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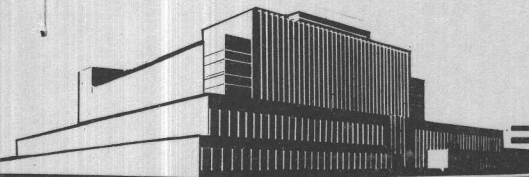
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List of Publications on

GLUE, GLUED PRODUCTS, AND VENEER

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No. 513



FOREST PRODUCTS LABORATORY
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UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

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This list includes publications that present the results of research by the Forest Products Laboratory on the development of water-proof glues, preparation and application of various glues, plywood manufacturing problems, etc.

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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.

Federal Government bulletins, circulars, and leaflets, if not available for free distribution at this Laboratory, may be purchased at the price indicated from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. Send money order, draft, or cash; stamps or personal checks are not accepted.

Trade journals containing articles herein listed may often be purchased from the publishers or may be consulted in various libraries.

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.

TYPES OF GLUES AND THEIR CHARACTERISTICS

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- *104 Overheating reduces strength of animal glue.
- *146 Occurrence and removal of glue stains.
- *170 Copper salts improve casein glue.
- *223 A factory method for testing hardness of glue joints.
- *256 How to select a woodworking glue.
- *257 Woodworking glues of natural origin.
- *258 Synthetic resin glues for wood.

Processed Reports

- *30 Vegetable (starch) glues. Information Reviewed and Reaffirmed 1960.
- *40 A water-resistant animal glue. Information Reviewed and Reaffirmed 1958.
- *280 Casein glues: Their manufacture, preparation, and application. Information Reviewed and Reaffirmed 1961.
- *281-2 Blood albumin glues: Their manufacture, preparation, and application. Information Reviewed and Reaffirmed 1959.
- *492 Animal glues: Their manufacture, testing, and preparation. Information Reviewed and Reaffirmed 1960.
- *1336 Synthetic -resin glues. Information Reviewed and Reaffirmed 1959.

Articles in Trade and Technical Press

- *Epoxy-resin adhesives for gluing wood, by W. Z. Olson. Forest Products Jour. 12(2):74-80, Feb. 1962.
- *Progress in glues and gluing processes, by R. F. Blomquist. Forest Products Jour. 12(2):49-58, Feb. 1962.

TYPES OF GLUES AND THEIR CHARACTERISTICS (continued)

Articles in Trade and Technical Press (continued)

- *An evaluation of 21 rubber-base adhesives for wood, by R. F. Blomquist and W. Z. Olson. Forest Products Jour. 10(10):494-502, Oct. 1960.
- *An international look at glues and gluing, 1959, by R. F. Blomquist, Forest Products Jour. 10(2):62-70, Feb. 1960.
- *The ideal glue--how close are we? by Don Brouse. Forest Products Jour. 7(5):163-167, May 1957.
- *Better glues, by R. F. Blomquist. South. Lbrmn. 194(2418):43-47, Jan. 1, 1957.
- *Polyvinyl-resin emulsion woodworking glues, by W. Z. Olson and R. F. Blomquist. Forest Products Jour. 5(4):219-226, Aug. 1955.
- Technologically useful properties of casein, by F. L. Browne. Colloid Chemistry (edited by Alexander) V. 4, pp. 399-441, 1932.
- Consistency of animal glue, by Don Brouse. Indus. & Eng. Chem., March 1929.
- The significance of mechanical wood-joint tests for the selection of woodworking glues, by T. R. Truax, F. L. Browne, and Don Brouse. Indus. & Eng. Chem., Jan. 1929.
- The consistency of casein glues, by F. L. Browne and Don Brouse. Colloid Symposium Monograph (edited by Weiser, H. B.) Vol. 5, 229-242, 1928.
- Casein glue, by F. L. Browne. In Casein & Its Industrial Applications, by Edwin Sutermeister, pp. 169-219, 1927.
- A water-resistant animal glue, by F. L. Browne. Indus. & Eng. Chem., Feb. 1927.
- Hard water and glue mixtures, by F. L. Browne. Veneers, Jan. 1925.
- What makes glue stick, by Eloise Gerry and T. R. Truax, Scientific American, August 1923.
Same: Effect of wood structure on glue penetration. Furn. Mfr. & Artisan, April 1922.
- Hydroscopicity of hide glues and the relation of tensile strength of glue to its moisture content, by E. Bateman and G. G. Town. Indus. & Eng. Chem., April 1923.

