The FRP Pultrusion Process

Wood rots. Steel rusts. Aluminum dents. Fiberglass reinforced plastic lasts.



Traditional building materials have their place. But for harsh, corrosive environments, fiberglass reinforced polymer (FRP) is a smart choice.

Structural fiberglass has the strength of steel at a fraction of the weight. It won't corrode, rot, attract insect damage or conduct electricity. It can be formed into countless FRP profiles to fit your specs. And decades later when those other materials need to be replaced, it will still have plenty of life.

The Pultrusion Process

Most fiberglass shapes are manufactured using the pultrusion process. Just as it sounds, the machine grips the raw materials and "pulls" them through a series of steps until the finished profile reaches the cut-off saw.

1. **Reinforcement**
    a. The process typically starts by pulling in two forms of fiberglass reinforcement. Creels of fiberglass roving provide unidirectional strength along the length of the profile, and rolls of woven fiberglass mat provide multidirectional reinforcement.
2. **Wet-Out**
    a. The fiberglass reinforcements are pulled through a bath of thermoset resin, typically polyester or vinylester.
3. **Surface Veil**
    a. Just before all the material is pulled into the heated die, surface veil may be added to enhance the surface appearance of the final product.
4. **Curing**
    a. Wet-out reinforcements are pulled through the heated die, which causes the resin to "cure" or harden. By the time the part exits the die, a solid, rigid profile in the exact shape of the die cavity has been formed with all the reinforcements laminated inside.
5. **Cutting**
    a. The finished product is then pulled to the cut-off saw and cut to the desired length.

Source: Bedford Reinforced Plastics