

C H A P T E R I.

CHAPTER I.

REVIEW OF PAST NATIVE HOUSING AND THE PRODUCTION OF MINIMUM STANDARDS
OF ACCOMMODATION.

ABSTRACT:

The developments of house plans prior to 1947 are studied in relation to function and space. The establishment of minimum standards of accommodation and the design of standard type plans are discussed in relation to planning undertaken before 1947.

The factors influencing house design such as social aspects, space organisation, protection against the elements, materials, constructional methods, psychological influences, economics and landscape and aesthetic considerations, are reviewed in terms of planning for family living.

Comparison is made of minimum standards of housing accommodation with the standards of other territories of Africa.

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In the introduction, the various legislation relative to housing has been discussed but in respect of standards of accommodation no uniform requirements existed prior to 1947. The legislation relative to housing standards was found in the following:-

- (1) Native Labour Regulations: Native Regulation Act No. 15 of 1934.
- (2) Mines, Works and Machinery Regulations: Mines and Works Act, 1911, as amended by Acts No. 25 of 1926, No. 22 of 1931 and No. 5 of 1934.
- (3) Natives (Urban Areas) Consolidation Act No. 25 of 1945 (as amended).
- (4) Public Health Act No. 36 of 1919 (as amended and the regulations thereunder).
- (5) Natal Public Health Acts No. 44 of 1901, No. 43 of 1903, No. 39 of 1906, No. 11 of 1914. (Regulations under Section 8).
- (6) Slums Act No. 53 of 1934 (as amended).
- (7) Local Government Ordinances of the various Provinces.
- (8) The Townships and Town Planning Ordinances of the various provinces.

None of these Acts or Regulations contains a comprehensive schedule of the type demanded in minimum accommodation standards. The regulations referring to Natives are generally applicable only to that section of the population and are limited to specified areas, where other laws normally applicable may not apply. The Slums Act, for instance, does not apply in Native locations, which fall under the provisions of the Natives (Urban Areas) Consolidation Act.

Before relating the developments which led to the establishment of minimum standards of accommodation for Native housing, it is as well to find out what was being done prior to 1947. It is essential that any houses built must be such that they attract tenants or purchasers easily and this requires consideration of two factors; firstly, well designed houses which allow proper functioning of family living and, secondly, rentals that can be afforded by tenants and resulting monthly repayments within the means of the owners. These two points are most important and have not always been fully considered in determining minimum standards of accommodation and fittings in national and other housing schemes throughout the world.

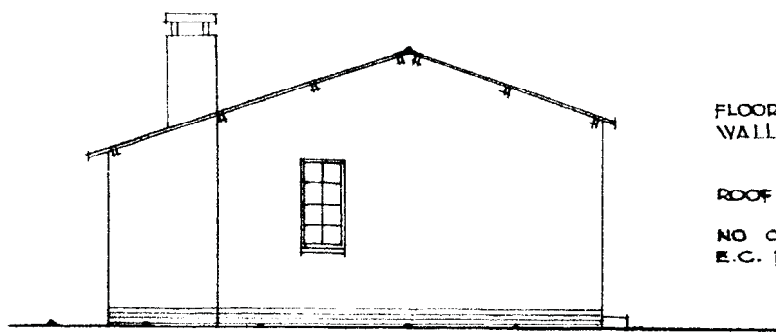
The designer is often led to produce a house which caters for the occupants' comfort and living functions admirably, but the resulting rentals are far too great a burden upon the tenants. On the other side, if the resulting rentals are forced too low the house plan becomes so restricted that family living is impossible and the health of the occupants is adversely affected. (The "conventillo" of Chile is an example of these depressed standards. A conventillo consists of a narrow alley, leading off a street, with cubicles running down both sides. If any sanitary facilities are provided they are communal and placed at the end or in the centre of the court. The occupancy is one family per room or cubicle, cooking is done in the court yard outside the room of the occupant and as little as two toilets for as many as fifty families are often supplied. It is no wonder the word 'conventillo' is defined according to Appleton's New Spanish Dictionary as "tenement inhabited by persons of ill repute". It is obvious that such crowding together of persons of different ages and sexes must create unwholesome conditions leading to crime, vice and corruption.)

It is essential then that minimum standards and the ability to pay rent must be carefully balanced, but at all times the standards must not be allowed to fall below a level where family living and health are affected. It is necessary, therefore, to plan the house so that it is possible to create homes. This means that the house, built of bricks, mortar and other building materials and providing shelter to the occupants, must be capable of becoming a home which promotes family life and the nurture of children - the responsible family group. The creation of homes requires more than good housing schemes; it involves administration, housing managers, education and guidance and, above all, the belief that the formation of homes can be achieved.

Before 1947 housing standards were very varied for Native housing and an inspection of some plan types and standards will soon show the position. The examples selected are a random choice, but certain conclusions can be drawn from them which apply to almost every scheme. It is realised that as the standards and plans varied some were extremely good, but in general terms the wastage of space and lack of privacy were very marked.

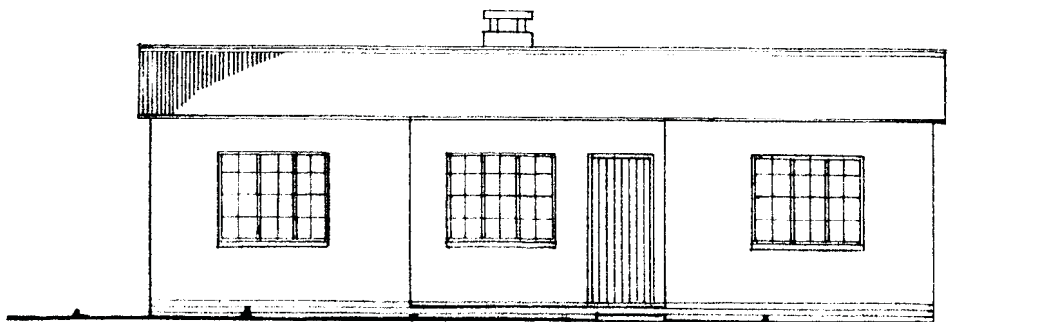
Figure 5. one of the house types from Johannesburg's Native housing scheme, shows 3 large rooms with a covered stoep, but is so arranged that the circulation and functions of sleeping, bathing, living and cooking are very badly planned. The total area of this house is 765.5 sq. feet which, when compared with the standard house plans developed in 1951, is a very wasteful plan.

Figure 6. another house plan from the Orlando scheme, shows not only the bad planning of having every room opening off the kitchen but also the

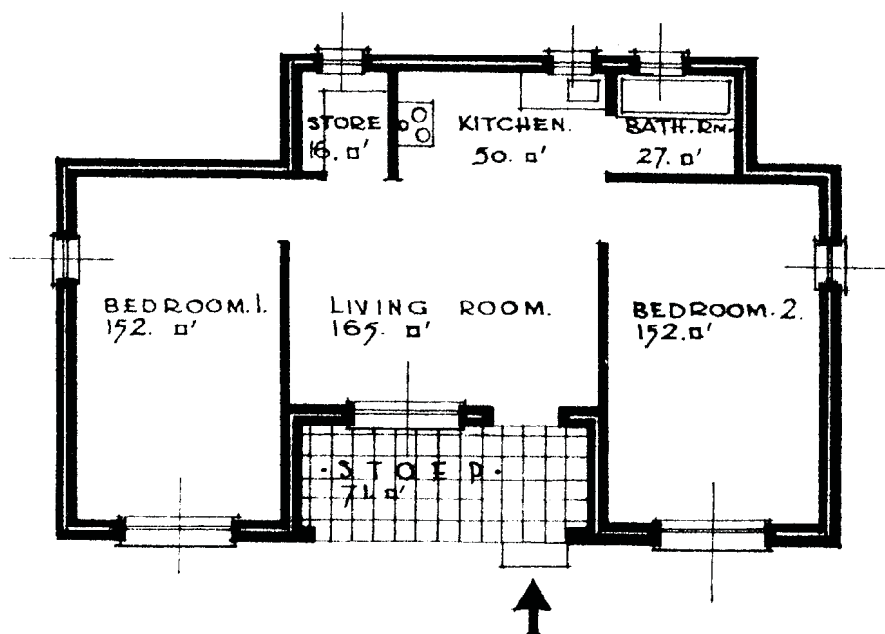


FLOOR - BRICK TILE ON SAND.
 WALLS - 11" FACE BRICK
 EXTERNAL & 4 1/2" STOC
 BRICK INTERNAL.
 ROOF - CORRUGATED IRON
 ON PURLINS.
 NO CEILINGS.
 E.C. PER HOUSE, EXTERNAL.

