

TECHNICAL NOTES

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

MADISON, WISCONSIN

No. D-4

CIRCULATION AND PILING IN THE DRY KILN

A good dry kiln when empty may be a poor dry kiln when loaded with lumber, simply because the wrong method of piling is used. Circulation of air is necessary to distribute the heat and humidity uniformly to all parts of the kiln and to all parts of the lumber pile. In a kiln of good design the circulation is carefully provided for, but obstructions caused by improper piling may defeat the designer's plan.

There are few more effective ways of baffling circulation than by piling into the kiln a quantity of lumber across the path which it was intended the air should follow. If this is done, the circulation becomes sluggish and uneven, permitting the formation of cool pockets in which lumber does not dry and hot pockets in which lumber is ruined.

Air moves differently in different types of kilns; therefore the proper method of piling the lumber will vary with the kind of kiln used. To run lumber into the dry kiln endwise, or crosswise, or edgewise, without regard to whether the stickers are to be perpendicular or parallel to the direction of circulation is a blind effort and not at all conducive to efficiency or satisfaction.

This point was brought very forcibly to the attention of the Forest Products Laboratory some years ago when a problem in the operation of a dry kiln of new construction and good design was presented by a large commercial concern. Although the new kiln was far superior to the old one when empty of lumber, in points of design and control apparatus, it dried lumber more slowly and less evenly than the old kiln.

The trouble was that the same system of piling was used in both cases, although the direction of circulation had been changed in the new kiln. The system of circulation in the new kiln was much preferable to that in the old, but the old method of piling, which was intended only for the old kiln, threw the balance the other way.