West Virginia Division of Air Quality
Outreach Display Projects

Glass Comparison Display

This display was built to illustrate how different types of window glass can save energy. It uses 3 glass windows from a local glass shop, a single layer glass window, a double layer glass window with argon gas between the layers, and a double layer glass window with argon gas and a low E coating on the glass. The windows are rotated past a stationary incubator or halogen light bulb to see the effects that the different glass has on the radiant and thermal energy. People are encouraged to hold the back of their hand toward but not touching the glass to feel the difference in the amount of heat transmitted with each window as it rotates past. The single thickness glass offers little protection from the heat as the glass gets physically hot on the surface and warm on the back of the hand that is held near it. The double layer glass with argon gas also allows one to feel the heat transmitted through it however the argon gas between the layers acts as an insulator and the glass surface does not get nearly as hot as the single layer glass. The double layer glass with argon gas and a low e coating allows less radiant heat energy to be transmitted through the glass and the argon gas acts as an insulator to keep the surface from getting hot opposite the light.

The aluminum at the corners was bent by a local vocational school. It connects the windows together and allows easy disassembly if a window should get broken.

There is a wood case that sits over the display and latches to the base with window latches. The case has spring loaded handles that fold flat to the side of the case. This case is used as the display stand for presentations.

Future modifications:

A future upgrade will replace the windows with tempered glass so that the glass will shatter to small pieces instead of breaking large ones in case the glass is bumped hard.
We will use a foot switch to turn the light off and on to cut down on the heat build up in the case. After several hours of use the glass will have absorbed the added heat from the lamp in the case

Materials:

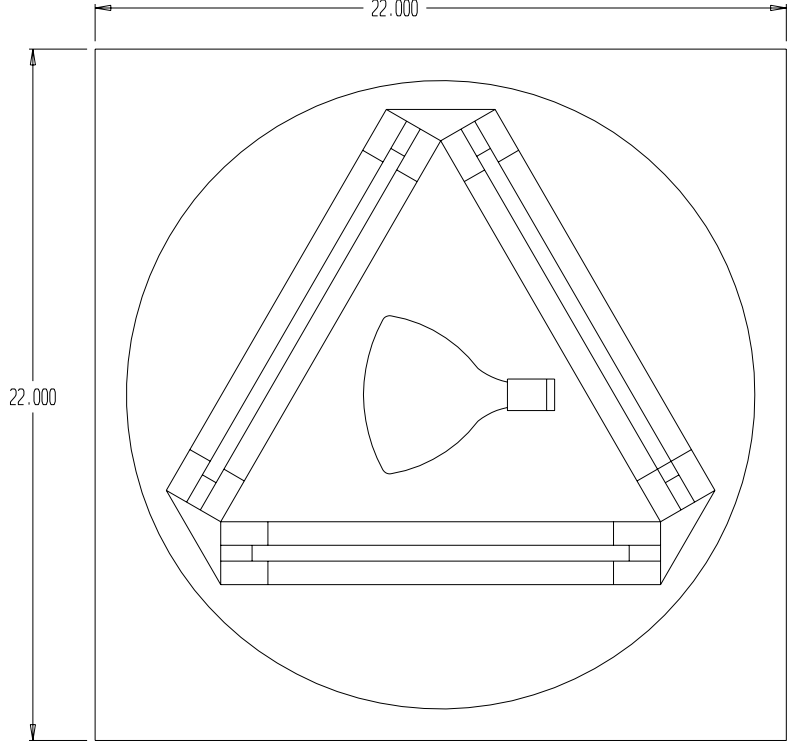
Lowe's – Ceramic lamp socket, lamp tube, lamp tube nuts, lamp switch, project lumber, 12 inch lazy-susan, incubator or 50 watt halogen reflector bulb. Extension Cord, Window latches

McMaster.com –	1/16th inch Aluminum Plate 4 inches wide x 4 ft long,	item: 89015k76
	Aluminum bar 1 inch by ¼ inch by 1 ft.,	item: 8975k24
	Power Cord Receptacle Socket	item: 8036k1
	Handles	item: 1764a35

Questions:

