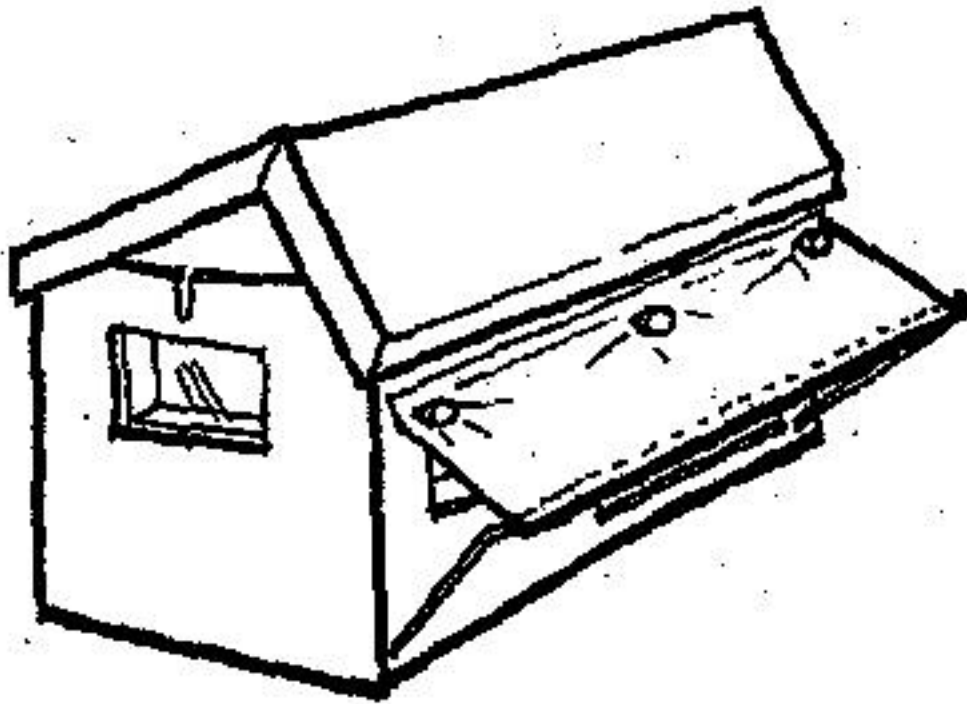


The experiments that you can do with the Energy House can be found at  
Design Coalition's website at [www.designcoalition.org](http://www.designcoalition.org)

# the Energy House Plans

by: Lou  
Host-Jablonski, AIA



These are the plans to build your own Energy House.

You build the Energy House in stages. Each time you do an experiment you change it a little.  
That way you can see how each change makes the house work a little differently.

design coalition

Design Coalition Inc., Architects

Madison, WI, 53704 USA

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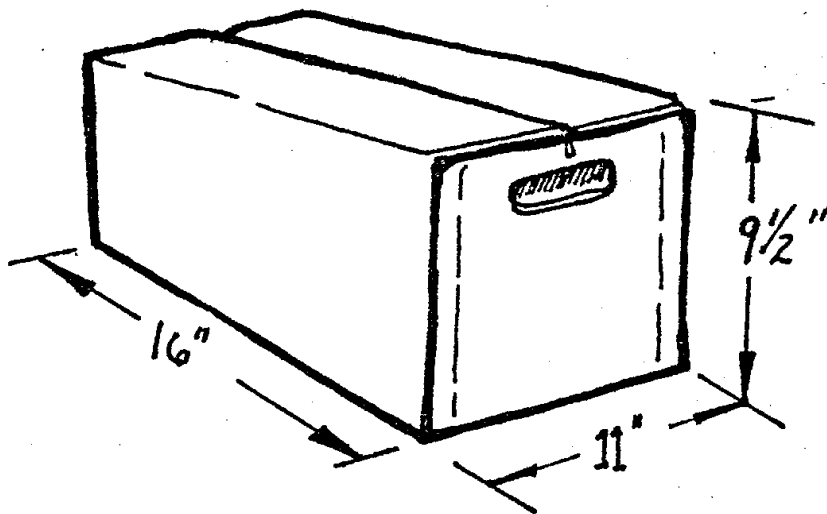
# the Energy House Plans

by: Lou  
Host-Jablonski, AIA

## The different stages of the Energy House

You build the Energy House in stages. Each time you do an experiment you change it a little. That way you can see how each change makes the house work a little differently.