. SIDE ELEVATION. .

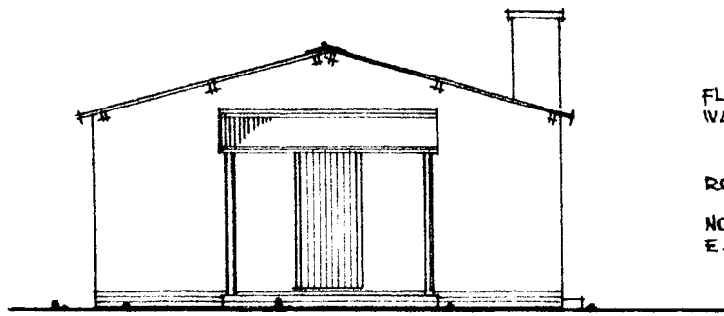


. FRONT ELEVATION. .



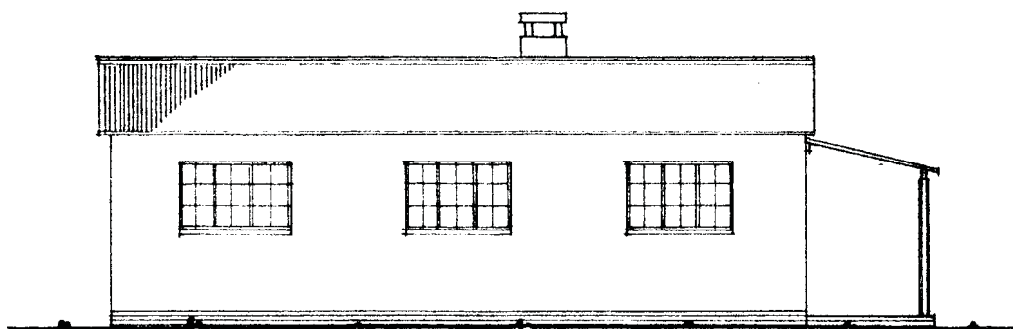
. PLAN. . SCALE: 1 INCH = 8 FEET. .

. TYPE PLAN BUILT IN ORLANDO
 . NATIVE HOUSING SCHEME - JOHANNESBURG

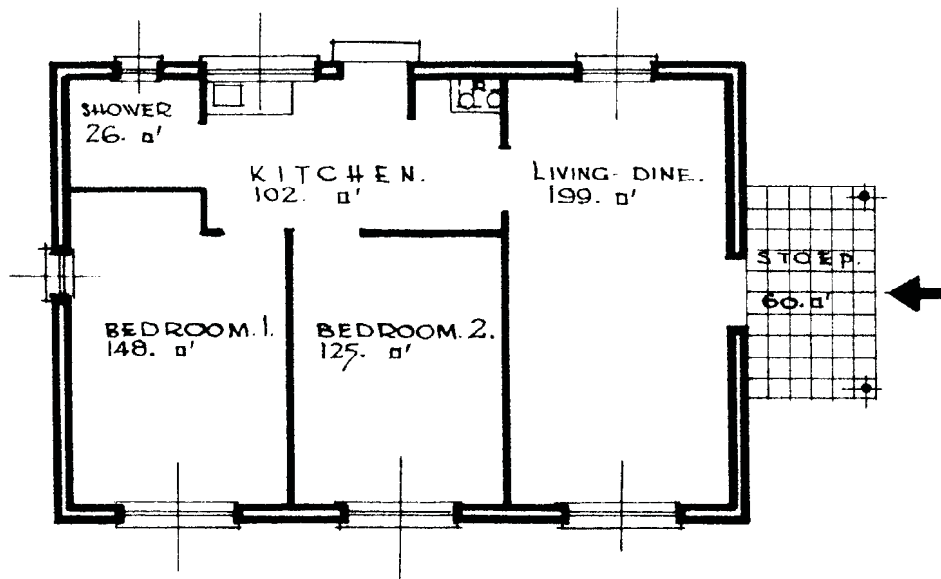


. FRONT ELEVATION. .

FLOOR. - BRICK TILE ON SAND.
 WALLS - 11" FACE BRICK
 EXTERNAL & 1 1/2" STOCK
 BRICK INTERNAL.
 ROOF - CORRUGATED IRON ON
 PURLINS.
 NO CEILINGS.
 E.C. PER HOUSE.



SIDE ELEVATION.



. P L A N . SCALE: 1 INCH = 8 FEET. .

. TYPE PLAN BUILT IN ORLANDO

. NATIVE HOUSING SCHEME, JOHANNESBURG.

difficulty of obtaining a satisfactory aesthetic solution to the plan. The area of this unit is 766 sq. feet.

Figure 7. is one of the plan types of Pretoria's housing scheme at Atteridgeville. This is an improved plan in comparison to the first two examples as it provides for separate sleeping and, by the bathroom arrangement, gives the bedrooms a certain amount of seclusion. It is necessary in this plan to ask if the provision of the stoep is worth the space and cost when the cooking and living functions are accommodated in one room. The area of the plan is 580 sq. feet.

Figure 8. is a plan type taken from Port Elizabeth's McNamee Village and shows a complete disregard of planning for family living. No real seclusion is offered to sleeping rooms and once again the living and cooking functions are combined. The common W.C. to two units is not a satisfactory solution. The area of one unit is 442 square feet. which is economical when space standards are considered but it is doubtful whether full family living is encouraged in such a house. The layout of the house groups is, however, interesting as can be seen from Figure 9 and ought to provide an economical solution to the problem of service costs. The drawback of the layout is the facing of certain houses onto the street which will cause them to become isolated from the group of houses planned about the small closes.

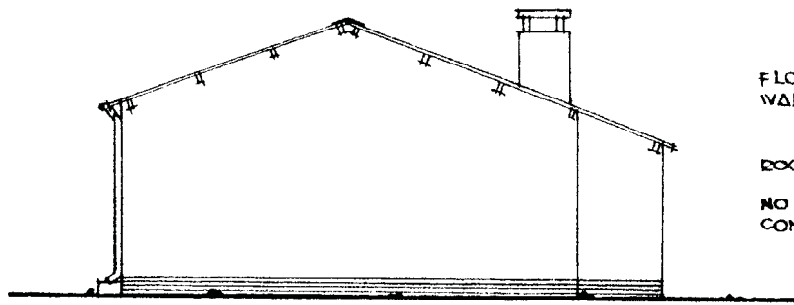
Figure 10 is a plan type developed in 1946 by the Vereeniging Municipality for Sharpe Township. This is an admirable plan and one which demanded only a small adjustment in window arrangement to make it an attractive housing unit. The area of the plan is 528 square feet.

Figure 11. is a plan of a house in the Pietermaritzburg location. This plan demonstrates many of the problems met with in earlier Native house designs. The circulation and arrangement of rooms leave much to be desired. The area of the unit including an outdoor toilet is 802 square ft.

Figure 12 is a house plan from Stirtonville Native Township, Boksburg. This plan demonstrates the complex arrangement of circulation and function which must be avoided in low cost housing. The plan is expensive and does not provide the comfort and ease of living which is warranted by such expenditure. The area of the house and outbuildings is 758 square ft.

