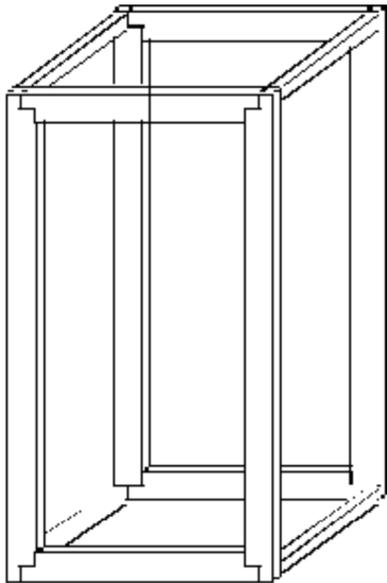


Solar Chimney Dehydrator

A Solar chimney dehydrator can be constructed with any number of designs, adjusted to meet whatever needs you have.



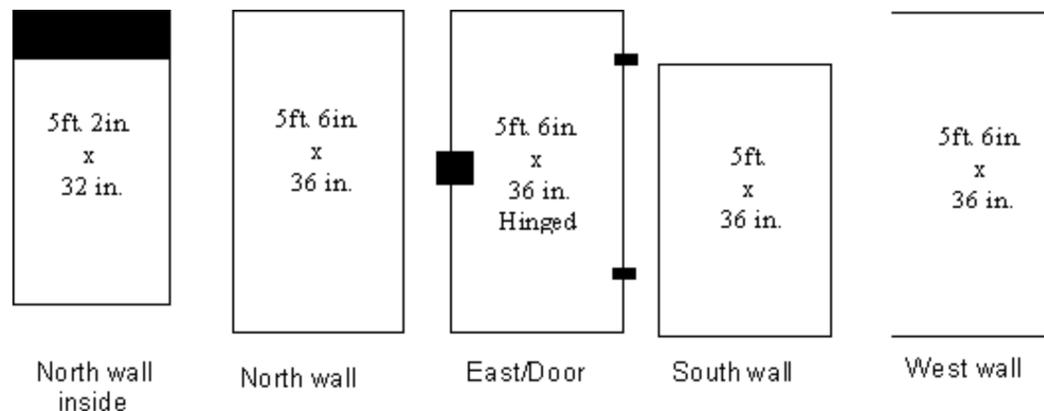
This basic cabinet / frame will hold 10 trays for dehydrating.

Materials needed for your solar chimney dehydrator:

2x4's, 2x2's, 1x4's, 1x2's, 3/4 inch plywood, weather stripping, sheet metal, Plexiglas, cardboard, black paint, screws & nails, hinges, door latches, screen, and food safe screen. Quantity of materials will be determined on the size of dehydrator you build. This dehydrator cabinet measures 5 1/2 ft. tall by 3 ft. wide.

Important: The collector should be angled between 35 and 45 degrees, facing south.

Adding the walls... There are three walls and one door, the walls are north, south and west, leaving the east as the door. There is also an inside wall that serves as a vent. The North inside wall panel is 4 inches shorter than the outside wall to allow for the vent at the bottom. See diagram below.

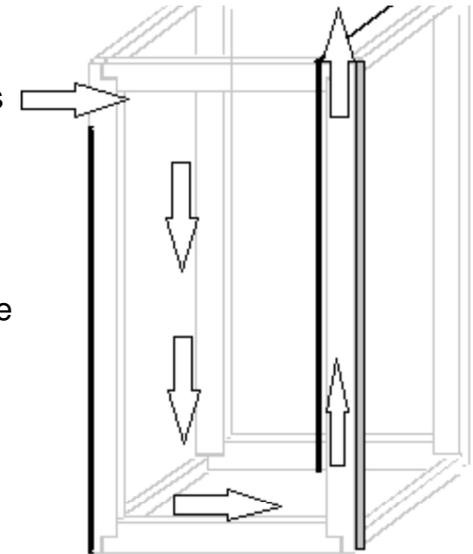
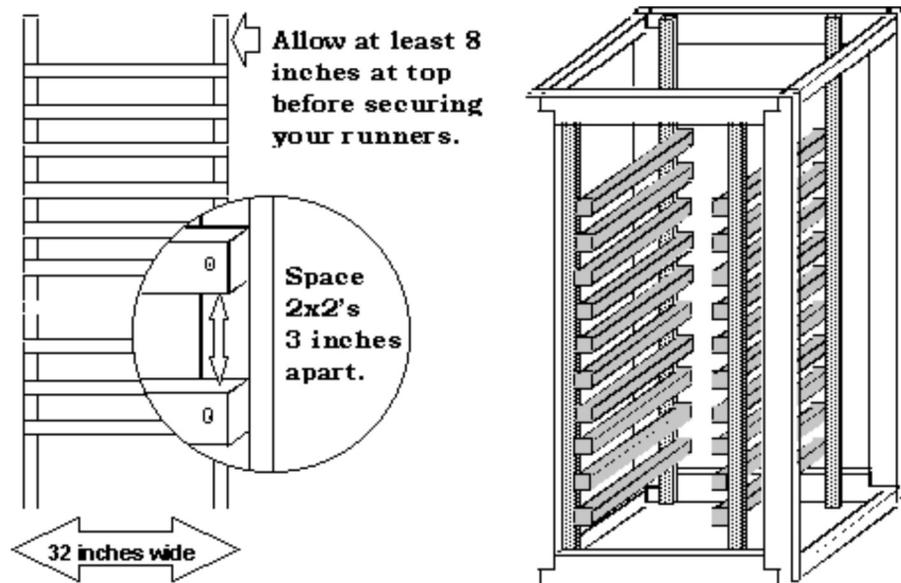


