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List of Publications on MECHANICAL PROPERTIES AND STRUCTURAL USES OF WOOD AND WOOD PRODUCTS

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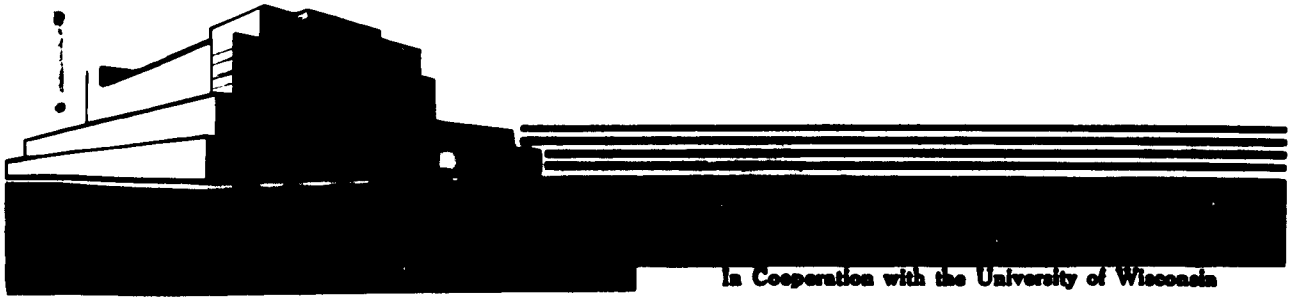

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This list which begins on page [illegible] includes publications that give general information and the results of research by the U.S. Forest Service and other organizations on the strength of timber and factors affecting strength, design of wood articles, or parts where strength or resistance to external forces is of importance.

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INSTRUCTIONS FOR OBTAINING PUBLICATIONS

Publications available for distribution at this Laboratory are marked with an asterisk (*).

Single technical notes, reprints, and processed reports may be obtained free upon request from the Director, Forest Products Laboratory, Madison 5, Wis.

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The Forest Products Laboratory reserves the right to furnish only those publications which in its judgment will give the information requested. Blanket requests or requests for a large number of copies of any individual article will not be filled except in unusual cases.

FACTORS AFFECTING STRENGTH

Title	Author	Publication and date
Growth Conditions		
*How growth affects quality in hardwood lumber.	Paul, B. H.	South. Lbrmn. 201(2512):31-32, Dec. 1, 1961.
*Relationship of locality in rate of growth to density and strength of Douglas-fir.	Drow, J. T.	FPL Rept. 2078. 1957.
Relation of growing space to specific gravity and strength of second-growth redwood.	Paul, B. H., & Luxford, R. F.	West Coast Lbrmn., June 15, 1928.
*How growth affects quality in hickory and ash.	Paul, B. H.	Wood Working Indus., Feb. 1926. Hardwood Record, Jan. 10, 1925.
Growth Features		
Structure, occurrence, and properties of compression wood.	Pillow, M. Y., & Luxford, R. F.	USDA Tech. Bull. 546. 1937. Out of Print.
*Compression wood cause of bowing and twisting.	Pillow, M. Y.	South. Lbrmn., Mar. 1, 1931; Wood Construc., Nov. 1, 1930; Wood Working Indus., Nov. 1930.
Structural timbers: Defects and their influence on strength.	Newlin, J. A., & Johnson, R. P. A.	Am. Soc. Testing Materials Proc. 1924.

Title	Author	Publication and date
Growth Features (continued)		
Effect of spiral grain on strength of wood.	Wilson, T. R. C.	Jour. For., Nov. 1921.
Loading Conditions		
*Fatigue resistance of quarter-scale bridge stringers in flexure and shear.	Lewis, W. C.	FPL Rept. 2236. 1962.
*Creep of small wood beams under constant bending load.	Clouser, W. S.	FPL Rept. 2150. 1959.
*Effect of repeated loading and salt-water immersion on flexural properties of laminated white oak.	Freas, A. D., & Werren, Fred	Forest Prod. Jour. 9(2):100-103. Feb. 1959.
*Effect of prestressing on mechanical properties of Douglas-fir and southern yellow pine.	Wood, L. W.	FPL Rept. 2073. 1957.
*The influence of rate of loading on the strength of wood and wood-base material.	Markwardt, L. J., & Liska, J. A.	Reprint from Am. Soc. Testing Materials Symposium on Speed of Testing. 1956.
*The fatigue behavior of wood and plywood subjected to repeated and reversed bending stresses.	Kommers, W. J.	FPL Rept. 1327. 1943. Information Reviewed and Reaffirmed 1960.

FACTORS AFFECTING STRENGTH (continued)

Title	Author	Publication and date
Loading Conditions (continued)		
*Supplement: The fatigue behavior of Douglas-fir and Sitka spruce subjected to reversed stresses superimposed on steady stresses.	Kommers, W. J.	FPL Rept. 1327-A. 1944. Information Reviewed and Reaffirmed 1960.
*Effect of a single reversal of stress on the static and impact bending strength of Sitka spruce and Douglas-fir.	Kommers, W. J.	FPL Rept. 1325. 1943. Information Reviewed and Reaffirmed 1962.
*Effect of ten repetitions of stress on the bending and compressive strengths of Sitka spruce and Douglas-fir.	Kommers, W. J.	FPL Rept. 1320. 1943. Information Reviewed and Reaffirmed 1960.
*Effect of rapid loading on the compressive and flexural strength of wood.	Liska, J. A.	FPL Rept. 1767. 1950. Information Reviewed and Reaffirmed 1960.
*Effect of 5,000 cycles of repeated bending stresses on 5-ply Sitka spruce plywood.	Kommers, W. J.	FPL Rept. 1305. 1943. Information Reviewed and Reaffirmed 1960.
*Effects of speed of test on bending strength of insulation fiberboard.	Lewis, W. C.	Tappi 38(2):65-68, Feb. 1955.
*Effect of rapid loading and duration of stress on the strength properties of wood tested in compression and flexure.	Brokaw, M. P., & Foster, G. W.	FPL Rept. 1518. 1945. Information Reviewed and Reaffirmed 1958.

FACTORS AFFECTING STRENGTH (continued)

Title	Author	Publication and date
Loading Conditions (continued)		
*Relation of strength of wood to duration of load.	Wood, L. W.	FPL Rept. 1916. 1951. Information Reviewed and Reaffirmed 1960.
*Fatigue of wood and glued joints used in laminated construction.	Lewis, W. C.	Forest Prod. Res. Soc. Proc., 1951.
Speed of testing of wood: Factors in its control and its effect on strength.	Markwardt, L. J., & Liska, J. A.	Am. Soc. Testing Materials Proc., 1948.
Behavior of wood under continued loading.	Wood, L. W.	Eng. News-Record 139(24):108-111, Dec. 11, 1947.
Moisture		
*Strength-moisture relations for wood.	Wilson, T. R. C.	USDA Tech. Bull. 282. 1932.
Preservative Treatment		
*Effect of pressure treatment with coal-tar creosote on the strength of Douglas-fir structural timbers.	Luxford, R. F., & MacLean, J. D.	FPL Rept. 1798. 1951.
Seasoning		
*Recommendations of the Madison conference on fundamental research in wood drying.	Youngs, R. L.	Forest Prod. Jour. 9(3):121-124, Mar. 1959.
*Mechanical properties of red oak related to drying.	Youngs, R. L.	Forest Prod. Jour. 7(10):315-324, Oct. 1957.

FACTORS AFFECTING STRENGTH (continued)

Title	Author	Publication and date
Seasoning (continued)		
*Effect of partial seasoning on the strength of wood.	Wilson, T. R. C., Carlson, T. A., & Luxford, R. F.	Am. Wood-Pres. Assn. Proc. 1930; FPL Rept. 1024. 1930. Information Reviewed and Reaffirmed 1960.
Specific Gravity		
*Specific gravity-strength relations for wood.		FPL Rept. 1303. 1956. Information Reviewed and Reaffirmed 1962.
*Southern pine and the density rule.	Wood, L. W.	South. Lbrmn., Dec. 1950.
The relation of the shrinkage and strength properties of wood to its specific gravity.	Newlin, J. A., & Wilson, T. R. C.	USDA Bull. 676. 1919. Out of Print.
Stain and Decay		
*"Black streak" in western hemlock: Its characteristics and influence on strength.	Luxford, R. F., Wood, L. W., & Gerry, E.	FPL Rept. 1500. 1943. Information Reviewed and Reaffirmed 1960.
*The significance of the discolorations in aircraft veneers: Mahogany and khaya.	Hansbrough, J. R., & Krause, R. L.	FPL Rept. 1379. 1943. Information Reviewed and Reaffirmed 1962.

