

## MATERIAL COMPARISON

	<b>CE FRP</b>	<b>Steel</b>	<b>Aluminium</b>	<b>Timber</b>
<i>Corrosion Resistance</i>	<b>High</b>	<i>Low</i>	<i>Med</i>	<i>Low</i>
<i>Strength</i>	<b>High</b>	<i>High</i>	<i>Low</i>	<i>Low</i>
<i>Weight</i>	<b>Low</b>	<i>High</i>	<i>Low</i>	<i>Medium</i>
<i>Life Cycle Cost</i>	<b>Low</b>	<i>Moderate</i>	<i>Moderate</i>	<i>High</i>
<i>Fabrication</i>	<b>Easy</b>	<i>Easy</i>	<i>Moderate</i>	<i>Easy</i>
<i>Electrical Conductivity</i>	<b>Low</b>	<i>High</i>	<i>High</i>	<i>Moderate</i>
<i>Thermal Conductivity</i>	<b>Very Low</b>	<i>High</i>	<i>High</i>	<i>Low</i>
<i>RFI / EMI Transparency</i>	<b>Yes</b>	<i>No</i>	<i>No</i>	<i>Yes</i>
<i>Environmental Impact</i>	<b>Low</b>	<i>High</i>	<i>High</i>	<i>Low</i>

**FRP** - What does it mean? - FRP is an acronym for 'Fibreglass Reinforced Polymer'. The term FRP can be applied to a wide variety of products, and is commonly associated with floor grating and structural profiles used in areas where corrosion, low weight, high strength and low life cycle costs are most important. Fibre Smart fabricates and supplies the best FRP grating, structures, ladders, hand rails and profiles available.

**CORROSION RESISTANCE** - Composite Engineering's FRP grating and structural products are corrosion resistant to a broad range of chemicals. In many structural applications where wood rots and metals corrode, pultruded FRP products will last indefinitely with little or no maintenance. The applications can be in environments where water (either salt water or fresh water) is present, such as water and sewage plants, mine sites, oil & gas platforms and coastal areas, or where corrosive chemical solutions and or vapors are present like in coal preparation plants and chemical plants. Our FRP grating and pultruded products will endure a long life with very little maintenance.

**STRENGTH** - Composite Engineering's pultruded structural shapes have a high strength-to-weight ratio and kilogram for kilogram are stronger than steel in the lengthwise direction. Our fibreglass grating and structural products distribute impact loads to prevent surface damage even in sub-zero temperatures and will not permanently deform under impact.

**WEIGHT** - Our FRP grating and associated materials are light weight. Generally on an equal volume basis, pultruded fiberglass will weigh only 25% of the weight of steel and 70% of the weight of aluminium. This feature can significantly impact installation costs, reduce the risk for injury and result in less structural support from foundations or supporting structures.



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**LIFE CYCLE COST** - Composite Engineering materials will generally have a significantly longer life expectancy and are virtually maintenance free. Pigments added to the resin provide color throughout the part and require little to no painting maintenance. UV inhibitors are added to enhance the longevity of the products.

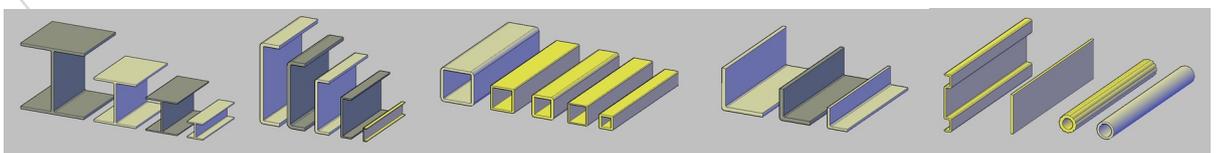
**FABRICATION** - Our fibreglass products (including the FRP grating) can be field fabricated using simple carpentry tools with carbide or diamond tip blades; no torches or welding is required. Fibreglass materials are also lightweight, resulting in easier erection and installation. Composite design and engineering can be customized for required finishes and slip-resistance.

**ELECTRICAL CONDUCTIVITY** - Composite Engineering's FRP structures and grating are extremely low in electrical conductivity. Non-conductive products provide significant safety benefits in many applications such as those found in electrical substations products.

**THERMAL CONDUCTIVITY** - All our products have low thermal conductivity properties, and FRP products do not expand or contract like metals. This feature can provide a significant degree of thermal insulation. It can also be a safety feature. For example, if one part of a fibreglass structure is extremely hot, individuals who touch the structure near the area, but away from the heat source, will not be burnt.

**RFI / EMI TRANSPARENCY** - Composite Engineering FRP materials (FRP grating and structures) are transparent to radar and radio waves. This feature can benefit applications such as antenna / cellular shielding. The materials received approval after stringent independent testing in cellular applications.

**ENVIRONMENTAL IMPACT** - Compared to these materials, the manufacture of Composite Engineering's moulded and pultruded FRP products produces fewer air and water emissions, consumes less energy and emits less greenhouse gas, leading to both a reduced environmental impact and a lower carbon footprint. Since FRP does not corrode or deteriorate, it can be recycled. More importantly, however, virgin production of FRP usually has less environmental impact than even recycling alternate materials, such as steel and aluminium.



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