MANUFACTURE OF SOLID CONCRETE BLOCKS AS AN ALTERNATIVE BUILDING MATERIAL

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Energy Conservation is of national importance to our country at present. Although clay bricks are widely used and a cost effective building material its manufacture is highly energy consuming. As such lean concrete masonry blocks may be used as an alternative.

Three trials were carried out by casting 3 blocks of size 150 mm x 150 mm x 300 mm for each trial. Mix proportion was 1:9:9. 63 mm, 20 mm and 63 & 20 mm aggregates were used respectively. The blocks were tested for 28 day strength.

The average compressive strength observed for 63 mm size aggregate blocks was 1.1 N/mm^2 was observed for others. An average compressive strength of 1.2 N/mm^2 is specified in SLS 855 for hollow blocks. As the solid blocks were cast in a beam mould available in the laboratory blocks could not be cast from the same batch of concrete. Better strength values may be expected by casting in special moulds and by improving compaction.

Although the cost of a solid block is marginally higher than the cost of a hollow block some advantages of the solid block can be highlighted. The solid blocks can be readily manufactured in areas where naturally crushed metals are available such as land slide prone areas. These could be used to construct houses for the displaced. The blocks can be broken to the required size at construction while it is not easy with a hollow block. The risk for breakage in handling and transport in a hollow block is very much higher than in a solid block.