



By  
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<sup>1/2</sup> Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

Woodwork items such as window frames and sash are usually sold treated with a water-repellent preservative (WRP). WRP contains a wax (or similar material) which provides water-repellency, preventing decay by slowing water absorption. WRP also contains a small amount of preservative (often pentachlorophenol) to prevent decay.

The easiest way to prevent wood decay in such items is to simply protect the wood from excess moisture. Recent work at the Forest Products Laboratory (FPL) has shown that small amounts of wax in the absence of preservative can provide long-term protection to window units and other wood exposed above ground.

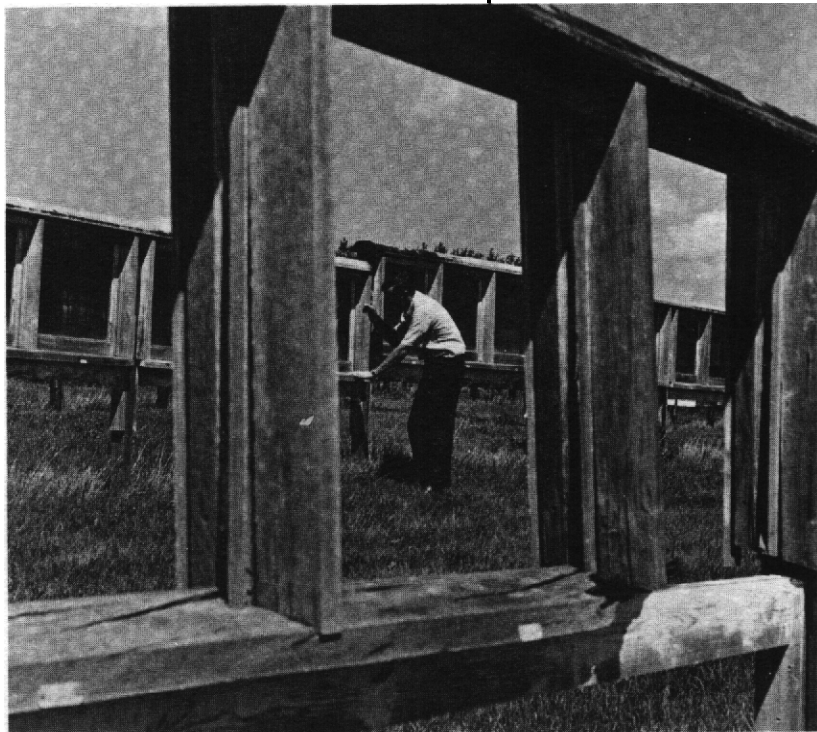


Figure 1. View of test fence at Madison, Wis., showing untreated control window unit frames in the foreground. Note the dismembered frame at the far right, and long crevices along the sills of the other two, all results of decay. Treated window units can be seen in the background.

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## PROTECTING WOODWORK WITHOUT PRESERVATIVES

Twenty years ago, test window units at FPL were dipped for 3 minutes in either a solution of WRP or a water repellent (WR) without preservative. Some units were left untreated as comparison controls. After only 6 years' exposure on a test fence in Madison, Wis., the untreated samples were so badly decayed that they fell apart as they were being removed from the test fence. Figure 1 shows where three of the test fence control (untreated) window units were installed. In the background can be seen treated window units still in test. Figure 2 shows a portion of the untreated window frame unit and the extensive decay found.



Figure 2. Closeup view of decayed untreated window unit frame. Window unit fell apart after 6 years' exposure.

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A closeup view of the WRP-treated window unit in Figure 3 shows how well this unit was protected against decay for 20 years. All test units were painted originally but never repainted. Most paint was gone from exposed surfaces after 10 to 12 years' exposure. The WRP treatment was very effective in protecting the window unit long after all the paint had weathered away.