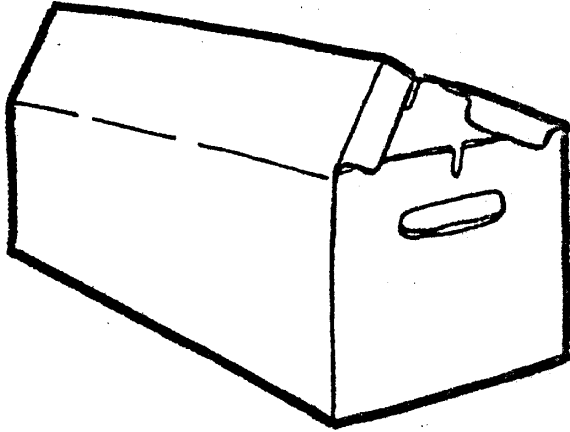
You start with a cardboard box. These plans are based on a "shell", which is a case for beer bottles that is mostly the same everywhere in the U.S.A. Shells are made of a durable kind of cardboard, so they make a good strong model.



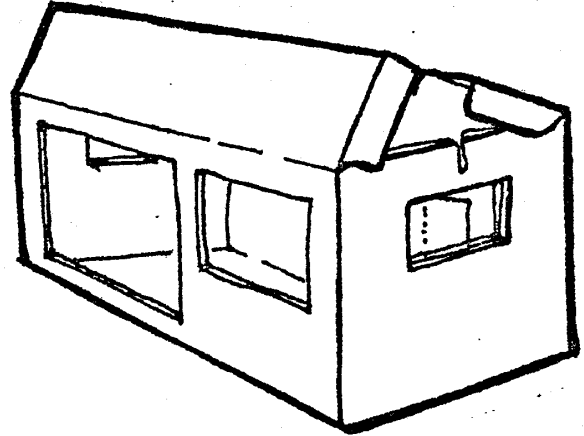
But you don't have to use a shell if you can't get one. If you use a different sized cardboard box, just change the measurements of the pieces that are given here so that the pieces fit.

Of course, you can decorate your Energy House in any way you like!

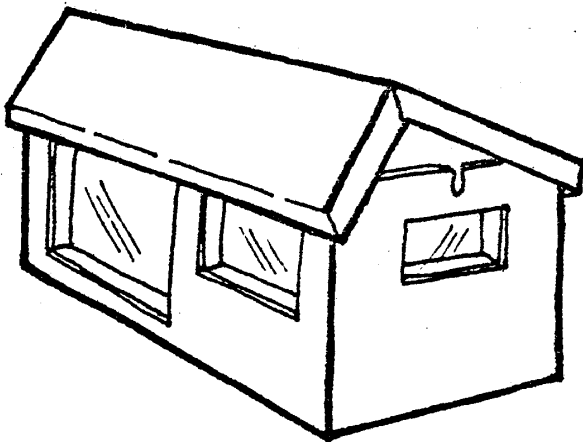
Here are some of the stages that the Energy House goes through....



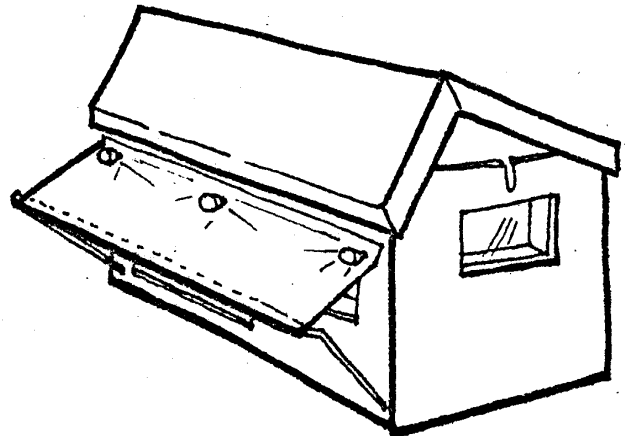
This is how the Energy House looks before Experiment 1, with the roof supports in, and no windows



The Energy House before Experiment 2, with the windows cut out.



