

# Building Benches with EF Block™



1 Plan the bench for its location. What size should it be? Will it be basic or fancy? Is it for a picnic table, a garden seat or a window seat? EF Block™ is so versatile that your imagination is your only limit. Have no fear – EF Block™ is an inexpensive and forgiving material to work with – yours will be a unique bench with the look, feel and durability of concrete.



2 Decide what your bench will look like. A simple, one EF Block™ basic bench is fine for kids to sit on to take their boots off in a mud room but you may want a backed bench for the porch or garden.



3 Anticipate how your bench will be used. Building an EF Block™ bench with simple legs or seat is fine for a bench with short legs or seat but you may want a more durable bench with reinforcement if it's to be longer than four feet -- or if it will be used for longer seating periods such as at a picnic, table or in public.



4 How to build a bench: Start with the legs.

For simple benches, cut two equal lengths. Set them in a level area and adjust their width so they are symmetrical in relation to the seat. Measure from each end – a plumb line dropped from the center of the seat should land halfway between the two legs.



For a bench with a back, construct at least a two EF Block™ seat platform for a simple garden bench or develop a more custom design for a larger or longer bench.



Fasten the bench legs with polyurethane foam adhesive – to reinforce the connections you may use pieces of rebar, dowels or bolts worked in to the connected material and anchored with the foam (If you use them, be careful not to extend them into any void spaces).



- 5 Cut an angular edge off of an EF Block™ to form the rear of your seat back (if desired).



If you want to have a curved bench, lay out your pieces in a radius pattern that will form the bench and back to the desired curve before connecting the pieces with foam.



- 6 Fill unwanted voids as desired – you can use pieces cut from EF Block™ or fill with grout. Shape the edges of the bench after connecting with foam but before stucco or coating. The EF Block™ can easily be shaped with simple hand tools such as a rasp or file.



- 7 Make sure that your seat sits flat (and your back pieces are secure with no twisting). If you don't have things quite where you want them – now is the time to cut them and move them where you desire.



- 8 Turn the seat over at a level that is comfortable to work at. It's ready to stucco or seal. Until stucco is applied, be careful with corners and overhanging edges – if they break, re-set them with foam.



- 9 Once you've worked the underside and it has dried some, turn the bench back upright and it's time to finish the stucco.

## STUCCO – Doing it yourself

Various layers of a stucco exterior finish contain basically the same ingredients, but they are mixed at different ratios. Stucco is typically applied in 4 coats; the dash coat, the scratch coat, the brown coat and the finish coat.

### Step 1 - Mixing the Dash Coat

The dash coat is spattered onto a concrete or masonry substrate to strengthen the bond with the scratch coat. A dash coat consists of 1 part by volume of Type I Portland cement and 2 parts sand. Just enough water is added to provide a workable mix.

### Step 2 - Mixing the Scratch Coat

The scratch coat is 1 part Type I Portland cement, ¼ part hydrated lime and 2 to 4 parts sand, with enough water added to give the consistency of a slurry. The scratch coat is applied to a thickness of ½ inch and should completely surround the lath. Before drying it is scored or grooved to create a strong mechanical bond with the subsequent coat. Together with the lath it creates a rigid base for the application of the brown coat.

### **Step 3 - Mixing the Brown Coat**

The scratch coat and the brown coat have essentially the same ingredients at the same ratios, except that the brown coat has 3 to 5 parts sand. The brown coat is troweled on evenly to a thickness of 3/8 inch to present a level surface for the application of the finish coat.

### **Step 4 - Mixing the Finish Coat**

The finish coat is mixed in approximately the same proportions as the base coats (scratch and brown coats), but uses white Portland cement plus mineral oxide pigments to add color. Do not add more than 10 pounds of pigment per bag of cement. Be aware of the ingredients used to mix the finish coat and in what ratio so that you can duplicate the exact color in a new mix. The finish coat is only about 1/16 inch in thickness and can be worked, either by hand or machine, into any desired texture.

### **Step 5 - Additional Helpful Tips**

Only mix enough stucco that you can apply within one hour. If the mix becomes stiff, add more water until you get a more plastic, fluid mix. Excessive amounts of either hydrated lime or sand will weaken the mix. Increasing the ratio of cement used will cause the finished stucco to have greater strength but will also make it susceptible to shrinkage and cracking. The sand must be free from loam or dirt and should be passed through a sieve before being used to remove any small stones.

Stucco or sealant that is applied can be painted to any desired color. Benches are an easy and rewarding project when you're using EF Block™ – it could be “the best seat in the house” – sit well! For more information on EF Block™ and other Earth Friendly Building Materials visit [www.efblock.com](http://www.efblock.com).