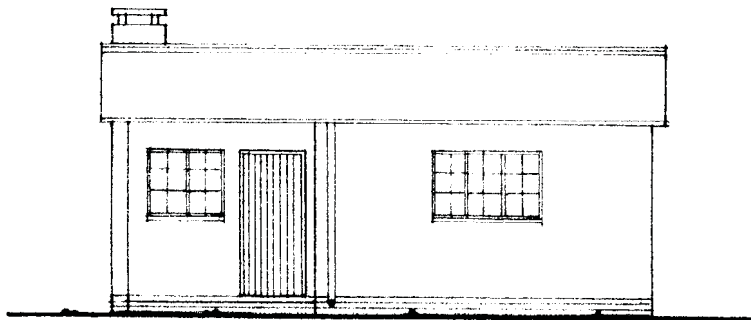
The above criticism is not intended to be harmful. On the contrary every local authority who has built Native houses and has attacked the ensuing problems as seriously as those municipalities mentioned above, is assisting in solving a great problem. It is the intention of this brief survey to point out the difficulties and to learn something from the work already carried out. It is hoped, by this means, to find a happy solution.

Analysing the space standards of the housing schemes prior to 1947, it is interesting to note that great variations exist within one local authority, and that by comparing local authorities even greater discrepancies can be found.

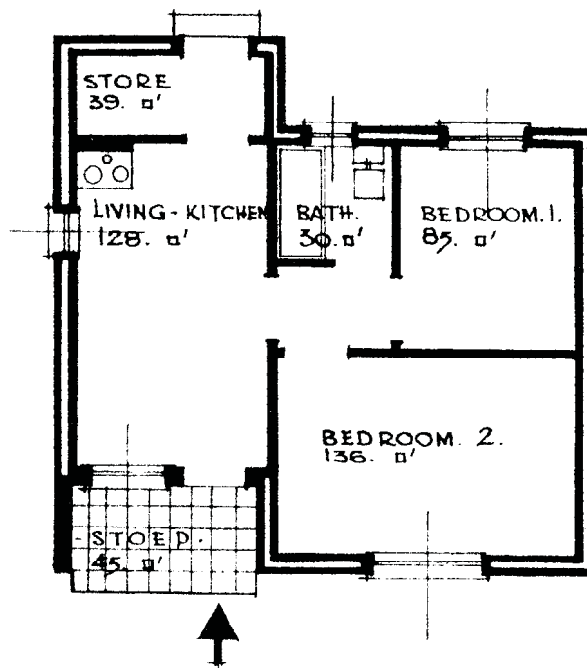


FLOOR - ASH CONCRETE.
 WALLS - 11" WIRE CUTS
 EXTERNAL & 4 1/2
 INTERNAL.
 ROOF - CORRUGATE IRON
 ON PURLINS.
 NO CEILINGS.
 CONCRETE BATH.

. SIDE ELEVATION. .

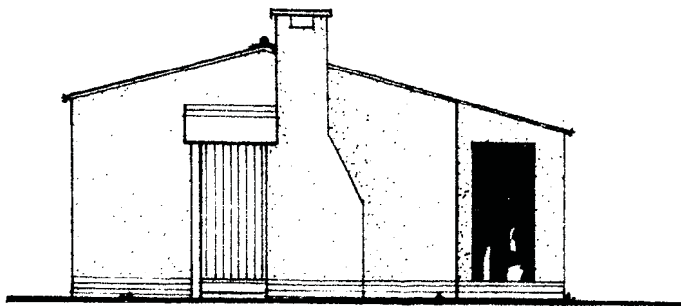


. FRONT ELEVATION. .



. PLAN. . SCALE : 1 INCH = 8 FEET .

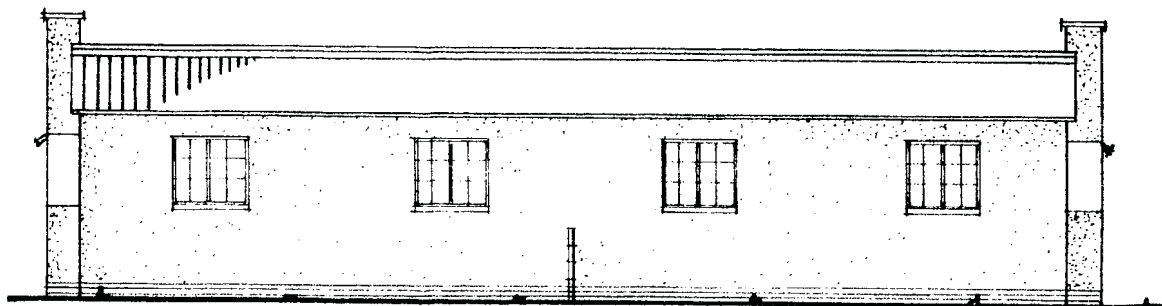
. TYPE PLAN BUILT IN ATTERIDGEVILLE,
 . PRETORIA. .



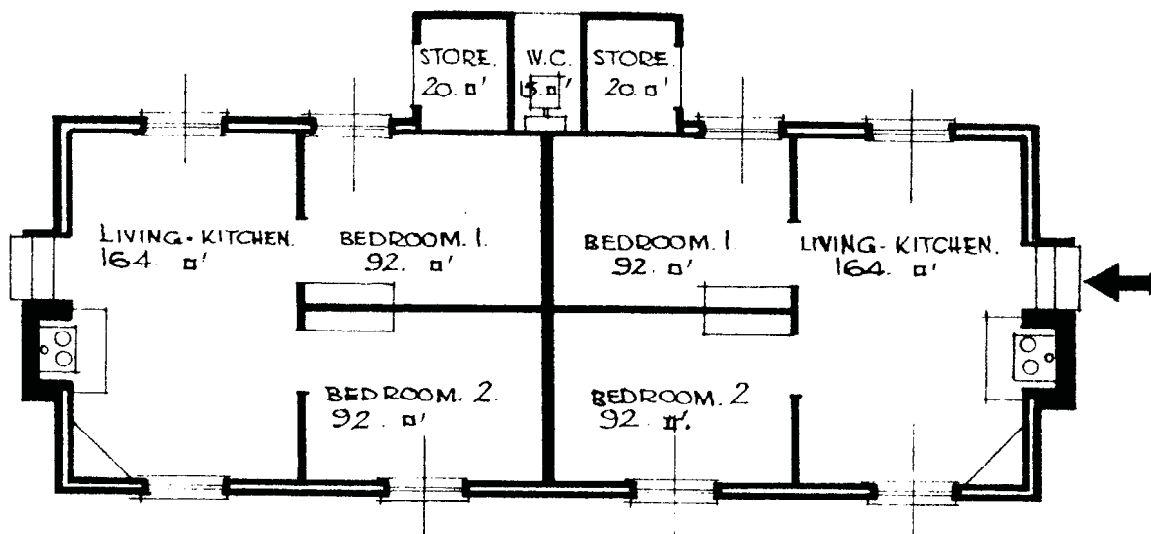
FLOOR:
WALLS:
ROOF:
CEILINGS:
W.C. PER PAIR OF HOUSES.

- SUSPENDED TIMBER
- 4½" BRICK RENDERED AS OUTER SKIN WITH 3" BREEZE BLOCKS BAGGED AS INNER SKIN, INTERNAL WALLS 4" BREEZE.
- CORRUGATED IRON OR ASBESTOS ON PURLINS.
- FIBRE BOARD.

. SIDE ELEVATION. .