GLUING OF WOOD

Technical Notes

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- *226 Glues for wood in archery uses.
- *227 Tooth-planing not necessary to produce strong glued wood joints.
- *232 Chemical treatment of surfaces improves joints with certain woods and glues.
- *255 Hand-operated portable glue spreader.

Processed Reports

- *475 Drying and conditioning glued joints. Information Reviewed and Reaffirmed 1961.
- *869 Important factors in gluing with animal glue. Information Reviewed and Reaffirmed 1961.
- *1275 Strength tests of spliced studs. Revised 1959.
- *1340 Control of conditions in gluing with protein and starch glues. Information Reviewed and Reaffirmed 1962.
- *1342 The gluing characteristics of 15 species of wood with cold-setting, urea-resin glues. Information Reviewed and Reaffirmed 1962.
- *1351 Preliminary experiments to improve the gluing characteristics of refractory plywood surfaces by sanding. Information Reviewed and Reaffirmed 1962.
- *1422 Rate of setting of cold-setting, urea-resin glue joints. Information Reviewed and Reaffirmed 1959.
- *1427 The effect of fire-retardant chemicals on glues used in plywood manufacture. Information Reviewed and Reaffirmed 1958.
- *1484 Experiments on the gluing of wood treated with oil solutions of chlorophenols. Information Reviewed and Reaffirmed 1961.

GLUING OF WOOD (continued)

Processed Reports (continued)

- *1531 Development of joint strength in birch plywood glued with phenol-, resorcinol-, and melamine-resin glues cured at several temperatures. Information Reviewed and Reaffirmed 1960.

- *1541 Bleed-through of glue in aircraft plywood. Information Reviewed and Reaffirmed 1960.

- *1542 Strength of joints in hard maple blocks, glued with certain resin glues, after various open and closed assembly periods. Information Reviewed and Reaffirmed 1960.

- *1546 Variation in maximum allowable assembly time with age in the pot at time of spreading for four resin glues. Information Reviewed and Reaffirmed 1962.

- *1547 Rate of development of joint strength by four resin glues on eight species of wood. Information Reviewed and Reaffirmed 1962.

- *1565 Development of strength in yellow birch lap joints glued with six resorcinol-resin glues at temperatures from 40° to 80° F. Information Reviewed and Reaffirmed 1962.

- *1629 Curing of resorcinol-resin glues at temperatures from 40° to 80° F. Information Reviewed and Reaffirmed 1958.

- *1670 Effect of clamp spacing on the quality of glue bond in laminated white oak timbers glued with an intermediate-temperature-setting, phenol-resin glue. Information Reviewed and Reaffirmed 1962.

- *1694 Gluing of plywood to concealed framing members with high-frequency stray field heating. Information Reviewed and Reaffirmed 1960.

- *1789 Summary of information on gluing of treated wood. Information Reviewed and Reaffirmed 1959.

GLUING OF WOOD (continued)

Processed Reports (continued)

- *2030 Gluing characteristics of chinquapin, tanoak, California laurel, madrone. Information Reviewed and Reaffirmed 1960.
- *2178 Adhesives and their application to fabrication of farm structures. 1960.
- *2183 Proceedings of the symposium on adhesives for the wood industry held at U.S. Forest Products Laboratory, Madison, Wis., January 13-15, 1960.
- *2199 Adhesives, their use and performance in structural lumber products. 1960.

