

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

‘Jnana Sangama’ Belagavi - 590 014



PROJECT REPORT

On

“EXPERIMENTAL STUDIES ON TEMPERATURE EFFECTS IN HVFAC PAVEMENT AND CONVENTIONAL CONCRETE PAVEMENT”

Submitted in partial fulfillment of the requirement for the award of

BACHELOR OF ENGINEERING

In

CIVIL ENGINEERING

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ABSTRACT

Cement concrete pavement slabs undergo expansion and contraction due to the variation in atmospheric temperatures. The amount of expansion or contraction mainly depends upon the difference in temperatures between top and bottom surfaces of the slab during day and night, thickness of the slab, Modulus of elasticity of concrete, Coefficient of thermal expansion of concrete, Poisson's ratio, Pressure exerted by the soil subgrade. The temperature gradient between the top and bottom surfaces induces warping or curling stresses in the pavement slab. The warping stresses along with the wheel load stresses become the worst combination from the pavement performance point of view.

An attempt has been made in this direction to make a comparative study on the behavior of Conventional Concrete (CC) pavement slabs with High Volume Fly Ash Concrete (HVFAC) with metakaolin. A concrete mix for M40 is designed incorporating metakaolin as mineral admixture. Concrete pavement slabs were cast of thickness 100 mm, 150 mm and 200 mm. The sizes of the slabs were 1000*1000 mm. Companion specimens using conventional concrete of M40 grade were cast. The temperature variations over the depth of the slab were studied.