Title	Author	Publication and date
	Stain and Decay (continued)	
*The significance of the discolorations in aircraft veneers: Yellow birch.	Hansbrough, J. R., Waterman, A. M., & Luxford, R. F.	FPL Rept. 1377. 1943. Information Reviewed and Reaffirmed 1962.
*The significance of the discolorations in yellow-poplar veneers.	Hepting, G. H., Roth, E. R., & Luxford, R. F.	FPL Rept. 1375. 1952. Information Reviewed and Reaffirmed 1958.
*The significance of the discolorations in aircraft lumber: Noble fir and western hemlock.	Englerth, G. H., & Hansbrough, J. R.	Forest Path. Spec. Rel. No. 24. 1945.
*The significance of black line stain in yellow birch propeller lumber.	Hansbrough, J. R.	Forest Path. Spec. Rel. No. 23. 1945.
*The significance of the discolorations in aircraft lumber: Sitka spruce.	Hansbrough, J. R., & Englerth, G. H.	Forest Path. Spec. Rel. No. 21. 1944.
*The significance of the discolorations in aircraft veneers: American beech.	Hansbrough, J. R., Waterman, A. M., & Krause, R. L.	Forest Path. Spec. Rel. No. 16. 1944.
*Chemical stain in noble fir as related to strength.	Luxford, R. F., & & Krone, R. H.	FPL Rept. 1329. 1943. Information Reviewed and Reaffirmed 1962.
*The effect of certain heart rot fungi on the specific gravity and strength of Sitka spruce and Douglas-fir.	Scheffer, T. C., Wilson, T. R. C., Luxford, R. F., & Hartley, C.	USDA Tech. Bull. 779. 1941.

Title	Author	Publication and date
Stain and Decay (continued)		
Effect of blue stain on specific gravity and strength of southern pine.	Chapman, A. D., & Scheffer, T. C.	Jour. Agr. Res., July 15, 1940.
*Decay and toughness losses in southern pine infected by Peniophora.	Lindgren, R. M., & Erickson, E. C. O.	Forest Prod. Jour. 6(6):201-204, June 1957.
Miscellaneous		
*Effect of temperature and moisture content on internal friction and speed of sound in Douglas-fir.	James, W. L.	Forest Prod. Jour. 11(9):383-390, Sept. 1961.
*Effect of hydraulic-equipment oils on the bending and compressive strength of Sitka spruce.	Drow, J. T.	FPL Rept. 1520. 1945. Information Reviewed and Reaffirmed 1962.
*Effect of elliptic or circular holes on the stress distribution in plates of wood or plywood considered as orthotropic materials.		FPL Rept. 1510. 1944. Information Reviewed and Reaffirmed 1962.
*Wood at low temperatures.	Boller, K. H.	Modern Packaging 28(1):153-157, Sept. 1954.
*Comparative value of timber cut from live and dead trees.		FPL Tech. Note 101. 1958.

FACTORS AFFECTING STRENGTH (continued)

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Miscellaneous (continued)		
*Effect of extractives on the strength of wood.	Luxford, R. F.	Jour. Agr. Res., June 15, 1931.

JOINTS AND FASTENINGS

Title	Author	Publication and date
Bolts		
*Bolt-bearing strength of wood and modified wood: Bearing strength of commercial crossbanded compreg under aircraft bolts.	Hunt, P. J., Goodell, H. R., & Phillips, R. S.	FPL Rept. 1523-B. 1946. Information Reviewed and Reaffirmed 1962.
*Supplement: Bearing strength of commercial aircraft plywood under aircraft bolts.	McLeod, A. M.	FPL Rept. 1523-C. 1946. Information Reviewed and Reaffirmed 1962.
*Supplement: Bearing strength of wood members reinforced with plywood and crossbanded compreg under single and multiple aircraft bolts.	Sanborn, W. A., Goodell, H. R., Ely, A. W., & Phillips, R. S.	FPL Rept. 1523-D. 1946. Information Reviewed and Reaffirmed 1962.
*Theoretical design of a nailed or bolted joint under lateral load.	Kuenzi, E. W.	FPL Rept. 1951. 1953. Information Reviewed and Reaffirmed 1962.

JOINTS AND FASTENINGS (continued)

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	Bolts (continued)	
The bearing strength of wood under bolts.	Trayer, G. W.	USDA Tech. Bull. 332. 1932. Out of Print.
	Connectors	
Timber connector joints: Their strength and design.	Scholten, J. A.	USDA Tech. Bull. 865. 1944. Out of Print.
Modern connectors in wood construction.	Scholten, J. A.	Ag. Eng., May 1938.
Modern connectors for timber construction.	Perkins, N. S., Landsen, P., & Trayer, G. W.	Joint publication of Natl. Comm. on Wood. Util. and Forest Prod. Lab., 1933. 20 cents.
	Lag Screws	
*Lag screw joints: Their behavior and design.	Newlin, J. A., & Gahagan, J. M.	USDA Tech. Bull. 597. 1938.
	Nails	
*Performance comparison of slender and standard spirally grooved pallet nails.	Heebink, T. B.	FPL Rept. 2238. 1962.
*Spacing of sixpenny and eightpenny wire nails in Douglas-fir multi-nail joints.	Ramos, A. N.	FPL Rept. 2155. 1960.

Title	Author	Publication and date
	Nails (continued)	
*Effect of nail points on the withdrawal resistance of plain nails.	Scholten, J. A.	FPL Rept. 1226. 1940. Information Reviewed and Reaffirmed 1959.
*Nailing dense hardwoods.		FPL Tech. Note 247. 1953.
*Nail-withdrawal resistance of American woods.		FPL Tech. Note 236. 1958.
*General observations on the nailing of wood.		FPL Tech. Note 243. 1957.
*Slant driving of nails! Does it pay?	Markwardt, L. J., & Gahagan, J. M.	FPL Rept. 954. 1930. Information Reviewed and Reaffirmed 1962.
Why nails hold.	Markwardt, L. J., & Gahagan, J. M.	Wood Prod., Sept. 1951. Pack. & Shipping, Oct. 1951.
*Nail-holding properties of southern hardwoods.	Scholten, J. A.	South. Lbrmn., Dec. 1950.
*Strength of nailed joints in frame walls.	Scholten, J. A., & Molander, E. G.	Agr. Eng., Nov. 1950.
Technique of house nailing.	Forest Products Laboratory	In cooperation with the Housing & Home Finance Agency, Washington, D. C., Nov. 1947.

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Nails (continued)		
The grooved nail.	Markwardt, L. J., & Gahagan, J. M.	Pack. & Shipping, Apr. 1929; Barrel & Box & Pack., Aug. 1929.
Railroad Spikes		
Tests of the holding force of common and screw railroad spikes in natural and treated Douglas-fir ties.	Zimmerman, C. W.	West Coast Lbrmn., Nov. 15, 1922.
Screws		
*Strength of screw fastenings in plywood.		FPL Tech. Note 149. 1958.
Miscellaneous		
*Proceedings of the symposium on fastenings for wood in house construction.		FPL Rept. 2241. 1962.
*Strong joints + strong materials properly used = strong buildings.		FPL Tech. Note 262. 1962.
*Corrosion of metal fastenings in zinc-chloride-treated wood after 20 years.	Baechler, R. H.	Am. Wood-Pres. Proc. 1949.

Title	Author	Publication and date
Miscellaneous (continued)		
Wood fastenings in farm structures.	Scholten, J. A.	A contribution of the Com. on Commercial Bldg. Materials --Wood--of the Am. Soc. of Agr. Engrs., July 6, 1936.
Corrosion of metal fastenings in zinc-chloride-treated wood.	Baechler, R. H.	Indus. & Eng. Chem., Dec. 1934.

