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DWELLING UNITS IN PUBLIC LOW COST HOUSING

- an analysis of type-plans

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INTRODUCTION

Republic of Kenya, Development plan 1970 - 74
paragraph 19.7:
"The shortfall of up to 75000 urban dwellings a year has been met by individual families themselves, who has squatted on public and private land and built whatever poor form of shelter was within their means (...) where even this was not possible, they have doubled up or trippled up with other families.
(...) a partial survey in 1962 showed that in Nairobi some 100,000 persons were living in only 28,387 rooms, and two households out of every three had an occupancy rate of four or more persons per room. Overcrowding is now even more severe (...)"

paragraph 19.22:
"The prime objective of government policy in housing is to move towards a situation where every family in Kenya will live in a decent home, whether privately built or state sponsored, which provides at least the basic standards of health, privacy and security".

The present shortage of dwellings may not be overcome within the life-span of the dwellings we build today. Low cost dwellings will be subject to overcrowding until enough dwellings are available, and it has become necessary to take this into consideration also in the detailed planning of the dwelling types, which are to be produced in larger and larger numbers.
Permanent dwellings, not likely to be renewed for 2 - 3 generations, should be able to be transformed from over-crowded dwellings, by need, profit motive or pressure from households relatives, into differentiated one family dwellings, as soon as the families have the wish and ability to do so.

A large part of the low cost dwellings built in Kenya in the last decade are designed for nuclear families and do not cater for the extended family or for initial sharing by more households. Others seem to cater well for sharing but may for other reasons not be appropriate today.
The possibility, as well as the urge, with regard to improvements must be present to avoid the development of slums.
Before the time comes for large scale industrialized building in Kenya, standards must be developed to secure such possibilities.

This study is based on a collection of 67 type-plan drawings of low cost dwellings designed or sponsored by public bodies in Kenya in the period 1958-69.

The objectives of the study has been:

1. to investigate needs for future coordination in design of low cost dwelling types in Kenya.

2. to investigate needs for development of new dwelling types.

3. to identify design principles and significant details for future development of housing design standards,

4. to identify existing prototypes and unofficial standards as a means of increasing the efficiency of further research,

5. to develop a critical method for the evaluation of future house types.

The sample of dwelling units here presented, can be said to represent the main stream of East African, publicly funded, permanent low cost housing: dwellings, mostly detached or semidetached, built in one-storey, compensating lack of internal space by the use of the cheaper spaces outdoor, rectangular shaped or arranged around a courtyard and erected in what has become East African building tradition:

i. concrete block walls and foundation,

ii. cast concrete floor

iii roof or corrugated iron, aluminium or asbestos.

iv wooden purlins on simple trusses or on loadbearing crosswalls.

v windows with glass in standard steel frames or glass louvres,

vi. ledged, braced and battens doors, and

vii kitchen fittings cast in concrete.

The sources of the sample were, for practical reasons, limited to:

a) National Housing Corporation (N.H.C.), Kenya

b) Ministry of Works (M.O.W.), Kenya.

c) East African Railways and Harbours (E.A.R.H.)

f) Nairobi City Council (N.H.C.), and

j) Menezes & Partners, Nairobi (commissioned by N.H.C. and N.C.C.)

From these sources whatever type-plan drawings and data were available has been used for the purposes of the analysis.

Excluded from the sample are:

1) One-roomed units without extension possibilities (as design of such units, since May 1969, are abandoned in Kenya).

2) Such units which, due to equipment and detailing, classify themselves far above the average.

3) A few examples involving untraditional building methods which, together with other (recent) examples are being compiled for a separate study.

4) Not excluded from the sample are such dwelling types, other than one-roomed, which, because of the development of new types or for other reasons, are out of production today.

