

TECHNICAL NOTES

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

MADISON, WISCONSIN

No. 90

KILN DRYING OF GREEN HARDWOODS REQUIRES MECHANICALLY PERFECT HEATING SYSTEM

Successful kiln drying of hardwood lumber green from the saw necessitates a very even control throughout the kiln at all times. This means that variations in temperature of even a few degrees or variations in relative humidity of 5-10 per cent are seldom permissible. Such uniformity is possible only when the heating coil is properly drained, is relieved of air, and is distributing heat uniformly along its length.

It is the contention of the Forest Products Laboratory, Madison, Wis., that the return-bend heating coil system, by bringing about more uniform distribution of heat in the kiln, enables the operator to obtain quicker and better drying than is possible with the header-coil system, as it is generally installed.

The return-bend heating coil gives a practically even heat distribution under any steam pressure. The header-coil produces different temperatures at either end of kiln, the extent of variation depending on the steam pressure, length of coils, drainage, traps, etc.

Refractory hardwoods require low temperatures, and the lower the temperatures used, the more evident will be the difference in the results obtained with these two types of heating equipment. Under the same careful operation, green hardwood lumber may be turned out from kilns using the one type satisfactorily dried, and from kilns using the other type checked and over-dried at one end and molded and under-dried at the other end.