Research Important in Development Work Leading to New Plywood Industry Products

You catch the odor of wet fir "Don't expect to see grey-haired Ph.D.'s in white smocks squinting into test tubes," says Harold Evans, Plywood Research Foundation's executive director.

Touring the Foundation lab, which is located in Tacoma, Wash., you learn that a developmental researcher is only part scientist. He's primarily a skilled, highly imaginative production engineer. He's a dirty-overalled mechanic who has time to stop and think.

One of the lab's work areas looks suspiciously like a machine shop, with benches, lathes, a rack piled with steel bar stock. Farther along you find working models of plywood mill equipment — glue spreaders, hot presses and trim saws. You see panels of plywood by the hundred, more kinds than you knew existed.. The green-fir smell comes from the boil tank used for testing the wet-strength of laminates.

A non-profit corporation established in 1945, Plywood Research Foundation, carries on continuing research in applied fir plywood technology. Its goal is threefold: (1) to improve manufacturing methods and machinery; (2) to up-grade the mechanical properties, appearance and value of present plywood products; and (3) to develop new products that can be produced as secondary manufactures to utilize waste wood.

Patents Licensed

Royalties on Foundation patents licensed to mills and mill equipment manufacturers cover some 12% of the lab's current expenses. The balance is subscribed by some 95 western fir plywood producers.

How does this research team go about its business? Projects start, Evans explains, with germinal ideas.

The staff contribute more than their share of these ideas, for they're thoroughly familiar with fir plywood production problems. But the Foundation claims no monopoly on originality.

Instead, it serves as the fir plywood industry's clearing house for ideas and technical information from all sources. Evans and his researchers keep close tabs on developments in other industries that may find application in plywood production. The Foundation gladly exchanges information with trade associations, federal agencies and independent research labs.

Evans' team also evaluates ideas suggested by mill employees. Under the "PRF Plan," in effect since 1945, the Foundation will assume the expense of developing, patenting and licensing millworkers' inventions that promise benefit to the industry. Royalties received are split 50-50 with the original inventor.

Bare ideas come first, but they seldom serve the industry until they're given practical application on mill production lines.

Some projects are relatively simple from an engineering standpoint. For example, the job of developing marking equipment to rule guide-lines for nailing at 16" intervals across structural sheathing panels presented no great difficulty.

One Job Three Years

Some developmental jobs are not so easy. It took the Foundation three years to complete a moisture detector unit that would automatically check moving veneer for moisture level. This device, which is now accepted as one of the notable advances in production control equipment in the history of the industry, measures the wood's electrical conductance and capacitance, a true indication of moisture content.

Foundation researchers built a pilot model detector in cooperation with Laucks Laboratories, Inc., Seattle, who now produce the units under license from the Foundation and market them under their trade name. Laucks "Sentries" are now in operation on dryer lines in plywood, furniture, paper, lumber and hardboard mills. In some instances this equipment ups dryer line output as much as 20%, affording savings that quickly amortize the cost of the detector. Mills have reported savings of $3,500 per month per dryer line.

With the quality of peeler logs offered to plywood mills gradually declining, research aimed at up-grading mill output becomes increasingly important.

Evans points to Texture One-Eleven exterior paneling as an example of a first-grade product manufactured from lower-grade veneer. Made from unsanded panels of 5/8" C-grade plywood, Texture One-Eleven siding is grooved lengthwise to show attractive vertical shadow lines when installed. Edges are shiplapped. When the Foundation offered the product to mills, a dozen plants adopted it. Some now devote nearly 1/10th of their production time to Texture One-Eleven.

The Foundation's semi-dry process of hardboard manufacture, first licensed in 1953, developed from research to find profitable uses for veneer leftovers as well as cores from veneer lathes. It requires comparatively inexpensive plant equipment. Inquiries about this process were received from many parts of the world.

Future developments? Although Evans hesitates to discuss work now in progress, he's willing to hazard some speculation.

As for new products, he predicts rapid growth in production of panels with low-density cores, either foamated plastic or coarse-particle laminates.

Resin overlays, he believes, have barely brushed the dust from a broad potential market for factory-finished plywood products. There's cost-engineering, he adds.

Development of inexpensive exterior-type, cold-set adhesives, still just over the horizon, will lead to some economies in current production costs. But Evans thinks that any significant saving must come from the expense of handling. Towards this end the Foundation makes a running study of handling procedures and time-motion data.

Automation Question

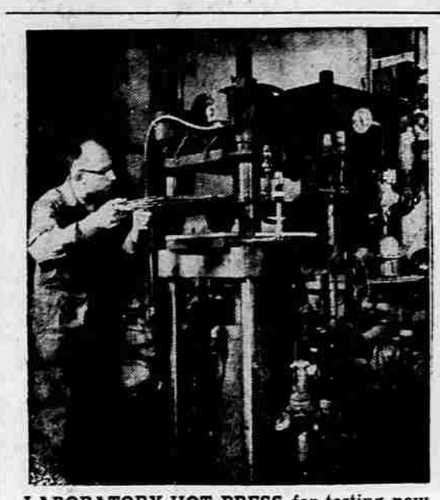
And what about plant automation in the industry? Practicable, but only to a degree, says Evans. Logs have defects, and nobody—as yet—has devised an electric eye that will register whether a given sheet of veneer will sand smooth.

