

# TECHNICAL NOTE NUMBER D-12

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## UNEVEN COATINGS ON WOOD CAUSE WARPING

Unequal coatings on opposite surfaces of a wood article cause unequal rates of change in moisture content and hence unequal shrinkage on the two sides of the piece. The result is that the wood tends to cup or twist out of shape.

Coatings of nearly equal moisture resistance should be applied to all surfaces of wood products if the tendency to warp under changing atmospheric conditions is to be kept to a minimum. Tests at the Forest Products Laboratory show that no coating applied on wood entirely prevents it from picking up or giving off moisture and, consequently, from swelling and shrinking under the influence of varying atmospheric conditions.

Clear as well as pigmented coatings, regardless of type or composition, merely decrease the rate at which the moisture content changes in wood occur. In general, pigmented coatings, such as paint, are somewhat more effective in retarding moisture changes than clear coatings, such as varnish or shellac, and within practical limits the more coats applied, the slower will be the moisture changes.

Inexpensive coatings can often be applied to the backs of furniture or millwork that will be practically equal in moisture resistance to the coatings on the exposed surfaces. These coatings for backs can usually be applied in one or two coats, depending on the moisture resistance required. (See Technical Note No. 181 for the relative moisture-excluding effectiveness of some commonly used coatings.)