List of Publications on
THE SEASONING OF WOOD

August 1961

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INSTRUCTIONS FOR OBTAINING PUBLICATIONS

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

Single technical notes, reprints, duplicated 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 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.
LIST OF PUBLICATIONS ON THE SEASONING OF WOOD

PHYSICAL PROPERTIES OF WOOD AS RELATED TO SEASONING

Technical Notes

*B-14  Methods of determining the specific gravity of wood. 1956.
*248  Computed thermal conductivity of common woods. 1952.
*252  The fiber-saturation point of wood. 1952.

FPL Processed Reports

*736  Shrinking and swelling of wood in use. Information reviewed and reaffirmed 1957.
*768  The sap or moisture in wood, by E. C. Peck. 1959.

*1169  Standard terms for describing wood. 1956.

*1406  Methods of computing the rate of temperature change in wood and plywood panels when the two opposite surfaces are maintained at different temperatures, by J. D. MacLean. Information reviewed and reaffirmed 1956.

*1448  Effect of moisture changes on the shrinking, swelling, specific gravity, air or void space, weight and similar properties of wood, by J. D. MacLean. Information reviewed and reaffirmed 1958.

*1473  Effect of direction of growth rings on the relative amount of shrinkage in width and thickness of lumber and effect of radial and tangential shrinkage on dimensions of round timbers, by J. D. MacLean. Information reviewed and reaffirmed 1956.
FPL Processed Reports (Cont.)


*1649 Methods of determining the moisture content of wood, by J. M. McMillen. Information reviewed and reaffirmed 1956.


*1682 Effects of wood preservatives on electrical moisture-meter readings. Information reviewed and reaffirmed 1958.


*1769-27 Method of calculating shrinkage or swelling of wood with change in moisture content, by E. C. Peck. 1960.


*2079 The perpendicular-to-grain mechanical properties of red oak as related to temperature, moisture content, and time, by R. L. Youngs. 1957.

*2106 Occurrence of tension wood and related seasoning defects in California black oak, by Harold E. Wahlgren. 1958.

PHYSICAL PROPERTIES OF WOOD AS RELATED TO SEASONING (Cont.)

FPL Processed Reports (Cont.)

*2145 Report of dimensional stabilization seminar held at U.S. Forest Products Laboratory, Madison, Wisconsin, January 21-23, 1959.

*2164 Drying stresses and stress relief in thin sections of wood, by Hans Kuebler. 1960.


Other Publications


PHYSICAL PROPERTIES OF WOOD AS RELATED TO SEASONING (Cont.)

Other Publications (Cont.)


Other Publications (Cont.)


MOISTURE SPECIFICATIONS

FPL Processed Reports


Other Publications


PREDRYING TREATMENTS

Technical Notes

*186 Coatings that prevent end checks. 1959.
*225 Cause and prevention of blue stain in wood. 1958.
*254 Chemical brown stain in pine. 1951.
FPL Processed Reports


*1270 The hygroscopic and antishrink values of chemicals in relation to chemical seasoning of wood, by E. C. Peck. Information reviewed and reaffirmed 1956.


*1665-6 Special methods of seasoning wood: Chemical seasoning. 1957.


*2107 Control of decay and sap stain in logs and green lumber, by T. C. Scheffer. 1958.


Other Publications

Other Publications (Cont.)


AIR DRYING OF WOOD

Technical Notes

*180    Comparative strength of air-dried and kiln-dried wood. 1961.
*225    Cause and prevention of blue stain in wood. 1958.
*229    Comparative decay resistance of heartwood of different native species when used under conditions that favor decay. 1961.

FPL Processed Reports

FPL Processed Reports (Cont.)


*1672  Forest Products Laboratory instructions in flat piling to take care of variations in local conditions and in species and sizes of stock. Information reviewed and reaffirmed 1956.

*1784  Seasoning of white oak for tight cooperage, by E. F. Rasmussen and J. M. McMillen. Information reviewed and reaffirmed 1956.


