INVESTIGATION REPORT - 1979/80

STANDARD WINDOWS AND DOORS

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A. PREFACE AND ACKNOWLEDGEMENTS

This report is based on actual investigation done during the first term of this academic year, on pre-fabricated doors and windows. It covered metal and wooden doors and windows.

The main objective in this exercise was to acquaint myself with the variaties available and the different ways in which they have been used by different architects.

This I hope will help me in the future, when making decisions on whether or not to use them; and if so how best to do so.

I would like to give my special thanks to all the manufacturers that I visited, all the people and families I interviewed and indeed all other people whom in one way or another have made may investigation possible, by their patience and co-operation.

Thank you.

J. Kibirisho

B. INTRODUCTION

The investigation has been done as follows:-

1. (a) By visiting the manufacturers and finding out from them the kinds and sizes of doors and windows they make.

   This was done for steel windows and doors, aluminium windows and doors, timber windows and doors.

   (b) Finding out from the manufacturers where their products have been used.

2. (a) Visiting buildings where these doors and windows have been used.

   (b) See the type of window or door that have been used, plus the sizes. How they have been used.

   (c) Interview the residents or users of the buildings in connection with functions of particular door or window. Find out any problems and methods of improving.

The following is a report of the investigation on standard windows and doors.

C. WINDOWS:

11) Steel Windows

The following are some of the main manufacturers that were visited:-

(a) Kenya casements

(b) Ideal casements

(c) RLCO steel fabricators

These manufacturers make more or less the same type of windows. They use the same dimensions and make same window designs. They buy the steel sections they use already moulded. Their work being only to fabricat the windows. The type of steel they use is of the mild steel type.

They have to send samples of it to the material branch of the M.O.W. for check, to see that it conforms to the set standards. The M.O.W. uses the British standards as they have not yet devised their own.

They also check the oxide paint applied on windows to prevent rusting.

All these manufacturers have their own catalogues which they issue to customers, although they use the same numbering system and measurements.

They are slowly changing their dimensioning into the metric system. They now show both imperial and metric dimensions.

Apart from these main manufacturers, there are also small groups of individuals who make windows. Examples could be found at Kawangware and the back streets of the town, such as in Kirinyaga road. These however do not follow any set standards.

Both the above manufacturers also produce purpose made windows according to clients specification.

The following are examples of buildings using standard steel windows from the above main manufacturers.

(a) From Kenya casements

1. Ngei estate phase one
2. Mawanjee Gardens
3. Norfolk Tower apartments

(b) From RLCO Steel fabricators

1. Ngei estate phase two

2. Langata masionettes (opposite Langata barracks)

(c) Ideal Casements

No examples were available. Reasons given were that sometimes they deal with people who buy a few windows and don't ask them where they are going to build. Also when contractors make orders they don't give the names of projects where they are going to use them.

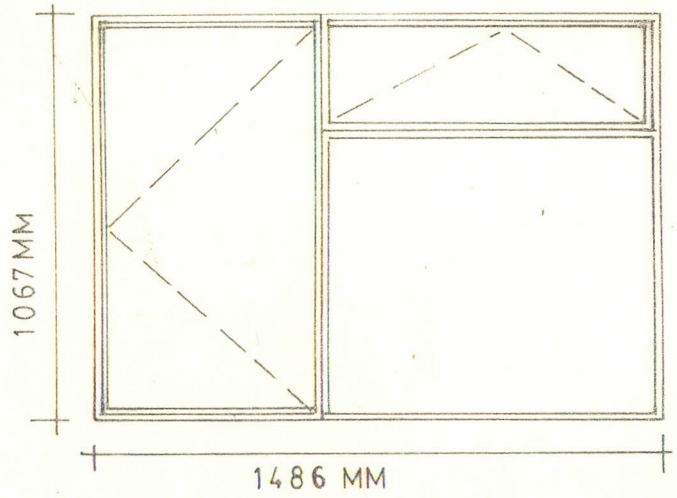
The following is a report on buildings investigated that use the above mentioned standard windows.

