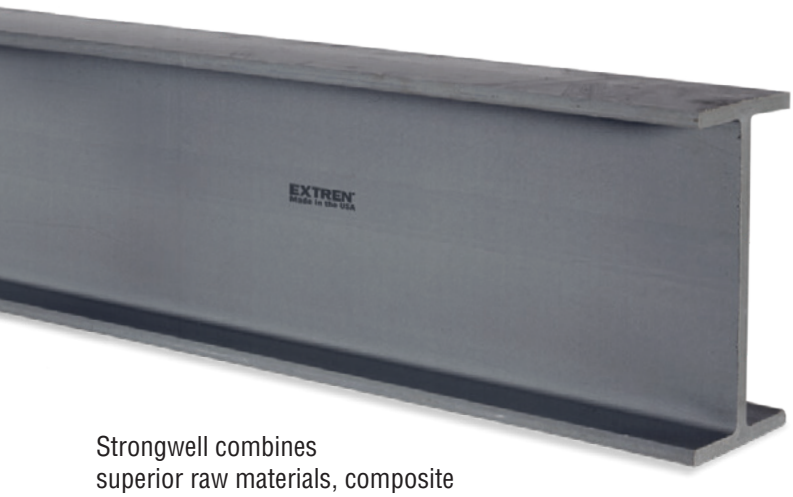
STRONGWELL PRODUCT COMPARISON

EXTREN®

STRUCTURAL SHAPES & PLATE



Strongwell combines superior raw materials, composite design, and the pultrusion process to manufacture EXTREN® - the highest quality pultruded fiberglass structural shapes available. Listed below are some useful comparisons when considering EXTREN® vs. traditional building materials.

	EXTREN®	Steel
Corrosion Resistance	High	Low
Strength-to-Weight	High	Medium
Maintenance	Low	High
Conductivity	Very Low	High

	EXTREN®	Aluminum
Corrosion Resistance	High	Medium
Impact Resistance	High	Low
EMI/RFI Transparency	High	Low
Conductivity	Very Low	High

	EXTREN®	Wood
Corrosion Resistance	High	Low
Insect Resistance	High	Low
Water Absorption	Low	High
Flame Retardance	Varies by Series	Low

For more specific comparisons, see the table on the next page.

TRADITIONAL MATERIALS

To gain more in-depth data, visit www.strongwell.com/designmanual for access to the Strongwell Design Manual.

Is EXTREN® the best material choice to meet the requirements of your application?

See next page to compare the features of EXTREN® and traditional structural materials on a point-for-point basis!

COMPARE	EXTREN® FIBERGLASS STRUCTURAL SHAPES	STEEL A-36 CARBON	ALUMINUM EXTRUDED SHAPES	STRUCTURAL TIMBER DOUGLAS FIR
STRENGTH-TO-WEIGHT	Up to 75% lighter than steel and 30% lighter than aluminum. Ultimate Flexural Strength = (Fu) LW = 30 KSI, CW = 10 KSI Tensile Strength = LW = 30 KSI, CW = 7 KSI	Up to 400% heavier than FRP. Homogeneous material. Tensile Strength = 60 KSI Yield Strength = 36 KSI	Up to 70% heavier than FRP. Flexural Strength = (Fu) 35 KSI Homogeneous material.	Specific Gravity = 0.51* (oven dried) Extreme fiber bending = up to 2800 PSI* Compression parallel to grain = up to 1800 PSI*
INSTALLATION	Can be field fabricated using simple carpenter tools and is easily lifted into place during installation with less equipment or specialized labor vs. steel.	Often requires specialty lifting equipment to move and place. Also requires specialized labor for fabricating and welding.	Good machinability, but requires welding, brazing, soldering, or mechanical joining in the field.	Easy to field fabricate and assemble with simple carpenter tools.
INSTALLED COST	Because installation of Strongwell FRP is much simpler and quicker than steel, structures built using Strongwell's pultruded products can cost as much as 15% less than carbon steel, 30% less than galvanized steel, and as much as 50% less than stainless steel.	+/- 15% higher installed cost than FRP due to need for specialized labor, heavy equipment, and permitting.	Higher material costs than steel, and still often requires specialized labor, heavy equipment, and permitting.	Least expensive installation, but poor longevity in demanding locations, requiring more frequent maintenance and/or replacement.
MAINTENANCE & CORROSION RESISTANCE	Unaffected by moisture or immersion in water when sealed. Will not rust like metal and will not rot like wood.	Subject to oxidation, rust, and corrosion. Requires regular painting or galvanizing for many applications.	Can cause galvanic corrosion. Unless anodized or coated, often requires periodic maintenance to ensure corrosion resistance.	Susceptible to warp, rot, and decay. Hazardous or high-maintenance coatings or preservatives often required for longevity.
CONDUCTIVITY	Extremely low electrical and thermal conductivity properties and high dielectric capability. Thermal Conductivity = 4 (BTU/SF/HR/F°/IN)	Conducts electricity. Potential Shock Hazard. Thermal Conductivity = 260-460 (BTU/SF/HR/F°/IN)	Conducts electricity. Potential Shock Hazard. Thermal Conductivity = 150 (BTU/SF/HR/F°/IN) Thermal Coefficient of Expansion = 11-13 (IN/IN/F°)10^6	Poor conductor when wet. Can be conductive when it is wet.

**Surface dry at 19% max moisture content Design Values for Wood Construction, National Design Specification for Wood Construction.*

STRONGWELL

ISO 9001 Quality Certified Manufacturing Plants

MADE IN THE USA

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