LAMINATED WOOD CONSTRUCTION

Title	Author	Publication and date
*Stiffness and bending strength of beams laminated from two species of wood.	Ethington, R. L.	FPL Rept. 2156. 1960.
*Deflection characteristics of two 20-foot-diameter laminated wood rings subjected to compressive loading along a diameter.	Werren, Fred, & Ethington, R. L.	FPL Rept. 1877. 1960.
Development of working stresses for glued laminated lumber.	Freas, A. D.	Am. Railway Eng. Assn. Proc. 1956, Vol. 57, pp. 979-985.

Title	Author	Publication and date
*Scarf joints prove feasible for large laminated members.	Werren, Fred	Wood & Wood Prod. 61(7):22, 80-81, July 1956.
*Factors affecting strength and design principles of glued laminated construction.	Freas, A. D.	FPL Rept. 2061. 1956. Information Reviewed and Reaffirmed 1962.
*Laminated, bolted, and solid keels for 50-foot Navy motor launch compared for strength.	Luxford, R. F., & Krone, R. H.	FPL Rept. 1625. 1946. Information Reviewed and Reaffirmed 1962.
*Laminated oak frames for a 50-foot Navy motor launch compared to steam-bent frames.	Luxford, R. F., & Krone, R. H.	FPL Rept. 1611. 1945. Information Reviewed and Reaffirmed 1962.
*Strength of glued laminated Sitka spruce made up of rotary-cut veneers.	Luxford, R. F.	FPL Rept. 1512. 1944. Information Reviewed and Reaffirmed 1962.
Fabrication and design of glued laminated wood structural members.	Freas, A. D., & Selbo, M. L.	USDA Tech. Bull. 1069. Feb. 1954.
*End joints of various types in Douglas-fir and white oak compared for strength.	Luxford, R. F., & Krone, R. H.	FPL Rept. 1622. 1946. Information Reviewed and Reaffirmed 1961.
*Stresses in laminated wood construction.		FPL Tech. Note 140. 1952.

LAMINATED WOOD CONSTRUCTION (continued)

Title	Author	Publication and date
*Hickory-ash bats get baseball trial.	McDonald, J. K.	South. Lbrmn. 183(2297):193-194. Dec. 15, 1951.
*Studies of the strength of glued laminated wood construction.	Freas, A. D.	ASTM Bull. No. 170. Dec. 1950.
The glued laminated wooden arch.	Wilson, T. R. C.	USDA Tech. Bull. 691. 1939. 20 cents.
Built-up wood columns conserve lumber.	Scholten, J. A.	Eng. News-Record, Aug. 27, 1931.

METHODS OF DETERMINING PROPERTIES

Title	Author	Publication and date
Elastic and Strength Properties		
*Modulus of elasticity of wood determined by dynamic methods.	Bell, E. R., Peck, E. C., & Krueger, N. T.	FPL Rept. 1977. 1954. Information Reviewed and Reaffirmed 1959.

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Elastic and Strength Properties (continued)		
*Tension test methods for wood, wood-base materials, and sandwich construction.	Markwardt, L. J., & Youngquist, W. G.	Reprint from Am. Soc. Testing Materials Symposium on Tension Testing of Non-Metallic Materials, Spec. Tech. Pub. No. 194. 1957. Also: FPL Rept. 2055. 1956. Information Reviewed and Reaffirmed 1962.
*Approximate methods of calculating the strength of plywood.	Markwardt, L. J., & Freas, A. D.	FPL Rept. 1630. Revised 1946. Information Reviewed and Reaffirmed 1962.
*The effect of a change in testing speed and span on the flexural strength of insulating and structural fiberboards and a proposed new method of test.	Youngquist, W. G., & Munthe, B. P.	FPL Rept. 1717. 1948. Information Reviewed and Reaffirmed 1962.
*The bending strength and stiffness of plywood.	Freas, A. D.	FPL Rept. 1304. Revised 1956. Information Reviewed and Reaffirmed 1962.
*Stress-strain relations in wood and plywood considered as orthotropic materials.		FPL Rept. 1503. 1956. Information Reviewed and Reaffirmed 1962.

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Elastic and Strength Properties (continued)		
The influence of the form of a wooden beam on its stiffness and strength--		
*I - Deflection of beams with special reference to shear deformations. (Reprint from NACA Report 180.)	Newlin, J. A., & Trayer, G. W.	FPL Rept. 1309. 1941. Information Reviewed and Reaffirmed 1956.
*III - Stresses in wood members and subjected to combined column and beam action. (Reprint from NACA Report 188.)	Newlin, J. A., & Trayer, G. W.	FPL Rept. 1311. 1941. Information Reviewed and Reaffirmed 1956.
*Form factors of beams subjected to transverse loading only. (Reprint from NACA Report 181.)	Newlin, J. A., & Trayer, G. W.	FPL Rept. 1310. 1941. Information Reviewed and Reaffirmed 1956.
*Strength of orthotropic materials subjected to combined stresses.	Norris, C. B.	FPL Rept. 1816. 1950. Information Reviewed and Reaffirmed 1962.
*Report on progress in development of testing methods for fiberboards.	Markwardt, L. J.	FPL Rept. 2105. 1958.
*Effect of size and shape of specimen on the tensile strength of fiberboards.	Lewis, W. C.	FPL Rept. 1716. 1948. Information Reviewed and Reaffirmed 1960.

METHODS OF DETERMINING PROPERTIES (continued)

Title	Author	Publication and date
Elastic and Strength Properties (continued)		
*Methods of calculating the strength and modulus of elasticity of plywood in compression.	Liska, J. A.	FPL Rept. 1315. Revised 1950. Information Reviewed and Reaffirmed 1960.
Methods for determining the elastic constants of non-metallic materials.	Kuenzi, E. W.	Am. Soc. Testing Materials Spec. Tech. Pub. No. 118, pp. 70-78. 1952.
A new method of calculating the ultimate strength of continuous beams.	Newlin, J. A., & Trayer, G. W.	NACA Report 347. 1930.
Growth Features		
*Detection of compression failures in wood.		FPL Rept. 1588. 1944. Information Reviewed and Reaffirmed 1961.
*Instrument for rapidly measuring slope of grain in lumber.	Anderson, E. A., Koehler, A., & Krone, R. H.	FPL Rept. 1592. 1945. Information Reviewed and Reaffirmed 1960.
*Guide to determining slope of grain in lumber and veneer.	Koehler, A.	FPL Rept. 1585. 1943. Information Reviewed and Reaffirmed 1960.

METHODS OF DETERMINING PROPERTIES (continued)

Title	Author	Publication and date
Growth Features (continued)		
*Compression wood: Importance and detection in aircraft veneer and plywood.		FPL Rept. 1586. 1943. Information Reviewed and Reaffirmed 1959.
*A simple device for detecting compression wood.		FPL Rept. 1390. 1941. Information Reviewed and Reaffirmed 1959.
Specific Gravity		
*Methods of determining the specific gravity of wood.		FPL Tech. Note B-14. 1956.
Methods for determining the specific gravity of wood and wood-base materials.	Markwardt, L. J., & Paul, B. H.	Am. Soc. Testing Materials Proc. 1946.
Testing Procedures		
*Results of impact tests to compare the pendulum impact and toughness test methods.	Drow, J. T., Markwardt, L. J., & Youngquist, W. G.	FPL Rept. 2109. 1958.
*Apparatus for determination of surface profile.	Setterholm, V. C., & James, W. L.	FPL Rept. 2130. 1958.
*Comparison of standard block-shear test with the panel-shear test.	Norris, C. B.	Forest Prod. Jour. 7(9):299-301, Sept. 1957.
*Performance of bonded wire strain gages on wood.	Youngquist, W. G.	FPL Rept. 2087. 1957.