1. Ngei estate phase II

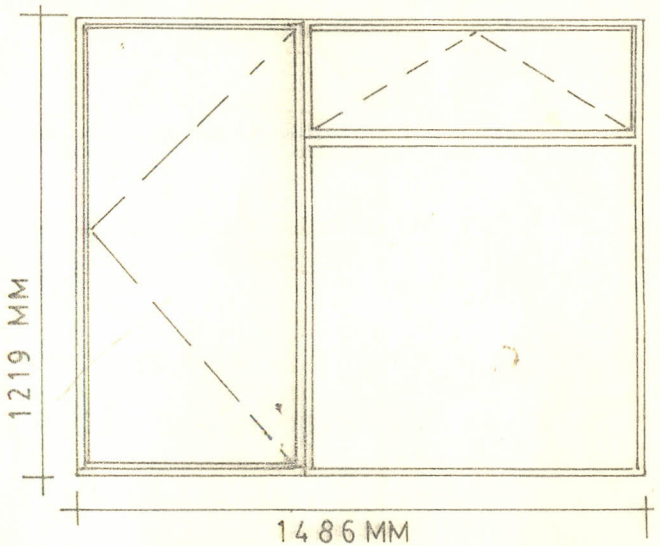
Types of windows used are as follows:-

NCO 10F; ND 10F; NE 1.

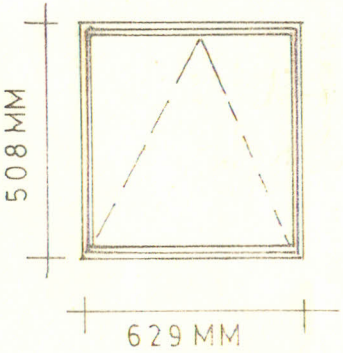
The individual window design and size have been illustrated in figure 1. The first two types have been used in the main building. The last type being used for the servant quarters.



NC 0 10 F



ND 10 F



NE 1

FIG ONE (a)

