

Abstract

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Fiber-cement composites for housing construction: state-of-the-art review

• Fiber-reinforced cement-based materials have found increasing applications in residential housing construction. Currently, fiber-cement composite products can be largely found in nonstructural housing components, including siding and roofing materials. Advantages associated with pulp fibers include widespread availability from renewable sources, high fiber tensile strength, high fiber modulus of elasticity, relatively low cost, well-developed technology to extract the fibers. The fiber-cement composites themselves offer decay resistance, fire resistance, dimensional stability, "nailability", good mechanical properties, among other characteristics. In this paper, the production, mechanical properties, durability, applications of current fibercement composite materials are reviewed. Composite durability will be addressed in detail. Future research needs; future applications of this class of material are also considered.