CONCRETE LINTEL PERFORMANCE WITH LECA FOR IBS

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ABSTRACT

Lintels are beams put across the openings such as doors, windows and etc. Leca are lightweight aggregate made from clay. Lintels are made of either concrete or foam, and prefabricated concrete lintels are heavy due to constructor's choice of using normal concrete. LECA may be of use for lintel on reducing their weight.

Its difficult to produce stable lightweight concrete. One of the factor of high permanent load is due to concrete selfweight and the continuous environmental problems, along with decrease in number of conventional aggregates existing has led researchers to use by-products or solid waste materials to produce concretes.

Our objectives are to analyse lintel structure which consist Light Expanded Clay (LECA) in term of weight and density, and to evaluate the compressive strength and flexural strength of the lintel structure for IBS system (pre-frabricated concrete).

Starting by material preparation, then we make lintel mould. With our mix ratio, we prepare the concrete and conduct both compressive and flexural strength test on cubes and lintel. Data are collected to do analysis and conclusion for the project.

Our expected finding is that we expect our designed lintel to be lighter than normal aggregate lintel, with the strength of as same or higher.

This project only cover in material designing and does not consist a lot of test. In the future, it would be good to use fly ash or additives that may help leca become stronger, either chemically or mechanically. This may make use of leca and will reduce weight while also produce better strength compared to normal concrete.

Keyword: Lintel, LECA, Cellulose, Lightweight Aggregate