

Drystack Retaining Walls (Moss/Field/Stone)

Quick Reference:

Determine project size and amount of stone and other materials needed: Length X height = square foot or face feet. ex. 1 ton of moss rock or fieldstone builds a 1' tall by 15' to 20' long wall. 1 ton of 4" strip stone builds a 1' tall x 40' to 50' long wall

- Level, trench and compact soil at walls location.
- Begin at the walls tallest point with shorter courses; continue to add additional, longer courses as you build up. (a course is a layer of stone)
- Compact directly behind each course for shorter walls.
- Adding a drainage system behind taller walls is recommended.
- Stagger Joints between walls courses and taper slightly inward, with the base 1/5 the distance of the average height of the entire wall, out further than the top.

Choosing Material:

When choosing natural stone for your wall project, make sure the type you select will be around in the years to come should your project increase.

Pick the stone appropriate for your project and desired outcome. For shorter walls, smaller, thinner stone looks and works best. Use heavier, larger stone, for longer, taller wall projects.

Certain types of stone are easier to work with than others, strip stone is easiest due to its block or brick shape. Sandstone and rhyolite moss or plain can be chipped, to achieve a more solid wall. Granite rip-rap is the most difficult to work with to construct a wall that looks nice.

Determining Amount of Stone Needed:

Figure total square footage (wall face feet) by taking the length of the wall or walls by walls height. For example a 30' x 1½' wall is 45 ft². If your wall starts at ground levels, then progresses to a height of 3' and tapers down again, take the average height times total wall length. For example see Quick Reference above.

Site Preparation:

It is critical that you first level the area where the wall will be constructed. Dig a trench channel that matches the shape of your wall or stone, that is half the height of the largest stones you will be using. This trench prevents the bottom course of the wall from being pushed out. When retaining soil in areas that have an existing slope, cut a shelf or shelves to build up behind the wall using the soil taken from the front of the wall. (see *fig 1*) Compact loose soil using a tamper and water to get the soil particles as tight as possible.

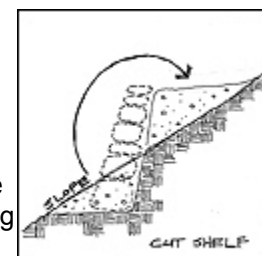


Figure 1

Wall Construction:



Figure 2

For walls that need to be tapered at the ends, begin construction in the middle of the wall or at the point where the wall will be the highest. This will provide a wall with a nice flat top for the entire length of the wall. (see fig 2)

The first course of the wall will dictate the wall's outcome. Make sure this course is level, it provides a gauge for leveling the entire wall. Use smaller, flatter pieces of the same type of stone called shims to achieve tighter, more level fits.

For walls that are 6" to 18" only a slight batter, or a gentle slanting of the wall in the direction of the retained material, is needed. This can be as little as a 1/4" per layer. (see fig. 3)

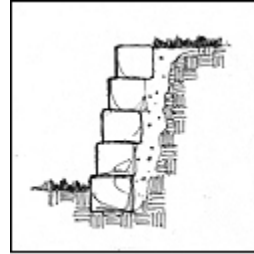


Figure 3

Flush flat stone faces can be achieved by placing all the stones, beginning with the first course, at a slight angle going back from the wall's bottom row (see fig. 4) Walls 18" up to 36" should use larger, wider, heavier stone at their bases.



Figure 4

Walls over 3' tall should incorporate mortar or be designed into terraced walls that are individually not as tall.

Back fill drystack walls one layer or row at a time. Compact loose back fill material with tamper (hand or mechanically) as tight as possible.

Drainage Considerations:

If you are dealing with extremely hard soils or are working in an area of high water run-off, you may consider using 1/2"-1" gravel, landscape fabric and possibly a perforated drain tile (pipe) behind your wall.

The gravel prevents soil behind the wall from excessive expansion and/or contracting, pushing the wall over. This system allows water to percolate downward, escaping through the wall's face and laterally along the wall's end.

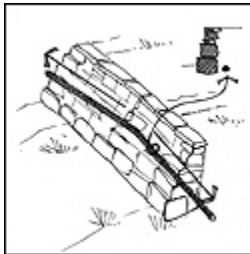


Figure 6

The landscape fabric acts as a divider, keeping soil from filling air spaces in the gravel, but allows water to pass through. (see fig. 5) A 4" perforated drain tile running laterally at the base of the wall, just below and behind the first course of stone, sloping for positive drainage, allows water to be diverted to lower areas or existing storm water systems. (see fig.6)

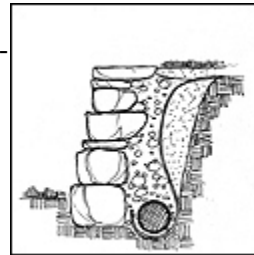


Figure 5

Fitting Wall Stone/Breaking Rock:

Rhyolite and sandstone can be most easily worked by chipping away smaller pieces with a hammer and chisel. Please wear eye protection when hammering, chiseling or cutting stone. Start along the edges and chip inward, taking ½"-1" off as you go. Using smaller rocks in gaps and shims to keep stones relatively flat, greatly enhances a stone wall's appearance.

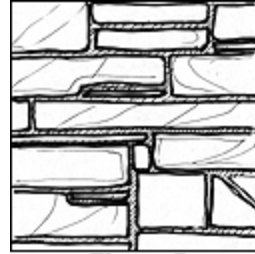


Figure 7

Alter (stagger) joints as you lay up your different rows. This strengthens the wall and helps with its stability. (see fig. 7) For granite rip-rap and river cobble walls, are difficult and take time to get a good looking wall.

Piecing rip-rap together like a puzzle, finding the most appropriate partner for each fit, while trying to keep the flattest rock surface on the face of the wall is probably the best way to describe how to assemble this type of wall. Rounded granite just does not stack well, unless you spread the rocks out and plant ground covers or low, spreading plants to fill in the gaps and tie it all together. (see fig. 8)

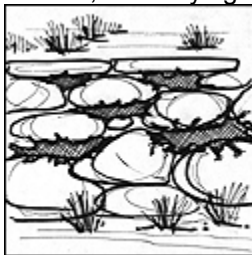


Figure 8

Capping Wall:

Leaving flatter wider stones for a wall's top, gives the look of a thicker wall and creates a finished look that can be sat upon.

General Upkeep and Maintenance:

If expanding soils, settling soil or other elements push on or against your wall, it is easier to fix or mend early, opposed to letting too much soil fill in new voids and continue to push more stones from their desired position.