Other Publications


AIR DRYING OF WOOD (Cont.)

Other Publications (Cont.)


Seasoning of aspen, by H. H. Smith. Lake States Aspen Rept. No. 5, 1947. Lake States Forest Experiment Station, University Farm, St. Paul 8, Minn.


KILN DRYING OF WOOD

Technical Notes

*156 Table of relative humidity and equilibrium moisture content for dry- and wet-bulb hygrometer. 1952.
KILN DRYING OF WOOD (Cont.)

Technical Notes (Cont.)

*180 Comparative strength of air-dried and kiln-dried wood. 1961.
*208 The reversible-circulation internal-fan kiln. 1952.
*213 Detection and relief of casehardening and final moisture content tests in kiln dried lumber. 1956.
*254 Chemical brown stain in pine. 1952.

FPL Processed Reports

*1031 List of dry-kiln companies and engineers and consultants in the United States. 1959.


*1651 Relative humidity and equilibrium moisture content graphs and tables for use in kiln drying lumber. Information reviewed and reaffirmed 1956.


*1702 Kiln drying of white birch turning squares. Information reviewed and reaffirmed 1956.

*News and views of this kiln drying business:

1769-2 Have you been experiencing wood fabrication troubles in the spring when the factory switches from winter heating to opening of windows? by R. C. Rietz. Wood, Apr. 1950.


-4 Where should kiln samples be placed and how many should be used? by R. C. Rietz. Wood, July 1950. Information reviewed and reaffirmed 1960.
FPL Processed Reports (Cont.)

*News and views of this kiln drying business: (Cont.)

-9 What is the cause of case-hardening in lumber and how can it be relieved? by R. C. Rietz. Wood, May 1951.
-16 What is the cost of steam lost through leaks? by J. S. Mathewson. Information reviewed and reaffirmed 1960.

18 The splitting and breaking of lumber when kiln charges are loaded and unloaded by power winch and cable, by John Owens. Information reviewed and reaffirmed 1960.
19 Loading and unloading track-type dry kilns with a lift truck for motive power, by W. A. Kinney. Information reviewed and reaffirmed 1960.
FPL Processed Reports (Cont.)

*News and views of this kiln drying business: (Cont.)

1769-20 How to design a sticker rack and guide so that lumber can be unloaded from a boxcar and piled directly onto kiln trucks, ready for cross-piled kilns, by Glenn J. Warfield. 1956.
-21 Supplying stackers with lumber and keeping stacking stalls free in a lift-truck operation, by Peter Padgett. 1956.
-22 Protecting packages of dry lumber when sheds are not available, 1956.
-24 To determine the moisture content of boards in a piled load of lumber before take down, by Leo Martin. 1958.
-25 Designing stacking stalls suitable for stickering packages of lumber for lift-truck handling prior to air or kiln drying, by George Ostermeier. 1959.

*1794 The seasoning of hickory lumber, by J. M. McMillen. 1951.


Other Publications

KILN DRYING OF WOOD (Cont.)

Other Publications (Cont.)


Chapter
* Introduction.
*1 Properties of wood related to drying.
*2 Kiln types and features.
*3 Auxiliary kiln equipment.
*4 Inspection and maintenance of dry kilns and equipment.
*5 Stacking lumber and other items for kiln-drying.
*6 Kiln samples.
*7 Loading the dry kiln.
*8 Kiln schedules and drying time.
*9 Drying defects.
*10 Operating a dry kiln.
*11 Storage of wood.


*Seasoning hickory lumber and handle blanks, by John M. McMillen. Hickory Task Force Rept. No. 4, 36 pp., June 1956. Southeastern Forest Experiment Station, Asheville, N. C.


How to reduce drying costs, improve quality, better use of equipment, better sorting, better piling, more technical training for kiln supervisors needed, by R. C. Rietz. Wood and Wood Products 60(8):32, Aug. 1955.
Other Publications (Cont.)