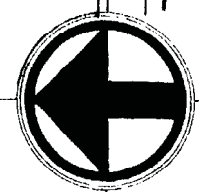
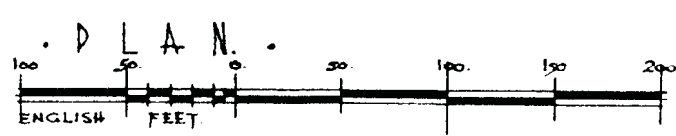
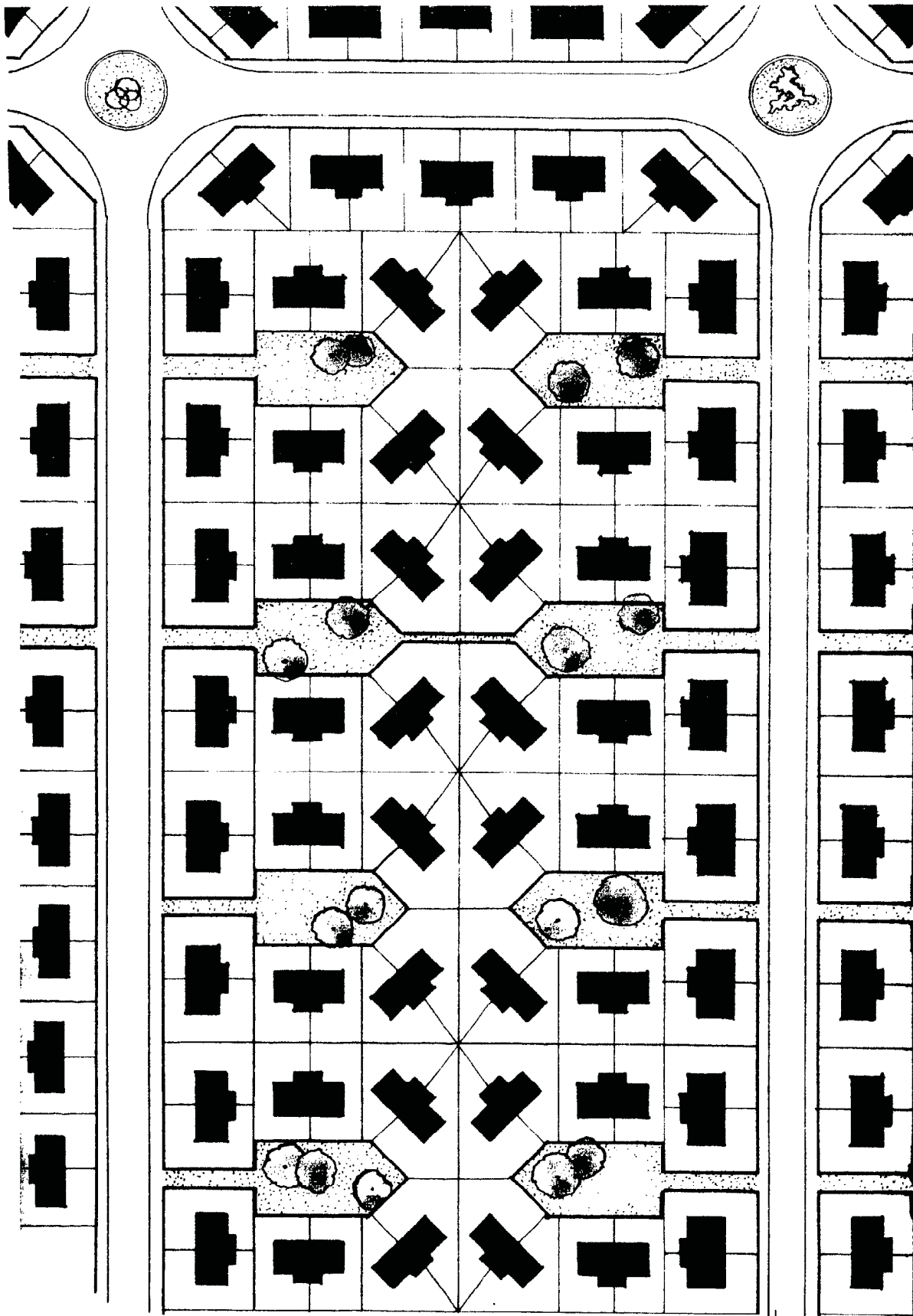


. FRONT ELEVATION. .



. PLAN . SCALE : 1 INCH = 8 FEET. .

. TYPE PLAN BUILT IN MCNAMEE VILLAGE,
. PORT ELIZABETH



- PORT ELIZABETH.
- PART OF LAYOUT OF NATIVE
- HOUSING SCHEME - McNAMEE VILLAGE.
- AVERAGE PLOT 40' x 60'.

TABLE VIII.

Areas of rooms in Native housing for Johannesburg.
(Square Feet).

Room.	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6
	2 bed-room Fig. 5	2 bed-room.	2 bed-room Fig. 6	2 bed-room.	3 bed-room.	3 bed-room.
Living room			199		.	
Dining-Kitchen						
Living-Kitchen	215	180		192	180	176
Working-Kitchen			102			
Principal bedroom	152	150	148	152	144	142
Second bedroom	152	150	125	152	144	142
Third bedroom					98	102
Bathroom	27	27	26	26	28	27
Scullery	16	42		52	67	78
Stoop	71	55	60	62	63	55
Total Area of House	765.5	714.5	766	756	863	852

Table VIII shows the following points:-

- (a) The living area does not increase for the larger 3 bedroomed houses.
- (b) Main bedrooms vary from 142 sq. ft. to 152 sq. ft.
- (c) Second bedrooms vary from 125 sq. ft. to 152 sq. ft.
- (d) Third bedrooms reduce to 98 sq. ft.
- (e) Scullery space and its storage vary from 16 sq. ft. to 52 sq.ft. in two bedroomed house and from 67 sq. ft. to 78 sq. ft. in three bedroomed house.
- (f) The stoep varies from 55 to 71 sq. ft.
- (g) The total house areas are fairly constant: i.e. about 760 sq. ft. for a two bedroomed unit and 860 for a three bedroomed dwelling.

Comparing the room areas of different local authorities the following is obtained:-

TABLE IX.

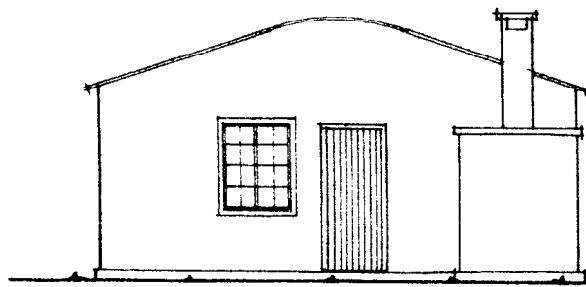
Areas of rooms found in one bedroomed houses built prior to 1947.

Locality.	Living room.	Kitchen	Bedroom	Store	Stoop	Bath-room.	Total*
Pretoria	117	60	142	28	27	30	488
Port Elizabeth	130	-	130	20	-	7.5**	340
Pietermaritzburg	132	48	120	22	56	15 ^e	474
Native Affairs Department(Union)	117	-	117	-	65	15 ^e	360
Average of above	124	54	127	23	49	30	415

* Total includes outdoor lavatory where not included in house.

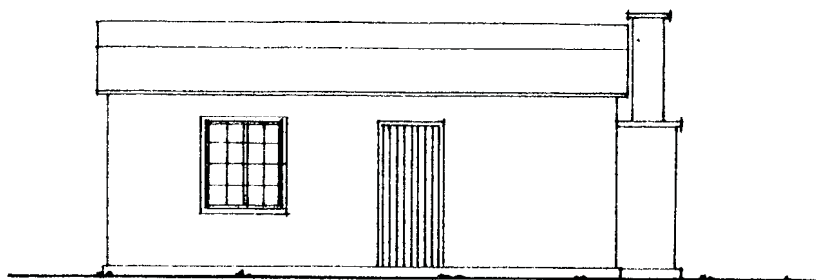
** Communal to two units.

e Lavatory only allowed.

