

Handout: Solar Dry Kiln Information
Small Sawmill Workshop, WERC, June 9, 2010

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Back in the early 1990's I operated a 3,000 board foot solar dry kiln build on the model developed by VPI (Virginia Tech University) back in the 1970's. It worked well and would dry air dried oak to 5% moisture content in about a month. The drying season lasted about 8 months and it then would have a capacity of about 24,000 board feet per year. It was 32' long and was end loaded through doors. At a value of \$200 mbf for kiln drying, it would have today a gross annual value of \$4,800 per year.

You can look at USFS publications on dry kilns at their Publications web site at <http://www.fs.fed.us/publications/>. Other sites also contain information on solar kilns, some which is correct and some that contains errors. A plant nursery greenhouse gets much too hot to dry lumber and should be avoided.



VPI Kiln



Solar Kiln in Belize

Solar kilns do work and everyone has a different opinion on the correct details to make them successful. On my solar kiln contained these components:

- Four 20" aluminum fan blades mounted on ½ Hp motors (from washing machines).
- Thermostats inside the kiln that turned the fans on and off.
- Timers that turned the kiln fans on and off.
- High and low manual vents on the rear of the kiln.
- 12' long fiberglass panels with an internal sheet of 6 mil plastic for double glazing
- Insulated walls but not the floor.
- The kiln topped out with a maximum temperature of about 115 degree F.

A single solar kiln for the small sawmill operator who dries too little lumber to support a serious small sawmill operation may find a solar dry kiln affordable and a workable solution for kiln drying lumber. The shortcomings of the solar dry kiln is that it would take three solar kilns to reach the annual production of a small hot water stove heated kiln and would not be able to dry lumber at least four or five months out of the year.