

DEVELOPMENT OF CEMENT, WASTE PAPER, AND NATURAL FIBER BASED COMPOSITE FOR CEILING SHEET

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This study was focused on developing material for ceiling sheets using waste paper and cement. Every day, a large amount of paper waste is discarded into the environment. The new ceiling composite is produced, which is low-cost, lightweight, and non-hazardous while contributing to waste management. Coir fiber is used as reinforcement in the composite. Samples were prepared by adding 0.5%, 1%, 1.5%, and 2% of coir fibers to the total weight of the samples. The ratio between waste paper pulp and cement was kept at 1:1. Flexural strength, water absorption, thermal conductivity, and density of the samples were measured after 28 days of hardening. The optimum fiber percentage was identified by analyzing the results. After identifying the optimum fiber percentage, the percentage variation of flexural strength was studied with the fiber length. Variation was studied for the 1, 1.5, 2, 2.25, 3, and 3.5-inch fiber lengths. A cost analysis and comparison of the properties with the commercially available ceiling sheets were done.

Keywords: Composites, Waste management, Coir fibers