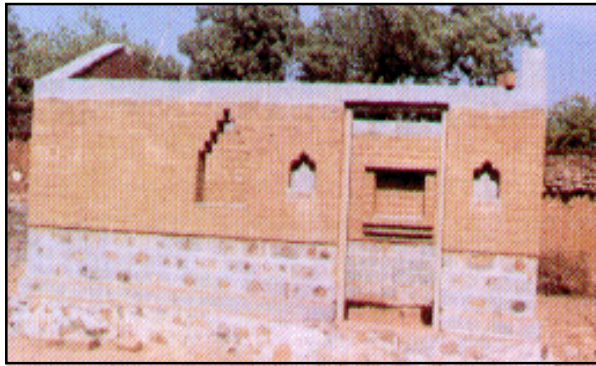


Building with Concrete Blocks

Concrete blocks can be used like any other masonry unit to build foundations, walls, arches and corbels, etc. A typical concrete block is equivalent to 4.5 bricks, thus construction is faster than with other masonry units. The mortar used is also less which results in cost saving. Concrete blocks have been extensively used in combination with conventional roofing systems like RCC, RBC, GI sheets, ACC sheets etc. They are also compatible with other materials like fired bricks, dressed stone and compressed earth blocks for composite wall construction.




Concrete blocks used in a rural house

Acceptability of concrete blocks is very high in urban areas for all types of buildings. They are very popular as a long lasting, low maintenance and investment for institutional and industrial buildings. The permanence of a cement based product is making concrete blocks a preferred choice in rural areas as well.



Institutional building of concrete blocks


Parameter	Description
Typical size	300 x 200 x 150 mm
Average compressive strength at 28 days	50-110 kg/sq.cm
Mix Proportion	1:12-14 (1 part cement : 12-14 parts sum graded aggregates)
Water absorption in 24 hours	Less than 10% by weight of block



For more information contact :
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The mechanised Ferrocement Roofing Technology package has been developed by Development Alternatives with financial support from Building Material and Technology Promotion Council, Government of India.





Eco Building Advisory Unit



concrete block technology

**For environment friendly,
cost effective, fast construction**



Development Alternatives

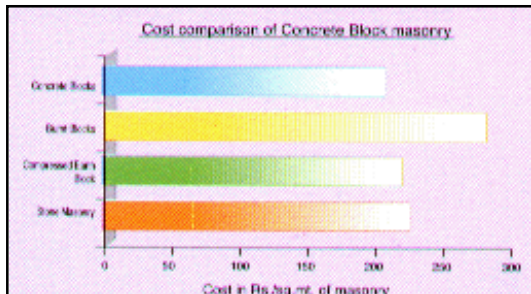
Concrete Block Technology offers a speedier, cost effective, environmentally sound alternative to conventional walling materials. It is based on the principle of densification of a lean concrete mix to make a regular shaped, uniform high performance masonry unit. Concrete Block Technology can be easily adapted to suit special needs of users by modifying design parameters such as mix proportion, water/cement ratio and type of production system. It is an effective means of utilizing wastes generated by stone crushers, quarrying and stone processing units. The technology has high potential in areas where raw materials are easily available.



Concrete block production yard

Business

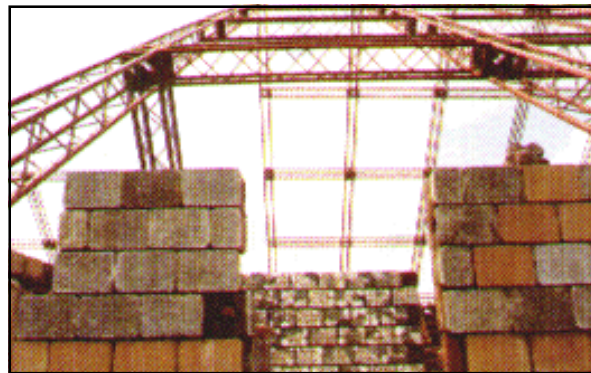
The Concrete Block Technology package is a highly profitable business for micro and small scale building material producers and construction companies. A total investment of about Rs. 1,75,000/- assures a net profit of approximately Rs. 60,000/- per annum. The market for concrete blocks is growing at a rapid rate, specially in the areas where burnt bricks are not easily available or are of poor quality.



Product

The specifications and the characteristics of a concrete block depend on the machine used to manufacture concrete blocks.

The most common size of solid concrete blocks is 300x200x150mm. The basic raw material is cement, fine aggregate and coarse aggregate. Very little water is used. This is possible only with mechanised compaction and vibration and gives the block high quality in spite of the lean mix, which uses very little cement. Weight of a concrete block is about 18-19 kgs. Concrete blocks can be surface engineered by using pieces of stone or ceramic waste on their face. Another common type are hollow concrete blocks. They are made with a richer mix, but offer a number of advantages, such as lighter weight, easier handling and facility for conduiting or reinforcement through the hollows.



Surface engineered concrete blocks

Unique features of Concrete Block Technology

- Cost effective compared to other traditional walling systems
- Maximum utilisation of wastes and local resources
- Structural performance can be engineered
- Decentralised local production
- Offers business opportunities

Production Process

Concrete blocks are usually produced using a semi-mechanised stationary type machine. The other production systems are - manual moulds which require hand tamping, a mobile semi-mechanised egg-laying machine and fully mechanized system which combines compression and vibration.

High quality machines provide optimum vibration in the mix so that the ratio of cement used can be reduced substantially without compromising on the strength of the blocks. The machine also compacts and consolidates the mix so that the blocks are uniform in size and attain desired physical properties. The blocks are cured for a minimum period of 14 days, before they are ready to use. On an average 600-800 blocks can be in 8 hours by 1 skilled and 6-8 semi-skilled workers.



TARA Concrete Block Maker