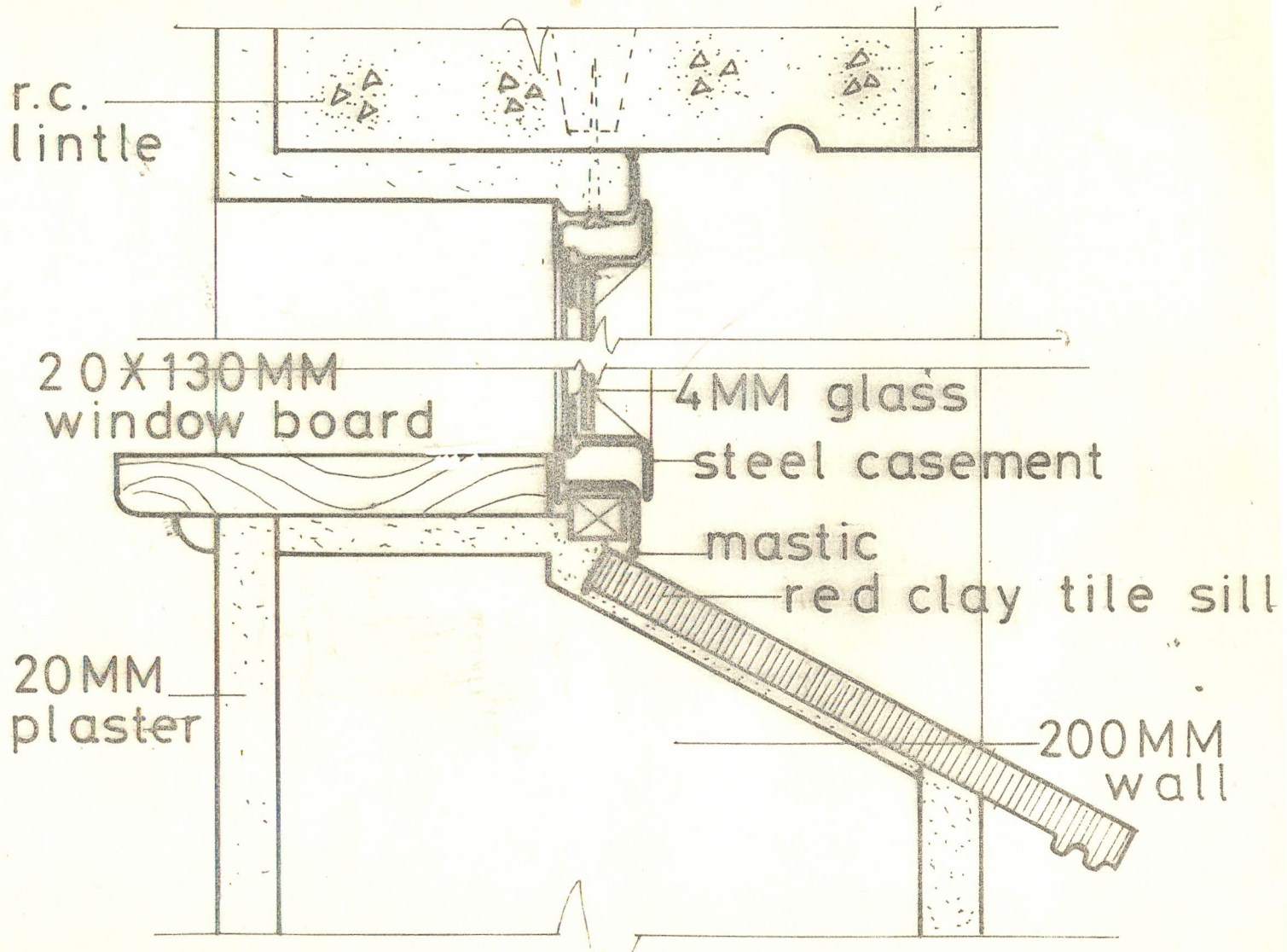

r.c.
lintle
20 X 130MM
window board
4MM glass
steel casement
mastic
red clay tile sill
20MM
plaster
200MM
wall

FIG. ONE (b)

The larger type of the first two is used for the master bedroom and sitting room. The smaller one for the other rooms including toilet and bathrooms. Where used for toilet or bathroom, frosted glass has been employed instead of the ordinary glass.

Red clay tiles have been employed to form the windows sill.

The whole estate has the same window types and sizes.

Interview of Residents

None of the residents interviewed complained of any water leakage during rains or any mulfunctioning of the windows. All seem certisfied. Some however felt that the windows should have been fixed with horizontal bars for the whole area, for security reasons.

2. Ngei estate phase I

In this estate, same windows as discussed above have been used.

Same design and sizes have been employed in the same way.

Interview of residents:- The in erview here revealed the same opinions as that one above.

3. Langata mansionettes - opposite Langata barracks

Types of windows used are as follows as shown in Figure 2.

The wider window is used in the master bed room.

The smallest being used for toilet and bathrooms. The middle size for the rest of the rooms.

The window sill here also is of red clay tiles type as above. Metal bars have been fixed, but only where casements open. No bars for fixed casements.

Interview of residents

The mansionettes are not yet occupied. No user was available for interview.

4. Mawanjee Gardens

The type of windows used here are as shown in Figure 3. Only one type-standard-used. The external horizontal beams form the lintel for the windows. A concrete (pre-cast) tiles window sill are used here. The windows are fixed in between the columns. The windows are not fitted with any bars.

