

HOW TO BUILD A STONE WALL WITH MORTAR

HOW MUCH STONE WILL YOU NEED ?

First, determine the length of the wall (in feet) and the height of the wall (in feet). If the wall is to be no more than 4-feet high, then you can use stones which measure about 1-foot wide. That will make your wall about 1-foot thick.

Remember, stone is heavy (it lasts forever). Don't get discouraged when your stone dealer talks about *price per ton* of various stones.

Let's say you determined that your wall will be 50-foot long and 2-foot wide.

Here is the formula:

$$50' \times 2' \times 1' = 100 \text{ Cubic Feet (cf)}$$

The stone will probably weigh an average of 125 pounds per cubic foot.

$$100 \text{ cf} \times 125 \text{ lb/cf} = 6\text{-}1/4 \text{ tons}$$

$$2,000 \text{ lb/ton}$$

You will need about 6-1/4 tons of stone. A little extra is helpful for a good selection. If you are building a veneer stone wall, bonded to block, then deduct that volume which will be concrete block.

The cost can range from \$100 to \$200 or more per ton depending on the type of stone, how and where it is to be delivered, etc. Be sure to buy your materials from a reliable stone dealer. All too often there is a "bargain" stone available — which may have been blasted free with dynamite— and which contains microscopic fissures that can hold water and freeze, spall and deteriorate. All of your efforts will have been wasted if the material is not of good quality.

TOOLS AND MATERIALS REQUIRED

- A] Heavy Hammer
- B] Trowel
- C] Sand and Cement
- D] Folding Rule
- E] Carpenters Level
- F] Wall ties
- G] Stone Chisel
- H] Pick and Shovel
- I] Selected Stone
- J] Concrete Block

HOW TO START

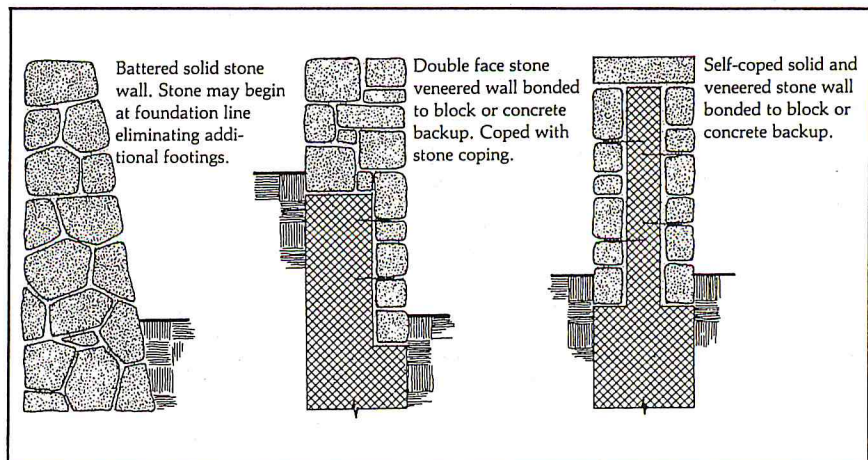
Dig a trench for a footing (base) below the frost line —about 18-inches deep and at least 12-inches wide (or a little wider than your largest stone). Put in a 2-inch layer of crushed stone, compact and level it. You may use a pre-mixed mortar or mix your own using 1-part Portland Cement and 2-parts sand. Mix the mortar with just enough water to

make a workable consistency so that when a trowel-full is placed on a flat surface it will not sag or slump down.

Using your trowel, place a couple of inches of mortar on your stone footing and begin laying the stone (or block, filling the cavities between them with mortar, as you go.

When laying stone you may need to use wooden wedges in the joints to prevent the mortar from squeezing out before it sets. A good stiff mortar mix is important. Try to avoid continuous vertical joints by over-lapping each joint with the stone above.

Be sure to put a full bed of mortar down for each stone. Keep the face of the stone as clean as possible. Use a damp sponge to wipe off excess mortar after the joint is raked or troweled. To finish the joint wipe it with burlap or an old brush.



CLEAN OFF EXCESS MORTAR

Hard mortar may be cleaned from the face of the stone and joints —after it is thoroughly cured— with a 1 to 10 solution of Muriatic acid and water.

Do NOT use acid on limestone or marble. □

QUICK TIPS FOR STONELAYING

Ideally, the sides of a stone should be roughly perpendicular to the exposed face. Theoretically, when you look squarely at the face of a stone, no part of the adjacent sides should be visible. In practice, however, you will find that some deviation from this rule is acceptable. More important, the top and base of the stone should be nearly perpendicular to the face. The top should never slope toward the outside face of the work because this will encourage stones laid above it to slide out of the wall.

A good rule is that you should be able to stand on a stone immediately after it is placed. If it rocks, either shim it with a stone chip or trim off the high spots. You can see the high spots by looking under the stone. Shadows between the stones indicates spots that need trimming.

Each stone should fit snugly against the one next to it. The tops of adjacent stones should be exactly the same height. That way, you can span, or face bond, the joint with a stone in the succeeding course. If the tops are not even, leave one stone at least an inch or so higher than the other. That way, a stone



can be inserted above the short one to make the tops even.

Often you will be left with a narrow space between two stones which otherwise fit well. Fit this gap with a thin stone but on the next course, treat this stone as if it were a joint.

Rarely will a stone fit without trimming. If the stone needs to be trimmed, mark it (use a lumber crayon) in place on the wall. Then

take the stone off the wall and set it on the ground to trim it. Don't trim the stone while it is still on the wall as you can dislodge the stones nearby and disturb the bond.

Be careful of your fingers when moving large stones. It is sometimes a good idea to place sticks under a stone while setting it in order to allow room for your fingers. Then pry up the stone and remove the sticks.

