Cement Australia - Setting an Upright

Key
Green = Useful
Blue = Not Useful

ATL Link

This shows Research Skills and Self Management Skills as I am finding information about the process in order to further the construction process

Link to Criteria

“To Create a Safe and Stable Structure”

Global Context

Cementing the footings into the ground is adapting the site to be able to help the construction process additionally the cement will be resilient to the environment and the elements

Cement has been used for centuries all across the world by Humans to adapt their environments to their needs

Learner Profile Links

Inquirers
Thinkers

Why did I select this resource

This information was a publication by an Australian company that produces cement. Whilst I may not be buying my cement from this company this information will be extremely useful

How I can apply this information

This information will be vital for the construction of my product not only does it help me to make sure that my uprights will be cemented into the ground and that their will be no issues in the strength of the concrete or the weather damaging the concrete the information will also help to guarantee that the structure is safe and stable.

Bibliography

Cementaustralia.com.au. (2016). How to set an upright - Cement Australia. [online] Available at: http://www.cementaustralia.com.au/wps/wcm/connect/website/packaged-products/home/diy/GRP-setting-posts/setting-an-upright.html [Accessed 31 Oct. 2016].

CEMENT AUSTRALIA PACKAGED PRODUCTS

On steel post cement will prevent rust when done correctly

How to set an upright

Using stirrups or uprights to support a post out of the ground is a great way to provide longevity for your fence or structure as the wooden post is less likely to suffer any rot.

If you are setting uprights or stirrups to install a pergola post or posts to support a roof structure please refer to the pergola manufacturer to ensure bagged concrete mix is appropriate. If a defined strength of concrete is required then its time to have pre-mixed concrete delivered via a truck.

Tools you will need:

- Spirit level
- Tape measure
- String line
- Post shovel or long handled shovel
- Shovel
- Measuring jug
- Hose or bucket
- Wheelbarrow
- Spray marker paint
- Rod for tamping
- Trowel

Materials you will need:

- Bags of Concrete Mix 20kg
- Uprights or stirrups
- Fence posts
- Clean water

Does not apply to the type of the construction I will be doing and I should be able to mix my own cement with the ingredients I have

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Recommended products

Although you can use any product from the Cement Australia concrete range, we recommend Concrete Mix for strength & durability.

Concrete Mix

Hardens within 24 hours, can be finished to a smooth surface

I more than likely will be buying cement from other suppliers than Cement Australia

Extra Strength PRO-50 Concrete Mix

Hardens within 24 hours, can be finished to a smooth surface

Before you get started

- Read the Hints & Tips section
- Ensure there are no pipes or services below the ground; contact Dial Before You Dig on 1100 or via their website www.1100.com.au for advice on the locations of submerged pipes and cables.

DIAL BEFORE YOU DIG www.1100.com.au

This is a good point and I have checked and moved pipes and wires in the ground that were in the way before

- Use our simple Calculator to work out how much Concrete Mix you will need for the project.

Safety

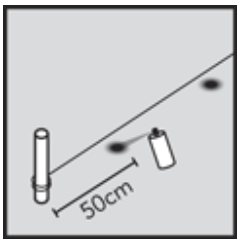
Before you begin any project, please ensure you protect yourself with the following:

These Safety tips are important an I will make sure that I will follow them when I am cementing my structure into the ground

Look after yourself properly

- Protect your skin and eyes. Cement based products are alkaline and can cause burns to exposed skin or eyes.
- When working outdoors, be SunSmart - Slip on some sun-protective clothing – Slop on sunscreen - Slap on a hat - Seek shade - Slide on some sunglasses.
- All 20kg bags of cement products require 2 people to lift them safely. Always follow safe lifting procedures to avoid injury. So you will need a friend to help you handle the 20kg bags of Concrete Mix.

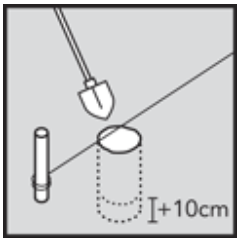
How to set an upright or stirrup using Concrete Mix



STEP 1: MARK OUT THE UPRIGHT POSITIONS

Use a tape measure, stakes, a string line and some spray marker paint to work out the correct locations for your holes.

I will mark out using wooden stakes

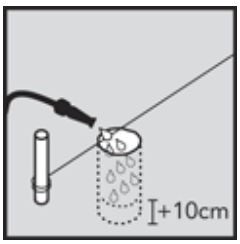


STEP 2: DIG YOUR HOLE(S)

Use a post hole digger or long handled shovel to dig your hole(s).

Refer to our simple Calculator to work out how much concrete product you will need.

My footings will be square so I will use dig using a trenching shovel



STEP 3: SOAK THE HOLE(S)

Pre-soak the hole thoroughly with clean water and allow the water to drain into the soil.

Will need to research why to do this

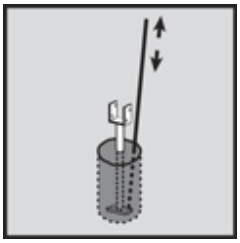
will mix cement in a mixer

STEP 4: MIX CONCRETE & WATER

In a non-porous vessel, such as a wheelbarrow, add the Concrete Mix no more than 2 bags at a time. Add exactly 2.5 litres of clean water per bag of Concrete Mix and mix thoroughly with a shovel remembering that excess water ruins good concrete.

Watch this video to see how to mix concrete to the right consistency.

This will change depending on the mixture and the product



STEP 5: ADD CONCRETE & TAMP WELL

Fill your hole to approximately 25% depth with concrete. Position your upright in the centre of the hole pushing it into the concrete very slightly, ensuring that it is set to the correct depth based on the required height of the timber you will be attaching to the upright. Add the remaining amount of the mixed concrete to the hole, filling the hole to just above ground level. Tamp the product around the upright using a rod to remove any air pockets. Should you need more concrete for the hole, immediately repeat the process with another bag.

Irrelevant

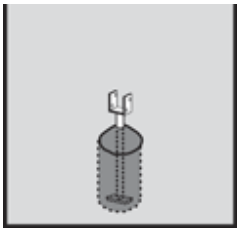
Tip: Tamping is essential to remove air pockets and achieve a solidly set upright every time.

Removing Air pockets will improve strength

This will stop the water from building up and rusting the posts

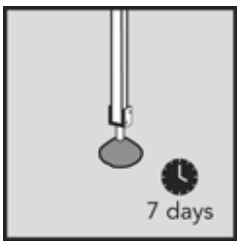
STEP 6: SLOPE THE SURFACE

Heap the surface of the concrete to create a rounded crown around the upright so any surface water flows away from the upright.



I will wait until it is at full strength before filling the cages

My structure will be cemented into the ground pre assembled so it will need to be anchored will the cement sets



STEP 7: ALLOW CONCRETE TO SET

Allow the concrete to harden for a minimum of 7 days before attaching any posts to the upright.

This is important during the summer holidays as over 35C is quite common

Hints & tips

- The ambient temperature can affect the setting times of all types of concrete. If the temperature is less than 10^{o}C, wait until the day becomes warmer and if its over 35^{o}C then postpone the job until it is cooler.
- If a particular job calls for a specified strength of concrete i.e. 20 MPa, then its time to call in the experts and have concrete delivered from a ready mixed truck – it's the only way to guarantee the structural strength in the concrete. Megapascals (MPa) is the common unit for indicating the compressive strength of concrete.

I have the mixture ratios for my cement and my job is a smaller job so this is mostly irrelvant