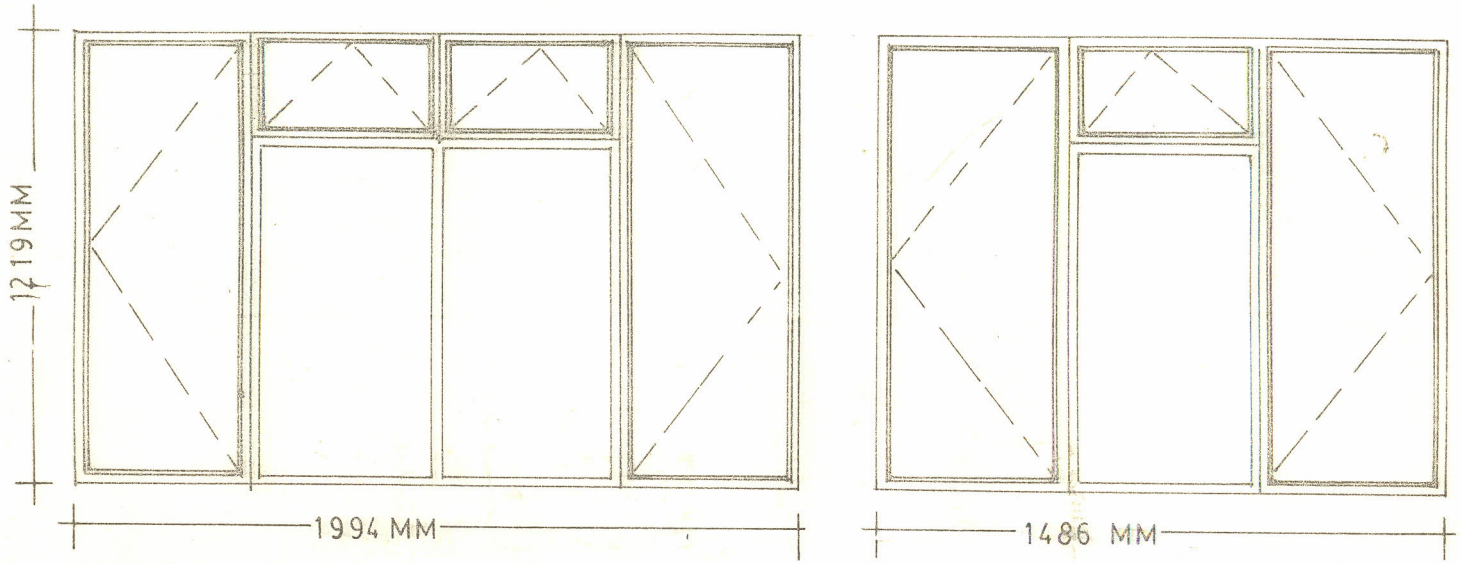
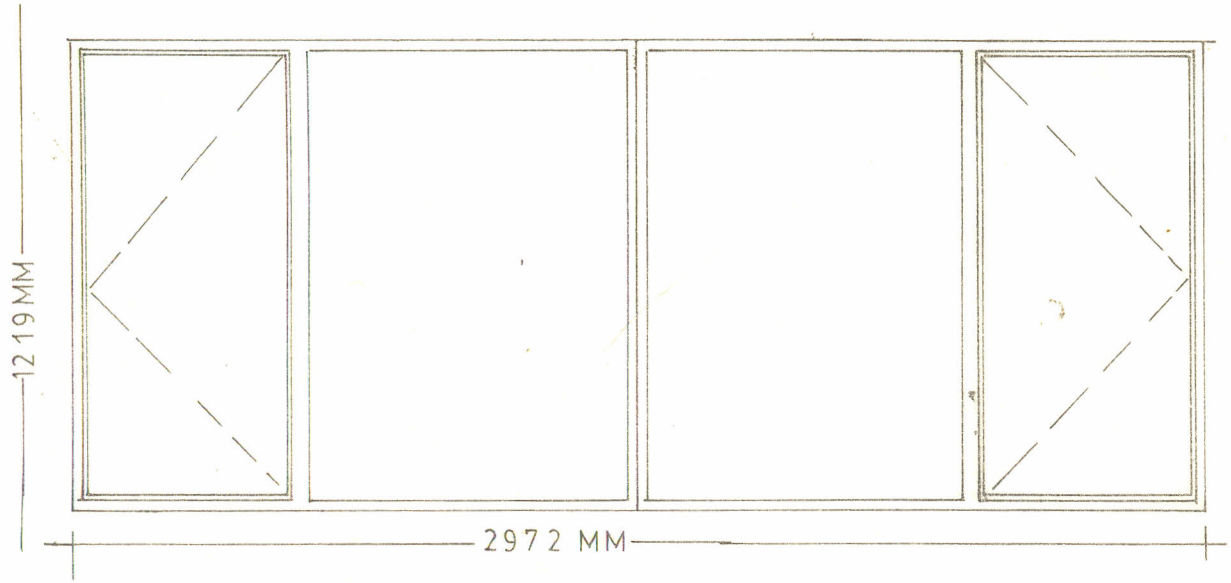


