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Guided By

**PROF. KRISHNENDU
PAUL**

SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA

Project Title

SUITABILITY OF QUARRY DUST AND FOUNDRY SAND AS REPLACEMENT OF FINE AGGREGATE IN CONCRETE

Abstract:

Natural sand is a most common fine aggregate in Concrete. The demand of natural sand is quite high in developing countries due to its expansive use in concrete. So its result in scarcity of natural sand, which is a big problem in now's days. So thinking is required for alternative materials of fine aggregate in concrete. Now's days the alternative materials like silica fume, fly ash, foundry sand, quarry dust etc. available in present days. By-product from the crushing process during quarrying activities is called Quarry dust. It's a residue and tailing material during extraction of rock. In recent days there were also use Foundry sand in concrete. It is the product of ferrous and non-ferrous metal casting industries. Quarry dust and foundry sand are used for long term strength and to make concrete economic. This present work is an attempt to use Quarry Dust and foundry sand in concrete as replacement of fine aggregate. Attempts have been made to study the physical and chemical properties of quarry dust and foundry sand, mechanical and durability property of concrete for suitability of those properties to enable them used as fully replacement materials for sand in concrete. Mix design of M20 grade concrete with replacement proportion of 100-0, 80-20, 60-40, 40-60, 20-80, 0-100 of Quarry dust and Foundry sand respectively have been considered for analysis basic physical properties, compressive strength, flexural strength and split tensile strength of hardened concrete. The results were compared with control mix. The mechanical and durability properties also find for the optimum proportion.

Prepared By:

Sr. No.	Student Name	Enrollment No
1	PATEL JAY S.	130780106029
2	PATEL UTKARSH S.	130780106046
3	PATEL MEET M.	130780106036
4	PATEL FENISH V.	140783106002

