

## Instructions To Build A Crusher

### Materials list

Quantity	Material & Dimensions
4	MDF/plywood board 18" x 18" x 3/4" (Crusher board & base)
4	Fir 4" x 4" x 7" (Corner posts)
4	Pine 2" x 4' x 18" (Base Layer support)
2	hardboard 18" x 18" x 1/16" (Covers Crusher board & base)
1	Galvanized Iron 1" Floor Flange
1	Galvanized Iron Pipe 1" x 43" threaded one end (have cut in two pieces)
1 pkg w/ 4	1 Package 1/4" 20 x 1" with 4 machine screws (for flange)
1 pkg w/ 4	1 Package 1/4" 20 x 3/16" with 4 countersink sleeves (for flange)
1	wood dowel 36" length 3/4" diameter (for posts and extension pipe)
1 kit	Epoxy (for 1/16" hardboard) (e.g., hardware store, etc.)
1 bottle	Wood / Carpenter's glue
1 box	1 1/2" drywall screws

### Crusher board

1. Square two of the 3/4" thick 18" x 18" MDF/plywood pieces and clamp together. Screw together as shown in figure 1. Remove the clamps.

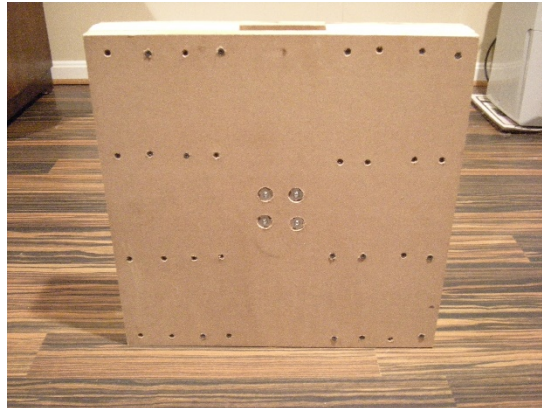


Figure 1 – Screw pattern for Crusher base and Crusher board

2. Mix a portion of the epoxy and apply to the side of the crusher board with the screw heads. Lay one of the 1/16" thick 18" x 18" hardboard pieces on the epoxy and square it to the crusher board. Clamp together and let it set up overnight. (Side / edge view of the crusher board and top view of crusher board figure 2)

## Instructions To Build A Crusher



**Figure 2 – Top & edge views of Crusher board with hard board**

### Drilling the hole for the safety pipe

3. Find the center of the crusher board and mark it.
4. Take the crusher board, the remaining 1/16" thick 18" x 18" hardboard, and one (the top) of the remaining 3/4" thick 18" x 18" MDF/plywood pieces and clamp them together. Make sure that the corners are all squared up so that the pieces are aligned. With a hole saw, drill a 1 1/2" diameter hole through the pieces. Unclamp the pieces and set the crusher board aside, the other pieces are ready for use on the top of the Crusher base.

### Building the base

5. Bottom of Crusher base - On a flat surface (work bench or table) place two 2 x 4s next to each other and align with the opposite edges of the 3/4" thick 18" x 18" MDF/plywood piece with the hole in the middle. Place the other two 2x4s next to each other and align with the opposite edges of this piece of MDF/plywood board. Screw through the board into the 2 x 4s using 1 1/2" screws, Figure 1.
6. Find the center of the board and mark it. Center the flange on the mark and mark the 4 holes in the flange on the base as shown in Figure 1. Drill 4 holes through the base for the metal screws to hold the flange to the base.
7. On the bottom of the base, with a 3/4" hold drill out some of the base the depth of the thickness of the countersink sleeves. See Figure 3. Pound the countersink sleeves in place – these should be flush with the MDF/plywood board.



**Figure 3 – Countersink pattern and elevation with flange in place**

## Instructions To Build A Crusher

- Turn over the base and screw the flange in place with the 4 machine screws, figure 3.
- Top of Crusher base - Place and align the last piece of  $\frac{3}{4}$ " thick 18" x 18" MDF/plywood board (with the hole cut in the center) on top and attach it to the 2 x 4s using 1  $\frac{1}{2}$ " screws as shown in Figure 1.
- Mix a portion of the epoxy and apply to the top of the crusher base. Lay the piece of  $\frac{1}{16}$ " thick 18" x 18" hardboard with the hole in cut through the center on the epoxy and square it to the crusher board as shown in Figures 1 and 4. Clamp together and let it set up overnight.