FIG. TWO (a)



TWO ND 10 JOINED TO FORM WIDER WINDOW

NOTE :

DETAILS SIMILAR TO FIG. FOUR (c)
ONLY WINDOW SILL IS A CONC. (PRE-CAST)

FIG. THREE

Interview with residents

Main complaint is the absence of bars on windows. This was particularly so for residents with children. They were worried about their children falling over. This was mostly for families living above ground level. Otherwise there was no other complaint.

5. Norfolk Towers apartments

Types of windows used here are as shown in Figure 4.

Here also the beams form the lintel. Window sills are red clay tiles. The windows do not have any bars at all.

Conclusion

The types of windows available in standard sizes have been employed in domestic buildings as has been shown above.

Architects have tended to specify large glass pane windows without bars. As has been shown by the interviews, this is against the interest of the users. They value the security of their buildings. This may be because in these cases the architect deals with the developer who is not

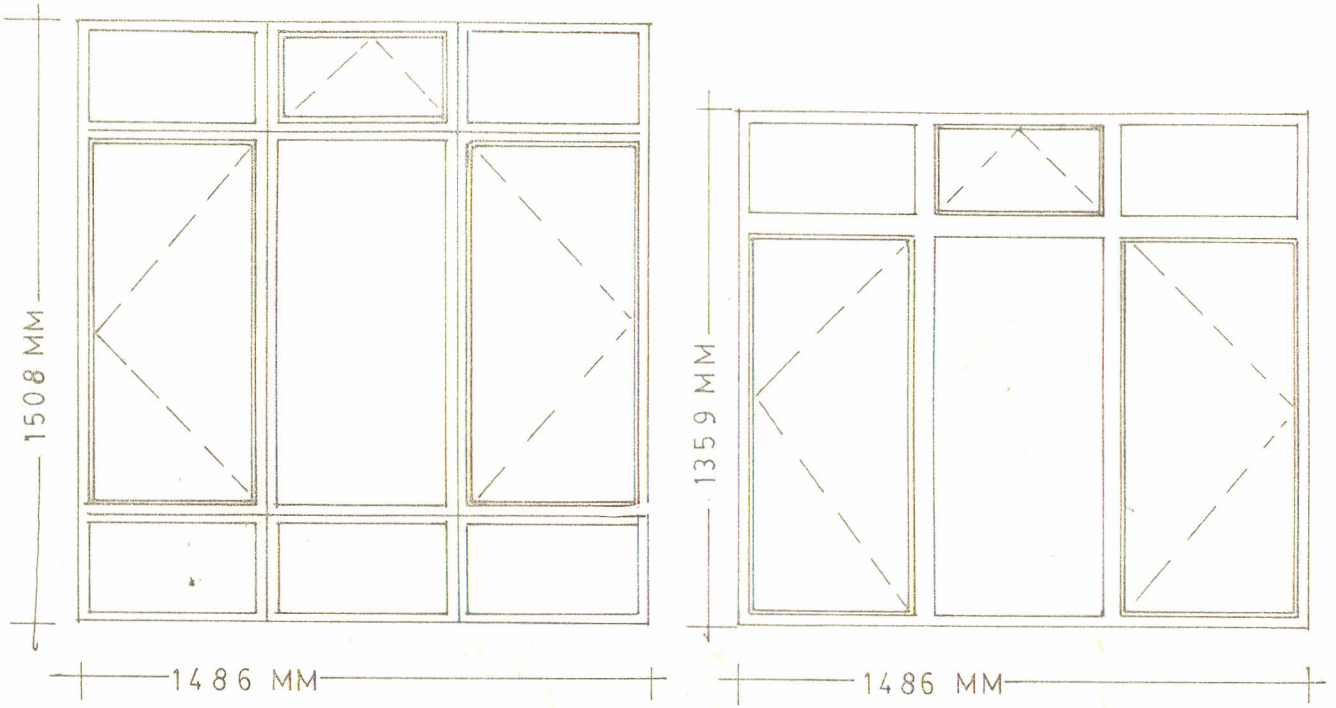


FIG FOUR (a)

