



Fixed Vertical Glazing

Less demanding than sloped glass, it still takes careful detailing.

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In this world of pre-hung doors and pop-in windows, many carpenters learn their trade never having handled a raw insulated glass unit. So when the need to install fixed double glass arises, imaginative designs result—some good, some not so good. Understanding a few basics, though, should guarantee a serviceable installation.

Insulated glass units

First, a little about the materials. An insulated glass unit is made from two or more panes of glass bonded to an aluminum spacer. The spacer is filled with a desiccant—a material that absorbs moisture from the air to keep the space between the glass dry. The glass is sealed to the spacer with one or more sealants—typically polysulfide, polyisobutylene, or silicone (urethane is now coming into use, as well). Some authorities say butyl provides the best seal against moisture and silicone provides the greatest strength. Premium units may get the best of both by using a butyl inner seal and a silicone outer seal.

For vertical glazing, you may not need the very best. But still buy a quality product with a strong warranty for the application you plan. If the glass will be exposed to high stresses or a high-moisture environment, go for the better-sealed unit.

Another purchasing decision is whether to buy tempered or standard float glass. Tempered glass is less likely to break due to winds, impacts (hail, baseballs), and thermal stresses; and when it does break, it tends to shatter into small cube-shaped fragments. These are safer than the large shards that form when standard glass breaks. Most codes require that glass be tempered if it's within 12 inches of a door or 18 inches of a floor. Check your local regulations.

Handling glass

A double-glazed unit with $\frac{3}{16}$ -inch glass weighs over five pounds per square foot.

It should be handled with extra care and with plenty of hands (at least two workers for vertical glass). Any nicks or scratches will weaken the glass significantly by compromising the tensile strength of the surface. Tempered glass is a little easier to handle since it is less fragile and the edges are sanded smooth. If you install a lot of glass, consider buying the suction cups professional glaziers use. These are particularly handy for final positioning.

The frame

Take the time to frame accurately, particularly if the framing is also the finish, as is often the case in a sunspace. Check openings for squareness with corner-to-corner measurements or use a full-size template. Check that the opening is in plane by careful sighting, or design a system with stops that can be adjusted after the glass is set. Forcing the glass into an out-of-plane opening guarantees a short life.

There are many ways to set up the openings. Unless maximum glass area is required, I like to have a separate frame that can be shimmed and adjusted. The finish opening should be at least $\frac{1}{2}$ -inch larger than the glass unit in each dimension to leave $\frac{1}{4}$ inch all around the glass. The rabbet (or stops) should be $\frac{3}{4}$ -inch thick to allow a $\frac{1}{2}$ -inch bite against the glass plus the $\frac{1}{4}$ -inch clearance. The goal is to have the glass floating in the opening with a space on all sides and edges.

The frame can be built out of rabbeted 2-by stock or 1-by stock with separate stops. A 2-by frame can be its own finish (interior and exterior) if left projecting past the drywall on the interior and siding on the exterior. In either case the bottom of the jamb should be level where the glass bears and should be beveled to shed water on the exterior. In a humid space such as a greenhouse, interior sills should also be sloped.

The glazing system

Place the glazing tape carefully, not stretching it, and fitting it tightly at the corners. Set it flush with the lip of the rabbet or stop so it seals well to the glass. Leave the paper

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