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Strength Analysis of Using Marble Powder and Stone Dust as Partial Replacements of Cement and Aggregate in Concrete .

Leaving waste materials to the environment can cause environmental problems. Sustainability in concrete production can be achieved by innovations in substitution of materials used, which are much needed to meet the increasing demand for new and quality materials. To that end, this study is aimed at utilizing Waste marble powder and Stone dust as partial replacement of cement and fine aggregate in concrete respectively and comparing its workability and compressive strength with the conventional concrete mix M15. In this study, ten mixes with different combinations of waste marble powder (0%, 5%, 10%, 15%, 20%) and stone Dust (0%, 15%, 30%, 45%, 60%) were prepared. It is found that there is an increase in the Compressive strength of the concrete produced from waste marble powder as partial replacement of cement up to 10% and Stone Dust as partial replacement of fine aggregate up to 45%. Therefore, it is recommended that waste marble powder and stone Dust should be used in construction works, so that the cost of construction is saved significantly and optimum strength is obtained ensuring efficient use of raw materials all the while reducing the toll taken by the environment

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