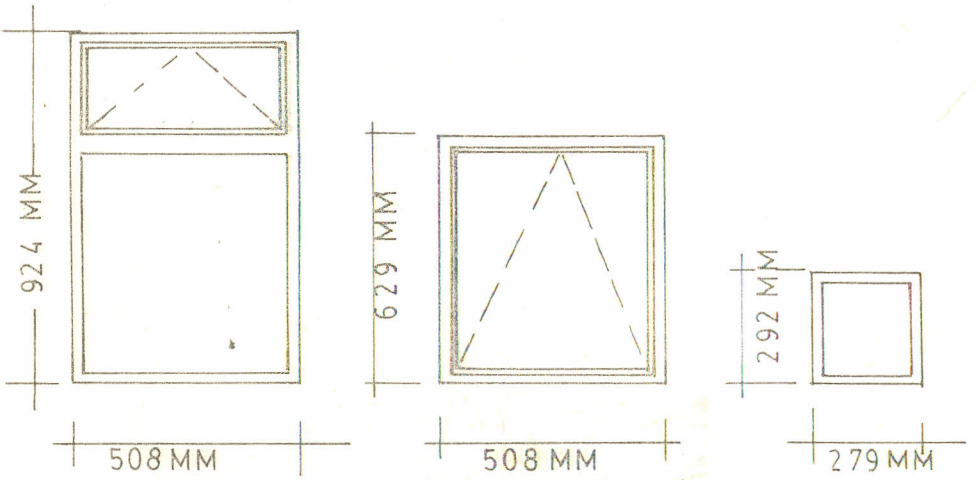


FIG FOUR (b)