Title	Author	Publication and date
	Testing Procedures (continued)	
*Fabrication of small clear specimens of timber for strength tests.	Bellosillo, S. B.	FPL Rept. 2074. 1957.
*Climbing peel test for strength of adhesive bonds.	Werren, Fred, & Eickner, H. W.	Modern Plastics 34(4):187-190, 264. Dec. 1956.
A strain gage for the measurement of strains in adhesive bonds.	Norris, C. B., James, W. L., & Drow, J. T.	Am. Soc. Testing Materials Bull. No. 218, pp. 40-49. Dec. 1956.
*Testing and evaluating procedures for building boards.	Lewis, Wayne C.	Forest Prod. Jour. 6(7):241-246. July 1956.
*Method for determining tensile properties of paper.	Setterholm, V. C., & Kuenzi, E. W.	FPL Rept. 2066. 1956. Information Reviewed and Reaffirmed 1962.
*Forest Products Laboratory's toughness testing machine.		FPL Rept. 1308. 1941. Information Reviewed and Reaffirmed 1961.
Means of determining the hardness of wood and modified woods over a broad specific gravity range.	Weatherwax, R. C., Erickson, E. C. O., & Stamm, A. J.	Am. Soc. Testing Materials Bull. (153):84-89. Aug. 1948.
Methods of static tests of wood poles.		Am. Soc. Testing Materials Std.. D1036-52.

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Testing Procedures (continued)		
Methods of evaluating the properties of wood-base fiber and particle panel materials.		Am. Soc. Testing Materials Std. D1037-60T.
Methods of conducting strength tests of panels for building construction.		Am. Soc. Testing Materials Std. E72-61.
Methods of testing truss assemblies.		Am. Soc. Testing Materials Std. E73-52.
Standard methods of conducting static tests of timbers in structural sizes.		Am. Soc. Testing Materials Std. D198-27.
Standard methods of testing small clear specimens of timber.		Am. Soc. Testing Materials Std. D143-52.
Standard methods of testing plywood, veneer, and other wood and wood-base materials.		Am. Soc. Testing Materials Std. D805-52.
Some applications of simulated service testing to nonmetallic materials.	Freas, A. D.	Am. Soc. Testing Materials Bull. 141:35-40. Aug. 1946.
Effect of specimen shape on the compressive strength properties of laterally supported plywood specimens.	Liska, J. A.	Am. Soc. Testing Materials Bull. (133):33-36. Mar. 1945.

METHODS OF DETERMINING PROPERTIES (continued)

Title	Author	Publication and date
Testing Procedures (continued)		
Load and strain measuring instruments for use in rate of loading and constant load tests.	Foster, G. W.	Instruments, Feb. 1945.
Spring suspended spherical bearing block for compression tests.	Markwardt, L. J., & Luxford, R. F.	Am. Soc. Testing Materials Bull. Aug. 1940.

MODIFIED WOODS AND PAPER LAMINATES

Title	Author	Publication and date
*Modified woods.	Stamm, A. J.	FPL Rept. 2192. 1960.
*Influence of manufacturing variables on the impact resistance of resin-treated wood.	Millet, M. A., Seborg, R. M., & Stamm, A. J.	FPL Rept. 1386. 1943. Information Reviewed and Reaffirmed 1962.
*Mechanical properties of laminated modified woods.	Erickson, E. C. O.	FPL Rept. 1639. 1947. Information Reviewed and Reaffirmed 1959.
*Factors affecting the strength of papreg: Some strength properties at elevated and subnormal temperatures.	Meyer, H. R., & Erickson, E. C. O.	FPL Rept. 1521. 1945. Information Reviewed and Reaffirmed 1959.

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*Supplement: Effect of moisture on certain strength properties of papreg.	Meyer, H. R., & Erickson, E. C. O.	FPL Rept. 1521-B. 1945. Information Reviewed and Reaffirmed 1962.
*Supplement: Effect of repeated cycles of freezing and thawing on certain strength properties of papreg.	Meyer, H. R., & Erickson, E. C. O.	FPL Rept. 1521-C. 1945. Information Reviewed and Reaffirmed 1962.
*Certain properties of papreg as affected by laminating pressure, resin content, and volatile content.	Seidl, R. J., Mackin, G. E., & Baird, P. K.	FPL Rept. 1394. 1943. Information Reviewed and Reaffirmed 1962.
*Strength and related properties of Forest Products Laboratory laminated paper plastic (papreg) at normal temperature.	Erickson, E. C. O., & Boller, K. H.	FPL Rept. 1319. 1943. Information Reviewed and Reaffirmed 1959.
Paper-base laminates offer high strength.	Erickson, E. C. O., & Mackin, G. E.	Am. Soc. Mech. Engrs. Trans., May 1945; Plastics, Feb. 1945.

POLES AND PILING

Title	Author	Publication and date
Strength and related properties of wood poles.	Wood, L. W., Erickson, E. C. O., & Dohr, A. W.	Am. Soc. Testing Materials Spec. Pub. 295. $5.

POLES AND PILING (continued)

Title	Author	Publication and date
*Moisture content in design of wood pole lines.	Luxford, R. F.	Electric Light & Power, Oct. 1930. Elec. World, Sept. 20, 1930; Ry. Signaling, Aug. 1930.
The selection of marine piling.	Wilson, T. R. C.	The Constructor, July 1930.
*Wood poles.	Heck, G. E.	Electric Light & Power, Feb. 1925.
--Same. Economic and scientific pole facts.		Ry. Signaling, Feb. 1925.
When ice breaks poles.	Heck, G. E.	Telephone Engr., Feb. 1923.
Tests of Rocky Mountain woods for telephone poles.	Betts, N. D., & Heim, A. L.	USDA Bull. 67. 1914. Out of Print.

PROPERTIES

Title	Author	Publication and date
Shrinkage		
*Longitudinal shrinkage of wood.	Koehler, A.	FPL Rept. 1093. 1930. Revised 1960.

Title	Author	Publication and date
Shrinkage (continued)		
*Longitudinal shrinkage of wood.		FPL Tech. Note 234. 1952.
Strength		
*Dynamic strength and elastic properties of wood.	James, W. L.	Forest Prod. Jour. 12(6):253-260. June 1962.
*Stress-strain distribution in Douglas-fir beams within the plastic range.	Ramos, A. N.	FPL Rept. 2231. 1961.
*Recent progress toward an understanding of the physical and mechanical properties of wood.	Youngs, R. L.	Forest Prod. Jour. 11(5):214-225. May 1961.
*A method for rapid measurement of the rate of decay of free vibrations.	James, W. L.	FPL Rept. 2154. 1959.
*Creep of small wood beams under constant bending load.	Clouser, W. L.	FPL Rept. 2150. 1959.
*Strength qualities of dimension lumber.	Wood, L. W.	Am. Soc. Testing Materials Spec. Tech. Pub. No. 209. 1957.

Title	Author	Publication and date
	Strength (continued)	
*Distribution of strength values in wood for aircraft construction.	Drow, J. T., Clark, M. E., & Wilson, T. R. C.	FPL Rept. 1515. 1946. Information Reviewed and Reaffirmed 1956.
*Bearing strength of wood at angle to the grain.		FPL Rept. 1203. 1939. Revised 1956.
*Elastic properties of wood: Young's moduli, moduli of rigidity, and Poisson's ratios of balsa and quipo.	Doyle, D. V., Drow, J. T., & McBurney, R. S.	FPL Rept. 1528. 1945. Information Reviewed and Reaffirmed 1962.
*Supplement: Young's moduli and Poisson's ratios of Sitka spruce and their relations to moisture content.	Drow, J. T., & McBurney, R. S.	FPL Rept. 1528-A. 1946. Information Reviewed and Reaffirmed 1959.
*Supplement: The moduli of rigidity of Sitka spruce and their relations to moisture content.	Doyle, D. V., McBurney, R. S. & Drow, J. T.	FPL Rept. 1528-B. 1946. Information Reviewed and Reaffirmed 1962.
*Supplement: Young's moduli, moduli of rigidity, and Poisson's ratios of mahogany and khaya.	Doyle, D. V., & Drow, J. T.	FPL Rept. 1528-C. 1946. Information Reviewed and Reaffirmed 1962.
*Supplement: Young's moduli and Poisson's ratios of Douglas-fir and their relations to moisture content.	McBurney, R. S., & Drow, J. T.	FPL Rept. 1528-D. 1946. Information Reviewed and Reaffirmed 1962.

