

H O U S I N G B L O C K C O U R S E

University of Nairobi
Department of Architecture,

Session 1978/79, Year 3, Term 2.
January 1979
18th January 1979 8.30 a.m. - 10.00 a.m.

LECTURE COURSE

Lecture : 1.4.

Title : HOUSING LAYOUT DESIGN III

By : PETER A. ERKELENS,
RESEARCH FELLOW, MATERIALS ENGINEER
HOUSING RESEARCH AND DEVELOPMENT UNIT,
UNIVERSITY OF NAIROBI

Abstract : The paper outlines briefly the infrastructural requirements and optimization of water supply, sewers, roads and circulation systems, surface water drainage and power communications.

Also some general rules for the design of the infrastructure of houses and grouping of housing-units are attached.

1.4.1. Water Supply:

Clean drinking water is the basis of good health but many cities in developing countries lack adequate systems to deliver water to all parts of the supply area. For Nairobi, it can be said that piped water is at least available in most parts of the town. The objectives are to provide safe and potable water for drinking, cooking, personal hygiene and sanitary purposes. This supply comes from a distribution network connected to an urban area water grid.

Levels of services

Minimum level: Limited supply of water (40 litres of water per person a day) at a maximum distance of 100 m from dwellings. The maximum numbers of dwellings to be served by a single communal tap shall not exceed 22 dwellings.

Standard level: Full supply of water within the dwelling of cluster. Kitchen, toilet and shower with water taps. Assumed demand 75 litres per person per day. Measuring by meters. Roof tanks for one day's supply are recommended if there may be low pressure and volume during the day. (Public Health Act).

Basic Design Data

Gate valves to shut off the water supply are expensive. An acceptable walking distance of 200 metres in emergencies would be required for people to have access to water from taps on other streets. Fire hydrants are located on a minimum pipe size of 3". The maximum distance from a hydrant to a dwelling should not exceed 200 metres.

Rule of thumb: Service pipe for one or two houses
1/2"
Street main for maximum 30 houses
1 1/2"
Pipesizes over 1 1/2" diameter have
to be fed by both sides.

There shall be a minimum of 1 shower for every 12 dwellings and one communal tap for 22 dwellings with a minimum of two at a maximum distance of 100 metres from the dwelling.

Back to Back Services

The purpose of back to back services, at least in theory, is to reduce costs of service connections, by running lines of water and sewerage in the back of the plots and installing the sanitary services along these lines. (Dandora Scheme is an example),