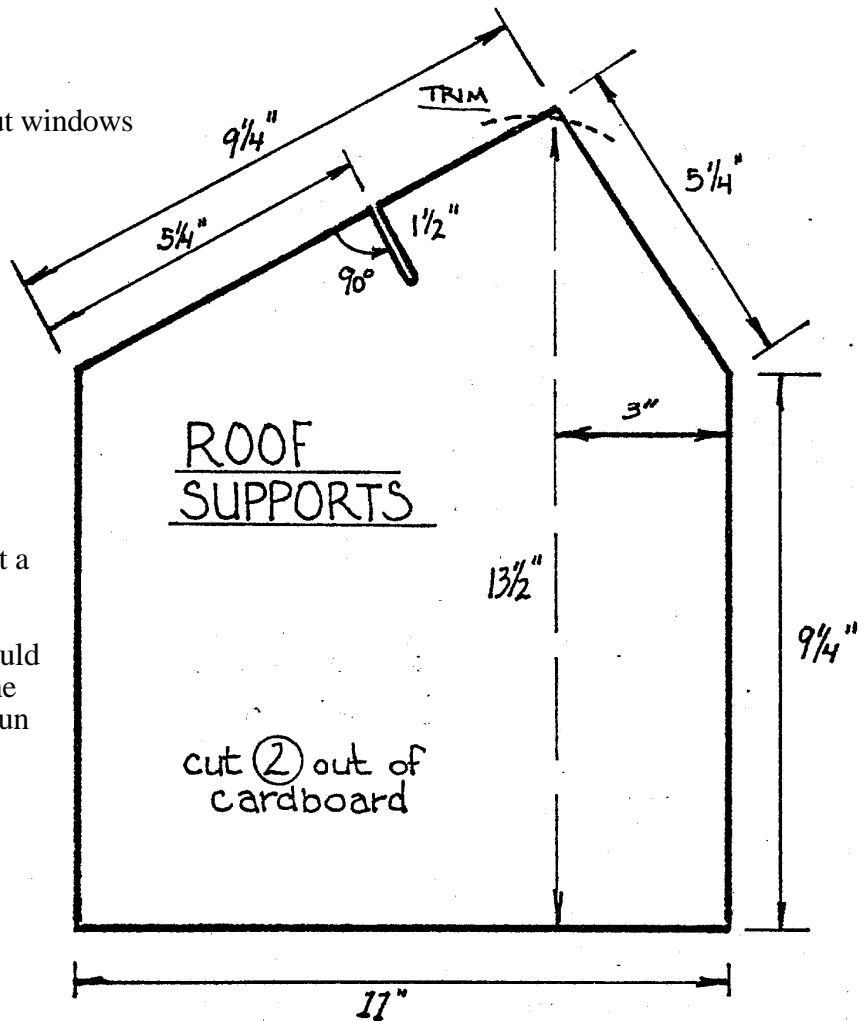
Before Experiment 5. The Energy House with double pane windows, insulation and roof put on.



Before Experiment 12, with a fabric awning.