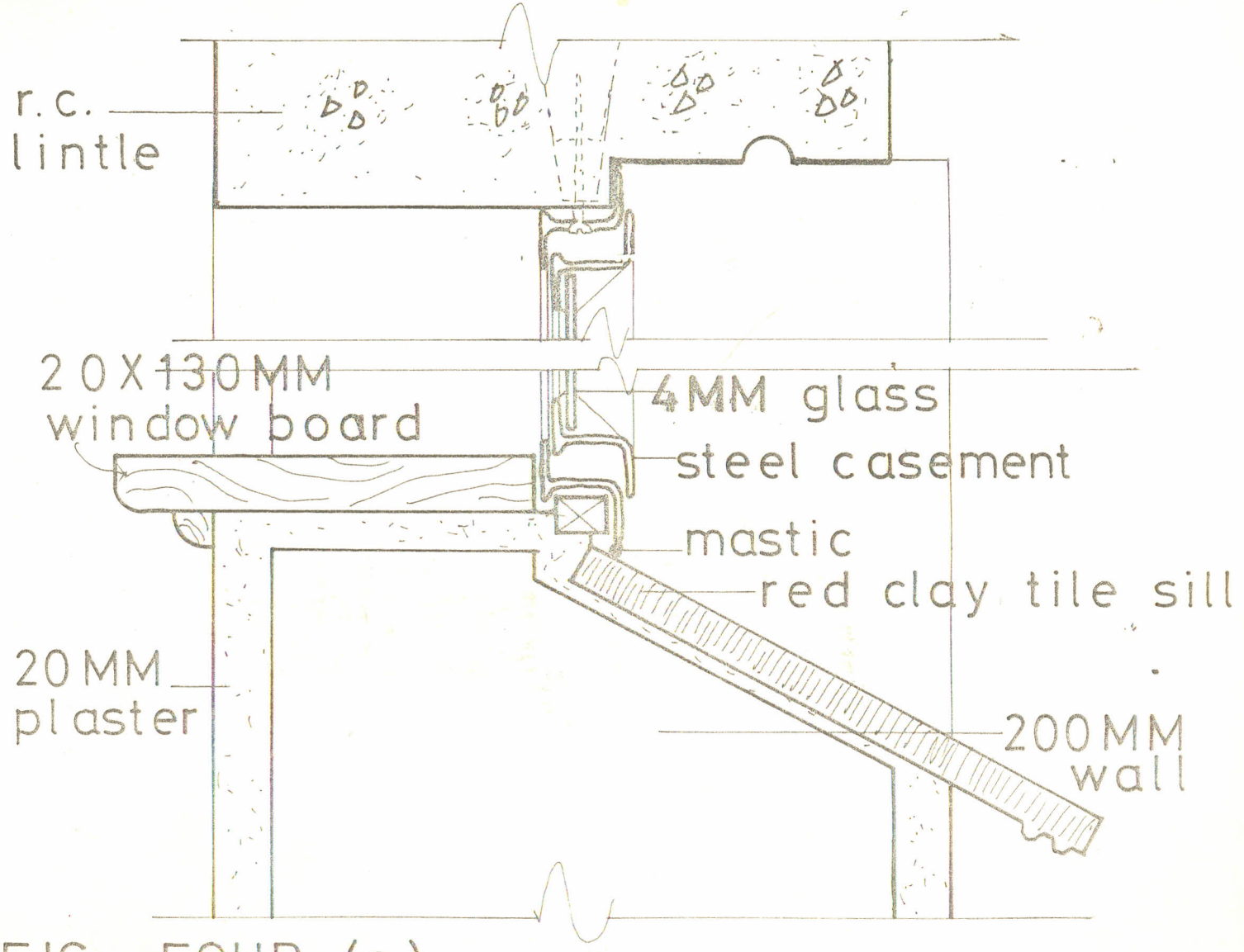

r.c.
lintle
20X130MM
window board
4MM glass
steel casement
mastic
red clay tile sill
20MM
plaster
200MM
wall

FIG. FOUR (c)

the user and hence the interest of user are not wholly solved. This could be avoided if architects could be more aware of the user and his needs.

(2) Aluminium Windows

Manufacturers visited are as follows:

(a) Kenya casements

(b) RLCO Steel fabricators

(c) Dominion Engineering works

(d) Morris Company

(e) Swarn Singh.

Findings

It was discovered that none of them make any standard windows. Reasons for this were for some, that it was general practice to make them as per clients specification. Some like the Kenya casements and RLCO steel fabricators contributed it to the relative ease of making these windows. Just cutting and fixing together-fixing angles being available.

The sections they use are imported from Israel. They are available in different sizes and shapes. The client may choose the type and size of sections to be used for his windows.

(3) Timber Windows

Manufacturers visited are as follows:-

(a) Timsales

(b) Karibu Timber Industries - use cedar

(c) Cypress Timber Mart - use cypruss

(d) Shah Timber March - use cedar

(e) Inder Singh Gill Ltd - use cedar

Findings

All but two of the above manufacturers do not make timber windows at all.

Timsales:- However used to make standard windows - the cedalux type. These are however no longer stocked. They can make them only to order. Reason they gave was that they are less popular than they used to be and therefore uneconomical to stock them.

Karibu Timber Industries

Make windows but not of the standard type, only to client's specification. Their reason for this was that they did not want to do everything - their speciality being doors.

Conclusion

Standardisation of timber windows seems to be on the decline. This could be due to the shift to metal ones which are more permanent.

D. DOORS

(1) Metal Doors

Manufacturers for metal doors are same as for metal windows above. Steel used is also same - mild steel type. Same test to prove standards of steel used are same as for windows. Types of doors made are as follows:-

Large glass pane without bars

Large glass pane with bars

Small glass panes

Height of these doors are same that is 2057mm.

