

TECHNICAL NOTE NUMBER D-14

FOREST PRODUCTS LABORATORY - U. S. FOREST SERVICE - MADISON, WISCONSIN

HOW TO ACCOMPLISH RAPID KILN DRYING

Every wood using industry is interested in finding a quicker method of seasoning wood, and expects that some day a new type of kiln will be devised which will accomplish very rapid drying without requiring skilled operation. The Forest Products Laboratory has observed, however, that few kiln operators attain the fastest safe rate of drying possible with their present equipment, and that quick satisfactory drying often depends more on the kiln operator than on the kiln itself.

These are things that make for slow drying in any kiln:

1. Part of the kiln load is drying more slowly than the rest and is holding up the entire kiln run, because of sluggish and uneven circulation.
2. Lumber at various stages of seasoning is being dried in the same kiln run.
3. The lumber may be casehardened and therefore unable to stand fast drying.
4. The kiln operator does not know the moisture content of the lumber when it is put into the kiln, and therefore can not apply the initial drying conditions which are conducive to most rapid drying.
5. The drying schedule is regulated by the number of days the lumber has been in the kiln, rather than by the actual moisture content of the stock and its ability to withstand more severe drying conditions.

6. The kiln operator does not know when the lumber reaches the desired moisture content and therefore leaves it in the kiln longer than necessary.

7. Steam is not supplied to the heating coils at night.

It is well within the limit of commercial practice for one-inch lumber to be perfectly kiln dried from 18 per cent moisture content (reached, perhaps, in 3 months air seasoning under good conditions) to 5 per cent moisture content, and conditioned for use, according to the following schedules:

Red gum	6-8 days
Hard maple and birch	5-7 days
Plain-sawed oak	8-10 days
Walnut and mahogany	6-8 days

If the best results are not desired, these periods can be appreciably reduced.