But he sees no reason why machines, in the future, shouldn't for example, pull and sort veneers as they come from the clipper.

It takes equipment worth some $25,000 to displace a workman, according to Foundation estimate. Considering that many fir plywood mills are running double-shift, further mechanization seems warranted. However, he explains, some mills in the northwest are recent enterprises, still struggling under the handicap of originally inadequate capital structure. Some mill equipment is leased, not owned outright, and some is now obsolescent.

If you add the industry's growth and subtract its problems, he says, your answer's optimism. Since he joined the industry in 1931, Harold Evans has watched fir plywood develop from a specialty product into a leading structural material. That development followed consistent, cumulative advance in product and production technology.

And he expects that advance to continue.



LABORATORY HOT PRESS for testing new methods of manufacturing fir plywood receives a "sandwich" of veneer and glue at the Plywood Research foundation where studies of plywod technology are conducted.

PILOT MODEL of marking equipment which imprints guide-lines for nailing at 16-inch intervals across structural sheathing fir plywood panels get a test run at the Plywood Research foundation's laboratory.

New Boat Plans Undergoing Tests

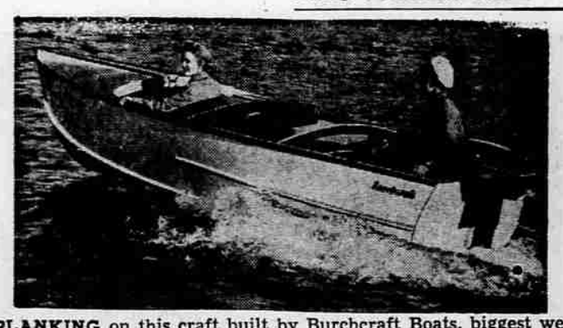
Eight brand new plans for small boats ranging in size from a 7'9" pram dinghy to a 20' inboard-outboard cruiser, are being construction-tested by the Douglas Fir Plywood Association. All of the plans for easy building with fir plywood are from the boards of nationally famous marine architects.

The eight plans were aimed at the amateur builder with construction simplicity as the keynote. In addition to the pram dinghy and the 20-footer, these others also are on the list: An 11'3" outboard runabout, a 13'4" outboard runabout, a 13'9" punt, a 15' outboard runabout, a 16' outboard runabout, and an 18' outboard day cruiser.

With the exception of the punt, which is designed for river and marsh use, all of the new craft hold to a beam-to-length ratio of greater than three-to-one. All are characterized by light displacement for length, ease in propelling.

Plans for the new boats will be made available soon after completion of building on the prototypes.

Architects hired by the plywood association to design the eight craft are Frank E. Strickland and Edwin Monk on the West Coast, and David D. Beach, an eastern designer.



PLANKING on this craft built by Burchcraft Boats, biggest west coast boat building firm, is resin-overlaid fir plywood, a specialty product of the plywood industry. The overlay is glass hard, agate smooth, tough and resistant to wear.

Specialty Products Offer 'Extras' for Home Workshop

The amateur craftsman with an ambition to give "something extra" to his projects, can often gain a running head start if he employs easy-to-use fir plywood specialty products.

These products were designed for specific qualities, to meet specific needs in the building trades. Since all of them maintain the big-panel simplicity that makes plywood so ideal for "do-it-yourself" projects, the "something extra" is a real help to the amateur.

FISHING TACKLE box made of high density overlaid fir plywood will stand up under hard usage while maintaining its fine appearance and easy usability.

High on the list are the panels designated as overlays. Resin fiber surfaces are added to these panels by hotpress techniques. Two grades are manufactured, medium density and high density. The basic difference is in thickness of overlay.

Medium density was designed as an optimum paint surface. The resin fiber overlay provides a "tooth" which literally grips the paint, giving you a smoother, tougher, longer-lasting finish. For a really professional-looking finish job, these panels can't be beaten.

High density was designed to take hard wear. The surface is smooth as glass, agate tough. It may be used without finish to show off the fine wood characteristic of the panels. Several color tones of overlay give you a decorator choice. It is ideal for such areas as counter tops, shop bins — wherever you need a surface that will stand up under really rough usage. For surfaces in children's play areas where there's likelihood of scribbling or scrambling, these panels are just the ticket.

Newest item on the list of plywood specialty products is an exterior building panel called Texture One-Eleven. Vertical grooves give these panels a dramatic shadowline. They are ideal as accent shots in your "do-it-yourself" new home or remodeling project — inside or out. A rough finish gives them just the country casual appearance called for in modern architecture.