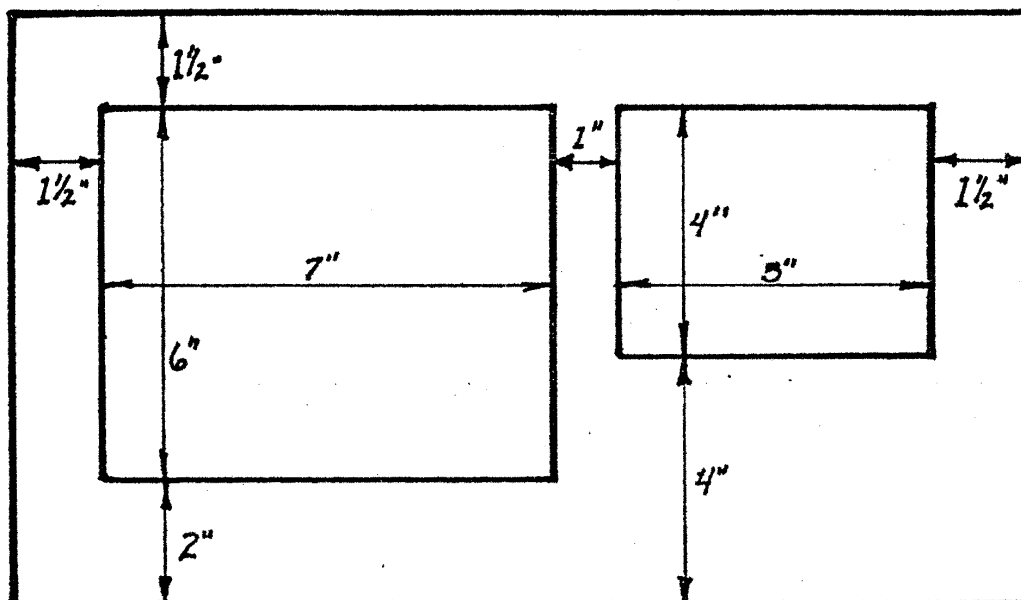
# The Measurements

**REMEMBER!** -- You only cut out windows starting with Experiment 2!

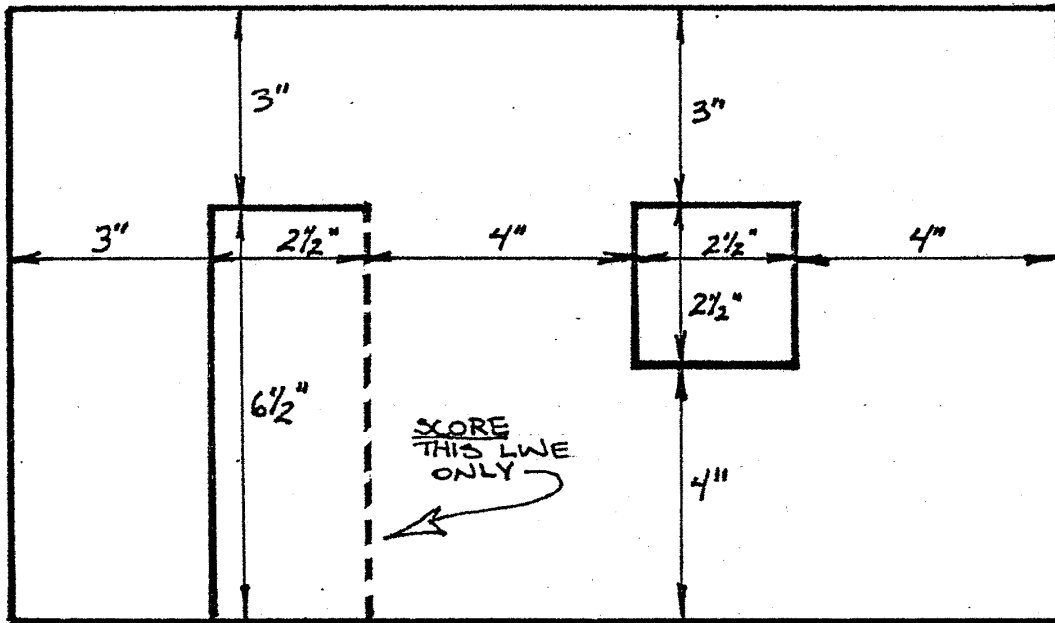


This roof support gives the Energy House a roof shape that you could put a solar collector on.

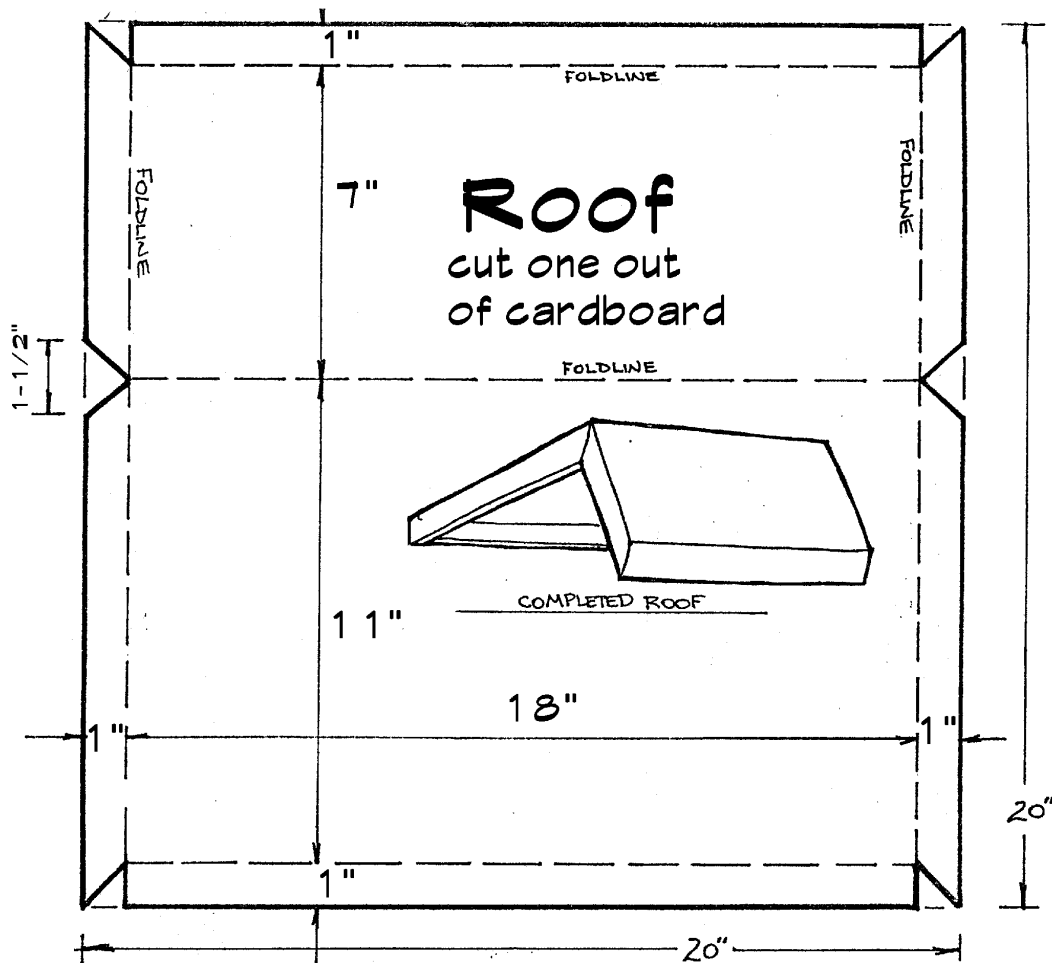
Which way do you think the roof should face so the solar collector will work the best? To find out, you can build the Sun Path model!