The south wall opens into the solar area of the dehydrator at the top, about 4-6 inches, which brings the air into the cabinet and circulates down through the vent at the bottom of the inside wall and is moved up the chimney and out the vent at the top. Air circulation is of utmost importance, as the moisture must be able to escape the cabinet, and all the product must be exposed to circulation, in order for proper drying.

Adding the runners...

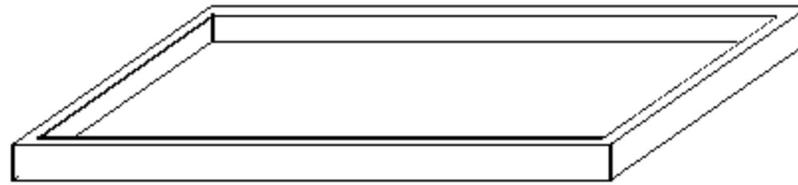
The tray runners are made up of 2x2's measuring 32 inches long, spaced 3 inches apart. Space the runner braces 26 inches apart. Leaving extra space between the right brace and the inside wall, this will allow the air to circulate.

See diagram.

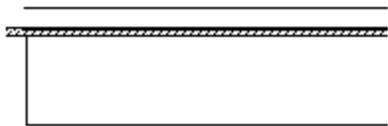


Building the trays...

The trays measure 24 x30 inches and are made of 1x2's. Covered with food safe screen and secured with 3/4 in. wide



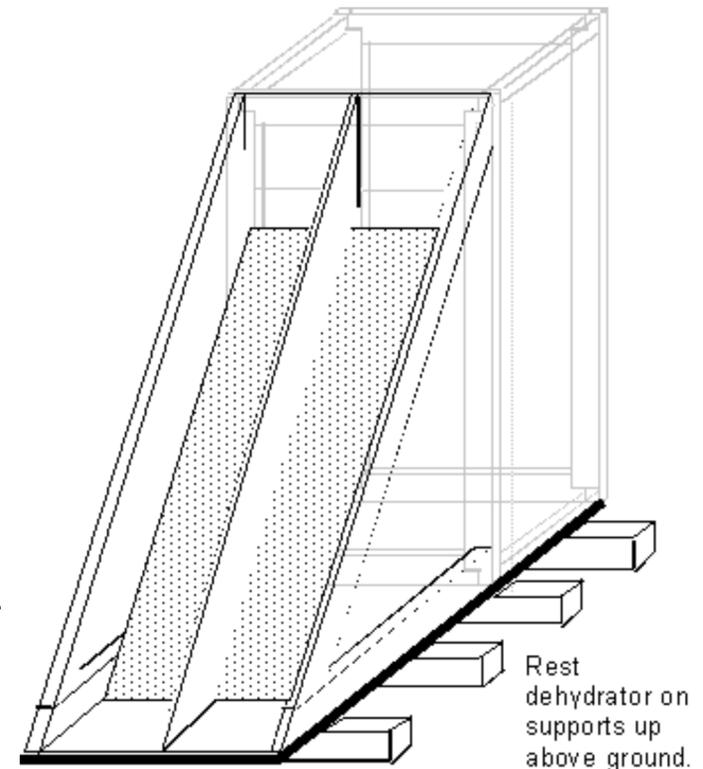
The height of the tray will be about 2 1/2 inches including the wood strip. When loaded, the screens should be 5 inches apart in the

