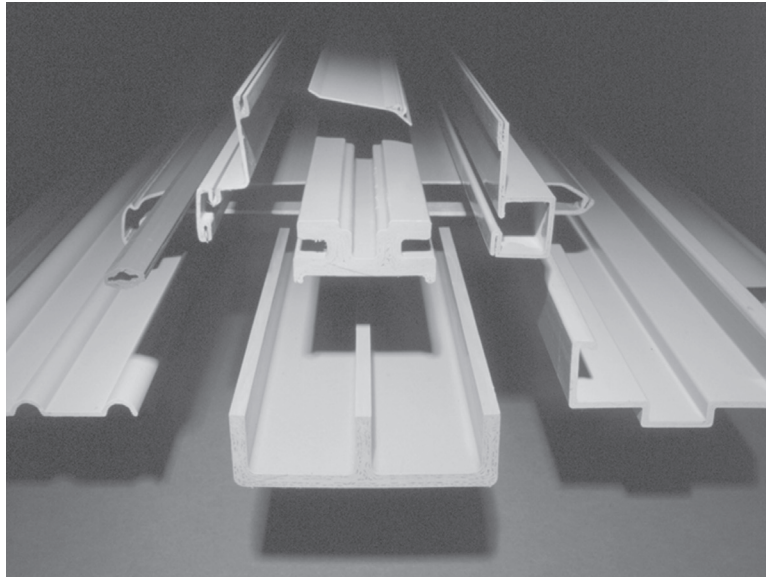


# **SECTION 18**

## **CUSTOM PULTRUSIONS**



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**CUSTOM PULTRUSIONS**

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**WHAT IS A CUSTOM PULTRUSION?**

While this manual is for designing with **EXTREN®** standard structurals, it is important for the designer to be aware that virtually an infinite number of custom pultrusion possibilities exist. Pultrusions can be customized in one or more of the following ways:

**Shape:** Virtually any constant cross-section part can be pultruded. Strongwell produces custom shape dies in-house.

**Resin Matrix:** Standard resin systems can be modified or special resins used to address special needs such as elevated temperatures or special environments. Typical resins include polyesters, vinyl esters, epoxies, and hybrids. Phenolics and thermoplastic systems are under development.

**Reinforcements:** The type, form, placement and quantity of reinforcements can be customized to maximize economy, oriented-strength, and/or other physical characteristics. The reinforcement type is either glass, carbon or aramid fibers. The reinforcement form of any of these fibers can be rovings (multifilament strands), mat (long fibers held together in a mat form with a resinous binder), woven fabrics, or non-woven fabrics.

**Composite Design:** An **EXTREN®** shape could be made into a non-**EXTREN®** custom pultrusion by customizing the resin or reinforcement to achieve a particular customer need. A standard shape could be given custom physical properties, for example, by changing the amount, placement, or type or form of reinforcements.

Strongwell manufactures hundreds of different custom pultrusions for industries ranging from aeronautical and automotive to agriculture and sporting goods. Contact Strongwell for any custom pultrusion needs or questions.



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## **NON-EXTREN® PRODUCTS**

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**NON-EXTREN®** products produced by Strongwell and included in this manual are:

### **Thermal Cure Rod and Bar**

Solid thermal cure rod and bar produced by Strongwell is not **EXTREN®** and does not have the same properties as **EXTREN®** structural shapes. Rod and bar stock contain longitudinal reinforcements only - no mat, and do not have a surfacing veil. A number of standard sizes are available. While solid rod and bar can also be produced with fire retardant and/or vinyl ester resin, it is not **EXTREN®** Series 525 or 625. Thermal cure rod and bar were not designed to be machined. Machining may cause splintering or other issues due to the lack of off-axis reinforcements. See Section 3 — **PROPERTIES OF EXTREN®** for properties of thermal cure rod and bar.

### **Special Pultruded Shapes**

Strongwell produces custom pultrusions in many shapes and materials for hundreds of customers. A partial listing of dies owned by Strongwell is included as Special Pultruded Shapes in Section 4 — **EXTREN® AVAILABILITY LIST**. These sections vary from **EXTREN®** standard shapes in one or more of the ways described for custom pultrusions. Additional sections are frequently added and modifications to existing sections may be possible. For special needs contact Strongwell.

### **Grating**

Strongwell manufactures a complete line of fiberglass grating. **DURADEK®** high strength pultruded fiberglass grating and **DURAGRID®** custom fiberglass grating are product trademarks belonging to Strongwell. See Section 12 — **FIBERGLASS GRATING** for complete product information on **DURADEK®** and **DURAGRID®** product lines.

### **FIBREBOLT®**

**FIBREBOLT®** fiberglass studs and nuts are a non-metallic fastener system. **FIBREBOLT®** studs are pultruded, machined fiberglass reinforced vinyl ester. The hex shaped nut is fiberglass reinforced PPS resin thermoplastic. See Section 11 — **FIBREBOLT®** for properties and product information.

### **DURASHIELD®**

The **DURASHIELD®** panels are fiberglass foam core building panels. The tongue-and-groove panel is comprised of a pultruded skin over a foam core. See Section 14 — **DURASHIELD®** for complete product information.

### **COMPOSOLITE®**

**COMPOSOLITE®** is an advanced composites building panel system suitable for major load bearing applications. The unique system of interlocking components make it possible to design monolithic fiberglass structures. See Section 15 — **COMPOSOLITE®** for product information.

### **SAFPLANK®**

**SAFPLANK®** is a system of interlocking fiberglass planks designed to create a continuous solid surface. It replaces wood, aluminum and steel where corrosion creates costly maintenance problems or unsafe conditions. See Section 16 — **SAFPLANK®** for product information.