

The Garage of Terror

<http://www.garageofterror.com/crushhome.html>



The Crush Room Spikes

This room was quite a project (big by my standards, anyways). The point of this room (pun intended) was to get the kids into a closed room, then have spikes emerge from the ceiling and have the ceiling start to lower downward. It required a sturdy 4' x 7' x 10' frame, thirteen carved foam-cast skulls, 26 flexible foam spikes and a false ceiling. I almost gave up on the project because, of all things, I couldn't find a good way to make the spikes. Eventually, I figured out a way that worked. The finished room was a big hit and really creepy. Well worth the effort.



Believe it or not, this was the toughest part. I recently figured out how to make latex molds so I figured this would be easy. I carved four spikes from 1" wooden dowels and made a latex mold. I then got some 2-part 8lbs polyurethane flexible foam, mixed and poured.



This approach worked fine when I was making skulls with ridged foam. The problem I discovered is that flexible foam is really hard to get out a a mold. It sticks more than the ridged foam and, since it flexes, there is nothing to push against. After ripping apart two of them, I just cut the others out, thus destroying the mold. I also found that this stuff is almost impossible to sand, so get the shape right or plan on using scissors.



So, I went to plan B and decided to do a two-part plaster mold of the spikes. Making this mold is not as easy as it looks but it isn't over the top difficult either.

So, I poured four more spikes. Then, even though I used plenty of release agent, I couldn't get the two halves to separate. I ended up breaking one of the halves. Oh well, I still have one half. So I remade the broken half thinking I could do it better the second time around. Nope! Broke it again. So, three attempts, 10 spikes completed and 18 more spikes to go. Why am I killing myself to entertain other people's children?



Fortunately, I had one skull already completed and, just for fun, I painted a couple of the spikes and pushed them through the eye-sockets. Ooooooh! I couldn't walk away. So, I went back to the latex, but this time, I used a thin line of clay jutting out from the wooden dowel so that I could make a seam. This seam would let me peel off the mold without cutting it. I used some binder clips to keep the mold closed during casting. Not perfect but acceptable by my standards.



I used scissors to trim the seam and to cut them all to the same size. Several rounds of this, a litter copper spray paint and a Velcro pad sown on the end, and I have my 26 spikes.

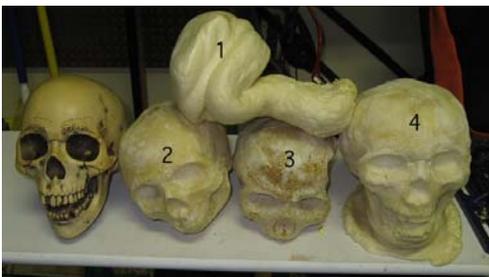
Making the skulls

There are better sites for mold making than this one, so rather than go into detail, I will just provide a few links.

[Hirst Arts Mold Making](#)

[Smooth-on](#)

I used liquid latex over a skull I bought from a Disneyland magic shop about forty years ago. I tried initially to use Great Stuff as my hard shell to keep the latex in place but that did not work very well. So, I remade the latex mold and this time used plaster and cotton gauze for the hard shell but still used Great Stuff to fill in the rest of the box.



Working with two-part polyurethane foam takes practice. The key is in the mixing. I used a bend coat hanger stuck in my power drill and mixed the components in a clear plastic cup. By the way, make very sure you don't have any sharp edges on your mixing blade if you do this. I always tested out the mixer in the cup before I poured anything in it and

more than once did the coat hanger rip right through the cup. The key was to bend the coat hanger so that the blade width was about half the width of the bottom of the cup and the end of the wire was protected near the center shaft. Anyway, if you mix

too long, you don't get the fine details of the mold. If you mix too little, you get a sticky, toxic skull with large gaping holes in it. So, if it is your first time, buy extra foam.



The 6 lbs foam worked for me. Fortunately, I was able to use many of my "failed" skulls in this project. They didn't look good as a stand alone, but as a group, they looked fine. And, the small variation in size and shape actually worked to my advantage here. I used a Dremel to carve out the nose, jaw and teeth. I kept the jaws attached. I then used a hacksaw and cut off the back half of the skull. I placed the foam skull flat on a board and carefully used a 1.25" bore to drill out the eye sockets. I tried to keep the bore as level as I could as I did this (my power drill has a level on it). I then flipped the skull over and used a 1.75" bore to widen the back of the holes I just bored. This is to minimize friction with the 1" spikes as they slide through.