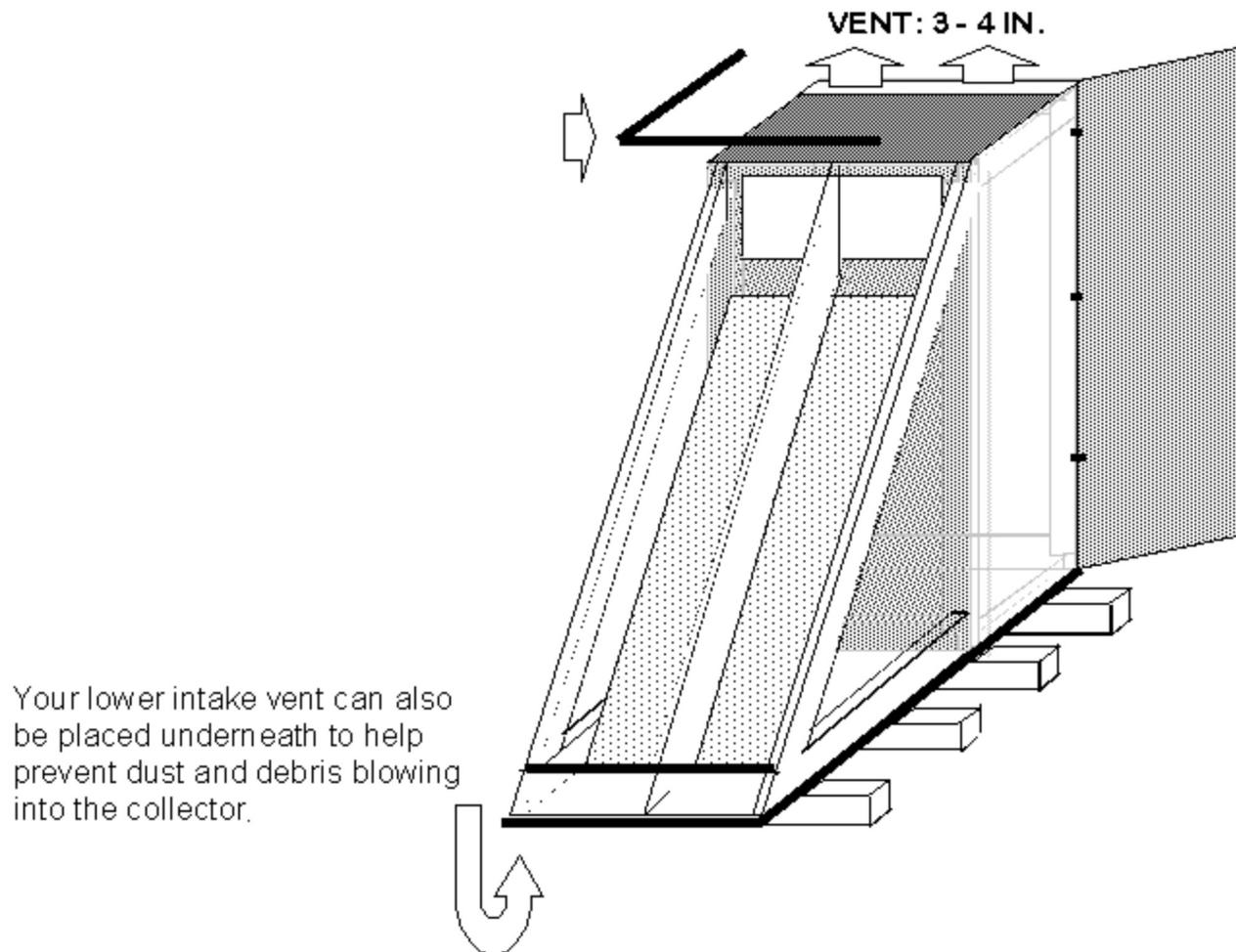
***Attaching the Solar unit...***

To build the collector, attach 2x4's cut at a 35 or 45 degree angle to the cabinet. Run a 1x4 cut at the same angle down the middle. *See diagram.* Enclose the bottom of the cabinet and the collector with plywood. The top and sides of the collector are covered with the Plexiglas. Leave an opening at the bottom to allow the air to flow in, cover with screen to keep bugs out. Cut a section of cardboard and secure to the back of the 1x4 and underneath to the bottom of the collector. Paint the inside of the collector black.

Finishing the dehydrator...

Cover the roof with plywood, leave a 3-4 inch opening on the north side for the vent, cover with screen. Run weather stripping along the edges for protection. Make sure the door is hinged properly and securely latched. Remember, you can design your own solar chimney dehydrator, this rough layout is for your reference. Just remember the angle needs to be 35-45 degrees, facing south, and properly ventilated





For more information on this project please contact the Little Colorado River Plateau Resource Conservation and Development Area, Inc.