## About FRP and the Fabrication Processes

FRP (Fiber Reinforced Polymer) includes hundreds of combinations of fiber, polymer and processes. This versatility is what makes composites unique. On the other hand, it's often difficult to decide what fiber, resin and process is best for a given application. Because FRP is strong, durable, and light-weight it often has advantages over stone, bronze, steel, and other conventional materials. Its ability to be economically molded into complex shapes offers other unique advantages. FRP is the contemporary alternative providing designers with new and unprecedented freedom from material constraints.

**OPEN MOLDING (MANUAL/HAND LAY-UP):**

FRP laminate is laid up and rolled out on a mold surface manually by fabrication technicians Additionally, FRP is manually laid on FRP surfaces to join two adjacent pieces of FRP equipment such as pipe ends.

**OPEN MOLDING (SPRAY/CHOPPER):**

FRP spray gun laminate laid up is similar to manual lay-up but it's done with a glass chopper/resin spraying gun. Glass and resin are sprayed on a large surface area where glass and resin will not be wasted in "over spray" due to smallish molds.

**VACUUM INFUSION MOLDING:**

Vacuum infusion is a process in which glass is arranged on a mold and then sealed in an air-tight plastic container. The container then has a vacuum introduced to the cavity containing a glass matrix on a mold. This is done using a vacuum pump.

The pump is connected to the part with various hoses located at strategic points to induce smooth resin flow throughout the part. When a full vacuum is present, the vacuum pump hose valves are closed and the resin reservoir valves are open. This induces resin flow throughout the glass matrix creating a piece of FRP equipment.