DRYING LUMBER WITH SUPERHEATED STEAM

A kiln-drying process which will dry 1-inch softwood lumber green from the saw to 10 per cent moisture content in 24 hours or less has been developed at the U. S. Forest Products Laboratory, Madison, Wisconsin. The novel feature of the process consists in forcing superheated steam at high velocity first in one direction and then in the opposite through the pile of lumber in the kiln. This treatment dries the lumber very uniformly and rapidly with a minimum of checking and warping.

The superheated steam process has been found applicable to Douglas fir, firs of all kinds, western hemlock (not eastern), white cedars (not western red), sugar pine, western yellow pine, and southern yellow pine. It is entirely unsuited for some softwoods on account of collapse.

Drying lumber by this process consumes more steam per thousand feet of lumber than ordinary kiln-drying processes, and is recommended only where economy in fuel is not essential. As it is deleterious for lumber to be exposed for more than 2 or 3 days to the temperatures used, the superheated steam kiln is not adapted to the drying of lumber in thicknesses of more than 2 or possibly 2½ inches. It should be stated, furthermore, that the treatment somewhat reduces the toughness of the lumber, so that where this quality is of prime consideration, as in airplanes and wagons, a low temperature process of drying should be used. On the other hand, the superheated steam method reduces the "working" of the board and the hygroscopicity of the wood and also "fixes" the resin and gum. The effect upon knots as compared with low temperature drying has not been fully determined, but apparently there is not much difference. A slight darkening of the sapwood occurs, increasing with the length of time of exposure, and in periods much over 24 hours the heartwood may darken also.