

# **An Investigation of properties of concrete made with concrete rubble as aggregate**

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## **Abstract**

The important engineering properties of concrete made with concrete rubble as aggregate have been determined and compared with those of conventional concrete. Recycled concrete was found to be more workable and placable compared to conventional concrete; its compressive strength was, however, 0 to 30% lower than that of reference conventional concrete made with parallel mix parameters in the range of w/c ratios 0.55 to 0.35. Modulus of elasticity was found to be consistently about 18% lower than that of conventional concrete in the range of w/c ratios 0.4 to 0.55.

The strength is increased by about 10% for an increase in cement factor from 550 to 750 lb/cu.yd. (w/c ratio 0.4 to 0.5) whereas modulus of elasticity increases upto 27.1 for a w/c ratio of 0.45. Substituting sand by fine rubble reduces workability but does not affect the strength characteristics for the same degree of compaction.

The absorptive characteristics of recycled concrete are inferior to that of conventional concrete. However, for low w/c ratios these are within acceptable limits for good durability.

Aggregate mortar bond strength showed failure either through the parent paste or at the parent paste aggregate interface.

It is concuded that recycling concrete for use as aggregate in new concrete is feasible.