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News and Views of This Kiln-Drying Business:

A CALENDAR FOR AIR-DRYING LUMBER IN THE UPPER MIDWEST

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The Problem How to determine the number of days required for air-drying
lumber to 20 percent moisture content.

The Answer: By developing an annual calendar of effective drying days.

The particular season green lumber is yarded for air-drying greatly influences the length of time required to attain the desired average moisture content for shipment or for kiln-drying. Green lumber piled on the yard during the warm months is air-dried fast, and the yarding period is subsequently short, whereas lumber piled in the late fall and winter must be dried for an extended period. For example, 1-inch northern red oak, when yarded in June or July, is often air-dried to an average moisture content of about 20 percent in southern

¹The Laboratory is maintained at Madison, Wis., in cooperation with the University of Wisconsin.

Wisconsin in about 60 days. If piled in the late fall and winter, the lumber may stay on sticks for 120 days or more to reach a 20 percent moisture content. The low temperatures of fall and winter effectively retard the movement of moisture in wood, although the equilibrium moisture content conditions of the prevailing weather may not be greatly different than that of spring and summer.

A drying calendar, then, is directly related to the changes in prevailing temperature from month to month. If the maximum of effective drying days in any month is 30, presumably during the summer months, the cold months must have relatively few effective drying days. The concept of the drying calendar is to chart out month by month the number of days of effective drying weather.

The following air-drying calendar for lumber being air-dried in the upper Midwest was prepared from average monthly dry-bulb temperature records published by the U.S. Weather Bureau.

<u>Month</u>	<u>Effective Air- Drying Days</u>	<u>Month</u>	<u>Effective Air- Drying Days</u>
January	5	July	30
February	5	August	30
March	10	September	25
April	20	October	20
May	25	November	10
June	30	December	5

This calendar, which indicates there are 215 days during the year that are effective for air-drying, plus the experience of the yard operator, can be used to estimate when green 1-inch lumber will attain an average moisture content of about 20 percent. For example, if experience shows that 1-inch northern red oak in a forklift yard with good air circulation is down to 20 percent moisture content in 60 days when yarded in June or July, the number of effective air-drying days required can be set at 60. If the green lumber is yarded in early November, 60 effective air-drying days add up as follows: November, 10; December, 5; January, 5; February, 5; March, 10; April, 20; and May, 5; before the lumber is down to about 20 percent moisture content. If the lumber is yarded in mid-January, perhaps only 2 days of effective drying can be expected. The total of 60 days of drying adds up somewhat as follows: January, 2; February, 5; March, 10; April, 20; and May, 23; for a total of 60 effective drying days. In other words, 1-inch lumber that is yarded in mid-January and requires 60 effective air-drying days will not be expected to be air-dried to 20 percent moisture content until late in May.

Some species will not require 60 effective drying days but the calendar is similarly used. Some areas of the air-drying yard may require more time because of a lack of good movement of air. Other areas may actually dry faster than the estimate. The yard supervisor can, through experience, classify yard areas for the number of effective days required for the different species and the thicknesses and apply the calendar to determine when takedown can be expected in relation to the month when the lumber was yarded.