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## THE IDENTIFICATION OF DOUGLAS-FIR WOOD<sup>1</sup>

Douglas-fir is one of the largest, most abundant and widely distributed species of trees native to North America, and next to the southern yellow pines, it is cut in the greatest quantities of any wood of commercial importance. It belongs to the coniferous family and is, therefore, a softwood. Other names for Douglas -fir are red fir, yellow fir, Oregon pine, Puget Sound pine, red pine, red spruce, and Douglas spruce. Its botanical name is Pseudotsuga menziesii (Mirb.) Franco.

Although Douglas-fir is distinctly a western species, it also is used in many parts of the Middle West and East. It is used for structural timbers, railway ties, railway cars, rough and finish lumber, flooring, sash and doors, furniture, lath, cooperage, tanks, conduits, paving blocks, boxes, agricultural implements, and numerous other articles.

The principal softwoods used for the same purposes are the southern yellow pines, Norway pine, eastern hemlock, western hemlock, Sitka spruce, ponderosa pine, western larch, and some of the balsam firs (principally white fir, lowland white fir, noble fir, and silver fir--all western species).

As there is a considerable range in the price and suitability of these various woods for various purposes, it is important to be able to distinguish the wood of Douglas -fir from the others.

Douglas-fir is a resinous wood, with a characteristic sweetish odor.. Exudations of resin on end and side surfaces and pitch pockets are common. Occasionally pitch streaks occur. The sapwood, which is from 1 to 3 inches wide, is white. The freshly cut heartwood is light reddish yellow in color. On exposure to light and air it becomes distinctly reddish, sometimes cherry red, or reddish brown except the outer portion of old trees which often remains light reddish yellow and explains why the wood is sometimes known as yellow

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<sup>1</sup> This is a reprint of Technical Note No. 198, "The Identification of Douglas-Fir Wood," which was reissued in June 1958. The original note was written in 1923, and revised 1936.

fir. The summerwood is pronounced, except in very narrow rings such as usually occur in the outer portion of old trees.

Under the microscope Douglas -fir can easily be distinguished from other structural softwoods by the fine spiral thickenings on the inner side of the cell walls, similar to the thread in a nut, although not crowded. The other softwoods mentioned can be distinguished from Douglas -fir by the following characteristics.

Southern yellow pines, Norway pine, and ponderosa pine: Heartwood less reddish and more orange brown; characteristic pine pitch odor. On planed surfaces the resin ducts often are pronounced as brownish lines running parallel to the grain, whereas in Douglas-fir the resin ducts are obscure.

Eastern hemlock, western hemlock, balsam firs: No pronounced difference in color of heartwood and sapwood as in Douglas-fir; exudations of resin, pitch pockets, and pitch streaks absent; odor not pronounced.

Sitka spruce: Color of heartwood pale pinkish brown; split or dressed surfaces have a "silky sheen;" tangentially split or dressed surfaces have a dimpled appearance as if lightly hit with buckshot; slight exudation of resin occasionally present; odor not pronounced.

Western larch: Russet brown color; usually narrow ringed; slight exudation of resin occasionally present; odor not pronounced.