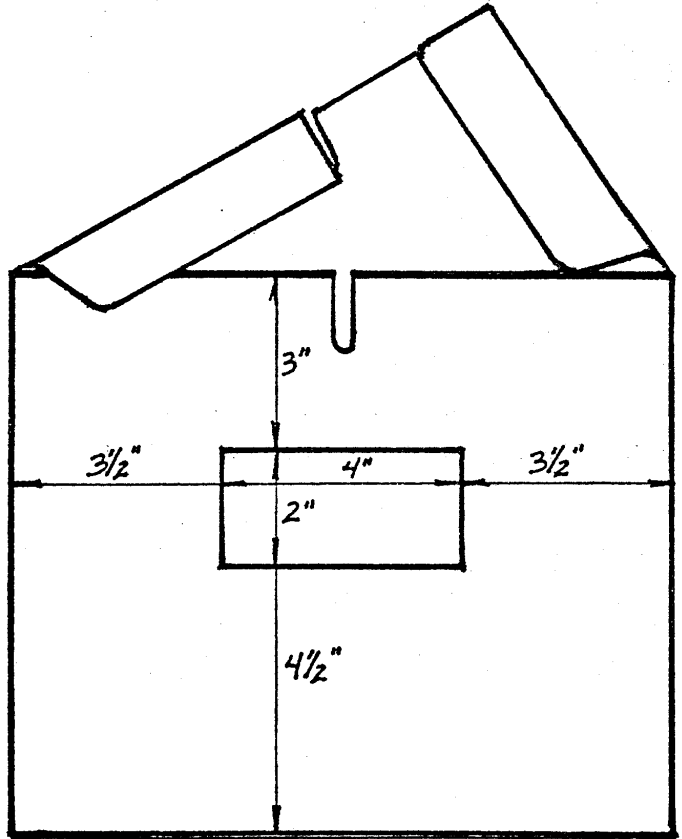
South wall window cutouts



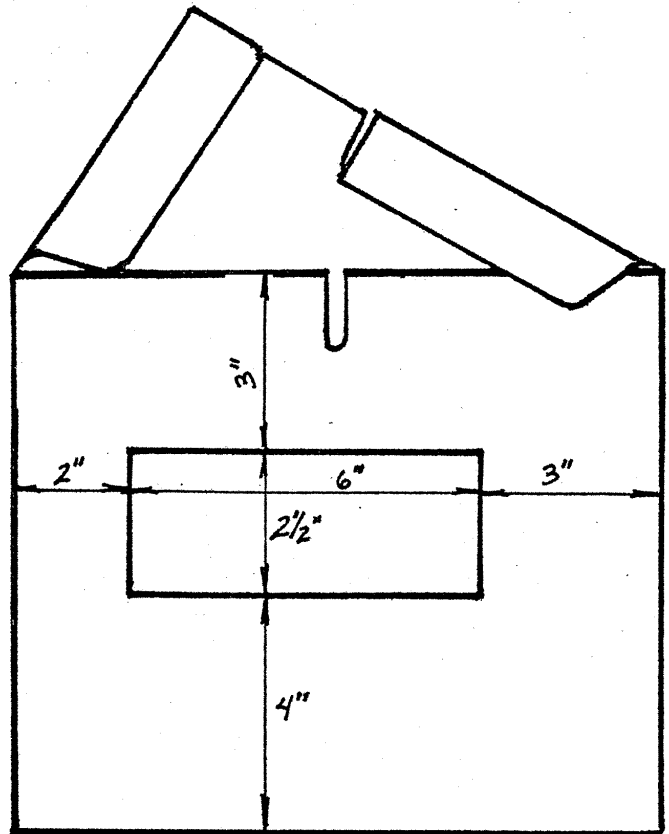
North wall window and door cutout -- leave a "hinge" on the door