If you want to play up the natural grain of beautiful wood, you can turn to brushed plywood, which is marketed under that name and several trade names. Steel brushes cut out the soft-wood on the surface, leaving the natural grain in raised relief. These panels lend themselves to a simple, dramatic finishing technique in which one color or tone is applied to the raised surfaces and another color or tone is wiped into the valleys.

For that outside finish job on your house — new or remodeling — you may want wide-lapped siding. Plywood is the only material that can give you this effect economically. You may want to cut the panels yourself. Wide-lapping siding is available in pre-cut packages, however, complete with furring strips and wedges, and with surface of medium density overlay for the finest possible paint finish.

TEXTURE ONE ELEVEN PLANTER boxes for patio or terrace, are a lot easier to make than they look. The difficult custom-built effect shown incorporated in the design does not involve fancy carpentry. It is achieved by use of grooved fir plywood called Texture One-Eleven. This is a 5/8" panel manufactured with 100% waterproof glue with deep grooves on the panel face. It comes with the grooves 2" or 4" o.c. The boxes can be made simply by cutting the panels to the size required and assembling them with the trim.

If you have a unique building project, a query to the Douglas Fir Plywood association, Tacoma 2, Wash., may run up just the solution you need. If your question will fit on a postcard, get it off today.

Barking of plywood "peelers" used to be done laboriously by hand, the barking crews using a conventional peeling tool called a spud, after the log had been steamed. Now debarking is done by machine and only a few plywood mills use the old system of steaming a log before peeling. Some, however, maintain that steam peeling is the best method.

Tests undertaken by experts at the Forest Products laboratory at Madison, Wis., have proved that plywood has pound-for-pound strength even greater durability and other qualities than that of steel.

Budget-Priced Home Designed Using Plan Made for Magazine

If you can spend $3,500 on a new home, here's a package of living space that would be difficult to match for twice that money with another plan and another building system.

This house came off the drawing board of New York Designer Norman Cherner on an order from Pageant magazine. The magazine specified that the low-budget price had to include these factors:

Two bedrooms.

All-weather comfort with complete heating system.

Kitchen equipped with stove and sink and refrigerator.

Shower and bathroom fixtures complete.

A fireplace.

"View-focus" on southern exposure.

How successfully Pageant's bill of particulars was met may be seen in the accompanying artist's sketches. There's modern eye-appeal in every line of this house. The plan will show you that it's engineered to save steps and take advantage of the conveniences which today's science can provide.

Part of the secret is that you build this one yourself, saving the usual 60 per cent in labor costs.

And the rest of the secret is that this is a home actually designed for the amateur carpenter. It takes advantage of the newest building methods with big modular panels of fir plywood. As Pageant pointed out, putting the modular sections together "is like assembling a dollhouse. You just can't make a mistake or a misfit."

Notice the sweep of windows, tilted to reduce reflection and sun's warmth. They tie the living room to the garden-view outside. The kitchen is but a step from the dining area in one direction, the bedrooms in the other. The children's room opens naturally onto the hall and screened porch to extend their play area without interfering in the remainder of the house.

Room sizes are not lavish, but are more than adequate. This is a "livable" home; no wasted space. Yet it doesn't look like a budget home, either inside or out. Wide areas of glass make it pleasantly sunny. The attractive roof overhang shades you from the high-angled summer sunshine, but lets in the lower-angled winter rays.

The master bedroom has its own 4-foot sliding glass door to the porch and garden, ideal for ventilation on warm summer nights, but sheltered by the porch roof.

And on top of all this, the house was designed for a bedroom addition that would not look "tacked-on". Placed at right angles to the line of the house, it would face onto the garden or terrace, maintain the indoor-outdoor living characteristics.

Fir plywood is specified for both exterior finish and subflooring to gain maximum strength and appearance value with top economy and speediest construction. It also is used for built-ins and accent shots, always with an eye to easing the task for the amateur carpenter.

Complete blueprint specifications are available from Pageant magazine for only $1. Address your request to The Pageant House, Dept. A, 535 Fifth Ave., New York 17 ,N.Y.

50-Year-Old Plywood Industry Marks Date

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their ruggedness for hundreds of jobs. Versatile and with the toughness of steel, plywood found usage in projects ranging from skyscrapers to storage bins.

The era stimulated another great period of expansion in which the number of plants in the industry about tripled while total fir plywood output more than tripled.

In its Golden Jubilee year, the plywood manufacturers can show a total annual industry payroll of 115 million dollars with the nearly 100 mills worth an estimated 220 million dollars. These mills will produce this year about 4 billion feet.

The future? Excellent! The fir plywood industry sees greater progress in the coming half century than it achieved during the colorful first 50 years. Stanford Research Institute, in a survey of future demand for wood and financed by Weyerhaeuser Timber Co., predicts a demand for plywood of 7-billion feet by 1975. That's enough plywood to form a pathway of 4x8-foot panels laid end to end from here to the moon. New uses, new markets, new horizons for "America's Busiest Building Material."