Title	Author	Publication and date
	Strength (continued)	
*Supplement: Young's moduli, Poisson's ratios and moduli of rigidity of sweetgum at approximately 11 percent moisture content.	McBurney, R. S., Doyle, D. V., & Drow, J. T.	FPL Rept. 1528-F. 1946. Information Reviewed and Reaffirmed 1962.
*Supplement: Young's moduli, moduli of rigidity, and Poisson's ratios of yellow-poplar.	Drow, J. T., & McBurney, R. S.	FPL Rept. 1528-G. 1946. Information Reviewed and Reaffirmed 1962.
*Supplement: Young's moduli, moduli of rigidity, and Poisson's ratios of yellow birch.	Drow, J. T., & McBurney, R. S.	FPL Rept. 1528-H. 1946. Information Reviewed and Reaffirmed 1962.
*Red hickory as strong as white hickory.		FPL Tech. Note 171. 1953.
*Strength of southern pine and Douglas-fir compared.		FPL Tech. Note 119. 1952.
*Comparative strength of air-dried and kiln-dried wood.		FPL Tech. Note 180. 1952.
*Quality comparisons of hardwoods from the southern Appalachians with that of northern growth.	Paul, B. H.	South. Lbrmn., Aug. 1, 1941; Wood Products, July 1941.
Strength and related properties of woods grown in the United States.	Markwardt, L. J., & Wilson, T. R. C.	USDA Tech. Bull. 479. 1935. Out of Print.

Title	Author	Publication and date
Strength (continued)		
*The distribution and the mechanical properties of Alaska woods.	Markwardt, L. J.	USDA Tech. Bull. 226. 1931.
Comparative strength properties of woods grown in the United States.	Markwardt, L. J.	USDA Tech. Bull. 158. 1930. 10 cents.
*Standard terms for describing wood.		FPL Rept. 1169. Revised 1956. Information Reviewed and Reaffirmed 1961.
Relation of the manner of failure to the structure of wood under compression parallel to the grain.	Bienfait, J. L.	Jour. Agr. Res., July 15, 1926.
Woodworking		
Machining and related characteristics of United States hardwoods.	Davis, E. M.	USDA Tech. Bull. 1267. 1962. 35 cents.
*Machining tests for particle board; some factors involved.	Davis, E. M.	FPL Rept. 2072. 1957.
*Properties, selection, and suitability of woods for woodworking.	Coleman, D. G.	Indus. Arts and Voc. Ed., Dec. 1940.

PROPERTIES (continued)

Title	Author	Publication and date
	Other	
*Weights of various woods grown in the United States.		FPL Tech. Note 218. 1958.

SANDWICH CONSTRUCTIONS AND MATERIALS

Title	Author	Publication and date
	Core Materials	
*Durability of resin-treated paper honeycomb core.	Boller, K. H.	FPL Rept. 2158. 1959.
*Design curves for the buckling of sandwich cylinders of finite length under uniform external lateral pressure.	Norris, C. B., & Zahn, J. J.	FPL Rept. 1869. 1959.
*Buckling of simply supported rectangular sandwich panels subjected to edgewise bending.	Jahnke, W. E., & Kuenzi, E. W.	FPL Rept. 1868. 1959.
*An apparatus for measuring internal friction and fatigue strength of core materials used in sandwich construction.	James, W. L., & Norris, C. B.	FPL Rept. 1866. 1958.
*Mechanical properties of glass-fabric honeycomb cores.	Kuenzi, E. W.	FPL Rept. 1861. 1957.

Title	Author	Publication and date
	Core Materials (continued)	
*Mechanical properties of aluminum multiwave cores.	Kuenzi, E. W., & Setterholm, V. C.	FPL Rept. 1855. 1956.
*Short-column compressive strength of sandwich constructions as affected by the size of the cells of honeycomb core materials.	Norris, C. B., & Kommers, W. J.	FPL Rept. 1817. 1956.
*Durability of low-density sandwich panels of the aircraft type as determined by Laboratory tests and exposure to weather. Part IV.	Setterholm, V. C., Heebink, B. G., & Kuenzi, E. W.	FPL Rept. 1573-C. 1955. Information Reviewed and Reaffirmed 1960.
*Mechanical properties of aluminum honeycomb cores.	Kuenzi, E. W.	FPL Rept. 1849. 1955. Information Reviewed and Reaffirmed 1962.
*Effect of unbonded joints in an aluminum honeycomb-core material for sandwich constructions.	Norris, C. B.	FPL Rept. 1835. 1952. Information Reviewed and Reaffirmed 1958.
Paper honeycomb as a core for structural sandwich construction.	Kuenzi, E. W.	Am. Soc. Testing Materials Tech. Pub. No. 118, pp. 70-78. 1952.
Properties of honeycomb core as affected by fiber type, fiber orientation, resin type, and amount.	Seidl, R. J., Fahey, D. J., & Voss, A. W.	U.S. NACA Tech. Note 2564. 1951. Washington 25, D. C.

Title	Author	Publication and date
Core Materials (continued)		
An analysis of the shear strength of honeycomb cores for sandwich construction.	Werren, F.	U.S. NACA Tech. Note 2208. 1950. Washington 25, D.C.
Strength properties of rayon-mat honeycomb core materials.	Kommers, W. J.	U.S. NACA Tech. Note 2084. Apr. 1950. Washington 25, D. C.
Investigation of mechanical properties of honeycomb structures made of resin-impregnated paper.	Norris, C. B., & Mackin, G. E.	U.S. NACA Tech. Note 1529. 1948. Washington 25, D. C.
Analysis of the compressive strength of honeycomb cores for sandwich constructions.	Norris, C. B.	U.S. NACA Tech. Note 1251. 1947. Washington 25, D. C.
Fabrication and Inspection		
*Long-term case study of sandwich panel construction in FPL experimental unit.	Markwardt, L. J., & Wood, L. W.	FPL Rept. 2165. 1959.
*Determination of mechanical properties of adhesives for use in the design of bonded joints.	Kuenzi, E. W.	FPL Rept. 1851. 1956. Information Reviewed and Reaffirmed 1962.
*Repair of aircraft sandwich constructions.	Panek, E., & Heebink, B. G.	FPL Rept. 1584. 1948. Information Reviewed and Reaffirmed 1962.

Title	Author	Publication and date
	Fabrication and Inspection (continued)	
*Supplement.	Mohaupt, A. A., & Heebink, B. G.	FPL Rept. 1584-A. 1956. Information Reviewed and Reaffirmed 1962.
*Supplement.	Heebink, B. G.	FPL Rept. 1584-B. 1953. Information Reviewed and Reaffirmed 1962.
*Preliminary evaluation of a vacuum-induced concentrated-load sandwich tester.	Ericksen, W. S., Kuenzi, E. W., & Heebink, B. G.	FPL Rept. 1832-A. 1952. Information Reviewed and Reaffirmed 1958.
Fabrication techniques for structural sandwich constructions.	Heebink, B. G.	Am. Soc. Testing Materials Spec. Tech. Pub. No. 118, pp. 104-114. 1952.
	Properties	
*Torsion of sandwich panels of trapezoidal, triangular, and rectangular cross sections.	Cheng, Shun	FPL Rept. 1874. 1960.
*Supplement: Derivation of differential equation and its application to rectangular panels with loads applied at corners.	Cheng, Shun	FPL Rept. 1874-A. 1960.

Title	Author	Publication and date
	Properties (continued)	
*Compressive buckling curves for flat sandwich panels with dissimilar facings.	Norris, C. B.	FPL Rept. 1875. 1960.
*Compressive buckling curves for sandwich cylinders having orthotropic facings.	Norris, C. B., & Zahn, J. J.	FPL Rept. 1876. 1960.
*Structural sandwich design criteria.	Kuenzi, E. W.	FPL Rept. 2161. 1959.
*Simply supported sandwich beam. A nonlinear theory.	Zahn, J. J.	FPL Rept. 2157. 1959.
*Sandwich panels for building construction.	Wood, L. W.	FPL Rept. 2121. 1958.
*Compressive buckling curves for simply supported sandwich panels with glass-fabric-laminate facings and honeycomb cores.	Norris, C. B.	FPL Rept. 1867. 1958.
*Elastic buckling of a simply supported rectangular sandwich panel subjected to combined edgewise bending and compression.	Kimel, W. R.	FPL Rept. 1857. 1956. Information Reviewed and Reaffirmed 1962.
*Supplement: Results for panels with facings of either equal or unequal thickness and with orthotropic cores.	Kimel, W. R.	FPL Rept. 1857-A. 1956. Information Reviewed and Reaffirmed 1962.

