Introduction

At SSP, we use concrete for **footings** (into which we set post bases for awnings, decks, ramps, and stairs), **transitions** (where a ramp terminates), and **pads** (at the base of stairs).



Concrete is your friend!
Spokane 2016

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Mixing Concrete

Concrete is mixed with two **metal (mortar) hoes** or **flathead shovels** in a **wheelbarrow** using water either from a hose or 5-gal buckets. Scrape the bottoms and edges to look for dry spots!

A good way to describe the ideal concrete consistency is "**thick oatmeal**." Instruct volunteers to add water slowly; you can always add water, but removing it is almost impossible!



Spokane 2018

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Estimating Quantities

Only buy **60lb bags** because they are much easier for our youth to carry than 80 or 90lb bags.

For most projects, footings are **12" in diameter** and **18" deep (24" in AZ and SP)**, which require about 2 ½ (60lb) bags of concrete.

Square Feet (3 1/2" thick)	60lb Bags Needed
3	3
5	4
10	8
16	12
25	18



Tsaile 2016

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Post Holes

Footings are made by digging a hole with **post-hole diggers,** pouring concrete into the hole, then setting a post base into the concrete.

For most projects, footings are **12” in diameter** and **18” deep (check with your local contact to see if your area requires deeper holes; SP and AZ usually need 24” holes)**.





Smith River 2016

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Setting Post Bases

A **post base** is then placed into the concrete before it has set; this creates the structural base for whatever is being built.

It is extremely important to twist and jiggle the post base before letting the concrete cure; if you don't, air pockets will form around the legs and the post can wiggle and even come out of the concrete when it's being attached to the post base.

Don't set the posts all the way on the ground; use something to keep them off the concrete so that water doesn't collect underneath.



Post base set into concrete
Tsaile 2016

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Pouring

Concrete usually sets overnight to a point that it can be worked on. This means you need to think ahead. Here are some questions to help plan pouring concrete:

1. Can the project move forward if the concrete is still wet?
2. How much time will it take to mix and pour all of the concrete necessary? Should I pour in the morning or at the end of the day?
3. Will the work site be dry enough to store concrete, or should I keep it in the supply yard to protect it from moisture?
4. Do I need to set up protection around the concrete so no one steps on it while it dries?



Spokane 2018

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Pads

Pads are poured at the end of ramps and stairs as well as under sheds. They are created using **formwork** to provide shape and structure for the concrete before it has cured. At SSP, formwork is built using **2x4 lumber** and is removed after the concrete has set. The 2x4 framework allows for a minimum 3 ½" depth for the pad.

The top of the formwork will be the top of the concrete; make sure that the formwork is at the desired height (slightly above grade) and is level before concrete is mixed.



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Pads

Welded wire (sometimes called hog wire) or rebar is set into the middle of concrete pads to help concrete withstand force.

Cut the hog wire bigger than the formwork and bend the ends down with pliers so that it supports itself, becoming suspended in the middle of the pad.



Stockton 2016



Smith River 2016

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Pads

Use a screed board to strike-off (scrape off excess concrete) and level with a 2x4 screed.

Tamp the wet surface with a jitterbug or floats. This pushes the aggregate down and brings the cream (concrete sand, water, and cement slurry) to the surface of the pad to allow a smooth finish.

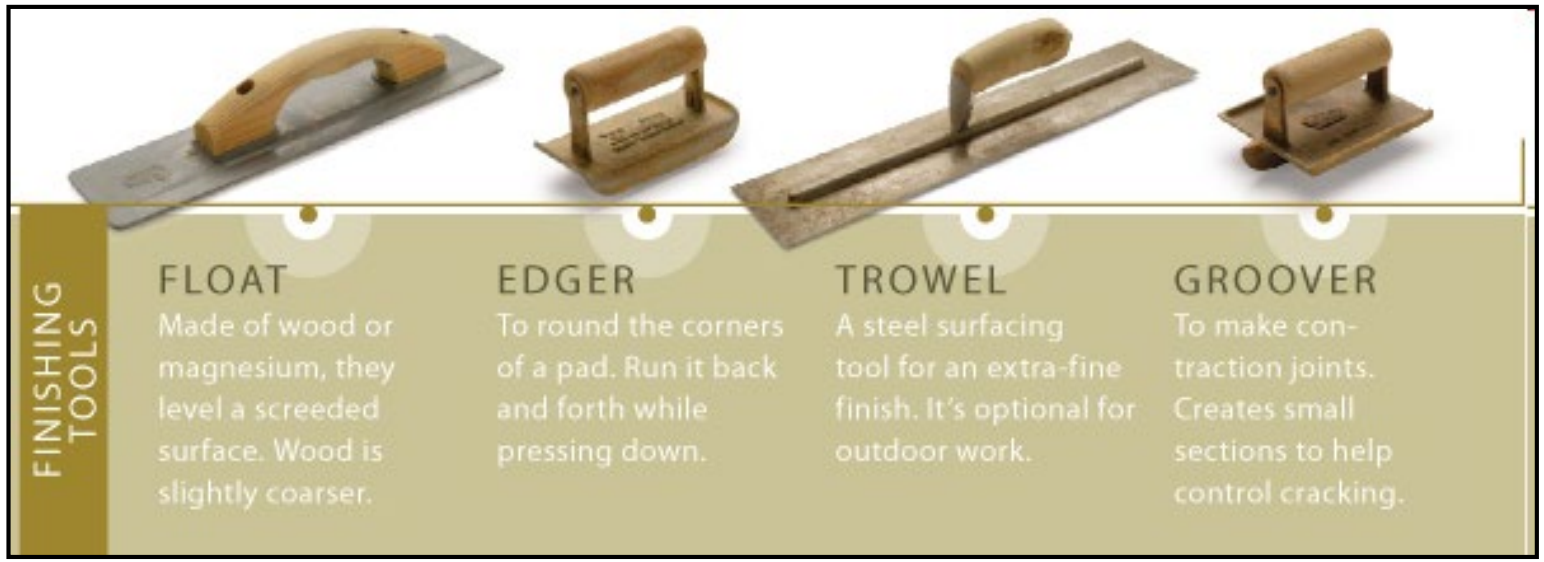


Using a float and screed board
Chiloquin 2016

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Pads

To finish the pad, use a **float** to smooth out the entire pad. Then, use an **edger** to curve the edge of the wet concrete toward the formwork. If you've poured a pad longer than 5', you'll use a **groover tool** to create a groove in the middle of the concrete.





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Pads

Post bases can be set into pads, but a hole needs to be dug 18” deep below where the post will be.





Tsaile 2016

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Pads

Finally, use a broom head to lightly brush the top of the concrete, giving it grooves for traction.



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