West wall window cutout



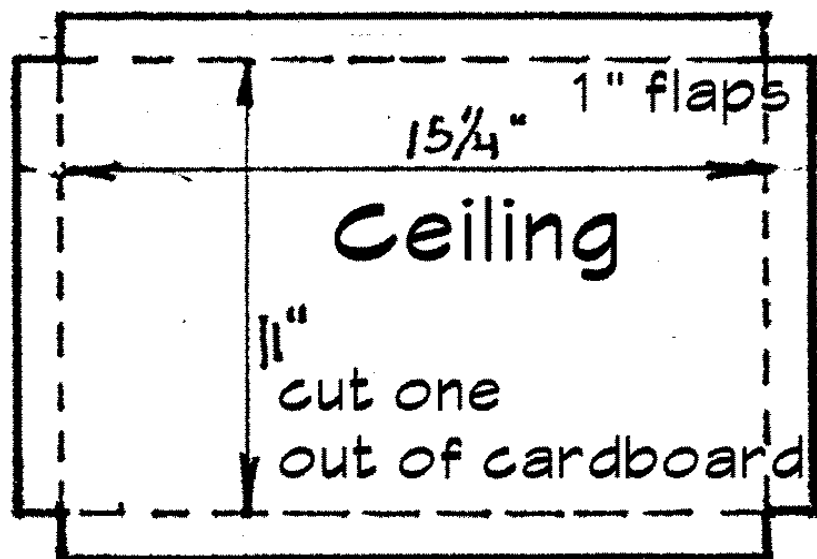
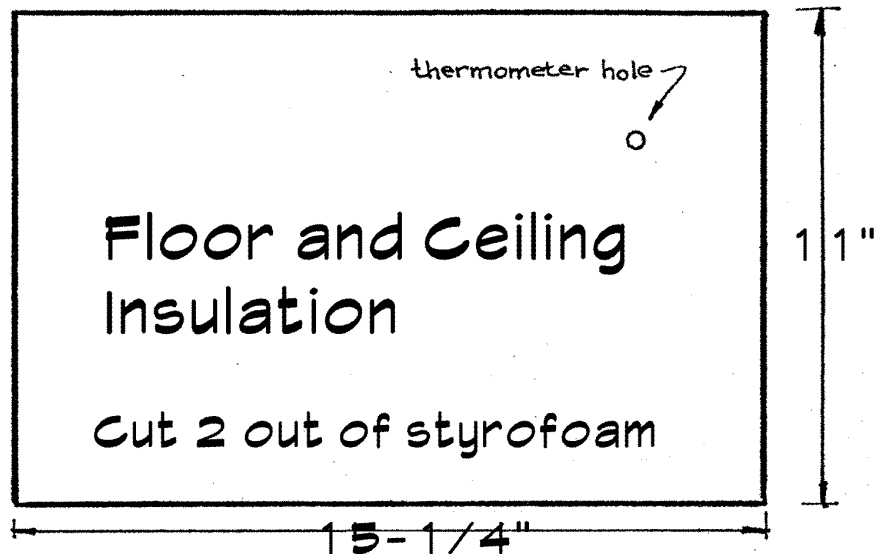
East wall window cutout

