EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATIONS

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Abstract: The Building construction sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal Resistance, Natural Insulation, Mushroom Production