Widths vary - 762mm single door; 997mm, 1143mm, and 1238mm all these being double doors. These manufacturers also make doors to clients specification.

No examples of buildings where they have been used could be obtained. Reason being that they don't sell very much these days.

(2) Aluminium doors

Manufacturers same as for aluminium windows above.

As for windows above, no standard doors are made. All have to be manufactured to clients specification for the same reasons as for windows above.

(3) Timber Doors

Manufacturers are same as for timber windows above. Each manufacturer may make and stock only one size of standard door and a few types of doors only. Other sizes and types being made only to order. Therefore each manufacturer will be examined individually.

Karibu Timber Industries

This manufacturer makes and stocks only one size of doors - 32"x80" with door frames of sections 4"x2". Any other size that may be required has to be made to order. Type of wood he uses is cedar. Types of doors made are as follows:-

1. Flush doors

2. Solid doors

3. T- doors

Reference of buildings where their doors had been used are as follows:-

1. Ngei estates phase one and two.

   Type of doors used - Flush doors for internal doors. Size 32"x80".

   External doors are purpose made.

2. Kibera estate.

   Type of doors used - flush doors. Size 32"x80".

3. Buru Buru Estate Phase one and two.

   Types of doors used - flush doors - internal. Size 32"x80".

Results of interviews of residents

Only one complain where the flush doors are used as external doors - Kibera estate. Swelling of door during wet season making it difficult to close. This could be solved by making allowance for swelling in the design of door.

Cypress Timber Mart

This manufacturer also makes only one size of doors - 32"x80". Type of wood used - cypruss. Type of doors made are as follows:-

1. Button doors
2. Flush doors
3. T - doors
4. Panel doors
5. Solid doors

Door frames sections 4"x2" and 4"x3"

No reference of buildings where these doors have been used could be obtained. Reason - the information was considered confidential by manufacturer.

Shah Timber Mart

Manufacturer makes three door sizes

32"x80"; 30"x80" and 30"x78".

Door frames 4"x2" and 4"x3" sections.

Type of wood used - cedar

Types of doors made are as follows:-

1. Flush doors
2. T - doors
3. Solid doors
4. Button doors

Buildings where their doors have been used are:-

1. Nyati house
2. Langata Police Station
3. G.S.U. camp - Ruaraka

Because of the nature of these buildings no interviews could be allowed.

Inder Singh Gill Ltd.

Size of doors made - 32"x80" with frames 4"x2" and 4"x3" sections.

Type of wood used - cedar.

Types of doors made are:-

1. Flush doors
2. Solid doors
3. Button doors
4. T - doors

No reference of buildings where used could be obtained.

Reason - they sell to constructors and are not given names of projects where the doors are going to be used.

Conclusion

All the manufacturers visited work with one type of wood. This may be a good idea because then after deciding the kind of wood doors are to be made of one can then go to particular manufacturers dealing with that type of wood. It also avoids mixing them (woods) up. Most of them also make on- size of doors. Result of buildings visited show that flush doors are mostly used as internal doors. External doors are solid and in most cases purpose made.

This could be because they are less resistant to weather conditions - especially wet conditions. They are also cheaper, hence their wide use inside buildings. There are more internal doors than external ones. External doors are of higher quality because of the need to impress. In addition they have to resist the weather.

The interviews show general satisfaction except for external doors which have problems during wet seasons. This could however be solved as explained above.

E. WHAT ARCHITECTS CAN OFFER IN THE PRODUCTION OF STANDARD DOORS AND WINDOWS

As has been shown above, the manufacturers are prepared to make any type of window or door as instructed by client. This should encourage the architects to improve or introduce more standard doors and windows. This of course would require the architects meeting and agreeing on the kind of improvements of additions to be made.

The architects participation so far has been in making specification to manufacturer for his own purpose made windows or doors.

Additions of more standard doors and windows would only, of course be usefully for less complex projects. Complex buildings may still need special doors and windows. In any case for such projects the manufacturer would have enough time to make them. The time element being one of advantages for using standard sizes.