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*Progress in 1960...glues and gluing processes, by R. F. Blomquist. Forest Products Jour. 11(2):77-85, Feb. 1961.

*Effect of solvent on gluing of preservative-treated red oak, Douglas-fir, and southern pine, by M. L. Selbo. Amer. Wood-Preservers' Assn. 1961.

*The future of adhesives in the wood industry, by R. F. Blomquist and H. O. Fleischer. Forest Products Jour. 10(12):626-630, Dec. 1960.

*An international look at glues and gluing, 1959, by R. F. Blomquist. Forest Products Jour. 10(2):62-70, Feb. 1960.

*The gluing of treated lumber, by M. L. Selbo. Amer. Wood-Preservers' Assn. Proc. 1960.

Gluing techniques for beech, by W. Z. Olson and R. F. Blomquist. Beech Utilization Series No. 5, 1953. Northeastern Forest Experiment Station.

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Some tests on the gluing characteristics of four California species:

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Gluing of plywood to concealed framing members with high-frequency stray field heating, by E. R. Bell and M. E. Dunlap. Prefabricated Homes 8(2):15-17, 28-29, Mar. -Apr. 1947.

Moisture content and gluing: The effect of moisture content of wood on joint strength in gluing birch veneer and maple lumber with room-temperature-setting and intermediate-temperature-setting phenol, resorcinol, and melamine glues, by W. Z. Olson. South. Lbrmn., Feb. 1, 1947.

*Glues and gluing in prefabricated house construction, by G. N. Arneson. Miss. Valley Lbrmn., May 10, 17, 1946; Cosgrove's Mag., May-June 1946.

Development of wood adhesives and gluing technic, by T. R. Truax. In Amer. Soc. Mech. Engr., Wood Indus. Div., Trans., 54(4):1-4, 1932.

Adhesion in the painting and in the gluing of wood, by F. L. Browne. Indus. & Eng. Chem., March 1931.

Removing "weak link" in millwork: When properly made, glue joints can be made as strong as wood itself in most respects, by T. R. Truax.

Wood Working Indus., May 1930.

Same: Glue practice. Timberman, May 1930.

Gluing Pacific Coast woods, by T. R. Truax and C. A. Harrison. West Coast Lumberman, May 15, 1928.

Gluing wood in aircraft work, by T. R. Truax. Amer. Soc. Mech. Engr., Aeronautics Div., Transactions, pp. 61-4, 1928.

Conditions affecting the making of glued joints, by T. R. Truax. Furn. Mfr. & Artisan, May 1924.

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*Glued structural members. Separate from the Forest Products Laboratory's "Wood Handbook," U.S.D.A. Handbook No. 72.¹

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GLUING OF MATERIALS OTHER THAN WOOD (Metals, Plastics, etc.)

Processed Reports

- *1346 Gluing of thin compreg. Information Reviewed and Reaffirmed 1962.
- *1348 The gluing of laminated paper plastic (papreg). Information Reviewed and Reaffirmed 1960.
- *1545 Resistance to fatigue stressing of wood-to-metal joints glued with several types of adhesives. Information Reviewed and Reaffirmed 1962.
- *1548 Tensile strength at elevated temperature of glued joints between aluminum and end-grain balsa. Information Reviewed and Reaffirmed 1959
- *1570 Durability of glued wood to metal joints. Information Reviewed and Reaffirmed 1962.
- *1573-C Durability of low-density sandwich panels of the aircraft type as determined by laboratory tests and exposure to weather. Information Reviewed and Reaffirmed 1960.

¹—Available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. \$2.00

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- *1808 Strength of aluminum lap joints at elevated temperatures.
 (Tests conducted immediately after the temperature was
 reached.) Information Reviewed and Reaffirmed 1962.

- *1813 A study of methods for preparing clad 24S-T3 aluminum-alloy
 sheet surfaces for adhesive bonding. Information Reviewed
 and Reaffirmed 1962.