Several points of view, followed up in the analysis, have external sources:

a. Republic of Kenya, Development Plan 1970-74
Housing policy, statement of overcrowding problem, encouragement of high density development, encouragement of site and service schemes in urban areas.

b. Recommendations by N.H.C. Kenya, the technical committee:
Abandoning of one-roomed units, discouragement of external access to waterborne sanitation, discouragement of kitchens designed as recesses to livingrooms.

c. Social surveys undertaken by H.R.D.U.
Main points of complaint: external access to w.c., too small kitchens, combined shower and w.c., access to w.c. from one habitable room through another in small dwellings, number and arrangement of bedroom.

SUMMARY

Presently the emphasis is on 2-roomed dwelling units in permanent low cost housing. Without extension possibilities this dwelling type becomes restrictive to future improvements of the housing stock, if a general demand for separation of children and parents sleeping accommodation and the maintaining of a dining/sitting room is assumed.
A concentration of 2-roomed dwellings means furthermore that the expensive service units must be repeated for every habitable rooms in the main bulk of dwellings.

Urban low-frontage dwelling types of more than 2 rooms are almost non-existant at the moment, partly due, to a preference for detached and semi-detached types, and partly due to the design of 3 and 4-roomed types as family type dwellings for income groups above the lowest.
The lodging type units, with circulation systems allowing for initial sharing or subletting, comprise only 27% of total against 37.5% family type dwellings.
Planning on bedspace units is less common than planning on by-law minimum space requirements. Considerable variation is found in the bedspace capacity of dwellings. Some dwellings do not accommodate beds according to numbers of occupants allowed by the present by-laws.

About half of the dwellings have full sanitation with individual w.c. and shower in two separate compartments.
About half have internal (secure) access to w.c.
Most bedrooms have access to w.c. through another habitable room only.
Some w.c.s are accessible through kitchen only.

Kitchens are, on average, designed two times minimum by-law sizes. Great variations are found in kitchens in floor space dimensions and in the dimensioning of working space, cooking space and storage. In a few dwellings kitchens are used as circulation area.

Only 47% of habitable rooms are separate and adequate for subletting, the remainder being living room and bedroom types.
A few separate rooms are not planned for future integration in the dwelling, but function as separate 1-roomed units.
Present by-law requirements have the effect that 40% of all habitable rooms are designed exactly to the minimum, mostly being 7.3 m^2 and 11.2 m^2 (2 and 3 persons).
Habitable rooms are found to possess maximum furnishing possibilities when room dimensions are related to bed-dimensions

2-person rooms are found to improve considerably when area is increased to 8 - 9 m^2, allowing for 3 possible bed spaces or 2 beds plus additional furniture necessary for lodgers.
Examples are found where 3 person rooms are dimensioned to allow for 4 possible bedspaces or 3 beds plus additional furniture.
Livingrooms with more than two doors plus fixed cupboards or "English" fireplaces are, in general, not able to accommodate bedspaces according to area.

Courtyards are found in 14 out of 67 dwellings. 12 courtyards of the 14 contain the main entrance to the dwelling. Verandahs are in general not designed to contain a sitting group.

In order to determine how many of the 67 dwellings could be considered suitable for future development, the following five negative criteria may be applied as disqualifying for the dwelling type as such:

1) No sanitation,
2) W.C. not accessible from inside or courtyard,
3) Numbers of possible bedspaces less than allowed by present by-laws,
4) Kitchen as access area to w.c.,
5) 2 habitable rooms only without extension possibility.

It is found that

51 dwelling types, or 76%, qualify criterium 1,
33 dwelling types, or 49%, quality criteria 1 & 2,
32 dwelling types, or 48%, qualify criteria 1 to 3,
27 dwelling types, or 27%, qualify criteria 1 to 5,

Three additional major points of complaint might be applied as negative criteria, which however are easier to rectify without discarding the dwelling type as such:-

6) Kitchen as recess to living room,
7) W.C. and shower combined in one compartment,
8) Kitchen undersized.

It is found that the 18 remaining types all qualify criteria 6 and 7, but that 7 types have kitchens smaller than 4 m^2.

Of the 18 dwelling types passing criteria 1 to 5, 10 have corridor or courtyard circulation (loding type) and 8 have room or central corridor circulation (family type).