Title	Author	Publication and date
	Properties (continued)	
*Elastic buckling of a simply supported rectangular sandwich panel subjected to combined edgewise bending, compression, and shear.	Kimel, W. R.	FPL Rept. 1859. 1956. Information Reviewed and Reaffirmed 1962.
Sandwich constructions.	Heebink, B. G.	Modern Plastics Ency. Issue 34(1A): 434-435. Sept. 1956.
Testing sandwich constructions at the Forest Products Laboratory.	Kuenzi, E. W.	Am. Soc. Testing Materials Bull. (164):21-28. Feb. 1950.
*Compressive buckling design curves for sandwich panels with isotropic facings and orthotropic cores.	Norris, C. B.	FPL Rept. 1854. Revised 1958.
*Deflection and stresses in a uniformly loaded, simply supported, rectangular sandwich plate.	Raville, M. E.	FPL Rept. 1847. 1955. Information Reviewed and Reaffirmed 1960.
*Supplement: Experimental verification of theory.	Lewis, W. C.	FPL Rept. 1847-A. 1956. Information Reviewed and Reaffirmed 1962.
*Stresses induced in a sandwich panel by load applied at an insert.	Youngquist, W. G., & Kuenzi, E. W.	FPL Rept. 1845. 1955. Information Reviewed and Reaffirmed 1960.

Title	Author	Publication and date
	Properties (continued)	
*Supplement.	Youngquist, W. G., & Kuenzi, E. W.	FPL Rept. 1845-A. 1955. Information Reviewed and Reaffirmed 1960.
*Supplement. No. 2.	Younquist, W. G., & Kuenzi, E. W.	FPL Rept. 1845-B. 1956. Information Reviewed and Reaffirmed 1962.
*Transfer of longitudinal load from one facing of a sandwich panel to the other by means of shear in the core.	Norris, C. B., & Boller, K. H.	FPL Rept. 1846. 1955. Information Reviewed and Reaffirmed 1960.
*Plastic flow of thin adhesive bonds.	Norris, C. B.	FPL Rept. 2092. 1958.
*Basic shear strength properties of metal-bonding adhesives as determined by lap-joint stress formulas of Volkersen and Goland and Reissner.	Eickner, H. W.	FPL Rept. 1850. 1955. Information Reviewed and Reaffirmed 1960.
*Supplement: Analysis of long cylinders of sandwich construction under uniform external lateral pressure: Facings of moderate and unequal thickness.	Raville, M. E.	FPL Rept. 1844-A. 1955. Information Reviewed and Reaffirmed 1960.
*Supplement: Buckling of sandwich cylinders of finite length under uniform external lateral pressure.	Raville, M. E.	FPL Rept. 1844-B. 1955. Information Reviewed and Reaffirmed 1960.

Title	Author	Publication and date
	Properties (continued)	
*Design criteria for long curved panels of sandwich construction in axial compression.	Kuenzi, E. W.	FPL Rept. 1558. 1946. Information Reviewed and Reaffirmed 1959.
*Buckling loads of flat sandwich panels in compression: Various types of edge conditions.	March, H. W., & Smith, C. B.	FPL Rept. 1525. 1945. Information Reviewed and Reaffirmed 1962.
*Supplement: The buckling of flat sandwich panels with edges simply supported (end-grained balsa cores and facings of aluminum and glass-cloth laminate).	Boller, K. H.	FPL Rept. 1525-A. 1947. Information Reviewed and Reaffirmed 1960.
*Supplement: Buckling of flat sandwich panels with all edges clamped (cores of end-grain balsa or cellular cellulose acetate and faces of aluminum or glass-cloth laminate).	Boller, K. H.	FPL Rept. 1525-D. 1947. Information Reviewed and Reaffirmed 1962.
*Supplement: The buckling of flat sandwich panels with either all edges simply supported or all edges clamped (cores of paper honeycomb and facings of glass-cloth laminate).	Boller, K. H.	FPL Rept. 1525-E. 1948. Information Reviewed and Reaffirmed 1962.

Title	Author	Publication and date
	Properties (continued)	
*Stability of a few curved panels subjected to shear.	Kuenzi, E. W.	FPL Rept. 1571. 1947. Information Reviewed and Reaffirmed 1959.
*Effect of shear strength on maximum loads of sandwich columns.	Boller, K. H., & Norris, C. B.	FPL Rept. 1815. 1950. Information Reviewed and Reaffirmed 1960.
*Elastic stability of the facings of flat sandwich panels when subjected to combined edgewise stresses.	Boller, K. H., & Norris, C. B.	FPL Rept. 1802. 1949. Information Reviewed and Reaffirmed 1960.
*Strength of aluminum lap joints at elevated temperatures (tests conducted immediately after the temperature was reached).	Kuenzi, E. W.	FPL Rept. 1808. 1949. Information Reviewed and Reaffirmed 1962.
*Wrinkling of the facings of sandwich construction subjected to edgewise compression.	Norris, C. B., Ericksen, W. S., March, H. W., Smith, C. B., & Boller, K. H.	FPL Rept. 1810. 1949. Information Reviewed and Reaffirmed 1961.
*Supplement: Sandwich constructions having honeycomb cores.	Norris, C. B., Boller, K. H., & Voss, A. W.	FPL Rept. 1810-A. 1953. Information Reviewed and Reaffirmed 1962.
*Flexural rigidity of a rectangular strip of sandwich construction.	March, H. W., & Smith, C. B.	FPL Rept. 1505. Revised 1955. Information Reviewed and Reaffirmed 1960.

Title	Author	Publication and date
	Properties (continued)	
*Supplement: Supplementary mathematical analysis and comparison with the results of tests.	Norris, C. B., Ericksen, W. S., & Kommers, W. J.	FPL Rept. 1505-A. Revised 1952. Information Reviewed and Reaffirmed 1962.
*The bending of a circular sandwich plate under normal load.	Ericksen, W. S.	FPL Rept. 1828. 1953. Information Reviewed and Reaffirmed 1960.
*Stresses within a rectangular, flat sandwich panel subjected to a uniformly distributed normal load and edgewise, direct, and shear loads.	Norris, C. B., & Kommers, W. J.	FPL Rept. 1838. 1953. Information Reviewed and Reaffirmed 1962.
*Buckling of sandwich cylinders in torsion.	March, H. W., & Kuenzi, E. W.	FPL Rept. 1840. Revised 1958.
*Developments and trends in lightweight composite construction.	Markwardt, L. J.	Am. Soc. Testing Materials Spec. Tech. Pub. No. 118, pp. 3-31. 1952.
*Behavior of a rectangular sandwich panel under a uniform lateral load and compressive edge loads.	March, H. W.	FPL Rept. 1834. 1952. Information Reviewed and Reaffirmed 1958.
*Shear-fatigue properties of various sandwich constructions.	Werren, F.	FPL Rept. 1837. 1952. Information Reviewed and Reaffirmed 1958.