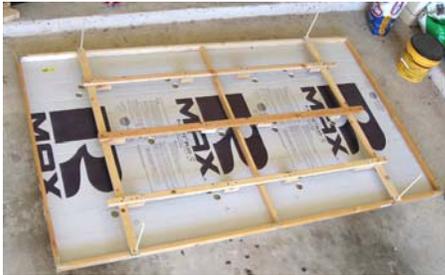
It was soon obvious that I was going to have a problem. The carved foam was grainy and hard grains of foam would rain down when I tapped an upside down skull. This was not good as I wanted everyone to be looking up at them and it was not my intention to be pouring sand in their eyes. So, I beat the skulls senseless to knock out as much of the loose foam as I could and then coated them with three coats of Elmer's Glue. This gave the skulls a hard finish and sealed in any loose foam grains. Some white spray paint and they were ready to mount.

Making the Ceiling

I needed the ceiling to be light strong and reliable. My room was going to be 4' x 7' (plus a few inches) so I got a 4x8 sheet of half-inch foam board, cut off a foot and glued it onto a 4' x 7' wooden frame made of 1.5' x 0.75 studs. I used only one cross bar for the frame. I bought two 4' lengths of quarter-inch "coarse threaded rod" metal stock and cut them to 1.5' lengths. I carefully drilled four quarter-inch holes in the frame as perpendicular as I could and glued the rods into the frame to act as guides for the spikes. I wrapped the metal rods in masking tape so that the threads would not rub on the frame for the spikes.



I then numbered the skulls and placed them on the foam board in the arrangement I wanted. I marked the placement of the eye sockets and drilled out 1.5" holes. I put a numbers by the holes so that I could match the skulls to the hole pairs later on.



Next, I made the frame that would hold the spikes. It was essentially three crossbars held in place by two connecting boards. I drilled a good size hole in each end of the connecting boards and reinforced the end with a metal bracket. These holes fit over the threaded rods, and acted as guides. I used wood screws to attach 12 wooden blocks on the underside of the spike frame (they were spaced about 1.5 feet apart).

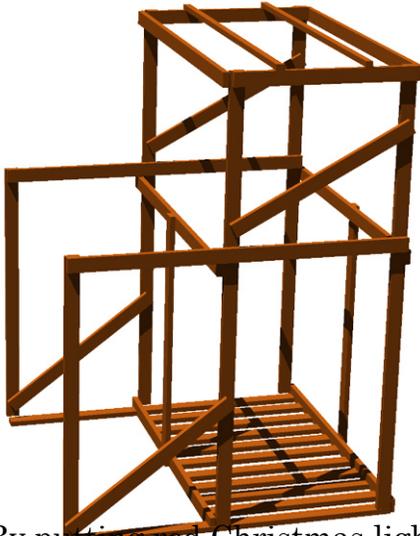


Next, I attached six cut sheets of hardboard to the blocks. I then returned the spike frame to the ceiling and marked where the holes were. I bought a couple of packages of the Velcro sticky pads at the grocery store and placed the adhesive end over the marks. These pads will hold the spikes to the frame, but also allow them to be easily removed.



Now, it was time to glue the skulls in place. I used one woodscrew through the back to hold it in place initially and some polyurethane expanding glue (the Elmers Ultra) and carefully aligned them with the holes. I put down some Great Stuff spay foam to add a little flair, covered the skulls with foil, then spray painted with a stone-texture spay paint (one of the Home Accents paints from Home Depot). I wiped the texture off the Great Stuff foam before the paint dried then repainted that part red.

Finishing the room



I wanted the frame of the room to be very strong. I felt this was important because I was not sure how the kids would react to being locked in a small room with spikes lowering from the ceiling. I imagined kids banging on the walls and doors. They didn't, but maybe I just got lucky. Anyway, I made the room strong enough to take a beating. I started with the frame. I made a 7' x 4' x 10' box out of two-by-fours similar to the figure shown. I used plenty of cross-bars. I felt it best to make a complete box rather than an upside down U so I attached several two-by-fours on the bottom and laid a 4' x 7' sheet of peg board over top. I used peg board rather than a sheet of solid hard board because I learned a trick the year before.

By putting red Christmas lights under the peg board, I can illuminate the floor without casting much light into the room itself. Therefore, the kids can walk into a very dark room and not crash into the walls. I wanted to keep the skull ceiling dark until the last minute. Since I am very paranoid about someone tripping in the dark, I made a two-foot long ramp going up into the room even though the floor was raised less than two inches. I made a front and back sliding door (I could open them from outside the room but there are no door handles to open them from inside the room) and used hardboard panels from Home Depot (about \$7 for a 4' x 8' sheet) to close up the room. Before I put on all the walls, though, I needed to hang the ceiling.

