

When reinforcing a screed layer, both steel reinforcement and Rebarflex serve to improve strength, crack resistance, and durability. However, they differ in material properties, installation methods, and performance in specific applications. Below is a detailed comparison:

Criteria	Steel Reinforcement	Rebarflex
Material Composition	Steel bars or welded steel mesh	Alkali-resistant reinforced ALKAMAXX fiberglass mesh
Weight	Heavy, requiring significant labour for handling	Lightweight and easy to handle
Installation	Requires proper positioning and support to prevent sinking into the screed. Cutting machine to cut steel	Easy to cut and install directly into the screed layer – knife to cut or scissors
Thickness of Screed	Suitable for thick screeds (typically >50 mm)	Ideal for low/medium thickness screeds (up to 100mm)
Flexibility	Rigid, does not conform to substrate movements	Flexible, adapts to slight structural movements
Crack Prevention	High tensile strength, but may cause cracks if improperly positioned	Distributes stress more evenly, reducing crack formation
Durability & Corrosion	Prone to corrosion in humid environments unless galvanized	ALKAMAXX Coated Alkali-resistant, does not corrode or rust
Thermal Conductivity	High thermal conductivity, may create thermal bridges	Low thermal conductivity, improves insulation properties
Cost	Higher material and labour costs	Much more cost-effective
Best Use Cases	Heavy-load industrial floors, thick screeds, high-traffic areas	Residential and commercial flooring, thin screeds, renovation projects

Conclusion

Steel reinforcement is ideal for thicker screeds and heavy-load applications, such as industrial floors and large commercial areas. However, it requires careful installation and is prone to corrosion.

Rebarflex is a lighter, corrosion-resistant, and more flexible alternative designed for low medium-thickness screeds, making it easier to install and cost-effective, especially for residential and commercial flooring.

Several studies have compared steel reinforcement and fiberglass mesh in concrete applications, providing insights into their performance differences:

TOUGHNESS AND FLEXURAL STRENGTH:

A study titled "Comparative Evaluation of Steel Mesh, Steel Fibre and High Performance Polypropylene Fibre-Reinforced Concrete in Panel/Beam Tests" evaluated concrete mixtures containing steel mesh, steel fibre, and polypropylene fibres in terms of toughness, flexural strength, compressive strength, and split tensile strength. The findings indicated that concrete reinforced with steel mesh exhibited superior performance in panel tests.

IMPACT RESISTANCE:

Research published in the article "Impact strength of Hybrid Steel Mesh-and-Fibre Reinforced Cementitious Composites" found that the impact resistance of hybrid steel mesh-and-fibre reinforced cementitious composites is higher than that of composites using only steel mesh as reinforcement.

CORROSION RESISTANCE AND DURABILITY:

According to the Federal Highway Administration, glass fibre-reinforced polymer (GFRP) rebar offers a low life-cycle cost option for reinforcement in concrete pavements due to its corrosion resistance.