- *1813-A A study of methods for preparing clad 24S-T3 aluminum-alloy
 sheet surfaces for adhesive bonding: Part 3--Effect of cleaning
 method on resistance of bonded joints to saltwater spray.
 Information Reviewed and Reaffirmed 1962.

- *1836 The shear, fatigue, bend, impact, and long-time-load strength
 properties of structural metal-to-metal adhesives in bonds to
 24S-T3 aluminum alloy. Information Reviewed and Reaffirmed
 1959.

- *1842 Adhesive bonding properties of various metals as affected by
 chemical and anodizing treatments of the surfaces. (Addendum
 added.) Information Reviewed and Reaffirmed 1960.

- *1842-A Adhesive bonding properties of various metals as affected by
 chemical and anodizing treatments of the surfaces (Part A--
 Additional tests on anodized aluminum and on zinc-chromate-
 primed magnesium). Information Reviewed and Reaffirmed
 1960.

- *1850 Basic shear strength properties of metal-bonding adhesive as
 determined by lap-joint stress formulas of Volkersen and
 Goland and Reissner. Information Reviewed and Reaffirmed
 1960.

- *1851 Determination of mechanical properties of adhesives for use in
 the design of bonded joints. Information Reviewed and
 Reaffirmed 1962.

- *1862 General survey of data on the reliability of metal-bonding
 adhesive processes. 1957.

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- *1865 Effect of surface treatment on the adhesive bonding properties of magnesium. 1958.
- *1880 Statistical variations of the lap-joint strength of metal-bonding adhesives at elevated temperatures. 1961.
- *1883 Development of adhesives with improved heat resistance in bonds of stainless steel. 1961.
- *2008 Development of improved structural epoxy-resin adhesives and bonding processes for metal. Information Reviewed and Reaffirmed 1959.
- *2197 Importance of balanced construction in plastic-faced wood panels. 1960.

Articles in Trade and Technical Press

- *Polymer structure and the thermal deterioration of adhesives in metal joints, Pts. 1 and 2, by J. M. Black and R. F. Blomquist. Adhesives Age 5(2):30-36, Feb. 1962. 5(3): 34-38, March 1962.
- Paper overlays on low-grade lumber, by B. G. Heebink. The Northeastern Logger 10(4):14-15, 34-36, 43, Oct. 1961.
- How to balance plastic-faced wood panels, by B. G. Heebink. Wood and Wood Products 66(6):38, 40, June 1961.
- *Paper overlaid lumber, by B. G. Heebink. Forest Products Jour. 11(4):167-175, Apr. 1961.
- *Bonding wood veneer flooring to concrete subfloors, by H. W. Eickner. Veneers and Plywood 53(9):18-19, 21, 24, Sept. 1959.
- *Adhesive deterioration in metal bonds at high temperatures, by R. F. Blomquist and J. M. Black. Adhesives Age 2(5):34-39, May 1959. 2(6):27-38, June 1959.

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*Metal surface effects on heat resistance of adhesive bonds, by J. M. Black and R. F. Blomquist. Indus. & Eng. Chem. 50(6):918-921, June 1958.

*Climbing peel test for strength of adhesive bonds, by Fred Werren and H. W. Eickner. Modern Plastics, Dec. 1956.

Development and evaluation of the climbing peel method for testing adhesive bonds in sandwich and metal-to-metal constructions, by H. W. Eickner and Fred Werren. WADC Technical Report 56-386 (ASTIA Document AD-11049). Oct. 1956.

Tensile strength of adhesive bonds in sandwich with aluminum facings and aluminum honeycomb cores, by V. C. Setterholm, H. W. Eickner, and E. W. Kuenzi. WADC Technical Report 56-239 (ASTIA Document AD-97294). Sept. 1956.

*Metal-bonding adhesives for high-temperature service, by J. M. Black and R. F. Blomquist. Modern Plastics 33(10):250, June 1956.

