

Fiberglass-Framed Windows Save Energy

BY JAMES DULLEY

Dear Jim: I need efficient replacement windows for my home, and I want very low maintenance ones because I am older. Do they make replacement window frames from fiberglass, like on my boat, which hold up very well?—Michael W.

Dear Michael: I don't think it's just a matter of your getting older. Everyone would like to have low-maintenance windows that require only cleaning of the glass and an occasional inspection of the weather stripping and hardware. The type of window frame is a major factor affecting the level of required maintenance, as is window style, though to a lesser extent

With new energy conservation tax credits available through the federal stimulus act, this is a particularly good time to consider replacing your old windows with low-maintenance, energy-efficient upgrades. You can recover 30 percent of the cost of energy efficient windows (up to \$1,500) in 2009 and 2010. Check the IRS codes carefully because, unlike before June 2009, not all Energy Star certified windows qualify for the tax credit. You must check the actual energy performance specifications for the specific windows you plan to install.

Fiberglass-framed replacement windows are available, and they require very little maintenance. I replaced the windows in my

QUICK TIP

Federal tax credits make it the perfect time to upgrade windows; new fiberglass frames can save you both energy costs and maintenance time.



A single-hung fiberglass window sash frame can be removed for easy cleaning. Notice the weatherstripping on the edge of the sash.

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own home with efficient vinyl frame windows about 20 years ago. If fiberglass frame replacement windows had been available at that time, I would have selected them over most other frame materials.

The fiberglass frame material used in replacement windows is as durable as the fiberglass in the hull of your boat, but it is manufactured very differently. The fiberglass used in boats is usually made of layers of woven glass fabric mat, which is saturated with a plastic resin. When the resin sets up, the many layers of fabric become one thick, strong layer.

Most fiberglass window frames are made by what's called a "pultrusion process." Long parallel glass fibers, as opposed to a layered mat, are pulled through an extrusion die in the shape of the cross-section of the window frame. Liquid plastic resin flows throughout the fibers, and with heat, sets up and becomes solid. The

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pultrusion is about 70 percent glass fibers and the rest resin.

Fiberglass frames in replacement windows offer many advantages over most other window frame materials. Since the main component of the fiberglass frame is glass, the frame expands and contracts with temperature changes about the same rate as the glass panes themselves. Vinyl frames, which also are very low-maintenance, expand more than glass as the temperature changes. This one reason why dark vinyl frames in large windows are sometimes not recommended for a sunny exposure in hot climates.

In a window sash, the glass panes are held and sealed in the sash frame by one of various methods. If the fiberglass frames expand and contract about the same as the glass panes, there is less movement and stress where the panes fit into the sash frames. For this reason, with fiberglass frames, a dark color can be used in almost any climate or orientation to the sun.

Another advantage of pultruded fiberglass is its strength and impact resistance. This is particularly important with replacement windows, because the frame does not have a perimeter flange as with new construction windows. Replacement windows are often attached in the old window opening with several screws along each side.

The strength of the fiberglass allows narrower frame profiles to be used than for some other frame materials. This provides more glass area for more light and a better view outdoors. Especially for smaller windows, a thick replacement window frame can use up too much of the opening to be useful.

Several window manufacturers, including many of the largest, now offer fiberglass frame replacement



The inside surface of this fiberglass frame window can be stained like real wood or painted any color.

windows with many options. Since the fiberglass frames are painted in the factory, you have many more color selections than with many other frame materials. If you don't like the standard colors, you can order custom colors or paint them yourself.

Since natural wood frame interiors are popular today, several manufacturers offer windows with optional real wood interior veneers attached to the strong fiberglass frame. From indoors, they look like wood windows, but without as much maintenance. Another option is a stainable interior fiberglass surface similar to the skin on fiberglass doors. The hollow fiberglass frames create an insulating dead air space. For slightly more efficiency, the frames can be filled with insulating foam. **KCL**

Have a question for Jim? Send inquiries to: James Dulley, Kansas Country Living, 6906 Royalgreen Dr., Cincinnati, OH 45244 or visit www.dulley.com.

WHERE TO SHOP

The following companies offer efficient fiberglass frame windows:

- ▶ Comfort Line, 800-522-4999, www.comfortlineinc.com
- ▶ Fibertec, 888-232-4956, www.fibertec.com
- ▶ Marvin Windows, 888-537-7828, www.infinitywindows.com
- ▶ Milgard Windows, 800-645-4273, www.milgard.com
- ▶ Weather Shield, 800-222-2995, www.weathershield.com