ABSTRACT

Lightweight concrete is a type of concrete that is made with lightweight aggregates, which reduces its density compared to traditional concrete. This innovative material is designed to provide structural strength while minimizing weight, making it ideal for various construction applications. Lightweight concrete is often used in building structures, precast products, and as insulation in roofs and walls. Its benefits include improved thermal insulation, reduced transportation costs, and enhanced workability.

No-fines concrete is a type of lightweight concrete made without fine aggregates (like sand). It consists only of coarse aggregates, cement, and water, which creates a porous, open-textured structure.

Because it lacks sand, it has lower density, good drainage, and thermal insulation properties. However, it also has lower strength and a rough surface finish, making it more suitable for non-structural or low-load applications, such as walls, pavements, and backfill. No-Fines Concrete is a special type of lightweight concrete that is made without fine aggregates, such as sand.

In this project, the no fines concrete is replaced with palm shell ash for cement is casted and tested for the strength of concrete. The no fines concrete is casted in 1:4 and 1:6 mix proportion. The palm ash is replaced with 10 and 20% by weight of cement. 3. The specimen with 10% of palm ash replaced no fines concrete showed improved results in 28 days compressive strength and split tensile strength compared with other fines concrete specimens.