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*Metal-bonding adhesives with improved heat resistance, by J. M. Black and R. F. Blomquist. Modern Plastics, Dec. 1954.

Comparisons of test methods for evaluating adhesives for bonding metal facings to metal honeycomb cores, by H. W. Eickner and Fred Werren. WADC Technical Report 54-138. July 1954.

Weathering of adhesive-bonded lap joints of clad aluminum alloy, by H. W. Eickner. WADC Technical Report 54-477, Part I. Feb. 1955. Part II (ASTIA Document AD-130879). July 1957.

Effect of temperatures from -70° to 600° F. on strength of adhesive-bonded lap shear specimens of clad 24S-T3 aluminum alloy and of cotton- and glass-fabric plastic laminates, by H. W. Eickner, W. Z. Olson, and R. F. Blomquist. National Advisory Committee for Aeronautics Technical Note 2717, June 1952.

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Evaluation of several adhesives and processes for bonding sandwich constructions of aluminum facings on paper honeycomb core, by H. W. Eickner. National Advisory Committee for Aeronautics Technical Note 2106. May 1950.

Gluing tests with room-temperature-setting adhesives to fabric-base plastic laminates, by H. W. Eickner. Air Forces Technical Report No. 5928. Aug. 1949.

DURABILITY OF GLUES

Technical Notes

*263 FPL show-through comparator for furniture panels.

Processed Reports

- *1294 Effect of extending hot-press, urea-resin glue with rye flour on strength and durability of the glue joints. Information Reviewed and Reaffirmed 1962.
- *1332 Increasing the durability of casein glue joints with preservatives. Information Reviewed and Reaffirmed 1961.
- *1339 Effects of elevated curing temperatures on the strength and durability of yellow birch plywood joints made with room-temperature-setting urea glues. Information Reviewed and Reaffirmed 1961.
- *1344 Procedures for measuring the mold resistance of protein glues. Information Reviewed and Reaffirmed 1960.
- *1345 Effect of high and low temperatures on resin glue joints in birch plywood. Information Reviewed and Reaffirmed 1962.

DURABILITY OF GLUES (continued)

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- *1447 Experiments with preservatives for soybean glue and soybean-glued plywood. Information Reviewed and Reaffirmed 1959.
- *1530 Durability of water-resistant woodworking glues. Information Reviewed and Reaffirmed 1962.
- *1536 Durability of glue joints between blocks of compreg and of compreg and wood. Information Reviewed and Reaffirmed 1960.
- *1538 Durability of papreg-to-papreg and papreg-to-birch glue joints. Information Reviewed and Reaffirmed 1962.
- *1539 Resistance of several types of glue in wood joints to fatigue stressing. Information Reviewed and Reaffirmed 1960.
- *1616 Effect of thickness of glue line on strength and durability of glued wood joints. Information Reviewed and Reaffirmed 1960.
- *1729 Results of accelerated tests and long-term exposures on glue joints in laminated beams. Information Reviewed and Reaffirmed 1962.
- *1748 Effect of alkalinity of phenol- and resorcinol-resin glues on durability of joints in plywood. Information Reviewed and Reaffirmed 1962.
- *2077 Effect of moisture on bacterial weakening of casein-bonded plywood. 1957.
- *2182 Heating veneer bolts to improve quality of Douglas-fir plywood. 1960.

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- *Adhesive deterioration in metal bonds at high temperatures, by R. F. Blomquist and J. M. Black. Adhesives Age 2(5):34-39, May 1959; 2(6):27-38, June 1959.