Title	Author	Publication and date
	Properties (continued)	
*Critical loads of a rectangular flat sandwich panel subjected to two direct loads combined with a shear load.	Norris, C. B., & Kommers, W. J.	FPL Rept. 1833. 1952. Information Reviewed and Reaffirmed 1958.
*Buckling of cylinders of sandwich construction in axial compression.	March, H. W., & Kuenzi, E. W.	FPL Rept. 1830. Revised 1957.
Strength of sandwich construction.	Norris, C. B.	Am. Soc. Testing Materials Spec. Tech. Pub. No. 118, pp. 46-53. 1952. Philadelphia, Pa.
Sandwich construction in the elastic range.	March, H. W.	Am. Soc. Testing Materials Spec. Tech. Pub. No. 118, pp. 32-45. 1952.
*Edgewise compressive strength of panels and flatwise flexural strength of strips of sandwich constructions.	Kuenzi, E. W.	FPL Rept. 1827. 1950. Information Reviwed and Reaffirmed 1958.
*Effects of shear deformation in the core of a flat rectangular sandwich panel: 1. Buckling under compressive end load. 2. Deflection under uniform transverse load.	March, H. W.	FPL Rept. 1583. 1948. Information Reviewed and Reaffirmed 1960.

Title	Author	Publication and date
	Properties (continued)	
*Supplement: Stiffness of flat panels of sandwich construction subjected to uniformly distributed loads normal to their surfaces--simply supported edges.	Kommers, W. J., & Norris, C. B.	FPL Rept. 1583-A. 1948. Information Reviewed and Reaffirmed 1962.
*Supplement: Compressive buckling of sandwich panels having facings of unequal thickness.	Ericksen, W. S., & March, H. W.	FPL Rept. 1583-B. Revised 1958.
*Supplement: Deflection under uniform load of sandwich panels having facings of unequal thickness.	Ericksen, W. S.	FPL Rept. 1583-C. 1950. Information Reviewed and Reaffirmed 1962.
*Supplement: Deflection under uniform load of sandwich panels having facings of moderate thickness.	Ericksen, W. S.	FPL Rept. 1583-D. 1951. Information Reviewed and Reaffirmed 1958.
*Effect of defects on strength of aircraft type sandwich panels.	Mohaupt, A. A., & Heebink, B. G.	FPL Rept. 1809. 1949. Information Reviewed and Reaffirmed 1962.
*Supplement.	Mohaupt, A. A., & Heebink, B. G.	FPL Rept. 1809-A. 1949. Information Reviewed and Reaffirmed 1958.

SPECIES

*American Woods

Alder, red	Hackberry	Pine, southern
Baldcypress	Hemlock, eastern	" sugar
Beech, American	" western	" western white
Buckeye	Holly, American	Poplar, balsam
Butternut	Larch, western	Redwood
Cedar, Alaska	Locust, black	Spruce, Sitka
" , incense-	Maple	Sweetgum
" , eastern red-	Oaks	Sycamore, American
" , northern white-	Osage-orange	Tamarack
" , Port Orford white-	Pecan	Tupelo
Cherry, black	Persimmon	Walnut, black
Chestnut	Pine, eastern white	Willow, black
Douglas-fir	" , jack	Yellow poplar
Fir, balsam	" , ponderosa	
" , noble	" , red	
" , white		

Species	Title	Author	Publication and date
	American Woods (continued)		
Aspen	Mechanical properties of aspen.	Johnson, R. P. A.	Lake States (University Farm, St. Paul 1 Minn.) Aspen Rept. No. 7, July 1947.
Elm	*Southern hard elm strength properties compare favorably with rock elm.	Dohr, A. W.	South. Lbrmn. 187(2345):187-188, Dec. 15, 1953.
	*Southern hard elms as substitutes for rock elm.	Baudendistel, M.E., & Paul, P. H.	South. Lbrmn. 169(2129):211-215, Dec. 15, 1944.

Species	Title	Author	Publication and date
	American Woods (continued)		
Fir	*Some physical and mechanical properties of noble fir.	Paul, B. H., Dohr, A. W., & Drow, J. T.	FPL Rept. 2168. 1959.
	*California red fir compares favorably with other western species.	Drow, J. T., & Ericksen, L. N.	Calif. Lumber Merchant, Dec. 1, 1947.
	Properties of white fir and their relation to the manufacture and uses of wood.	Johnson, R. P. A., & Brundage, M. R.	USDA Tech. Bull. 408. 1934. Out of Print.
Hawaiian	*Physical, mechanical, and other properties of five Hawaiian woods.	Youngs, R. L.	FPL Rept. 2191. 1960.
Hemlock	*Properties of western hemlock and their relation to uses of the wood.	Johnson, R. P. A., & Gibbons, W. H.	USDA Tech. Bull. 139. 1929.
Hickory	*A tone test for hickory.	Heck, G. E.	South. Lbrmn. 179(2249):268, 270, Dec. 15, 1949.
	*The quality of Appalachian hickory.	Paul, B. H.	South. Lbrmn., Apr. 6, 1929.
Larch	Strength of western larch and its suitability for poles.	Drow, J. T.	Timberman 50(9): 94, 96, July 1949.
	Properties of western larch and their relation to uses of the wood.	Johnson, R. P. A., & Bradner, M. I.	USDA Tech. Bull. 285. 1932. Out of Print.

Species	Title	Author	Publication and date
	American Woods (continued)		
Oak	*Some properties of California white oak and Oregon white oak.	Paul, B. H., Dohr, A. W., & Drow, J. T.	FPL Rept. 2135. 1958.
Pine	*Mechanical properties of Coulter pine from California.	Dohr, A. W.	FPL Rept. 2102. 1958.
	*Mechanical properties of ponderosa pine from the Black Hills.	Drow, J. T., Dohr, A. W., & Bellosillo, S.	FPL Rept. 2090. 1957.
	*Strength of Virginia pine established.	Dohr, A. W.	South. Lbrmn. 181(2273):225-226, Dec. 15, 1950.
	*The white pine group.		FPL Tech. Note 215. 1957.
Redwood	*The strength and related properties of redwood.	Luxford, R. F., & Markwardt, L. J.	USDA Tech. Bull. 305. 1932.
Spruce	*Mechanical properties of Engelmann spruce.	Drow, J. T.	FPL Rept. 1944-4. Revised 1960.
Tanoak	*Specific gravity, shrinkage, and strength of tanoak.	Paul, B. H., Dohr, A. W., & Drow, J. T.	FPL Rept. 2041. 1955. Information Reviewed and Reaffirmed 1960.
Yellow poplar	*Survey of strength and related properties of yellow-poplar.	Luxford, R. F., & Wood, L. W.	FPL Rept. 1516. Revised 1953. Information Reviewed and Reaffirmed 1959.

Species	Title	Author	Publication and date
	American Woods (continued)		
General	*"Virgin growth" and "second growth."		FPL Tech. Note 153. 1957.
	*Differences between heartwood and sapwood.		FPL Tech. Note 189. Reissued 1962.
	Foreign Woods		

Leaflets on the following foreign woods are issued by the Forest Service, U.S. Department of Agriculture:

*Balsa *Braxilian araucaria *Greenheart *Iroko *Khaya *Lauans *Lignumvitae *Mahogany *Teak

Other general reports on foreign woods issued by the Forest Products Laboratory are named in the list of publications on the structure and identification of wood described on page 79.

Species	Title	Author	Publication and date
	Foreign Woods		
Balsa	*Strength and related properties of balsa and quipo woods.	Weipking, C. A., & Doyle, D. V.	FPL Rept. 1511. 1944. Information Reviewed and Reaffirmed 1960.

Species	Title	Author	Publication and date
	Foreign Woods (continued)		
Bamboo	*Properties of some bamboos cultivated in the western hemisphere.	Heck, G. E.	FPL Rept. 1765. 1949. Information Reviewed and Reaffirmed 1962.
Caribbean	Present and potential commercial timbers of the Caribbean.	Longwood, F. R.	U.S. Department of Agriculture Handbook No. 207. Mar. 1962. Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price $1.
Imported	*Characteristics of some imported woods.	Kukachka, B. F.	FPL Rept. 2242. 1962.
Parana pine	*Mechanical properties of Brazilian parana pine.	Dohr, A. W.	South. Lbrmn., 186(2324):39-40, 42, Feb. 1, 1953.
Puerto Rican	Puerto Rican Woods--Their machining, seasoning and related characteristics.	Longwood, F. R.	U.S. Department of Agriculture Handbook No. 205. Nov. 1961. Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price 65 cents.