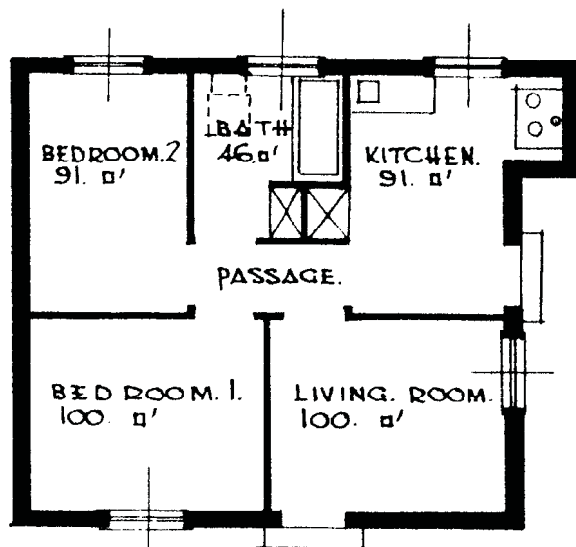


FLOOR. - MALTHOID ON CONC. SLAB
 WALLS. - 9" 'RAT-TRAP' EXTERNA
 & 3" B.O.E. INTERNAL
 WIRE CUTS THROUGHOUT
 ROOF. - CORRUGATED IRON ON
 PURLINS, CURVED
 SHEET AS RIDGING.
 NO CEILINGS.
 W.C. FUTURE, PRIVATE E.C.
 IN FUTURE STORE.

. SIDE ELEVATION. .

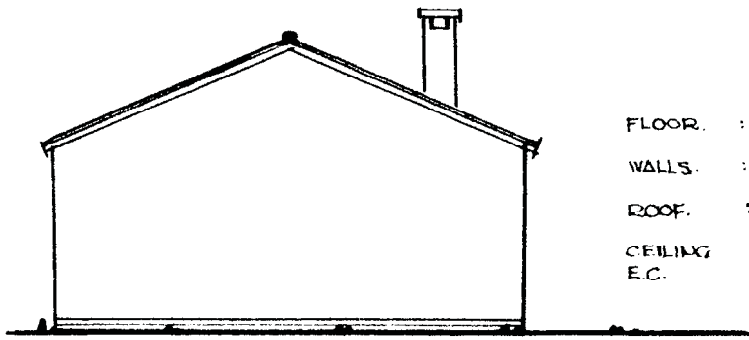


. FRONT ELEVATION. .



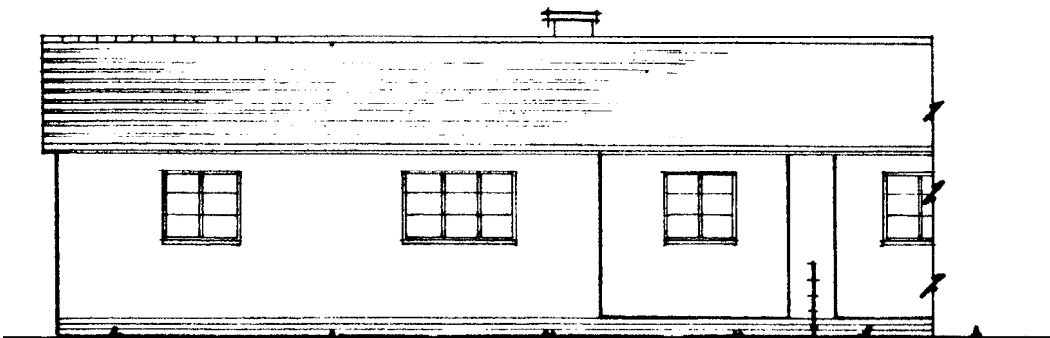
. PLAN. - SCALE: 1 INCH = 8 FEET. .

. TYPE PLAN BUILT IN SHARPE
 . TOWNSHIP, VEREENIGING. .

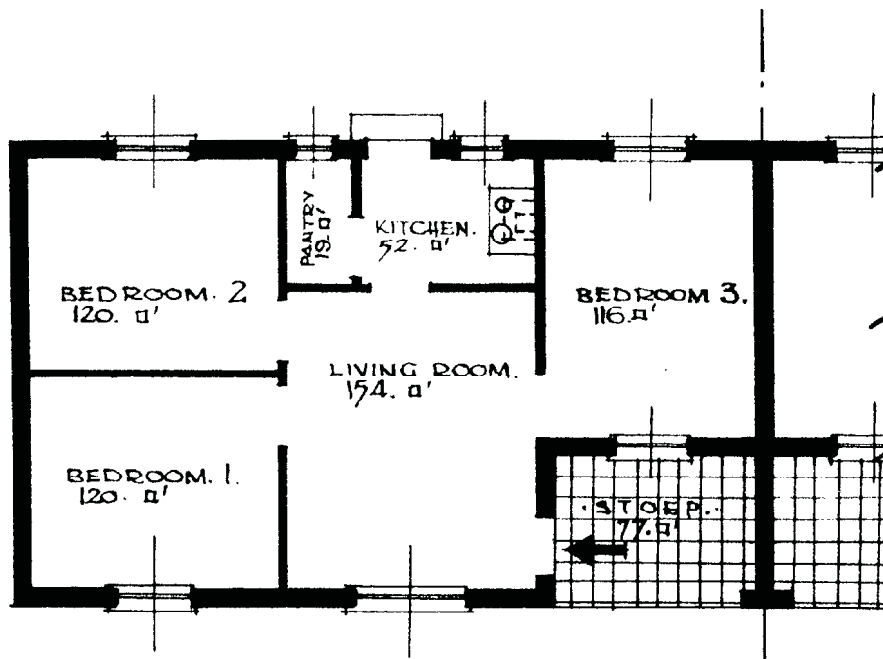


FLOOR. : HOLLOW TILE ON EARTH
WITH GRANO FINISH.
WALLS. : 9" FACEBRICK EXTERNAL
& 4½" STOCK BRICK INTERNAL.
ROOF. : PRECAST CONC. SLABS ON CONC.
PURLINS, FINISHED IN TILES.
CEILING : NIL.
E.C. : E.C. TO EACH HOUSE.

. SIDE ELEVATION. .

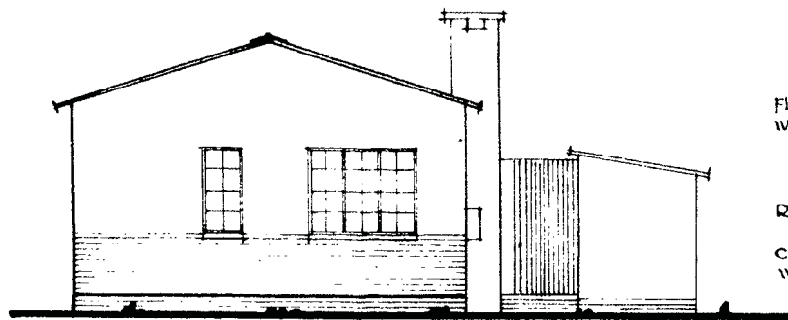


. FRONT ELEVATION. .



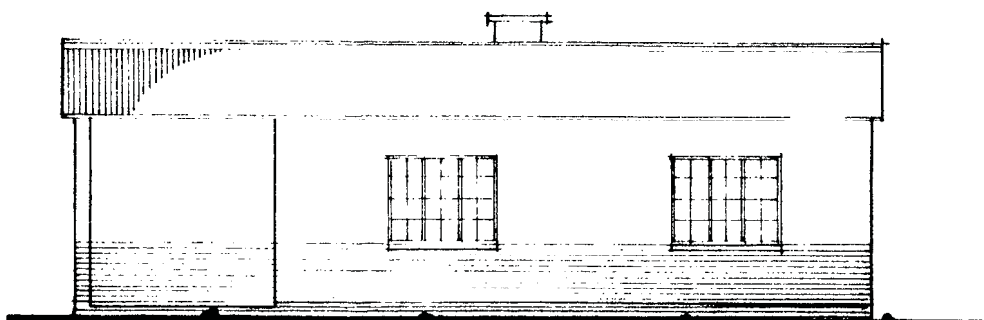
. P L A N. . SCALE: 1 INCH TO 8 FEET. .

. SEMI-DETACHED TYPE HOUSE,
. PIETERMARITZBURG, NATAL. .