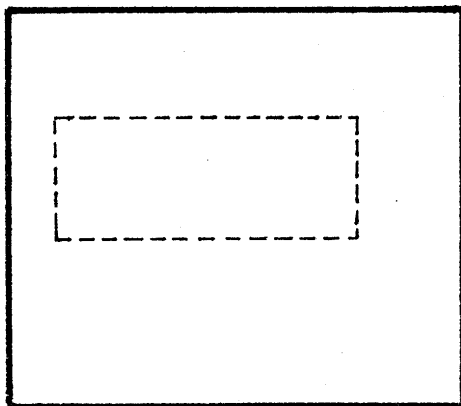
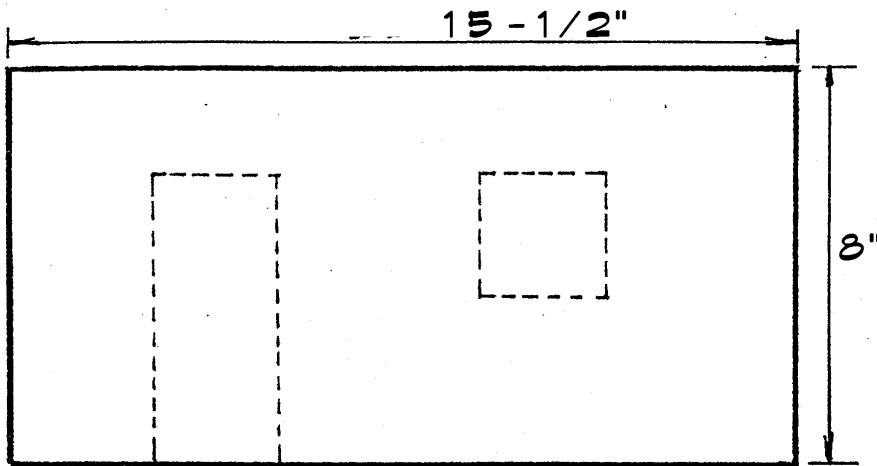
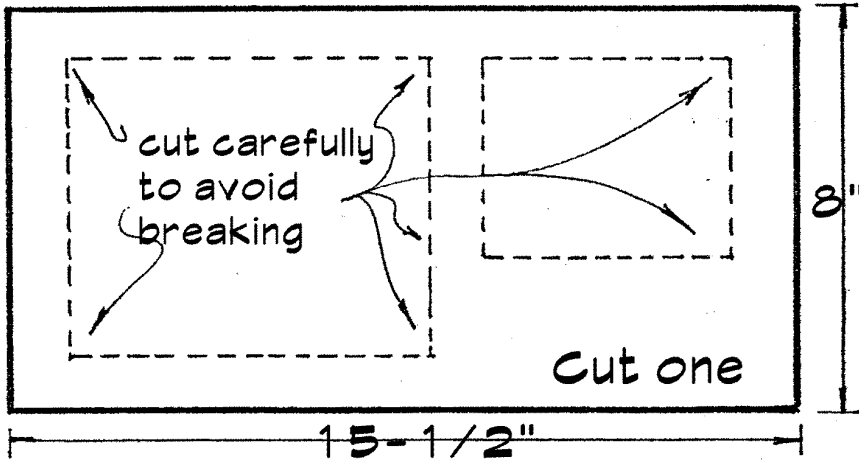


# The Insulation

## Some tips:

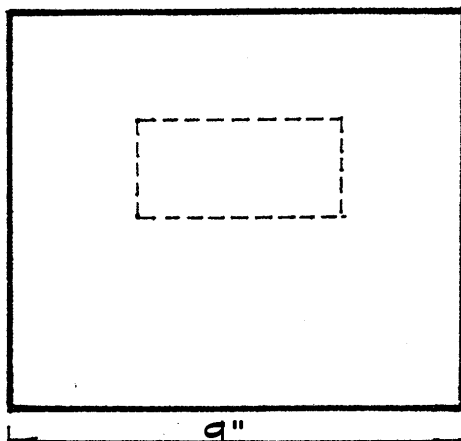
- You can use any kind of insulation that you can cut and fit into the Energy House. One inch is a good thickness. We like using the pink, white or blue styrofoam boards or the kind with foil on both sides.
- An easy way to mark the size of the windows is to cut the wall insulation to size. Then slid it in the Energy House and use the window cutouts to mark the insulation.
- Remember to check the measurements for the insulation, especially if your Energy House is made out of a cardboard box that's a different size than a beer case "shell". Also, some 'shells' are a little different size. Make adjustments as needed.
- The insulation should fit snugly, but you should be able to slide it in and out without breaking it.
- If you break the insulation board, just tape it back together.