But the most surprising result in the 20-year test was that shown in Figures 4 and 5. Window units treated with a WR (1.5 percent paraffin wax in mineral spirits plus 10 percent resin with no preserv-

ative) performed as well as did the WRP (which contained both wax and a preservative). This showed that a simple water repellent like paraffin wax with a small amount of resin added was capable of providing protection to wood exposed above ground to the elements for 20 years. These window units are still in test!

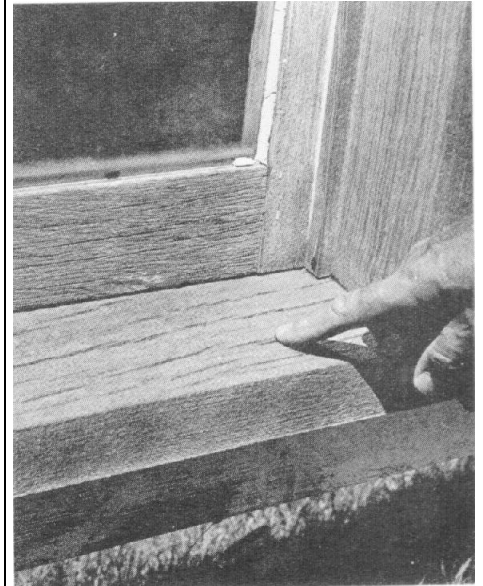


Figure 3. Closeup view of water-repellent-preservative-protected window after 20 years' exposure. Condition of millwork is very good.

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## PROTECTING WOODWORK WITHOUT PRESERVATIVES



Figure 4. View of window unit protected for 20 years by dipping for 3 minutes in water repellent. Condition is as good as that with water repellent plus preservative.

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A water-repellent treatment alone can provide excellent decay resistance to outdoor woodwork, without the addition of a preservative. This can represent a saving of money and resources, and judicious avoidance of preservatives in items such as birdhouses, sheds, porch and fence rails, and other above-ground wood products.

The water-repellent treatment is easily done before or after construction and before painting. It should be particularly valuable in

residential construction. A simple formula, easily prepared, is:

Exterior varnish	3 cups
Paraffin wax	1 oz
Mineral spirits or paint thinner or turpentine	Add to make 1 gal

Treatment is best done by dipping the wood for 1 to 3 minutes in the solution. If dipping is inconvenient, liberal brush application can be made paying particular attention to heavy treatment of all

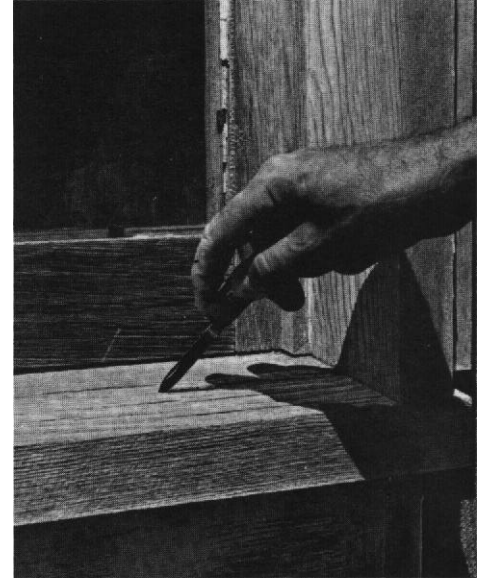


Figure 5. Closeup view of water-repellent-protected window unit and frame after 20 years' exposure. Firm wood resists penetration by the knife blade.

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board ends and joints. The treated surface can be painted after 2 or 3 days of warm drying weather. In fact, paint should last longer over the treated surface than over untreated wood.

**PROTECTING  
WOODWORK  
WITHOUT  
PRESERVATIVES**



For further information, contact the Forest Products Laboratory, P.O. Box 5130, Madison, Wis. 53705. The Laboratory is operated under the Forest Service, U.S. Department of Agriculture, and in cooperation with the University of Wisconsin, Madison, Wis.