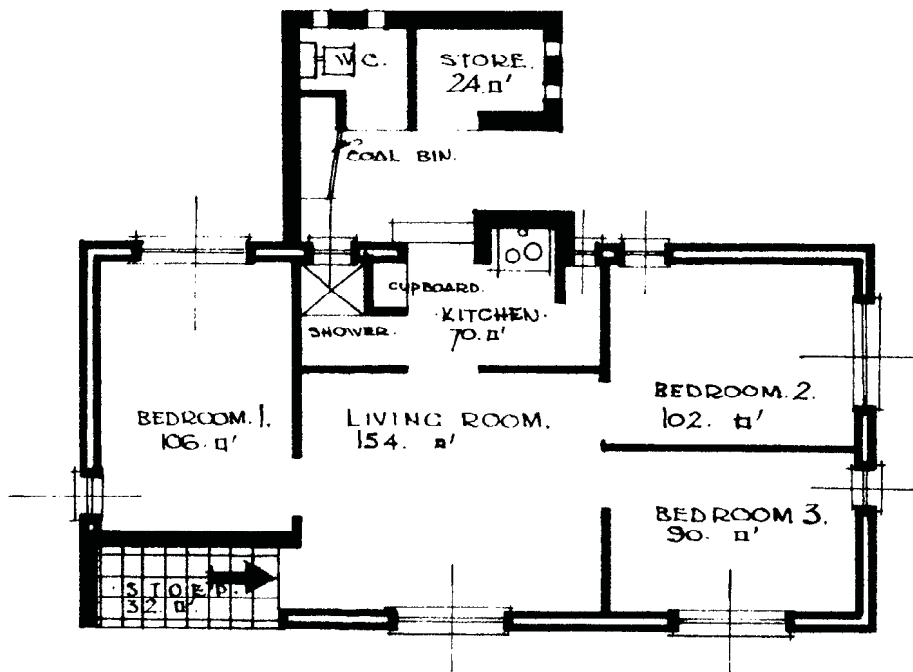


FLOOR. : 6" ASACRETE 6:1.
 WALL. : 11" CAVITY WALL
 BRICK EXTERNAL
 4½" PLASTERED
 WALLS, INTERNAL.
 ROOF. : C.G.I. ON TIMBER
 TRUSSES.
 CEILINGS, FIBRE BOARD.
 W.C.

.SIDE ELEVATION.



.FRONT ELEVATION.



.PLAN. SCALE: 1 INCH TO 8 FEET.

.HOUSE TYPE, STIRTONVILLE,
 .BOKSBURG.

TABLE X.

Areas of rooms found in two bedroomed houses built prior to 1947.

Locality.	Living room	Kit-chen.	Bed-room 1	Bed-room 2	Store	Stoop	Bath-room.	Total ^e
Pretoria	129	40	110	110	30	54	30	582
Johannesburg	165	50	152	152	16	71	27	765.5
Port Elizabeth	164	-	92	92	20	-	7½*	442
Cape Div. Council	122	43	100	100	-	-	30	532
Vereeniging	100	91	100	91	-	-	46	528
Durban	136	36	92	88	18	16	29	508
Pietermaritzburg.	140	48	120	120	22	66	15	638
Natal Housing Board.	132	63	120	120	25	50	25	599
Boksburg	173	70	108	100	24	20	20	628
Average of above	140	55	110	108	22	46	25	580

* Communal w.c. between two houses.

e Allows for outdoor lavatory where not included in house.

TABLE XI.

Areas of rooms found in three bedroomed houses built prior to 1947.

Locality.	Living room	Kit-chen	Bed-room 1	Bed-room 2	Bed-room 3	Store	Stoop	Bath-room.	Total ^e
Pretoria	111	86	105	105	101	23	45	30	712
Johannesburg	176	63	142	142	102	15	55	27	852
Pietermaritzburg.	154	52	120	120	116	19	77	15	801
Natal Housing Board	135	56	128	104	97	16	27	20	705
Boksburg	154	70	106	102	90	24	32	20	758
Average of Above	146	65	120	115	101	19	47	22	765

e Allows for outdoor lavatory where not included in house.

Studying Tables IX, X and XI it can be seen immediately how the areas of any particular room vary considerably within a specific house of a given number of rooms. These figures will be considered again later when the minimum standards are discussed. It will be seen that although standards have been imposed the total area of dwelling units is not vitally altered, but that the function of the room determined its size. One of

the items which has disappeared in the now accepted minimum standards is the stoep. The argument for removing the stoep is laid down in the Interim Report of the Research Committee on Minimum Standards of Accommodation: "The Sub-Committee has considered the question of the stoep in relation to minimum standards of accommodation, and recommends that notwithstanding its desirability in many parts of the country, the stoep should not be considered an essential requirement in low-cost housing schemes, on the ground that as the space standards proposed in this interim report have been calculated on a minimum basis it would be better, where the means of providing a stoep may exist, to use the additional floor space for the benefit of the house itself. Where popular demand calls for the provision of a stoep, however, it is recommended that in urban housing a front stoep having an area of approximately 30 square feet be provided".

This is very important, as the internal space is more vital than the external, but the link between internal and external space in the form of a stoep is now lost. In order to relate internal and external space it will be necessary to demonstrate how, by inexpensive garden development, an outdoor living area can be constructed by the tenant. Such outdoor living areas can be formed by a paved or treated area, low walls or hedges with an overhead pergola. This aspect must be considered as it will become more important as the years pass by. Miss Jacqueline Eberhardt in her report on "A Survey of Family Conditions with Special Reference to Housing Needs in Orlando Township, Johannesburg", found that 93% of tenants wanted a stoep and not more than 10% preferred having the space used to increase the indoor accommodation. The reasons given for this preference were (a) a house does not look like a house without a stoep, (b) European houses generally have verandahs, and (c) people like to sit on the stoeps in the evenings and during the week-ends. Points (a) and (b) are the result of a materialistic outlook and affect the self-respect and pride of the tenant but (c) indicates a function of living which is important. If rentals are increased in providing stoeps and these increases will place the rents beyond the means of the tenants, then the question of a verandah does not exist. If the tenants can afford the house provided with a verandah then its inclusion in the plan is important. For sub-economic housing a stoep cannot be provided, owing to the inability of tenants to pay a rental without assistance, but there is no reason why designs should not be so arranged that the internal space of the house and the garden can be related easily by landscaping. The 'lapa' formed by Natives in their rural and tribal housing is a unit of low cost which could be easily incorporated in urban housing. A consolidated mud and dung floor with a 3'-0" high surrounding mud wall carefully related to the house would immediately form the outdoor living room. Positioning of shrubs, creepers and plants could similarly provide the necessary assembly area where the family could gather in the evenings and week-ends.

The developments of standards for housing accommodation after 1947 is an interesting story but in this report only the main points will be discussed.

MINIMUM STANDARDS OF HOUSING ACCOMMODATION.

In February 1947, in Port Elizabeth, a Conference of the Technical Staff of the Directorate of Housing and Senior Professional Officers of the Department of Health, made certain tentative suggestions on Minimum Standards of Accommodation for Native and Coloured housing. These standards were tentative, since it was considered that the foundation upon which they were based might not be sufficiently well established and,

consequently / ...

consequently, the National Housing and Planning Commission requested the South African Council for Scientific and Industrial Research to undertake and co-ordinate research on the Minimum Standards of Accommodation for Housing in South Africa.

Eight sub-committees working under a main committee were brought into being and in 1949 the Interim Reports of these Research Committees on Minimum Standards of Accommodation were published by the National Building Research Institute. These reports included the following publications:

Serial No.	Title.
DS.1	Social Trends, (including population needs, family structure and family economics in so far as they affect South Africa's housing situation.)
DS.2	Attitudes of Occupants to Housing.
DS.3	House Planning and Design.
DS.4	Estate Planning.
DS.5	Heating, Cooling and Ventilation.
DS.6	Natural and Artificial Lighting.
DS.7	Noise.
DS.8	Legislation.
DS.9	Interim Report of the Main Committee.