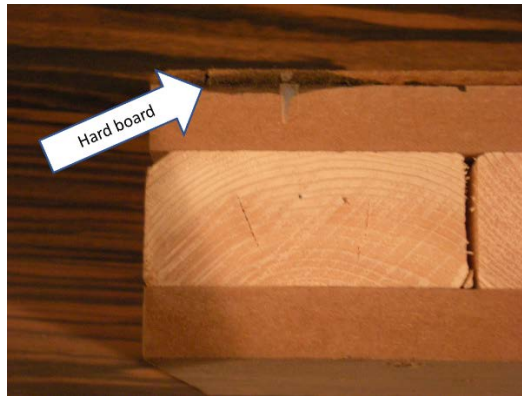


Figure 3 – Crusher base edge view

### Corner posts

- From the  $\frac{3}{4}$ " wood dowel, cut 4 – 4" long pieces and set aside.
- With a  $\frac{3}{4}$ " bit, drill a hole in the center of the 4 x 4s 2  $\frac{1}{2}$ " deep.
- Apply the wood glue to 2  $\frac{1}{2}$ " on a 4" piece of wood dowel and insert into the hole in the 4 x 4, Figure 5. Repeat this for the other 3 4 x 4s.
- Find point 2" x 2" in from each corner and drill a  $\frac{3}{4}$ " hole 1  $\frac{3}{4}$ " deep, Figure 3

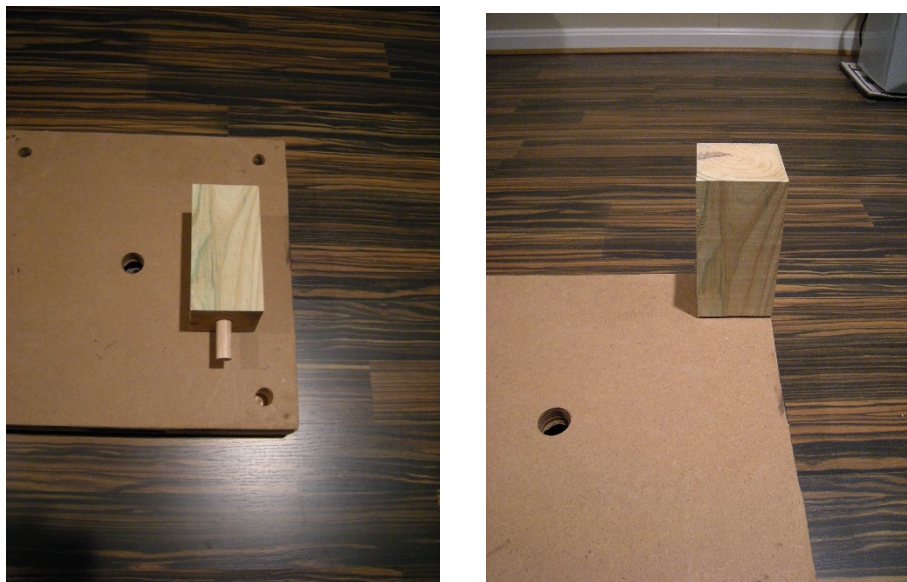


Figure 4 – Corner Post with Dowel with hole in base for dowel

## Instructions To Build A Crusher

### Safety pole

15. Suggestion – when purchasing the pipe from the hardware store, have them cut it into the required lengths 31” and 12” with the threaded end on the 31” piece. Keep the other threaded piece separate.
16. From the  $\frac{3}{4}$ ” wood dowel, cut a piece 12” and set aside.
17. Take the 12” piece of pipe and apply the wood glue to 6” of the wood dowel and insert into the pipe. Set aside to set.
18. Screw the pipe into the floor flange, and you now have a crusher with your extension pipe.

NOTE: The truer the cuts on pieces, the better your crusher will be