

An Experimental Study on Evaluation of Properties and Structural Integrity for Pervious Concrete Pavement System

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ABSTRACT: Increased precipitation in recent years due to the effect of climate change is leading to increased surface runoff and water logging in urban areas while impervious concrete or asphalt covering of urban lands hinders groundwater recharge. However, Pervious Concrete Pavements have the capacity of functioning as a Sustainable Urban Drainage System (SUDS) by allowing surface water to infiltrate downwards through the porous structure of the pavements, thereby minimizing flooding risks, recharging ground water, reducing run off and peak flows, alleviating the precipitation load on overstressed drainage systems, and improving water quality by capturing pollutants. This research provides an overview on pervious concrete mix designs and their effect on strength and permeability. Materials of pervious concrete include those used in conventional concrete, however eliminating the fine aggregate content. Different mix designs have been prepared and tested to understand the behavior of Pervious Concrete and recommend an ideal mix.

KEYWORDS: Pervious Concrete, Mix Design, Coarse Aggregates, Grade, Compressive Strength

I. INTRODUCTION

Pervious concrete is nothing but no fines concrete, which is also known as porous, gap graded or permeable concrete mainly consists of normal Portland cement, CA, water. In which FA are not existent or present in very small amount i.e. < 10% by weight of the total aggregates. In general, for making porous concrete, we will use the aggregates of size which passes through 12.5mm sieve and retained on 10mm sieve. In this project we have taken single size aggregates i.e. 12.5mm. the single size aggregates make a good no-fines concrete, which addition to having large voids and hence light in weight, also offers architecturally attractive look. Pervious concrete pavement is an unique effective means to address the important environmental issues which support green and sustainable growth

II. APPLICATIONS OF PERVIOUS CONCRETE

1. Pervious Concrete as a Road pavement (Foot path, Parking area)
2. Residential roads and driveways
3. Parking lots
4. Noise barriers
5. Slope stabilization