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- *Effect of repeated loading and salt-water immersion on flexural properties of laminated white oak, by A. D. Freas and Fred Werren. Forest Products Jour. 9(2):100-103, Feb. 1959.
- *Glue joints durable--12-year tests in preservative-treated laminated timbers reported, by M. L. Selbo. South. Lbrmn. 197(2465):171-178, Dec. 15, 1958.
- *Durability of urea-resin glues at elevated temperatures, by R. F. Blomquist and W. Z. Olson. Forest Products Jour. 7(8):266-272, Aug. 1957.
- *Durability of fortified urea-resin glues in plywood joints, by R. F. Blomquist and W. Z. Olson. Forest Products Jour. 5(1):50-56, Feb. 1955.
- Procedures for measuring the mold resistance of protein glues, by F. H. Kaufert and C. A. Richards. Wood Products, Oct. 1943.
- Evaluation of glues and glued products, by R. F. Blomquist. Preprint Forest Products Res. Soc. 8th Annual National Meeting, Grand Rapids, Mich., May 1954.
- *Durability of woodworking glues in different types of assembly joints, by M. L. Selbo and W. Z. Olson. Forest Products Res. Soc. Jour. Preprint 1953.
- Durability of glue joints in preservative treated wood, by M. L. Selbo. South. Lbrmn. 185(2321):203-206, Dec. 15, 1952.
- *Current investigations of the durability of woodworking adhesives, by R. F. Blomquist. ASTM Symposium on testing adhesives for durability and permanence. STP No. 138, 1952.
- The durability of birch plywood treated with wood preservatives and fire-retarding chemicals, by J. O. Blew and W. Z. Olson. Amer. Wood-Pres. Assn. Proc. 1950.
- *Durability of woodworking glues for dwellings, by M. L. Selbo. Forest Products Res. Soc. Proc., 1949.

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Controlled exposure tests on birch plywood indicate durability of water resistant glue joints, by Don Brouse. Mech. Eng., Nov. 1938.

Serviceability of glue joints, by Don Brouse. Mech. Eng., April 1938.

Age and strength of glue joints, by Don Brouse. Furn. Mfr., July 1931; Wood Working Indus., June 1931; Hardwood Record, Aug. 1931; Wood Products, Aug. 1931.

PLYWOOD AND VENEERED PANELS

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- *131 Properties of ordinary wood compared with plywood.
- *149 Strength of screw fastenings in plywood.
- *197 Veneered and solid furniture.
- *260 Estimating the weight of plywood.

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- *543 Manufacture and general characteristics of flat plywood.
Revised 1961.
- *1026 Floor panels with stressed plywood coverings. Information
Reviewed and Reaffirmed 1960.
- *1099 Fabricated wall panels with plywood coverings. Information
Reviewed and Reaffirmed 1960.
- *1252 Some causes of warping in plywood and veneered products.
Information Reviewed and Reaffirmed 1961.
- *1257 Fire resistance tests of plywood-covered wall panels. Information
Reviewed and Reaffirmed 1961.

PLYWOOD AND VENEERED PANELS (continued)

Processed Reports (continued)

- *1299 The rate of temperature change in wood panels heated between hot plates. Information Reviewed and Reaffirmed 1960.
- *1304 The bending strength and stiffness of plywood. Information Reviewed and Reaffirmed 1962.
- *1541 Bleed-through of glue in aircraft plywood. Information Reviewed and Reaffirmed 1960.
- *1615 Some causes of variability in the results of plywood shear tests. Information Reviewed and Reaffirmed 1959.
- *1624 Fluid pressure molding of plywood. Information Reviewed and Reaffirmed 1959.
- *1630 Approximate methods of calculating the strength of plywood. Information Reviewed and Reaffirmed 1962.
- *1785 Comparison of redwood and flat-grained yellow-poplar for cores in furniture panels. Information Reviewed and Reaffirmed 1960.
- *1788 Mandrel bending tests for aircraft veneer. Information Reviewed and Reaffirmed 1962.
- *1822 Moisture-excluding effectiveness of edge seals for aircraft sandwich panels. Information Reviewed and Reaffirmed 1962.
- *1983 Hollow-core flush doors. Revised 1959.
- *2140 Surface flammability of various wood-base building materials. 1959.
- *2161 Structural sandwich design criteria. 1959.
- *2165 Long-term case study of sandwich panel construction in FPL experimental unit. 1959.

