

Photo #1



Photo #2



Photo #3



Building an External Box Beam

Rip 4 - 6 in wide strips and 7 - 5 in. wide strips from eight-foot full lengths of $\frac{1}{2}$ in. plywood. (See **Diagrams 1 & 2 and photo 1**)

Note: This will take more than one sheet of plywood. The remainder of the second plywood sheet can be used for your forms.

Accuracy is important. If you do not have a good quality table saw and an extra pair of hands, most lumber supply outlets will do this for a small charge per cut at time of purchase. (we recommend this as it will save you time and guarantee accuracy).

You can use a circular saw. Use an eight-foot straight edge (the edge of another sheet of plywood will do) clamped as your guide to the sheet of plywood to be cut. Calculate the distance from the straight edge guide to accommodate for the distance between the edge of the circular saw guide and where you need the cut to be.

Cut two of the 5 in. wide lengths in half. (four - 4-foot sections).

From one of the 8 ft. x 5 in lengths, cut ten spacers exactly five inches long. (**Photo #2**) Make the cut a little longer than five inches if needed and then sand to the line. Use a disc sander if you have access to one. There will be excess left over from this strip that can be used for risers later. (See Setting up Box Beam)

Note: these spacers need to be as close to 5 in. square to ensure the box beam is as square and straight as possible.

Lay one of the 4 ft. x 5 in. wide sections butted up to one of the 8 foot x 5 in. wide sections on the floor. (**Diagram # 3**) (hopefully you have a fairly flat floor surface to work on) Place two eight-foot sections upright and butted to the sections on the floor. Place four spacers at equal distances inside the open top box you have created with one at the very end. (approx. every two feet) (**Diagram #3**) Glue and screw (or nail) these pieces together with all edges matching up exactly. A few clamps will hold everything in place while the glue dries. (**Photo #3**)

Butt a second 4-foot section to the other end and follow same procedures in order to construct the full 16-foot length.

Mark on the outside of the beam where the spacers are on the inside.

Once all glue has dried (usually one hour.) you can remove the clamps and slide the top sheets in. (one 8 and two 4 foot sections)

Glue and screw (or nail) to sides and spacers inside. (That's why you marked the outside)

Note: you will notice that two sides are slightly longer than the other two. This accounts for the small amount of wood lost to the cuts when you cut two eight-foot sections in half. You can cut the extra ends off if you wish.