The members of the committees were all selected specialists who volunteered their services in order to make possible an attempt to define and meet the needs of the population of South Africa, in so far as they affect housing.

The reason for setting out such standards is best explained in the words of the Interim Report of the Main Committee of the Minimum Standards of Accommodation. "All progressive countries are conscious of the need for establishing and maintaining the welfare and good health of their citizens, and that much of this can be achieved by ensuring proper housing conditions. Conversely, bad housing conditions, if they become general, can be one of the most disruptive influences in society. Good housing tends to promote good citizens and hence stable conditions in society. It is in the interest of every civilized country to set its standards of housing as high as possible within the means of its economy".

The recommendations of these studies have been re-examined in great detail by a Joint Committee of the National Housing and Planning Commission, the Native Affairs Department and the National Building Research Institute. The standards originally proposed have been modified for non-European housing and, in their final form, represent the agreed opinion of these three bodies as to the minimum standards required to ensure the health, decency and well-being of the occupants.

The revised standards laid down in the "Minimum Standards of Housing Accommodation for Non-Europeans" have now been accepted, and in future all proposed non-European Housing Schemes submitted to the Department of Native Affairs, the National Housing and Planning Commission and the Natal Housing Board, must be in accordance with these provisions.

Two problems immediately present themselves when standards are applied: first, the rising costs of building and often the increasing demands of occupants for built-in fittings and luxury items like electrical appliances, both of which tend to reduce the size and quality of the dwelling, and, second, the need to enable the low income groups to obtain a reasonable standard of housing accommodation at rentals low enough to avoid their having to go short of other essentials, particularly food. These problems have caused the National Building Research Institute to investigate further in order that a balance may be obtained between space (which means cost) and ability to pay rent.

Space determinations have been dealt with in the minimum standards, and cost investigations are at present in hand which aim at a reduction of building costs. A National Survey sponsored by the Council for Social Research is at present being undertaken to investigate the ability of urban Native tenants to pay rent.

The above discussion indicates that standards of housing accommodation cannot be isolated, but depend upon the economic status of a country, the health and welfare of its peoples and finally on research work, which can assist in reducing building costs and indicating ways and means of planning and administering low cost housing.

SURVEY OF MINIMUM STANDARDS OF HOUSING ACCOMMODATION FOR NON-EUROPEANS.

The development discussed above is best seen from the tables which follow:

TABLE XII.

Minimum Standards adopted tentatively by the National Housing and Planning Commission in 1947, at the Port Elizabeth Conference.

- (1) 80% of dwellings erected in all future schemes shall contain not less than three rooms in addition to separate provision for the storage, preparation and cooking of food in an area of not less than 66 sq. ft.

- (2) Two of the abovementioned rooms shall contain not less than a volume of 1000 cu. ft. each, while the third room and any other room intended for living and sleeping in shall contain not less than a volume of 800 cu. ft. in each room.

- (3) Each dwelling shall be provided with a separate W.C. or E.C.

- (4) The floor to ceiling height shall at no point be less than 8 ft. 6 in.

TABLE XIV.

Minimum Standards of Housing Accommodation for Non-
Europeans 1951 Revised by Joint Interdepartmental
Committee.

Number of persons accommodated.	Type of dwelling.	Room areas in sq. feet*			
		Main Bedroom	Other Bedrooms	Dining Kitchen	Living Room.
2 - 3 persons	1 Room unit.	-	-	70	118
4 - 5 persons	2 Room unit.	118	-	80	115
6 - 7 persons	3 Room unit.	118	94	90	120
8 - 9 persons	4 Room unit.	118	94	100	125
10 - 11 persons	5 Room unit.	118	94	110	130
2 (aged) persons	1 Room unit.	-	-	70	110

REMARKS:

- (i) These standards accept the temporary expedient that two persons should be accommodated for sleeping purposes in a bed-living room.
- (ii) A person is defined as anyone over the age of one year; in the one-room and two-room units, at maximum occupancy of three and five persons respectively, cases can arise of mixed sexes, i.e. mother, father and grown-up son or daughter in a one-room unit and mother, father and small child in main bedroom and grown-up son and daughter sleeping in living-sleeping room of a two-roomed unit.

The Minimum Standards of Housing Accommodation for non-Europeans have, in addition to space standards, laid down the following requirements of daylighting and ventilation:

WINDOWS: Windows shall be of sufficient size and so placed as to provide the following daylight factors (D.F.)* in the various parts of the house:

(a) / ...

* An average ceiling height of 8 ft. 6 in. is assumed.

** Daylight Factor, measured at a point in a room, is defined as the indoor illumination on a horizontal plane, expressed as a percentage of that simultaneously obtained out of doors, under a completely unobstructed hemisphere of sky, the effects of direct sunshine being excluded. Thus a Daylight Factor (abbreviated to D.F.) of 1% represents a condition which is such that the indoor illumination is 1% of the intensity found outdoors under an open sky at the same moment.

- (a) 2% D.F. on at least 3 sq. ft. of the working surface in the kitchen, excluding stove.
- (b) 1% D.F. on 50% of the stove top, the dining area in the kitchen and over 50% of the floor area in the living room and bathroom.
- (c) 0.5% D.F. over 50% of the floor area in all bedrooms.

NOTE: All daylight factors are measured at the working plane, which is taken as being at a height of 2 ft. 9 in. from the floor.

PERMANENT VENTILATION:

In kitchens, bathrooms and all other rooms up to 130 sq. ft. net area, air bricks shall be provided with a total effective ventilation opening of 24 sq. ins. At least half of the ventilation openings shall be placed in external walls. All air bricks shall be placed as near the ceiling line as practicable.

OCCASIONAL VENTILATION:

In each room, including kitchen and bathroom, but not including the store, at least 3 sq. ft. of opening window area shall be provided.

Further requirements demand 13 sq. ft. of shelving as kitchen storage, 6 sq. ft. of working surface, a store room 7 ft. x 3 ft. minimum internal dimensions, and provision for fuel storage to houses where provision is made for coal stoves. Each dwelling shall be provided with an individual latrine, a satisfactory supply of potable water and cooking facilities.

PRODUCTION OF STANDARD PLANS.

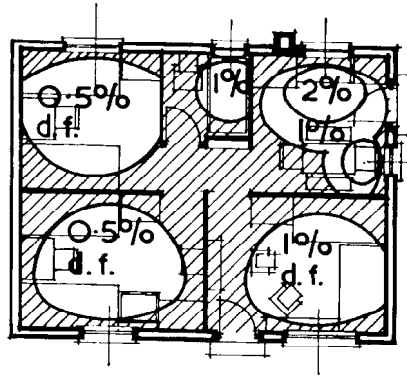
After producing the "Minimum Standards of Housing Accommodation for non-Europeans", standard type plans were prepared in order to demonstrate the application of the standards and to assist contracting firms which specialise in mass produced buildings. In addition, it was hoped to assist local authorities by making available these type plans which were the outcome of the studies of minimum standards, furniture arrangement, natural lighting, ventilation and circulation as applied to planning. Fig. 13 demonstrates how the plans were analysed from the standpoint of circulation, furniture arrangement and natural lighting. The standard plans, as illustrated, Figs. 14 to 21, are a result of space utilisation studies and are not intended to suggest constructional methods.

Working drawings, detail drawings, schedules of materials and a brief specification of these plans can be obtained on application to the National Housing Office.

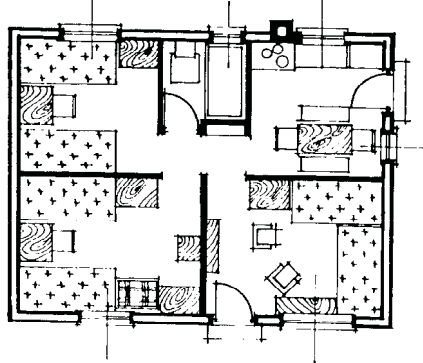
These standard type plans will apply for a period of at least three years in order to facilitate long term planning by local authorities, and by contractors interested in planning certain equipment in relation to their methods of construction. Local authorities are not in any way bound to the use of these plans only, but may prepare their own designs which, however, must conform to the requirements of the minimum standards.

