



Pultrusions vs. Steel

COMPARE!

Pultruded Fiberglass Structural Shapes

Steel A-36 Carbon

Corrosion Resistance

Pultrusions are resistant to a broad range of chemicals. Painting required only when exposed to direct sunlight.

Subject to oxidation and corrosion. Requires painting or galvanizing for many applications.

Weight

Lightweight - weighs 75% less than steel.
1/2" thick plate = 4.7 lbs/ft².

Could require lifting equipment to move and place.
1/2" thick plate = 20.4 lbs./ft².

Conductivity

Does not conduct electricity.
Low Thermal Conductivity
4 Btu/ft²/hr/°F/in.

Conducts electricity. Grounding potential.
Thermal Conductivity 260-460
Btu/ft²/hr/°F/in.

Strength

Pultrusions have a high strength-to-weight ratio, and pound-for-pound are stronger than steel in the lengthwise direction.
Ultimate flexural strength (Fu)
LW = 30 ksi
CW = 10 ksi

Homogeneous material.
Yield strength (Fy) 36 ksi

Stiffness

Modulus of Elasticity
LW = 2.9×10^6 psi
CW = 1.2×10^6 psi

Modulus of Elasticity
 29×10^6 psi

Impact Resistance

Will not permanently deform under impact

Can permanently deform under impact.

EMI/RFI Transparency

Transparent to EMI/RFI transmissions.

Can interfere with EMI/RFI transmissions.

Versatility

Pigments added to the resin provide color throughout the part. Special colors available.

Must be painted for color. To maintain color and corrosion resistance, repainting may be required.

Easy Field Fabrication

Pultruded fiberglass can be field fabricated using simple carpenter tools with carbon or diamond tip blades.
Lightweight for easier erection and installation.

Often requires welding and cutting torches.
Heavier material requires special handling equipment to erect and install.

Cost

Lower installation and maintenance costs in industrial applications often equals lower lifecycle costs.

Lower initial material costs.