Patent Search

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Abstract:

ABSTRACT The invention relates to lightweight polymer"concrete composite panels designed for modular and prefabricated construction. The panels are formed fror of cementitious binders, polymer components, and lightweight aggregates, optionally reinforced with fibers. The composite achieves a density reduction of25-40% co conventional concrete panels while maintaining compressive strengths of 20-35 MPa. The polymer phase enhances toughness, crack resistance, and durability, while lightweight aggregates improve thermal and acoustic insulation. The panels exhibit low water absorption, fire resistance up to two hours, and ease of prefabrication i sizes with interlocking features for rapid assembly. The invention provides a costeffective, durable, and sustainable alternative to conventional concrete panels, suitab residential, commercial, and disaster-relief construction applications. ~

Complete Specification

itle of the Invention
"LIGHTWEIGHT POLYMER-CONCRETE COMPOSITE PANELS FOR MODULAR CONSTRUCTION"
Field of the Invention
The present invention relates to the field of construction materials and prefabricated building systems, and more particularly to the development of lightweight polymer-concrete composite panels. These panels are designed to provide structural strength, reduced weight, enhanced thermal and acoustic insulation, and ease of installation, making them especially suitable for use in modular, prefabricated, and rapid construction applications.
Background of the Invention
Concrete has been the most widely used construction material for decades due to its high compressive strength, durability, and ability to be molded into various shapes. In modular and prefabricated construction, concrete panels are commonly employed as structural and non-structural elements, including walls, floors, and partitions. However

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