

A DIAL USING A CERAMIC FLOOR TILE

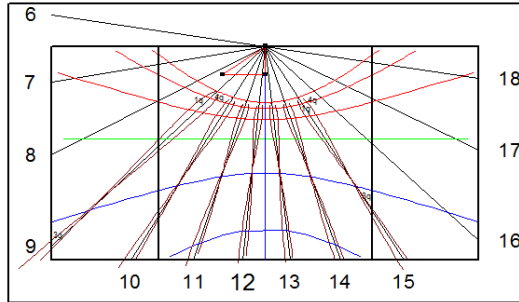


Phoenix, Arizona

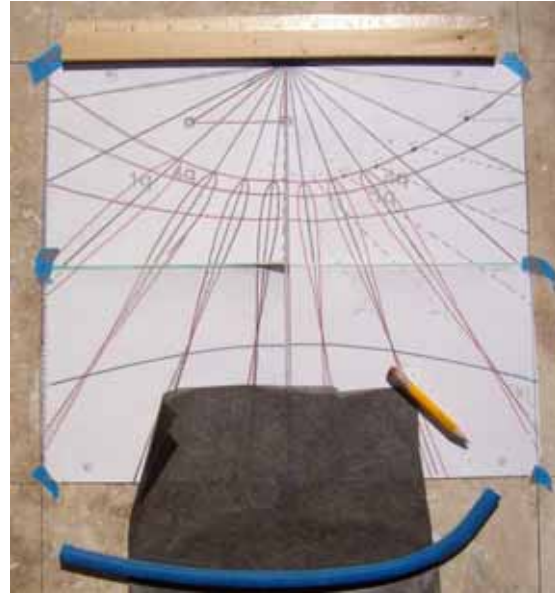
Oct 22, 2011

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The dial plate was drafted using the DeltaCAD macro generating analemmas "analemma.bas" choice 5 :-



v-dial and calendar using gnomon linear height
 Lat: 33.5 coLat: 56.5 d.Long: -07.1
 18 17 16 15 14 13 12 11 10 9 8 7 6
 -81.5 -64.0 -47.8 -33.0 -19.4 -06.6 05.9 18.7 32.2 47.0 63.1 80.6 -81.5
 Hours above horizontal use the 90 reference line below horizontal.



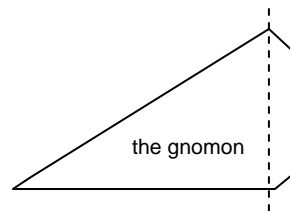
The printout was selected to use four pages, they were then placed over a ceramic floor tile with carbon paper underneath.



The faint trace lines were augmented manually and a couple of analemma highlighted, subsequently the noon analemma was used.



Then the lines and curves were engraved with a diamond circular saw. The one o'clock line was badly drawn, the ceramic had imperfections when fired, and the saw jumped. Oh well.



The tile cut lines were grouted with a black Polyblend grout.

However, the noon analemma was built up with a sandstone grout.

Then affixed to a wall with Versabond.



The border was built around the dial plate.

Then the entire dial was grouted with Sandstone Polyblend and the analemma re grouted, built up, with the black grout.



The analemma is on the noon line, so no hour line markings were inscribed. The analemma pictured left was the second effort, the first was of sandstone grout textured with black grout and no hard border, pictured below. The final analemma, see cover page, was sandstone grout bordered with braided twisted copper wire.



However, the analemma has a W and an F, for Winter and Fall, done with a vibrating engraver and filled with the black grout. Italian lines are shown with sunset being horizontal thus they were not marked either. The dial can be sight read within about 4 minutes. This dial took two half days from beginning to end.

TOOLS USED:

Standard tile cutter from Home Depot
Black & Decker Diamond circular saw
Dremel Vibrating engraver
Dremel engraver



MATERIALS USED

Polyblend black and sandstone grout
Versabond



SAFETY EQUIPMENT

Safety glasses
Nose mask
Noise suppressors (ear plugs)

SPECIAL TECHNIQUES

A cut was made using the diamond blade, where the sub-style of the gnomon was to be placed. The gnomon was made of copper, and tapered where it was to be inserted at the sub-style. Epoxy was used to set it, then the next day, grout was used to make it look natural.

Some tiles, such as the 12 inch border tiles used, did not like the sanded grout because of abrasion. Masking tape covered the decorative parts of those tiles so that sanded grout could be used. Sanded grout is merely a personal preference.

Mistakes were made and distractors used to minimize them. The analemma was firstly a mound of grout, then as a second idea, I removed that and used black grout (see prior page), and finally settled on braided copper wire as a border, attached with epoxy, then the interior was filled with sandstone grout, see very first page.

OTHER NOTES

The dial was very accurate, and the calendar curves were also well served, the photos were taken October 20 and 21, and that was the declination of the calendar curve (declination curve) chosen, and depicted.