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- *A new technique for evaluating show-through of particle board cores, by B. G. Heebink. Forest Products Jour. 10(8):379-388, Aug. 1960.
- Trends and troubles--Veneer and plywood, 1959, by J. F. Lutz. Forest Products Jour. 10(2):119-122, Feb. 1960.
- *Effect of resin treatment and compression upon the weathering properties of veneer laminates, by R. A. Lloyd and A. J. Stamm. Forest Products Jour. 8(8):230-235, Aug. 1958.
- *Our changing veneer and plywood industry, by H. O. Fleischer. Forest Products Jour. 6(2):50-53, Feb. 1956.
- *New veneer-lumber flooring developed for concrete slabs, by D. A. Zischke. South. Lbrmn. 191(2393):169-170, Dec. 15, 1955.
- *Paper-overlaid planks provide smooth, durable stadium seats, by B. G. Heebink. South. Lbrmn. 191(2393):125-26, Dec. 15, 1955.
- *Dimensional stabilizing effect of paper overlays when applied to lumber, by B. G. Heebink. Forest Products Jour. 4(3):149-151, June 1954.
- *Effectiveness of different conditioning schedules in reducing sunken joints in edge glued lumber panels, by M. L. Selbo. Forest Products Jour. 2(1):110, April 1952.
- *Effect of plywood glue lines on the accuracy of moisture-meter indications, by E. R. Bell and N. T. Krueger. Forest Products Res. Soc. Proc., 1949.
- Fire tests show resistance of plywood wall units, by G. C. McNaughton and C. A. Harrison. Wood Construction, April 15, 1941; Amer. Bldr. & Bld. Age, June 1941.
- Some causes of warping in plywood and veneered products, by Don Brouse. Wood Products, Oct. 1940.

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Plywood in relation to the veneer package industry, by C. V. Sweet. Wood Products, Dec. 1939.

Resin-treated plywood, by A. J. Stamm and R. M. Seborg. Indus. & Eng. Chem., July 1939.

Developments in plywood, by C. P. Winslow. Timberman, Nov. 1938.

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Fabricated wall panels with plywood coverings, by R. F. Luxford. Timberman, Feb. 1936.

Plywood as a structural covering for frame walls and wall units, by G. W. Trayer. Eng. News-Record, Aug. 1934.

Floor panels with stressed plywood coverings, by G. W. Trayer. Eng. News-Record, Aug. 1934.

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Why modern furniture is veneered, by T. R. Truax. Good Housekeeping, March 1929.

Western woods for cores in veneered panels, by T. R. Truax. Furn. Mfr. & Artisan, Nov. 1923, Timberman, Nov. 1923.

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*Structural sandwich construction. Separate from the Forest Products Laboratory's "Wood Handbook," U.S.D.A. Handbook No. 72.¹

PARTICLE BOARD

Technical Notes

- *263 FPL show-through comparator for furniture panels.

Processed Reports

- *1666-21 Board materials from wood residues. Revised 1961.
- *2072 Machining tests for particle board; some factors involved. 1957.
- *2196 Decay resistance of experimental and commercial particle board. 1960.

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OTHER PUBLICATION LISTS ISSUED BY THE
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The following lists of publications which deal with the other investigative projects of the Forest Products Laboratory are obtainable upon request:

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

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

Chemistry of Wood and Derived Products--Chemical properties and uses of wood and chemical 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.

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.

Logging, Milling, and Utilization of Timber Products--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 wooden products; uses for little-used species and commercial woods, and low-grade and wood-waste surveys.

OTHER PUBLICATION LISTS ISSUED BY THE
FOREST PRODUCTS LABORATORY (continued)

Mechanical Properties of Timber--Strength of timber and factors affecting strength; design of wooden articles or parts where strength or resistance to external forces is of importance.

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.

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