

PARTIAL REPLACEMENT OF COARSE  
AGGREGATE WITH PORCELAIN GRANITE  
TILE WASTE (PGTW) IN REINFORCED  
CONCRETE BEAM

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PARTIAL REPLACEMENT OF COARSE AGGREGATE WITH PORCELAIN  
GRANITE TILE WASTE (PGTW) IN REINFORCED CONCRETE BEAM

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Thesis submitted in fulfilment of the requirements  
for the award of the degree of  
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**LIST OF SYMBOLS**

%	Percentage
Mm	Millimeter
N/mm <sup>2</sup>	Newton per millimeter square
Kg	Kilogram
N	Newton
kN	Kilonewton
kg/m <sup>3</sup>	Kilogram per meter cubic
w/c	Water to cement ratio
mm <sup>2</sup>	Millimeter square
m <sup>3</sup>	Meter cubic
Pa	Pascal
MPa	Mega Pascal
Psi	Pounds per inch square
pH	Potential of Hydrogen

**LIST OF ABBREVIATIONS**

ACI	American Concrete Institute
ASTM	American Society for Testing and Materials
BS	British Standard
CC	Conventional Concrete
CEM	Certified Energy Manager
DOE	Department of Environment
IS	Indian Standard
LVDT	Linear Variable Displacement Transducer
LWA	Lightweight Aggregate
NWC	Normal Weight Concrete
OPKS	Oil Palm Kernel Shell
OPSC	Oil Palm Shell Concrete
P0	0% of Porcelain Granite Tile Waste
P1	10% of Porcelain Granite Tile Waste
P2	20% of Porcelain Granite Tile Waste
P3	30% of Porcelain Granite Tile Waste
PGTW	Porcelain Granite Tile Waste
RCA	Recycled Concrete Aggregate