

THE  
FOURTH EAST AFRICAN  
TIMBER SYMPOSIUM

ON  
THE THEME

TIMBER FOR  
LOW COST HOUSING CONSTRUCTION  
PAPERS PRESENTED

Organising Secretary

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UNIVERSITY OF NAIROBI

MARCH 31st APRIL 1st 2nd 1971

FOURTH EAST AFRICAN TIMBER SYMPOSIUM

TIMBER FOR

LOW COST HOUSING CONSTRUCTION

PROGRAMME.

- March 31st 08.30 Registration
- 09.00 Address of welcome by the Vice-Chancellor of the University of Nairobi.  
Opening of Symposium by the Hon. Minister of Housing.
- 09.30 FIRST SESSION.  
Chairman D. Cook, Deputy City Engineer, Nairobi City Council
1. The Architects Brief for the Nairobi City Council Prototype Timber Housing Project at Kariobangi Prepared by the National Housing Corporation
  2. Low-cost Timber Housing; K.F. Craig-McFeeley, Chief Planning Officer, Nairobi City Council.
- 10.30 Coffee
- 11.00 SECOND SESSION.  
Chairman A.J. Marshall, Ministry of Housing  
The execution of the Design Brief.
3. The Ministry of Housing; H. Migallo
  4. The Nairobi City Council; A. Sheikh
  5. The National Housing Corporation; A.S. Semhi
  6. The Housing Research and Development Unit, University of Nairobi, P. Houlberg.
- 12.45 Lunch
- 14.00 Visit to the Nairobi City Council Prototype Timber Housing Project, Kariobangi.
- 18.30 Cocktail Party.
- April 1st 08.30 THIRD SESSION.  
Chairman A.S. Semhi, National Housing Corporation
7. Production of Timber Houses for the Project, D. Cook, Nairobi City Council.
- 09.30 FOURTH SESSION.  
Chairman A.S. Semhi, National Housing Corporation
8. Housing Needs in East Africa-can the Timber Industries help solve the problem.  
D.D. Scorer, Timsales Limited, Nairobi.

10.30 Coffee

11.00 FIFTH SESSION

Chairman C.C. Bengough, Kenya Forest Department

9. Timber Seasoning, J. Barnacle, Commonwealth Scientific and Industrial Research Organisation, Melbourne.

12.45 Lunch

15.00 Special technical session on seasoning

April 2nd 08.30 SIXTH SESSION.

Chairman A. Sheikh, Nairobi City Council

10. Structural considerations of nailed joints, O.O. Sekulic.

11. Timber Specifications for Building in East Africa, P.A. Campbell

12. Quality Control of Plywood in East Africa, P.A. Campbell

10.00 Coffee

10.30 SEVENTH SESSION

Chairman A.J. Marshall, Ministry of Housing.

12. Summary and Recommendations, Kariobangi Timber Housing Project: P.A. Campbell.

12.30 End of Symposium.

FOURTH EAST AFRICAN TIMBER SYMPOSIUM

FIRST SESSION

1. THE ARCHITECTS BRIEF FOR THE NAIROBI CITY COUNCIL

PROTOTYPE HOUSING PROJECT

A.S. SEMHI, NATIONAL HOUSING CORPORATION

2. LOW-COST TIMBER HOUSING

K.F. CRAIG-MCFEELEY, NAIROBI CITY COUNCIL

THE ARCHITECT'S BRIEF FOR THE NAIROBI CITY  
COUNCIL'S PROTOTYPE TIMBER HOUSING PROJECT  
AT KARIOBANGI

INTRODUCTION:

Timber being available in adequate volume in the Republic and its neighbouring countries the first consideration of approaching the problem of a high density housing scheme in the form of a Pilot Timber Housing Scheme at Kariobangi was conceived in 1969.

The City Council of Nairobi decided to embark on this Pilot Timber Housing project with a loan of K£27,000 and a grant of K£10,000 from the National Housing Corporation. Allowing for the experimental nature of the project it was estimated that with the funds available approximate 26 Nos. prototype units could be developed.

