

An Experimental Study On The Use Of Waste Aggregate For Acoustic Attenuation: EVA And Rice Husk Composites For Impact Noise Reduction

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Abstract

The civil construction sector is one of the areas that most generates waste and consumes raw materials. To mitigate this environmental damage, is possible to use waste from other sectors to reduce raw material or by minimizing the generation of waste with materials of satisfactory durability. One of the main points to be evaluated is how such materials behave to the loads application and other mechanical stresses, and how it affects their acoustic performance. These mechanical tests usually are performed only in industrial materials. Still, the search for building performance is increasingly based on the sustainability, safety and habitability. Habitability requirements include acoustic performance, which is vital in buildings because its absence could cause stress, insomnia, hearing loss and other problems. So, this article proposes the use of EVA waste and rice husk in subfloors to decrease impact noise, replacing natural fine aggregates in the contents of 25, 50 and 75%. Compressive creep, dynamic stiffness and impact noise tests were performed. The results show that the use of both natural and artificial waste can represent gains in the efficiency of impact noise acoustic insulation for subfloors when used in larger proportions.

Keywords

Compressive Creep Test; Dynamic Stiffness Test; Impact Noise Reduction; Subfloor; Waste.