Contact Michael Rowe 304 926-0499 ext 1691 or michael.t.rowe@wv.gov

Rev 6-28-2010

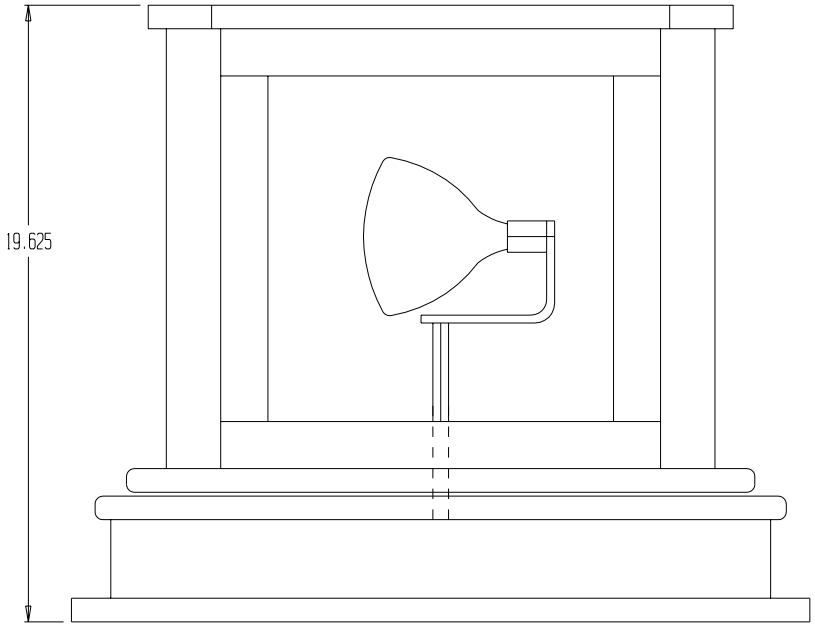


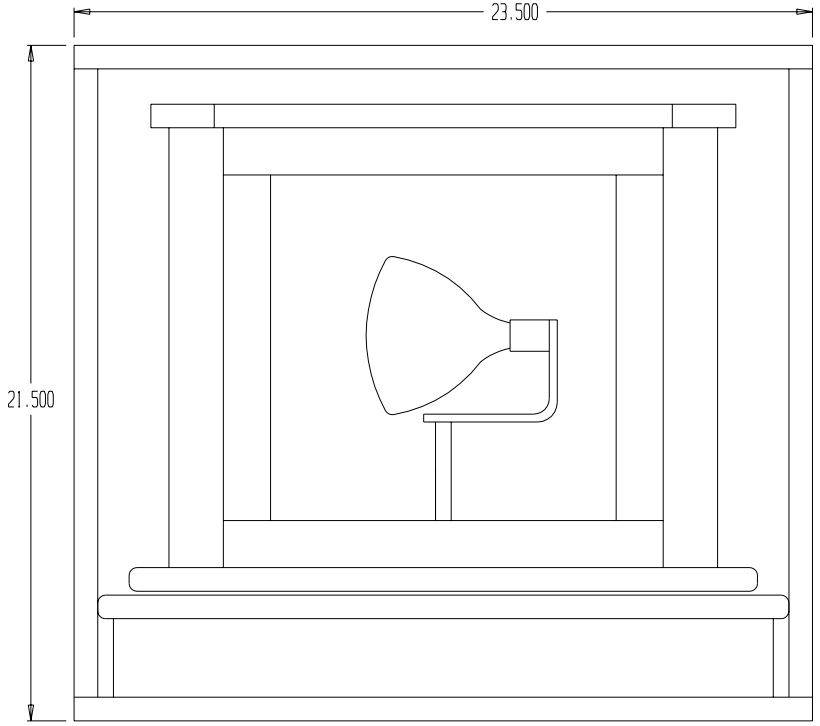
Triangular display rotates on Lazy Susan bearings

Glass is 12"x12" and is mounted in wooden frames 14"x14"

Light is mounted through lazy susan to base so windows can rotate freely around light.

Wooden Case becomes display stand





Case clips to base w window catches

W/ Case

NOTE: Must leave vent in top to let heat escape

Window Glass Display	Ver 2 - 6-30-10
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