

# A Review of Research and Performance Assessment on the Sustainable Application of Industrial Slag in Reinforced Ferrocement Slabs

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**Abstract.** Ferrocement, patented in 1856, is recognized for its efficiency and sustainability in structural applications. This paper reviews studies on reinforced ferrocement slabs, focusing on industrial slag incorporation as an eco-friendly alternative material. The review evaluates mechanical properties, structural behavior, and environmental benefits compared to conventional concrete. Industrial slag, by-products of manufacturing processes, show significant potential in enhancing ferrocement performance while reducing environmental impact. Optimal replacement levels were identified as 50% for ground granulated blast-furnace slag (GGBS) and 15% for metakaolin, beyond which performance may decline. The study highlights nanoscale materials (nano-silica and nano-fly ash) for microstructural improvement, with nano-fly ash performing effectively at replacement levels up to 10%. This review provides insights into using industrial slag and nano-byproducts to develop sustainable, high-performance ferrocement slabs, advancing eco-efficient construction practices.

**Keywords:** Ferrocement slabs; Slag; Impact; Wire mesh; Polypropylene fibbers; Nano materials; Fly ash; Met kaolin.

