

Utilization of Coconut Shell and Bagasse Ash in Concrete for Sustainable Built Environment

Sivakumar S¹, Logaraja R², Nagarathinam N³, Mallika B⁴

¹Assistant Professor, Civil Engineering, PSNA College of Engineering and Technology, Dindigul, Tamilnadu.

^{2,4}Assistant Professor, Sethu Institute of Technology, Madurai, Tamilnadu.

³Assistant Professor, Civil Engineering, Nadar Saraswathi College of Engineering and Technology, Theni, Tamilnadu.
pssiva21@gmail.com

ABSTRACT

Despite of the growing popularity in the construction sector, there is a need for better research to find new alternative materials used in construction activities. This paper argues the efficiency of using sugarcane baggase ash as a pozzolanic material and coconut shell as a cost effective material in the production of concrete. Sugarcane bagasse ash is known to be an additional cement ingredient that can address the environmental concerns associated with its disposal. Coconut shell is also an agricultural waste which is abundantly available and facing serious disposal problems. This paper discusses the usage of these materials as a alternative of fine and coarse aggregates with replacement dosages varying from 5% to 20% by weight. The result proved that the usage of coconut shell and baggase ash promoted an increase in the compressive strength of concrete without affecting its hardened properties. The optimum replacement ratio of 15% have yielded an marginal increase in the compressive strength. Moreover this will double the benefit of reducing both the cost of building materials and the problems of disposal

NISDCE'22 – 221