How to Mix Concrete by Hand

Concrete mixing is hard work. Power mixers do most of the work on the job site. Sometimes, however, the concrete is mixed by hand for a smaller job. Concrete is a combination of sand, gravel, or other aggregates, as well as cement mixed with water to form a semi-fluid mixture. This mixture is then poured into a form to harden. There are special tools and materials needed to make a good mixture that is easy to use and that finishes well. First, you need good quality materials. Choose the best type of cement for the masonry work you are doing. The aggregate, made up of sand, gravel, and stones, should contain large and small particles to make the strongest concrete. Measuring a litre of water will help you use the correct proportion of dry to wet materials.

**The tools that you need to mix concrete by hand are:**

• Wheelbarrow to mix up and move the mixture to the form,

• Mortar hoe to mix the concrete,

• Concrete hoe or square-end shovel to place the mixture in the form,

• Concrete rake to tamp down the mixture, and

• Floats and darbies, which is a double handled float, to smooth and finish the concrete.

Mixing the concrete takes time and patience. Choose a clean, flat surface or a mortar box. Measure the ingredients carefully for the amount that you need. First, layer the dry ingredients starting with the gravel, then sand, then cement. Use a hoe or rake to thoroughly mix the dry ingredients. Next, make a shallow depression in the centre of the dry ingredients and pour in a little water. Mix this thoroughly, then add more water and mix again. Continue adding water and mixing until all of the dry ingredients are wet and the mix is an even colour. Finally, test to see if you have mixed the concrete to your satisfaction. This is called a settling test. First, smack the concrete with the back of a shovel. Next, jab it lightly with a hoe to make some ridges. If the surface is smooth and the ridges keep their shape, then the mix is right. Now you are ready to pour your mix into the prepared form. Once it is in the form, you will need to smooth or finish the surface and let it harden.

Adapted from Mike Markel, Technical Communications. (Toronto: Nelson Thomson Learning), pp. 76-79 as found in Think Literacy