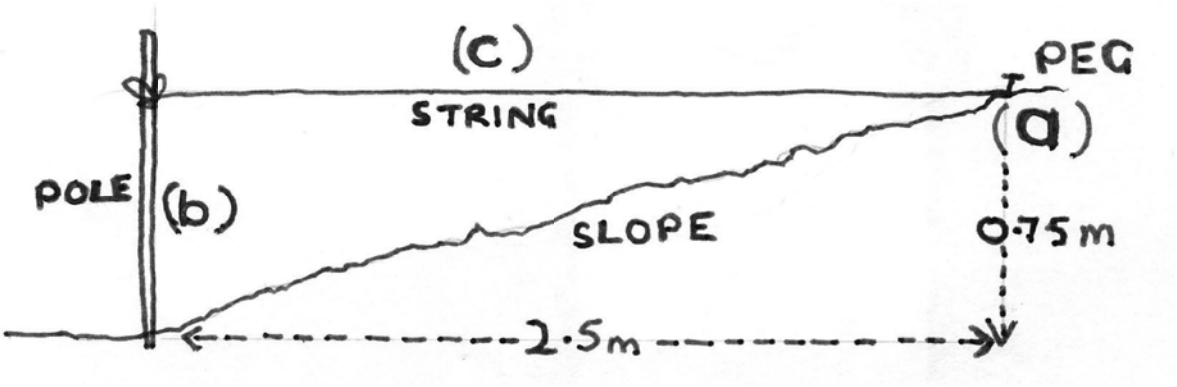
See also *2.3h: How Many Box Steps Do I Need?* and *2.5: Working with Wood*

Roger Whysall

Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

2.3h: How many box steps do I need?

- Step *height* should not be more than about 20cm (8 inches), and not less than about 15 cm (6 inches).
- All steps in a flight of conventional steps should be the same size – changes in height and varying lengths are inconvenient and potentially dangerous.



How many?

You need string, something to use as a pole, and a spirit level (if you have one, or a good eye for judging horizontals if you don't), and a peg.

Peg one end of the string where the steps will end (a). Stand the pole up straight where the steps will begin (b).Stretch the string between them, keeping it level (c).

You now know 2 things:

By measuring up the pole you know how high the steps need to go (b)
By measuring the string (c), you know how far ahead they need to go.

- Divide the height (b) by the height of a single step to know how many steps you need.
- Now you can divide the distance (c) by that number to find out how long each step should be in order to go that distance.

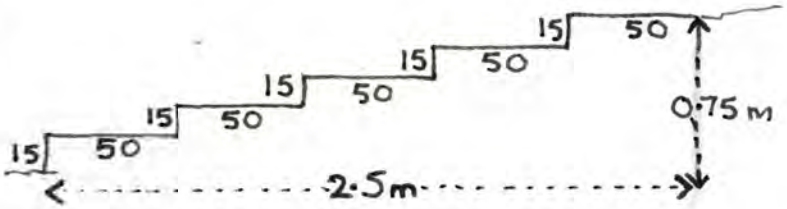
(Continued *2.3i: How many box steps do I need? (Continued)*)

Appendix 2: Steps, Slopes, Boardwalks and Bridges – Guide Sheets

2.3i: How many box steps do I need? (Continued)

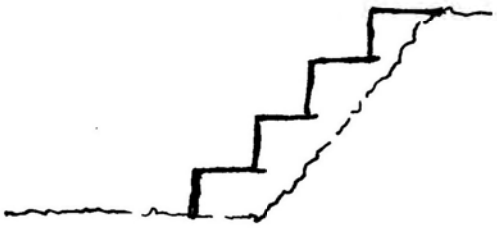
Here, the height is 75cm.

A single step is 15cm high, so 5 steps are needed (5x15=75).



The distance is 2.5m. You have to fit those 5 steps into this, so each step should be 50cm.

A step should be long enough to comfortably take a large booted foot. If a slope is very steep, the steps may be too short. (*fig.1)*



(*fig.1)*

In this case the steps should begin far enough away from the slope to enable a better size of step. (*fig.2)*

(*fig.2)*