

Rock Construction

Doing rock work is not hard and almost anyone can learn to do a professional-looking job of rock work. If you live where there are plenty of rocks (hopefully free for the picking up), you can use these to build strong, snug and inexpensive structures. One of the secrets to long standing rock buildings is a good foundation. You can use rocks in the foundation to stretch the cement, but don't overdo this, there should be plenty of cement around the rocks. Many people recommend that from 1 to 2 feet deep on the foundation, depending on the amount of frost heave, and about twice as wide as the wall that will sit on it. Dig out the area for the foundation, throw in some clean rocks and any metal that you have for reinforcement. Then pour in the cement, mixed wet enough that it will fill in between all the rocks. Once your foundation has set up (about 2 days), you can start laying your wall.

I guess I should say a little about cement. I mix my own mortar, using sand and Portland cement, mixed 4 parts clean sand to 1 part Portland cement. A wheel barrel makes a good place to mix the cement. If you don't have a wheel barrel, you can build a mixing box out of plywood. This should be about 2 1/2' long and at least 1 1/2' wide and strong enough to stand up to having the cement mixed in it. You can buy the premixed cement, but be sure that you do not get "Concrete Mix", which will have gravel mixed in it. You can use the concrete mix for the foundations, but not for laying the walls. It is best to mix the cement and sand well, before you add the water, because this way you will be sure that it actually got completely mixed and that some parts are not lacking in Portland cement, while other parts have too much. Yes, I know it is a real pain to do it this way, but this is how all the old timers did it and their walls are still standing. If you really want to bypass this chore and mix everything wet, then take a little extra time to make sure that it was really well mixed.

The dust from the Portland cement is bad news if you breath it into your lungs, so take care when mixing it. Once it is wet, there is no danger. If you do much rock work, you will get cement on your hands. Unless you are unusually sensitive, this should not cause any problems. Rubbing your hands with hand lotion when you are done for the day really helps. Always clean up your tools and mixing area when you are done. You may want to get a old hoe and use it just for cement mixing. Your wife might be mad if you use her gardening hoe for this, especially if you forget to clean it up when you are done. If you are going to take a long break, try to use up all that you have mixed up, otherwise it will start to set up on you. On really hot, dry days, you may want to mix your mortar a little wetter, because it will dry out while you are working. How much water you add will have to be worked out by trial and error. Generally I start with a little less water than I think it will take and after mixing that can add more. It sure is easier to add a little more water to a too-dry mixture, than to have to add more sand and Portland cement to a too-wet mixture. For laying rock walls I like the mortar to be thick enough that it will hold its shape, but not so thick that it won't fill in the spaces between the rocks.

Try to have plenty of rocks handy before starting the work. That way you can fit the right rock to the spot that you are working on. You can reshape rocks a little with a hammer to make them fit better. I keep a bucket of water handy to dip the rocks in, so that they soak up some of the water. The cement will stick to the rocks much better if they are not dry. Clean the rocks well before laying them up. Try to get all of the dirt off before you use them. I like about to put 1/2 inch of cement between the rocks, but some areas will require more, because of the shapes of the stones used. Smooth and remove any cement that

protrudes from between the rocks on the wall face, because it will catch water and channel it into the wall. Rock work is not hard and can even be fun. Don't try to go too high in one spot, or your wall could fall down before it gets a chance to set.

Save any rocks with nice flat sides and any with natural corners. You will find just the right spots for these as you go along. Rock that are flat and have a smooth surface (field stone) can be used to lay beautiful rock floors, so unless you are blessed with an abundance of these, you might want to save them for that purpose. Generally the largest rocks are used on the lowest sections of the wall so as not to make the wall too top-heavy. And why lift them any higher than you have to anyway? I build my window and door frames first and then set the rock around them. I drive large nails through the frames to secure them to the rock work, before laying it up around them. I have found this to work well and the frame is solidly attached to the wall. This type of "laying up" work does have a few drawbacks. The work does tend to go rather slowly and care must be taken to have a flat wall surface. Stringing lines (pieces of string, pulled tight to show where the wall should go) will help you to build the walls straight. If you have round river rocks, this method can really be rough to do.

There is another method that gives nice flat walls; it is much faster and you can use any shape rocks you wish. This method was described by Helen And Scott Nearing, but many of the present-day homesteaders have never read their books. For this method you use two (or more) sheets of plywood for the "forms" for your walls. Set the plywood in place on the foundation and use some wire to hold them apart for the width of wall that you want. I drill several matching holes in the two sheets of plywood, so that the wires will line up. Pieces of wood, cut to the right size, can be used to hold the plywood apart until you can drop some rocks between them. You will need some 2"X4"s to support the forms from the outside as well. Once you have enough rocks in your "form" to hold them in place, remove the pieces of wood. Then fill the rest of the area between the plywood with stones and once it is full, pour in a wet cement mix. You want it wet enough that it will fill all of the spaces between the rocks. Once it has set up, cut the wires holding the plywood in place and move it to the next section of wall to be built. Using this method, you can be laying up one section of wall while another is setting up. This method gives nice flat, straight walls and you can use any shape rocks. This is just about the only way to use rounded river stone for walls.

The question of how thick you want your walls to be must be your own decision. I have seen walls as thin as 6 inches as well as up to 2 foot thick. Most seem to be from 8 inches to 1 foot thick. When you get to the top of the wall, you may want to attach a "header" there (the board that your roof attaches to). Insert some large threaded bolts into the top of the wall (while you are laying it up), so that they will come through you header and secure it to the top of the wall. Let the wall set up. Once you have all the holes drilled in your header (and are sure that they really line-up) pour a little mortar on the top of the wall and set the header in place. As you tighten the bolts, some of this mortar should be squeezed out from under the header. This will make a tight seal. It is probably a good idea to use only treated lumber for the header, window and door frames.

If you have never done any rock work before, it might be wise to start with a small project, such as a barbecue or garden wall. I find the work to be pleasant, although at time a bit tedious. You may find that building a whole house is more of a rock work project than you wish to undertake. The best time to find this out is before you have part of one wall up and are pretty well committed to finishing the project. I like "Ferro-cement" roofs and feel that they lend themselves well to rock structures. A rock house with a Ferro-cement roof should certainly give you many trouble-free and maintenance-free years of service. Who knows, you might end-up liking to working and build with stone (rocks) as much as I do! I

am not a professional stone mason though. What little I know came from reading books and building my own rock house, plus helping to build a few other peoples' rock houses. I built my house 20 years ago and it is still doing just fine. All of the people that I helped build their houses have reported that theirs' are fine as well. For more information e-mail me directly.

Ken Davison
dragon@phonl.com
