



UNIVERSITY OF NAIROBI  
HOUSING RESEARCH AND DEVELOPMENT UNIT

F O U N D A T I O N S   F O R  
L O W - C O S T   H O U S E S

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FOUNDATIONS FOR LOW-COST HOUSESIntroduction

The Building Code of Kenya lays down the following general rules for foundations of buildings : (1)

- The foundations of every building shall be -
  - (a) so designed and constructed as to sustain the combined dead load of the building and imposed vertical and lateral loads and to transmit these loads to the ground in such a manner that the pressure on the ground shall not cause such settlements as may impair the stability of the building, or of adjoining works or structures ;
  - and
  - (b) taken down to such a depth or be so designed and constructed as to safeguard the building against damage by swelling, shrinking or erosion of the sub-soil.

The most common foundation type for simple buildings generally applied in Kenya is the unreinforced concrete strip foundation, and the Building Code (Grade I By-laws) specifies minimum thicknesses and widths of this type of foundation for various loading and sub-soil conditions. (2)

The respective tables :

Table I - Bearing capacity of subsoils , and  
 Table 2 - Minimum widths of foundations  
 are reproduced in Appendices A and B of this paper. Metric equivalents (in SI units) have been added to the data given in imperial units in the Code.

The Grade II By-laws contain only one clause (By-law 18) dealing with foundations, which reads:

- Foundations shall be adequate to support the load transmitted to them and be generally to the satisfaction of the council.

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(1) Building Code of Kenya (Grade I) - By-law 43. (1)

(2) Building Code of Kenya (Grade I) - By-law 44. (1). (b)

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For simple single-storey houses with 6" thick external walls (140 mm. thick when metric blocks are used) the most generally adopted concrete strip dimensions are :

width 18"                      thickness 6" ,

which for walls in 140 mm. thick metric block masonry would be converted to :

width 440 mm.              thickness 150 mm.

For low-cost houses constructed by the National Housing Corporation , foundation strips are normally :

width 12"                      thickness 4"

(metric equivalent : 300 x 100 mm.)

These dimensions are in conformity with the Building By-laws provided the bearing capacity of the sub-soil is not less than 3/4 ton/sq.ft. (80 KN/sq.m.), a condition which is fulfilled by normal red soil.

(3)

(3a)

(4)

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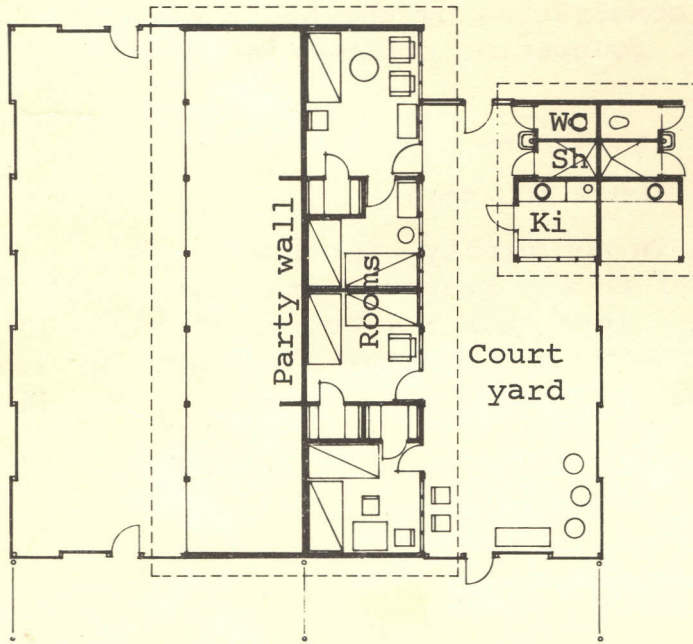
(3) See Table 2 , Appendix B of this paper

(3a) Stresses expressed in KN/sq.m. (Kilo Newton per square metre) ; 1 KN = 1000 Newton ; for all practical purposes the Newton (unit of force in the SI system) equals 0.1 kgf.

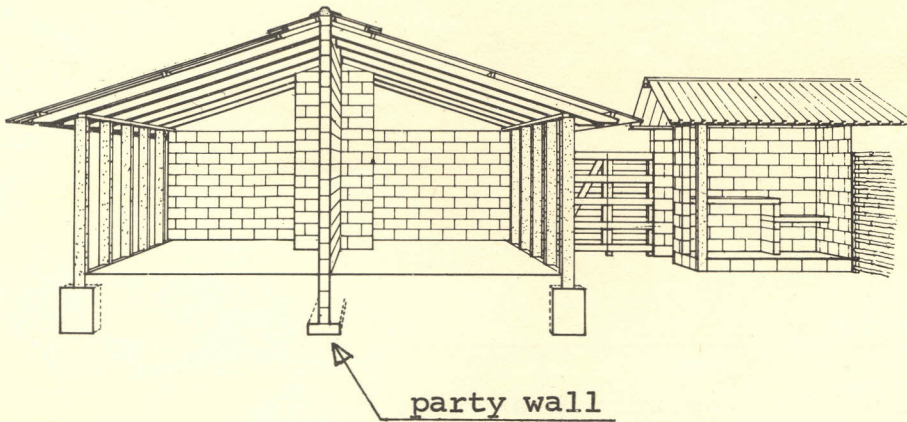
(4) See Table 1 , Appendix A of this paper

Required width of foundations of simple single-storey houses

In a typical low-cost house as shown in the illustrations, the wall exerting the maximum load on the foundations is the party wall separating the semi-detached pair of houses. (5)



Plan  
scale 1/200



Perspective section