



# **COMPRESSIVE STRENGTH OF NO FINES CONCRETE COMPARED TO CONVENTIONAL CONCRETE FOR ROAD PAVEMENTS**

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## **ABSTRACT**

*This thesis analyses the effectiveness of no-fines concrete in pavement applications. This was achieved by analysing the properties and characteristics of no-fines concrete. The performance of no-fines concrete was compared with a concrete sample that is comparable to the material used for the construction of conventional concrete road pavements. The analysis was undertaken by conducting a number of standard concrete tests and comparing the characteristics of the no-fines and conventional concrete samples. The tests included both fresh and hardened concrete tests to obtain a complete picture of its properties during the construction and working phase..*

**Keywords-** *No-Fines Concrete, Coarse Aggregates*

## **I. INTRODUCTION**

No-Fines concrete is a mixture of cement, water and a single sized coarse aggregate combined to produce a porous structural material. It has a high volume of voids, which is the factor responsible for the lower strength and its lightweight nature. No-fines concrete has many different names including zero-fines concrete, pervious concrete and porous concrete. No-Fines concrete consists of an agglomeration of coarse single sized aggregate covered with a thin layer of cement paste approximately 1.3 mm thick (Neville 1997). This form of concrete has the ability to allow water to permeate the material which reduces the environmental problems associated with asphalt and conventional concrete pavements.

## **II. HEADINGS**

### **1. INTRODUCTION**

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Coarse Aggregates



Flakiness Index



Cubes



\ Compression Machine

1. No-fines Concrete – Mix Proportion
2. Methodology

Aggregate	Cement	Water
8	1	0.4
6	1	0.4
4.5	1	0.4
4.8	1	0.36

**METHODOLOGY**



The following sections of this chapter describe in detail the testing that follows and the methodology used to produce the results to be analysed. A discussion of the preliminary mix design that was conducted during the early stages of this project follows.

To provide uniform results and conformity with the concrete testing, an aggregate sample was chosen to be used for the remainder of the project. 20 mm crushed basalt was chosen as it appeared to be the most spherical aggregate available.

## V.CONCLUSION

No-fines concrete is a viable material that has the potential to replace the use of traditional concrete pavements in situations where heavy traffic is limited, such as car parks, residential streets and driveways. More widespread applications may be possible if methods of reducing the ravelling that occurs within the top aggregate are found

### Limitations of No- fines Concrete

Although no-fines concrete is a versatile material able to be used in many situations there are times when its use is not a viable choice. No-fines concrete pavements have a rough-textured, honeycomb like surface, which lacks the high bonding strength on the wearing course. Moderate amounts of ravelling are normal with little or no problems but this becomes a major issue on highly trafficked roadways..

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