

Steel vs Aluminium Properties

Of course, certain materials are better suited to certain applications, but here are some general advantages of moving from an aluminium extrusion to a roll-formed steel section:

- Steel is stronger and has a higher load bearing capacity
- Steel is 3 times stiffer than aluminium, with a Modulus of Elasticity of 207GPa compared to 69GPa for aluminium.
 - This means for the same load, you may be able to design a physically thinner and more modern looking part, which could also be lighter than the extruded aluminium part.
 - Alternatively, your steel structure could incorporate bigger spans as there will be less deflection.
- Steel has a better fatigue strength and is more ductile, aluminium is more likely to suddenly fail without prior indication.
- Thermally, steel has a lower thermal transfer rate and a lower thermal expansion co-efficient, so if heat is an issue, steel may serve better than aluminium.
- Steel can also maintain its properties up to far higher temperatures than aluminium, up to approximately 600°C as against approximately 200°C for aluminum.