### Wall Insulation

8"  
Cut one each out  
of blue or pink  
styrofoam  
insulation



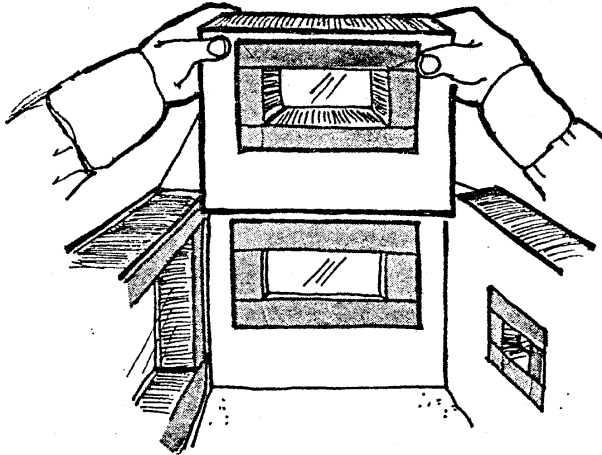
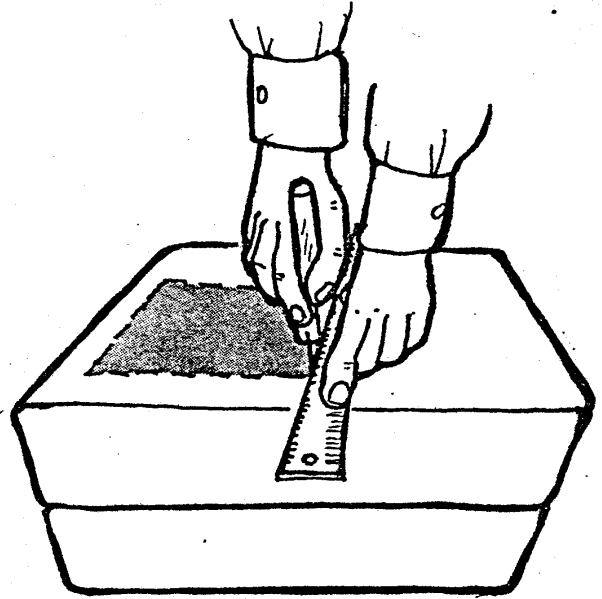
Cut openings after  
assembling the  
insulation in the  
house and  
8" scoring the  
outlines



# Construction tips

## Cutting the Windows

- Be careful when you're using sharp tools!!!!
- Mark the lines where you will cut. Check your measurements before you cut.
- Use a metal ruler to guide your cuts.
- Use a SHARP utility knife or Exacto knife.
- A sharp knife is safer because you don't have to press so hard to make it cut. That way you have better control.
- Don't try to cut through the cardboard all at once. It works better if you make three or four light cuts instead of pressing hard on the knife.

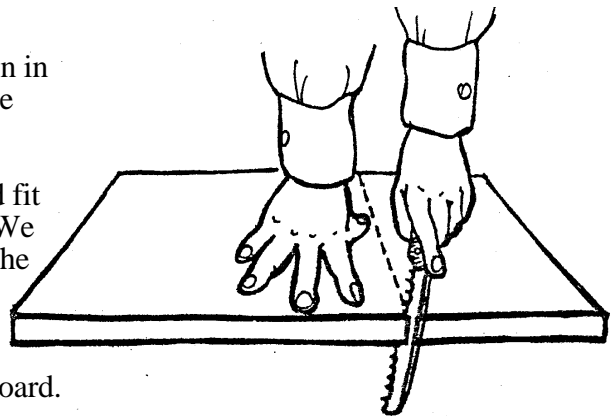


## Putting in the Windows

- Tape one layer of plastic to the inside of the shell or cardboard box
- The second layer of plastic gets taped to the inside of the insulation boards
- You can use any kind of tape that works. Duct tape works well; so does good cellophane tape.

## Cutting the Insulation

- Be careful when you're using sharp tools!!!!
- **Important Hint!** Use the window holes in the shell to mark the lines where you will cut. Just put the insulation in the shell and draw outlines on the insulation through the windows. Check your measurements before you cut.
- You can use any kind of insulation that you can cut and fit into the Energy House. One inch is a good thickness. We like using the pink, white or blue styrofoam boards or the kind with foil on both sides.
- If you live near where people are building houses, sometimes they will give you scraps of the insulation board. But please ask them, don't just take it!
- Cut the plastic type of insulation board with a sharp or serrated knife. Serrated knives (the kind with little teeth, sort of like a saw) are used for bread knives or steak knives. Dull knives will crumble the insulation board and get stuck while you're cutting



# List of Materials

## for the Energy House and the Experiments

### **MATERIALS for ENERGY HOUSE**

- "Shell" (beer bottle case) or cardboard box
- 1" thick foam insulation board
- thin, clear plastic sheets for windows
- corrugated cardboard for roof
- duct tape or other type of tape
- broiler pan, aluminum or other kind
- flat black paint (non-glossy) 1 lb. metal coffee can or similar
- corduroy or other fabric for curtains and awnings
- coat hanger to support awning
- push pins to attach window curtains
- tube from paper towels
- Exacto or utility knife
- thermometer -- a long one with just the glass tube works best (no attached backer)

### **PAINTED CUP EXPERIMENT**

- 4 clear plastic drinking cups
- paint brush
- 4 clear plastic lids
- white paint
- flat black paint (non-glossy)
- thermometer

### **SUN PATH MODEL**

- hanger wire
- plywood or cardboard for the base
- styrofoam or other lightweight ball for the sun
- paint
- a little cardboard or plastic house model
- paper arrows to show wind direction
- pushpins