



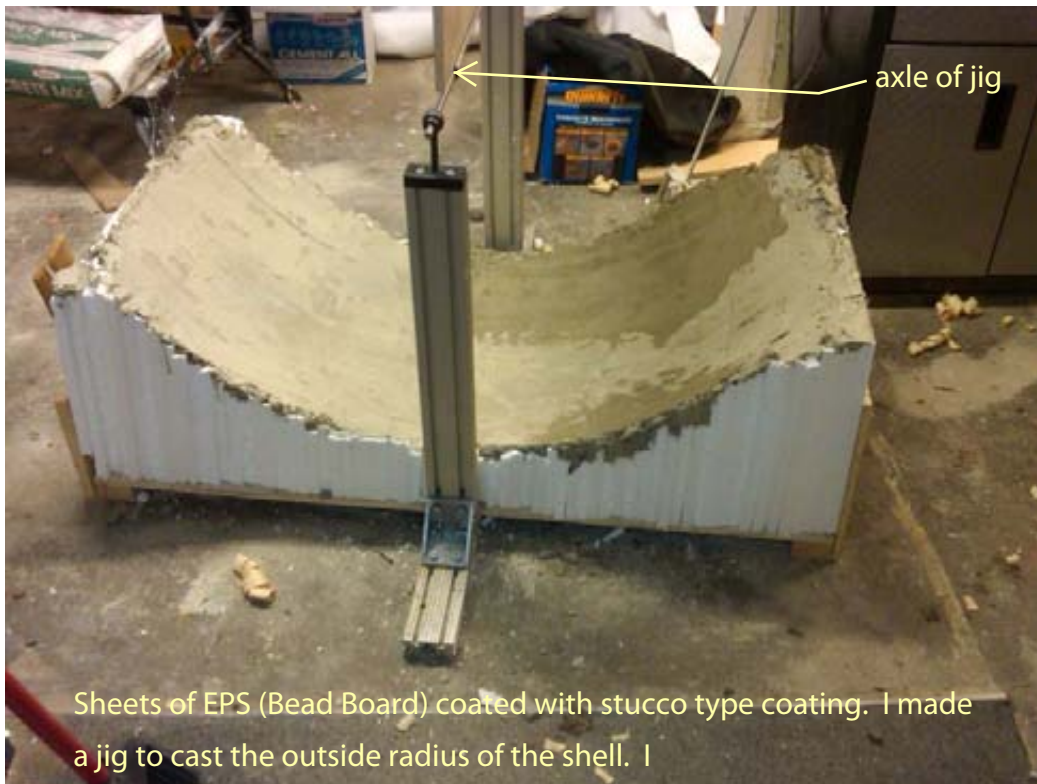
Made a XPS foam mockup to gauge size and placement

2011/09/15 19:02:49



2011/10/17 06:28:07

Made a jig to cast Glass Fiber Reinforced Concrete (GFRP) shells; I knew I would be covering the Insulfrax in the winter and wanted a fast way to get a hard, weather resistant shell.



2011/10/22 15:42:56



2011/10/22 16:44:23

GFRC supplies were obtained from [www.bdcsupply.com](http://www.bdcsupply.com) for bag supply GFRC mix [www.surecretedesign.com](http://www.surecretedesign.com)  
I used Xtreme Backer mix which comes in 50# bags. You will get about 9.7 sqft per bag at 1/2". Each bag mix  
requires 1 gallon of Xtreme Modifier to be mixed with it. I embedded a glass fiber mat within each shell.  
I picked it up at BDC Supply which is located outside of Chicago.

Gary Vilcek

BDC Supply

941 Sak Drive

Crest Hill, IL 60403

800-647-3314

F 815-727-5459

[www.bdcsupply.com](http://www.bdcsupply.com)



The "scream" foundation. Three piers went below frost.  
8 inches of stone to prevent frost heave.

2011/10/29 08:55:48



2011/10/29 09:04:31

I began casting my shells. I used 3/8" copper tubing for formwork, which I screwed into toothpick-filled holes in the form. I cast in an oversized glass matt for reinforcement.



I kept the paddle I used to make the form and used that as a screed to consolidate the GFRG mix.

2011/10/29 09:04:43

Before casting, I laid a 3 mil polyethylene sheet down. This worked great.



Ready for the concrete slab on grade. Rebar from each pier extended into the slab.

2011/10/29 13:49:55

Curing the slab on grade.



2011/10/30 08:33:48



2011/11/05 10:14:43

I used Chicago concrete sewer bricks for round form in soldier courses. Used 4 inch block at front face.



2011/11/05 10:16:28



CMU work is finished. Used Quickcrete Type N mortar.

2011/11/05 15:22:04



2011/11/12 10:54:51



2011/11/12 10:55:00





2011/11/12 11:05:22

Against my brother in-law's judgement, we mixed the concrete with water reducer from Home Depot (blue packets). This worked well to keep amount of water in the mix down.



2011/11/19 12:44:33

Used 2 inch foam glass over the slab. I used foam glass later in the project, too. Cut this with a Japanese pull saw. Extremely easy.

Source for Foamglas [www.foamglas.us](http://www.foamglas.us)

Insulation Fabricators, Inc.

Customer Service Representative

2501 E 165th St Suite 3

Hammond, IN 46320

\$128 for 36sf



2011/11/19 14:05:29

Then ceramic board insulation from Forno Bravo. Also cut this with the pull saw.  
Used breathing apparatus for safety.



2011/11/19 14:24:12

Used Alsey [www.alsey.com](http://www.alsey.com) S1007 9x4½x2½" Straights, Each brick weighs 7.65 lbs; each brick is \$1.19 per piece from Illinois Brick



2011/11/20 10:19:07



2011/11/20 12:46:30

Cut a template out of screen material to work out the positioning of the herringbone pattern of the fire bricks.



2011/12/05 08:57:40



2011/11/25 15:44:32

Made indispensable tool from old brass hinge and cherry 1x4 with steel angle bracked.  
Made the plywood template with removable square insert in center.

Used Heat Stop refractory mortar from Illinois Brick



2011/11/25 15:44:46



2011/11/25 15:45:48

Made the centering from plywood that I did my layout on.



2011/12/19 14:38:25



2011/11/27 16:12:55

I made the centering from scrap wood. I should have cut it so I could remove it easily. It was a bear to saw out after arch was finished.



2011/11/27 16:13:01



2011/12/05 15:37:20

I tented in winter. Used a 10x10 foot pop-up tent from soccer coaching. Used two layers of 4 mil poly to make enclosure, secured with spring clamps. Heated it with two headed propane heater purchased at Home Depot. Kept temps perfect above 20F.