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VENEER RECOVERY FROM PEELER GRADE DOUGLAS-FIR LOGS--NORTHWESTERN OREGON^{1/}

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Continued expansion of Douglas-fir plywood production develops a greater demand for all grades of peelable logs to supply the industry. Thus, it becomes increasingly important to know the veneer-grade recovery expected so that timber and log values can be more accurately appraised.

During May and August, 1956, the Pacific Northwest Forest and Range Experiment Station conducted two veneer-recovery studies^{2/} in northwestern Oregon; one at Edward Hines Lumber Company, Westfir, and the other at U.S. Plywood Corporation, Associated Division, Eugene.

^{1/} Northwestern Oregon is here defined as the area west of the Cascade summit and north of the line approximating the southern boundary of Lane County.

^{2/} Other agencies cooperating were Bureau of Land Management, Bureau of Indian Affairs, Douglas Fir Plywood Association, and Columbia River Log Scaling and Grading Bureau.

A total volume of 253,420 board-feet of Douglas-fir logs at the two locations was graded as follows:

<u>Log grade</u>	<u>Net volume board-feet</u>
No. 1 Peeler	66,250
No. 2 Peeler	64,460
No. 3 Peeler	87,670
Special Peeler ^{3/}	<u>35,040</u>
	253,420

The logs were scaled and graded in the water by representatives of the log scaling and grading bureau employed at the mill with the Forest Service check scaler collaborating. The grading rules employed were the official rules jointly adopted by the Puget Sound, Grays Harbor, Southern Oregon, and Northern California log scaling and grading bureaus. Logs of like grade were segregated into test runs of approximately four hours peeling time at the lathe. The logs were bucked into 8-1/2-foot blocks for the lathe and were cut into 1/8- or 1/10-inch veneer as desired by the mill management. Both mills possessed short core lathes and the peelable cores discharged from the big lathe were rerun into 3/16-inch thick veneer. These cores were peeled to approximately a 6-inch diameter.

The veneer was dried in conventional steam-heated driers immediately after cutting and was graded under the direction of a Douglas Fir Plywood Association grading supervisor. Grading was done in accordance with Commercial Standard 45-55 for Douglas-fir plywood, with the following modifications: full-width sheets (50- by 101-inches) of A-face admitted 8, and B-face admitted 12 patches or plugs acceptable in the grade. Narrower sheets admitted a proportional amount of patching. The volume of the veneer was measured after drying and expressed in terms of equivalent 3/8-inch rough trimmed panel volume. Correction for veneer grade fall-down occurring at the patchers and pluggers was applied to the volume tally of the appropriate grade.

^{3/} Small No. 2 Sawmill logs (18 through 23 inches) meeting requirements of at least No. 3 Peelers except for size.

For each grade of veneer the volume removed in trimming to panel size, jointing, dry clipping, and the volume discarded at the glue spreaders was deducted from the appropriate gross volume. Correction for grade reduction of veneer in the finishing operation was made by transferring 5 percent of the A veneer to B and 5 percent of the B veneer to C. ^{4/}

Industry measures the production of plywood in terms of square feet of 3/8-inch rough panel (before sanding) and recovery ratios express the amount of square feet of 3/8-inch rough panel obtained per foot of net scale for the logs used.

The average volume-recovery ratios for each of the four log grades covered in these studies range from 2.38 to 2.50 (table 1). This range is slightly above the reported industry-average ratio of 2.3.

In these studies it was not feasible to determine separately every source of veneer processing loss occurring in plywood plants. This was due, in part, to variation in the equipment and techniques employed at different plants. The amount of veneer patching and repairing practiced also varies between plants and contributes to some volume and grade changes. Also, some loss in volume is incurred due to the assortment of log lengths available to the mill because some logs are not fully utilized when bucked into peeler blocks. This factor did not occur in these studies, since test logs were selected only in 17-, 26-, 34-, or 42-foot lengths. Some other areas where minor volume losses are incurred, but were not included in these studies, are the dry-clip developed during lay-up and rejected panels.

For comparison with industry production reports it is necessary to determine the recovery on the basis of plywood panels shipped. This necessitates adjusting table 1 to allow for all volume loss not measured during the study. For the 12-month period ending August 1956, the reported average industry-recovery ratio (volume 3/8-inch panels divided by net log scale) was approximately 2.3. Converting the percentage values of table 1 to a 2.3 ratio gives

^{4/} Estimates obtained from several plywood plant superintendents.

Table 1. --Recovery of dry Douglas-fir veneer,

Logs			Dry veneer		Veneer recovery				Recovery ratio ^{2/}
			recovered						
Scaling (3/8-inch									
Net deduc-			equivalent)		A : B : C : D				
Grade	scale	tions ^{1/}							

1/ Determined as follows: $\frac{\text{Gross scale} - \text{Net scale}}{\text{Gross scale}} \times 100.$

2/ Volume of veneer (3/8-inch basis) divided by net log scale.

the veneer-grade yield shown in table 2. The procedure for reducing table 1 to a 2.3 ratio is illustrated as follows:

Table 1 shows that 37 percent of the No. 1 Peeler net log scale is C veneer.

Thus,

$$37 \times 2.3 / 2.50 = 34.04 \text{ percent or } 34 \text{ percent}$$

as shown in table 2. Other veneer items may be similarly adjusted.

Table 2. -- Adjusted^{1/} recovery of dry Douglas-fir veneer--
northwestern Oregon

Log grade	Veneer recovery			
	A	B	C	D
----- Percent of net log scale -----				
1 Peeler	28	4	34	20
2 Peeler	23	3	33	27
3 Peeler	9	5	33	39
Special Peeler	6	3	35	42

^{1/} Based on industry average recovery ratio of 2.3.