STEAM BENDING

Title	Author	Publication and date
Bending solid wood to form.	Peck, E. G.	U.S. Department of Agriculture Handbook No. 125. Dec. 1957. Available from the Superintendent of Documents, Government Printing Office, Washinton 25, D. C. Price 15 cents.
A further improvement in pans for use in the hot-press bending of chair posts.	Wilson, T.R.C.	Wood Working Indus., Feb. 1927.

STRUCTURAL TIMBERS

Title	Author	Publication and date
*Shear stress in two wood beams over wood block supports.	Cowan, W. C.	FPL Rept. 2249. 1962.
*Working stresses for farm building lumber.	Wood, L. W.	Agric. Eng., 42(1): 18-21, 25. Jan. 1961.
Tentative recommended practice for determining design stresses for load-sharing lumber members.		Am. Soc. Testing Materials Std. D2018-62 T. Issued 1961.

Title	Author	Publication and date
*Simplified principles for structural grading of timber.	Markwardt, L. J., & Wood, L. W.	FPL Rept. 2112. 1958.
The factor of safety in design of timber structures.	Wood, L. W.	Paper 3051. Transactions of Am. Soc. Civil Engrs., Vol. 125, 1960.
Duration of load and fatigue in wood structures.	Wood, L. W., Horner, A. C., Lewis, W. C., & Ruble, E. J.	Jour. of the Struc. Proc. ASCE 83(ST5):1361-1 to 1361-8. 1957.
*Evaluation of the factor of safety in structural timbers.	Wood, L. W., & Tasker, Marilyn	FPL Rept. 2068. 1957.
*Formulas for columns with side loads and eccentricity.	Wood, L. W.	FPL Rept. 1782. 1950. Information Reviewed and Reaffirmed 1961.
*Properties of white-pocket Douglas-fir lumber.	Wood, L. W.	FPL Rept. 2017. 1955. Information Reviewed and Reaffirmed 1960.
*Structural values of old lumber.	Wood, L. W.	South. Lbrmn., 189(2369):158-160, Dec. 15, 1954. FPL Rept. 2009. 1954. Information Reviewed and Reaffirmed 1959.

Title	Author	Publication and date
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Title	Author	Publication and date
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Title	Author	Publication and date
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GENERAL

Title	Author	Publication and date
*Changing utilization of hardwoods.	Locke, E. G.	FPL Rept. 2244. 1962.
*Study and Investigation of use of materials and new design and methods in public works: The role of wood and wood products in public works.		87th Congress, 2nd Session, Committee Print No. 2, 70 pp. 1962.
*FPL 1961: Annual report of the Forest Products Laboratory.	Forest Products Laboratory	36 pp. 1961.
Fifty years of service through wood research.	Forest Products Laboratory	U.S. Department of Agriculture Misc. Pub. No. 820, 18 pp. 1960.
*Opportunities for graduate students in forest products.		24 pp. Jan. 1960.
How standards serve the wood industries.	Markwardt, L. J.	Magazine of Standards, Am. Standards Assn., 30(6): 164-168, June 1959.

Title	Author	Publication and date
Wood: Colors and kinds.	Forest Products Laboratory	U.S. Department of Agriculture Handbook No. 101, 36 pp. Oct. 1956. Available from Superintendent of Documents, Government Printing Office, Washington 25, D.C. Price 50 cents.
*The Forest Products Laboratory.	Champion, F. J.	FPL Rept. 1698. 1956. Revised 1960.
*Some books about wood (a list).		FPL Rept. 399. Revised 1961.
Wood handbook	Forest Products Laboratory	U.S. Department of Agriculture Handbook 72. 528 pp. 1955. Available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. Price $2.
*Inside wood--a short trip into the interior for the layman.	Champion, F. J.	FPL Rept. 1995. 1954. Information Reviewed and Reaffirmed 1960.

GENERAL (continued)

Title	Author	Publication and date
*Wood--A simple explanation, what it is and how we use it.	Champion, F. J.	FPL Rept. 1972. 1954. Information Reviewed and Reaffirmed 1960.
*Wood as an engineering material.	Markwardt, L. J.	Civil Eng. 22(9):165-170, Sept. 1952.
*What is meant by "hardwoods" and "softwoods."		FPL Tech. Note 187. 1952.
*A hundred definitions pertaining to wood and other forest products.		FPL Tech. Note 240. 1958.
Research in forest products aids standardization.	Markwardt, L. J.	Standards World 2(2): 155-170, Apr. 1950.
FAO Committee on Mechanical Wood Technology holds conference at Geneva, Switzerland.	Markwardt, L. J.	Am. Soc. Testing Materials Bull. (163):41-45. Jan. 1950.
Products of American forests.	Champion, F. J.	U.S. Department of Agriculture Misc. Pub. No. 861, 30 pp. 1961. Available from Superintendent of Documents, Government Printing Office, Washington 25, D.C. Price 30 cents.
Wood as an engineering material.	Markwardt, L. J.	Am. Soc. Testing Materials Proc. 43:1-58, 1943.

OTHER PUBLICATION LISTS ISSUED BY

THE FOREST PRODUCTS LABORATORY

The following lists of publications which deal with the other investigative projects of the Forest Products Laboratory are obtainable upon request:

Boxing and Crating--Strength and serviceability of shipping containers, methods of packing.

Building Construction Subjects--Partial list of Government publications of interest to architects, builders, engineers, and retail lumbermen.

Chemistry of Wood and Derived Products--Chemical properties and uses of wood products, such as turpentine, alcohol, and acetic acid.

Fire Protection--Fire test methods, fire retarding chemicals and treatments, and fire behavior of treated and untreated wood, wood products, and wood structures.

Fungus Defects in Forest Products--Decay, stains, and molds in timber, buildings, and various wood products; antiseptic properties of protective materials.

Furniture Manufacturers, Woodworkers, and Teachers of Wood Shop Practice--Partial list of Government publications on growth, structure, and identification of wood; moisture content, physical properties, air seasoning, and kiln drying; grading, manufacturing, and waste utilization; strength and related properties and joints and fastenings; glues and gluing, veneer and plywood fabrication; box and crate construction.

Glue and Plywood--Development of waterproof glues, preparation and application of various glues, plywood manufacturing problems.

Growth, Structure, and Identification of Wood--Structure and identification of wood; the effect of cellular structure of wood on its strength, shrinkage, permeability, and other properties; the influence of environmental factors, such as light, soil, moisture, and fire, on the quality of wood produced; and secretions of economic value produced by trees and their exploitation.

OTHER PUBLICATION LISTS ISSUED BY

THE FOREST PRODUCTS LABORATORY (continued)

Logging, Milling, and Utilization of Timber--Methods and practices in the lumber-producing and wood-consuming industries; standard lumber grades, sizes, and nomenclature; production and use of small dimension stock; specifications for small wood products; uses for little-used species and commercial woods; and low-grade and wood waste surveys.

Pulp and Paper--Suitability of various woods for pulp and paper, fundamental principles underlying the pulping and bleaching processes; methods of technical control of these processes; relation of the chemical and physical properties of pulps and the relation of these properties to the papermaking qualities of the pulps; waste in the industry, for example, decay in wood and pulp, utilization of bark, white water losses, etc.

Seasoning of Wood--Experimental and applied kiln drying, physical properties, air drying, steam bending.

Structural Sandwich, Plastic Laminates, and Wood-Base Aircraft Components--Strength, selection, and character of aircraft wood, plywood, and wood and composite laminated and sandwich materials; fabrication and assembly problems; methods of calculating the strength.

Thermal Properties of Wood--General information and the results of research on how wood is affected by and transmits heat.

Wood Finishing Subjects--Effect of coatings in preventing moisture absorption; painting characteristics of different woods, and weathering of wood.

Wood Preservation--Preservative materials and methods of application; durability and service records of treated and untreated wood in various forms.

Note: Since Forest Products Laboratory publications are so varied in subject matter, no single big list is issued. Instead, a list is made up for each Laboratory division. Twice a year, December 31 and June 30, a list is made up showing new reports for the previous 6 months. This is the only item sent regularly to the Laboratory's mailing list. Anyone who has asked for and received the proper subject lists and who has had his name placed on the mailing list can keep up to date on Forest Products Laboratory publications. Each subject list carries descriptions of all other subject lists.

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