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COST of CONCRETE BLOCK WALLS

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C O S T O F C O N C R E T E B L O C K W A L L S.

Introduction.

Building walls in concrete blocks will, no doubt, continue to play a major role in the construction of houses in Kenya. Although in certain areas of the country other materials are available for building "permanent" walls, like burnt bricks and natural stone, the use of concrete blocks is predominant, both for contractor-built structures and for "self-help" development.

Although concrete blocks are not expensive in an absolute sense, a wide gap exists between the cost of non-permanent wall structures (mud and wattle, sun-dried bricks, etc.) and concrete block masonry. For this reason research on alternative materials (e.g. stabilised soil blocks) and construction methods is relevant and may lead to adequate wall construction at lower cost.

Nevertheless, in view of the predominance of the use of concrete blocks, proper understanding of the cost aspects is of importance especially for the self-help developer (e.g. the plot allottee in a site and service scheme). In this short paper costs of various sizes and types of blocks, and the cost of masonry walls in various thicknesses are analysed and compared. Purchase prices and costs of transport (within the Nairobi area) have been obtained from suppliers whose names and addresses are listed in Appendix D.

Block sizes and types.

HRDU analysed the various aspects of metrication of concrete blocks in 1970 (1), the results of which led to the publication by the Ministry of Works of the STANDARD SPECIFICATION FOR METRIC SIZED CONCRETE BLOCKS FOR BUILDING in September 1972.
Since the publication of this Standard Specification the use of metric size blocks has increased by a large extent, but blocks in "imperial" sizes are still being produced and cover a large proportion of the market for this type of product.

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(1) Metrication of concrete blocks, Per Houlberg, HRDU, 12.12.1970

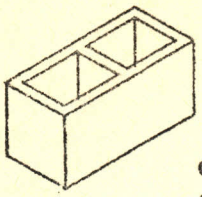
Although for obvious reasons the "imperial" blocks will gradually vanish from the market, in this paper comparative costs for blocks in both measurement systems are indicated (see table Appendix B and graphs Appendix C).

The block sizes available in the two systems are as follows:-

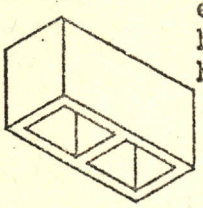
	length		width		thickness
METRIC	390	x	190	x	70 mm
	390	x	190	x	90 mm
	390	x	190	x	140 mm
	390	x	190	x	190 mm
	390	x	190	x	240 mm

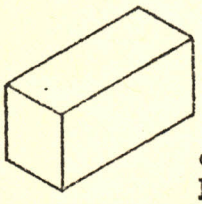
	length in inches						length in mm					
	width		thickness				width		thickness			
IMPERIAL	18"	x	9"	x	3"		457	x	229	x	76	mm
	18"	x	9"	x	4"		457	x	229	x	101	mm
	18"	x	9"	x	6"		457	x	229	x	152	mm
	18"	x	9"	x	9"		457	x	229	x	229	mm

Out of this range, for simple single storey houses, the 90 mm and 140 mm thick (in the metric range) and the 4" and 6" thick (in the imperial range) blocks are used most; the larger size (140 mm/6") for external and load-bearing walls, the smaller size (90 mm/4") for partition walls.

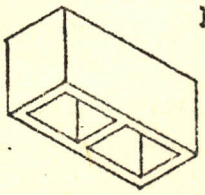


open end hollow block





cellular hollow block



In both size systems blocks can be obtained either solid or hollow, the hollow type having either through-going holes (specified as "hollow" in the MOW's Standard Specification), or with closed ends (specified as "cellular" in the MOW's Standard Specification). Most commercially produced hollow blocks are of the closed type and cost figure in this paper refer to the latter type.
In conformity with every day practice these "cellular" blocks are referred to in this paper as "hollow" blocks.

Cost of walls in metric concrete blocks.

As in most designs for houses prepared by the formal sector the MOW's Standard Specification is adhered to, in the cost analysis of walls built in concrete blocks (tabulated in Appendix A) costs have been calculated for two sizes of metric blocks (140 mm and 90 mm thick), separately for solid blocks and for hollow (cellular) blocks.

As the majority of future development in the low-cost housing sector will be in the site-and service system, the actual cost to the self-help developer has been calculated, including:-

- cost of blocks at average market rate;
- cost of transport of blocks from manufacturer's yard to building site (in the Nairobi area);
- allowance for waste (cutting) of blocks and waste of mortar;
- cost of labour (hired fundi and unskilled aide).