Seasoning of aspen, by H. H. Smith. Lake States Aspen Rept. No. 5, 1947. Lake States Forest Experiment Station, University Farm, St. Paul 8, Minn.


**DRY KILN MECHANICS**

FPL Processed Reports

*1264 The drying rate of sugar maple as affected by relative humidity and air velocity, by O. W. Torgeson. Information reviewed and reaffirmed 1957.


*1266 Simplifying the calculation of the quantity of air required in kiln drying lumber, by O. W. Torgeson. Information reviewed and reaffirmed 1960.
**FPL Processed Reports (Cont.)**


*1269  Why the drying time of a kiln load of lumber is affected by air velocity, by O. W. Torgeson. Information reviewed and reaffirmed 1960.

*1478  Steam requirements in lumber dry kilns. 1956.


*1646  Dry-kiln building materials and construction, by L. V. Teesdale. 1956.

*1669  Need for uniformity of temperature in a forced-air-circulation, ventilated, compartment dry kiln, by E. F. Rasmussen. 1956.

*1678  Circulation of air in a lumber dry kiln, by O. W. Torgeson. Information reviewed and reaffirmed 1959.

*2048  Humidity controls for conditioning rooms, by T. C. Scheffer. 1956.

**Other Publications**

SPECIAL DRYING METHODS

FPL Processed Reports

*Special methods of seasoning wood:

1665  Boiling in oily liquids. 1956.
1665-1 High-temperature drying: Its application to the drying of lumber. 1957.
  -5 Vacuum drying of wood. 1956.
  -6 Chemical seasoning. 1960.
  -7 High-frequency dielectric heating. 1961.

Other Publications


MOISTURE CONTENT CONTROL DURING SHIPMENT,
STORAGE, AND FABRICATION

Technical Notes

*239  An instrument for measuring wood equilibrium moisture content. 1958.

FPL Processed Reports


*1140  Electrically operated wood-element hygrostats for control of moisture fluctuations in lumber stored in closed sheds, by J. S. Mathewson. Information reviewed and reaffirmed 1959.


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MOISTURE CONTENT CONTROL DURING SHIPMENT, STORAGE, AND FABRICATION (Cont.)

FPL Processed Reports (Cont.)

*1919 Storage and handling of lumber (at wholesale and retail yards and at consumer plants), by E. C. Peck. Information reviewed and reaffirmed 1959.

*2048 Humidity controls for conditioning rooms, by T. C. Scheffer. 1956.

Other Publications


MISCELLANEOUS

Technical Notes

*D-12 Uneven coatings on wood cause warping. 1952.
*189 Differences between heartwood and sapwood. 1952.
*240 A hundred definitions pertaining to wood and other forest products. 1958.
FPL Processed Reports

*399  Some books about wood (a list). 1955.

*475  Drying and conditioning glued joints. 1955.

*1187 Drying and protection of wood items in original round form, by E. C. Peck. Information reviewed and reaffirmed 1958.

*1673 Steaming black walnut lumber to darken the sapwood. Information reviewed and reaffirmed 1961.

*1694 Gluing of plywood to concealed framing members with high-frequency stray field heating, by E. R. Bell and M. E. Dunlap. Information reviewed and reaffirmed 1960.

*1698 The U.S. Forest Products Laboratory, by F. J. Champion. 1960.


*1904 Salvaging lumber in the flooded areas, by R. C. Rietz. 1957.


*2044 Raised, loosened, torn, chipped, and fuzzy grain in lumber. Information reviewed and reaffirmed 1959.


Other Publications


Other Publications


*Hardwoods of the South (a brief 16-page leaflet summarizing some of the properties). 1956.

The following lists of publications which deal with 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 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.

**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 Products--Methods and practices in the lumber-producing and wood-consuming industries; standard lumber grades, sizes, 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.

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 paper making qualities of the pulps; waste in the industry, for example, decay in wood and pulp, utilization of bark, white water losses, etc.

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 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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