The Architect's Brief for this project was prepared by the Design Sub-Committee of the Timber Development Committee and approved by the TDC. In the drafting of the Brief the principal objectives were to ascertain whether Timber Housing could result in a substantial reduction in price, if the Timber Houses could be acceptable to the public and to encourage the use of indigenous woods such as pine and cypress which are becoming available in large quantities.

HOUSE TYPES:

The principal behind this project is to have a wide range of different types of prototypes developed with varying accommodation from a minimum completed house of two-rooms to four roomed house. Therefore it was decided to include ten numbers two-roomed houses, eight numbers three-roomed houses, all single storey and eight numbers four-roomed houses ideal for the sector of the population being considered, in single and double storeys.

2 ROOMED HOUSES

- 10 Nos. Houses as follows;
- 2 Nos. detached
  - 4 Nos. semi-detached
  - 4 Nos. terraced.

3 ROOMED HOUSES

- 8 Nos. Houses as follows:
- 2 Nos. detached
  - 2 Nos. semi-detached
  - 4 Nos. terraced.

4 ROOMED HOUSES

- 8 Nos. Houses as follows:
- 1 Living Room
  - 1 Bedroom for parents
  - 1 Bedroom for boys
  - 1 Bedroom for girls
  - all in terraces, as
  - 4 Nos. single storey and
  - 4 Nos. 2-storey.

The 2-storey ones providing similar accommodation for comparison.

The alternatives detached, semi-detached and terraced were used in order to test the preferences of the public; to ascertain savings due to the amount of the external walling being reduced and services being more concentrated; to examine different ways of constructing party walls; and to see if a detached timber house built at a minimum distance from the plot boundaries could be of a lower fire resistance. Only the 4-roomed houses are large enough to spread over 2-storeys.

The design work was distributed among:

- The City Council of Nairobi
- The University Housing Development Research Unit
- The East African Railways and Harbours but due to the death of the Chief Architect E.A.R. the Ministry of Housing took over the responsibility.
- The National Housing Corporation of Kenya.

STANDARDS:

In order to check how Building By-Laws affect designs the three classes of By-Laws available were all used by each Architect, and to enable him to demonstrate unnecessary restrictions on design, each architect was allowed to design some of his group of houses so that they did not comply with any By-Laws.

The three classes are

- (a) Local Government (Building) By-Laws 1968, in all respects i.e. full by-law house types C1, F1, G2 and H1.
- (b) With the same By-Laws but using the provisions of By-Laws 215 to 227 as to scheduled special Areas and Special Buildings Nos. B3, B4, C2, D2, F2, G1 and H2.
- (c) With the Local Government (Grade II Building) By-Laws 1968 Nos. A1 and D1.

The Grade II Building By-Laws are intended mainly for use in rural areas and a successful design for a 2-roomed house to these standards will be particularly useful.

The intention behind applying various grade of By-Laws is that the By-Laws be reviewed at the end of this exercise.

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A number of countries in the world including the three East African countries are in the process of changing over from the Imperial to Metric system. Therefore the Timber Development Committee of Kenya decided that these prototypes should be planned in metric system, the first time some of the architects concerned had designed in metric.

In each group of 2, 3 and 4-roomed houses two houses were specified to have thermal insulation. It is hoped that the completed houses will be compared to see whether this additional expense is worth while. Similarly one of each pair had a vapour barrier incorporated in the external walls.

The process of treating timber by Dip-Diffusion has recently been introduced into Kenya. Therefore it was decided that half the houses were to be treated by this system and the other half by the more usual pressure impregnation. At one time it was intended to build some houses with untreated timber but later it was decided that this would not be a practical proposition since pine and cypress are not naturally durable.

In the case of 3 houses where the external cladding and the internal lining were to be of pressure impregnated timber a fire retardant was to be incorporated. The additional cost would thus be determined and fire tests might also be carried out.

#### PLANNING:

Each house has a kitchen, w.c., ablutions and store, in addition to the 2, 3 or 4 habitable rooms, normally all of them separated from each other. In a few cases, however, the kitchen has been incorporated into one of the habitable rooms and in other cases the w.c. and ablutions have been combined. The alternatives both result in economies and when occupied any practical disadvantages will be revealed. Normally the store is internal but in some designs it is an outside store for a bicycle or charcoal etc.