Dehumidification Kiln
May/June 2017

Cost of Kiln Drying Wood

It the article "Design and Operation of a Small-scale Dehumidification Kiln" (Woodworker's Journal, May/June 2017), we promised a breakdown of the electrical expensse required to dry the sample load of 540 board feet of white oak lumber. Of course, the cost of electricty varies with geography, but this explanation will provide a general model for comparison.

Author Willie Sandry started by multiplying the wattage of each electrical appliance by number of hours used, and dividing by 1,000. He then multiplied this number by the cost per Kilowatt Hour (8.16 cents per kWh in his area of Washington) to determine the estimated running cost per day.

So, for the author's dehumidifier (DH), the formula reads:
650w x 24 hr /1000 = 15.6.
Cost for the author's DH, 15.6 x 8.16 = 127 cents/day.

For each of the author's fans 133w x 24hr/1,000 = 3.19.
Multiplying 3.19 x 8.16 = 26 cents per fan, per day.

The heater draws 1,300w x 24 hr/1,000 = 31.2.
As before, 31.2 x 8.16 = 255 cents per day.

Total electrical cost is $1.27 + (4 x $.26) + $2.55 = $4.86 per day, assuming the heater is on all the time.

With an approximate kiln operation cost of $4.86 per day, and an average kiln run of three weeks, total electrical costs would be $102 per kiln run. Using the example of 540 board feet of white oak, the kiln drying cost is about $.19 per board foot. Although this number seems quite reasonable, in practice this figure is higher than actual costs, because the heater is perhaps only on 25% of the time or less. Factoring this 25% duty cycle into account changes the cost, dropping it to approximately $62 per kiln run, or $.11 per board foot. The dehumidifier power consumption estimate is likely a bit high as well, because it draws less power over time as the lumber dries. Basically, it doesn't have to work as hard in the latter phases of the drying cycle. And last of all, obviously the more lumber in the kiln, the lower your cost per board foot will be.