Since the ceiling was dropping only about 3 feet in total, I could double up the ropes to make raising and lowering the ceiling much easier (a simple physics trick). I attached the ropes to the top of the frame using eye bolts, ran the rope down to the ceiling, where I attached a set of the small hanging pulleys. The ropes fed through the pulleys and back up the top of the frame, through a second set of pulleys then down the side of the frame. I did not double up the ropes for the spikes. The pulleys at the top of the frame were attached so that they would not swing or move when someone applied tension on the ropes. This way, the ceiling did not move side-to-side when tension was applied.



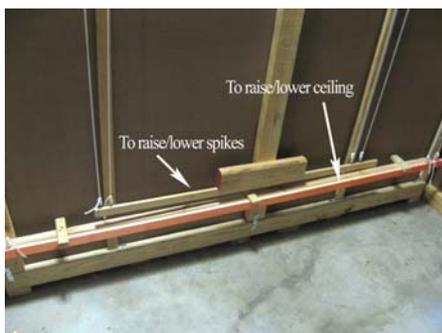
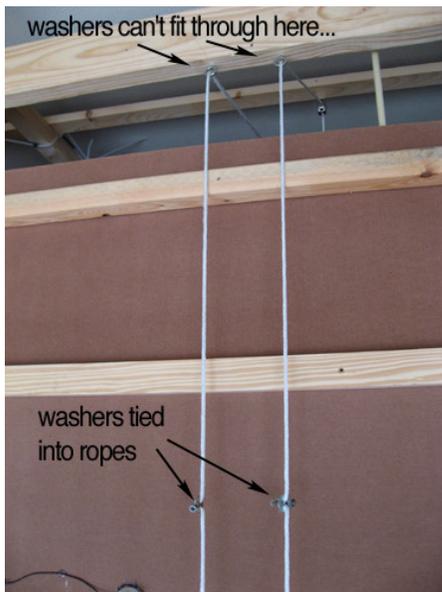
I now had eight ropes to pull (four for the corners of the ceiling and four for the corners of the spike frame). Before I could attached them to anything, I needed to balance the ceiling and frame.

I moved the ceiling to what would be its lowest point and supported it from below. After making sure the ceiling was level, I put tension on the ropes and marked with a Sharpy were the ropes touched the outer eyebolts.

I released the tension on the ropes and tied a washer into the rope at these points (one per rope). This way, the

ceiling will naturally stop at the proper spot and can not accidentally fall. I then lowered the ceiling to its lowest point, attached all the spikes and raised the spike frame so that the spikes just recessed into the skulls. I marked this point the the

spike ropes and attached washers here. Now, just as the ceiling reached its lowest point, the spikes would automatically retract. Once I got the washers fixed in the right place, I pulled the ceiling all the way up and attached the four ropes to a wooden bar. I then tied the other four ropes (for the spikes) to a smaller bar.



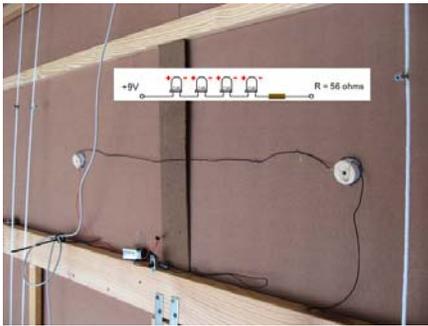
I attached some wooden blocks to the frame to hold the bars down near the floor with the ceiling up to its highest point and the spikes retracted just inside the eye sockets. When I wanted to lower the spikes, I pulled out the top bar and slowly raised it up. Gravity did the rest. When I was ready to lower the ceiling,

I grabbed the lower (red) bar and slowly raised it up until the physical stops held the ceiling. Of course, I coordinated the movements with [this sound file \(MP3\)](#) I created.



Lighting is an important element of this room. I already mentioned the floor lighting. For the ceiling, I made two simple red LED spotlights. Here is a link to a great tutorial.

[LED Spotlights](#)



I linked two spotlights to one switch. Each spotlight consisted of two high-brightness red LEDs. I drilled two holes in the walls about 6.5 feet from the floor and glued the spotlights in place from the outside of the room. By placing the spotlights high in the room, I didn't have to worry about them being blocked by some parent and it casted long shadows that got longer as the ceiling dropped.

Then, near the end, the ceiling covered over the spotlights effectively turning the lights out at a critical moment. This approach worked out well.



I don't have a picture of it, but I built a box and put it behind the front wall the room, just above the door. I put a talking Boris skull in the box. This Boris coaxed the kids into the room. Once in the room, the back door closed. Then the Boris would start laughing and the "EXIT" sign above his head would slide down in front of him (closing the box) and actually read "NO EXIT". The red spotlights would then turn on and the spikes would lower...