The standard plans when compared to the house types prepared before 1947 show that circulation, furniture arrangement, daylighting, ventilation and function have been carefully considered. In addition

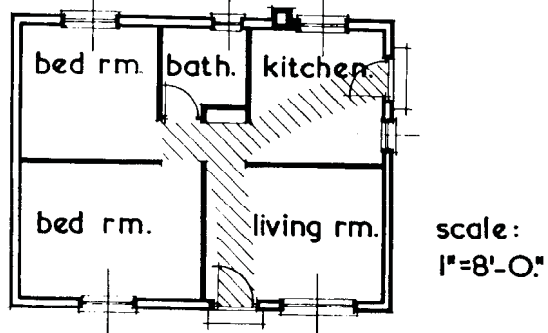
analysis of standard plan: ne 51/9.



plan: analysis of daylighting.

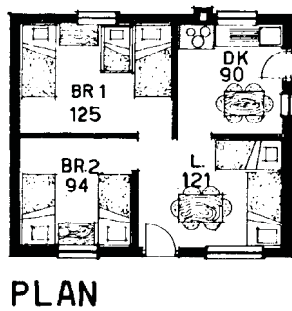
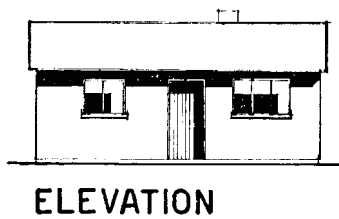
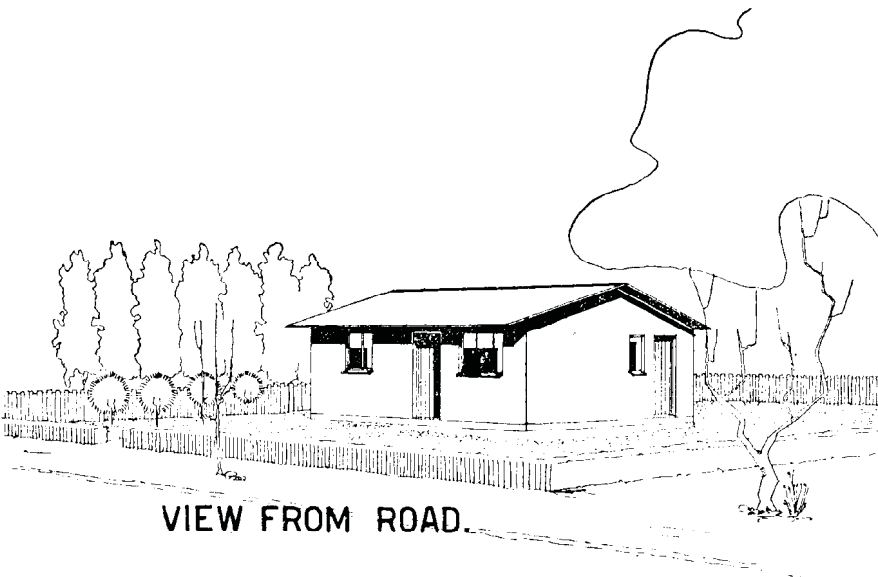


plan: analysis of furniture.



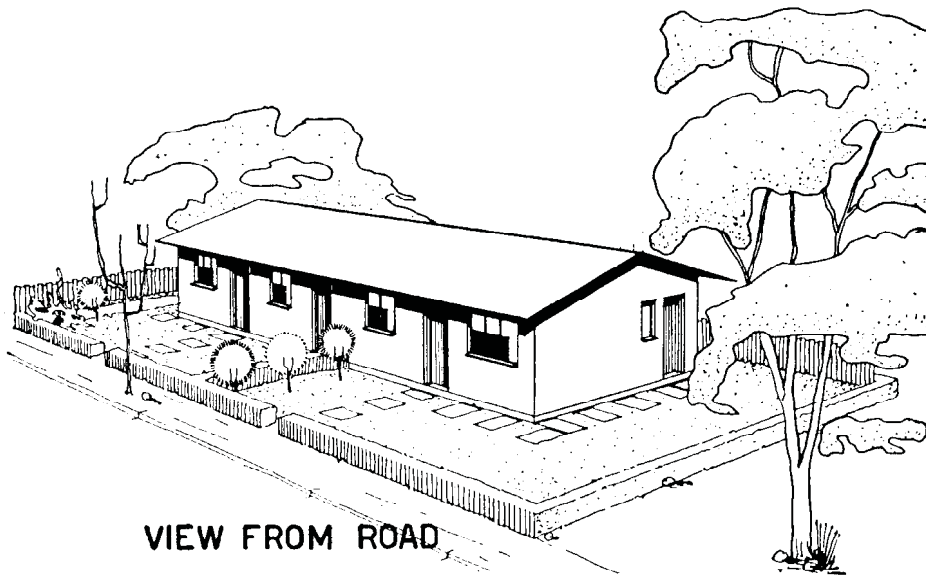
plan: analysis of circulation.

Fig. 13.



3 ROOMED HOUSE.
NE 51/6.

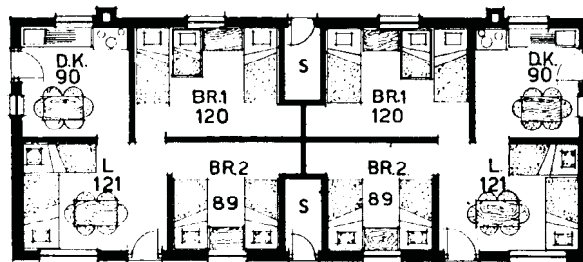
Fig. 14.



VIEW FROM ROAD



ELEVATION

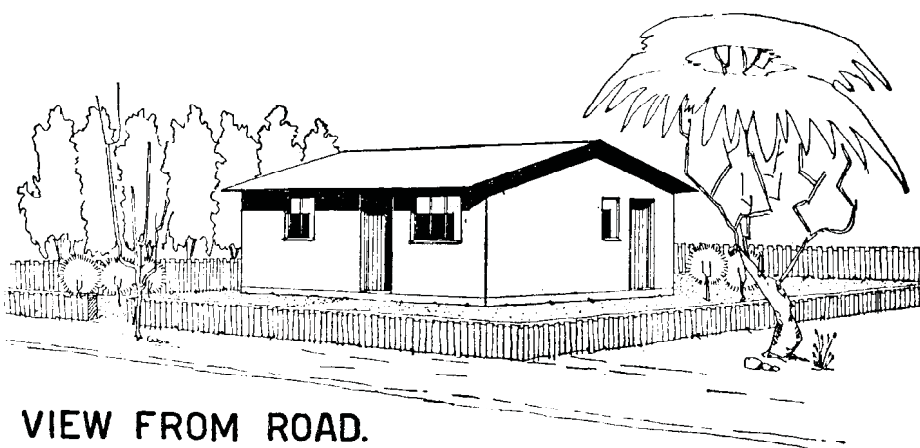


PLAN

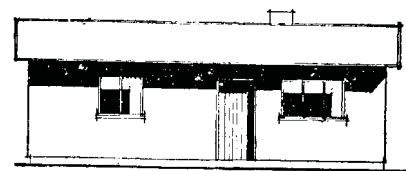


3 ROOMED SEMI-DETACHED HOUSE
NE 51/8

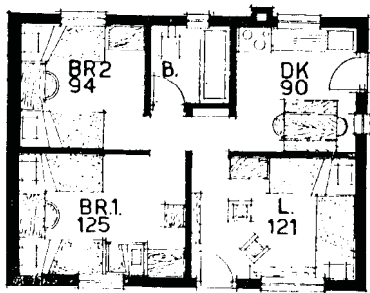
Fig. 15.



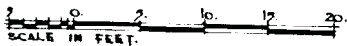
VIEW FROM ROAD.



ELEVATION

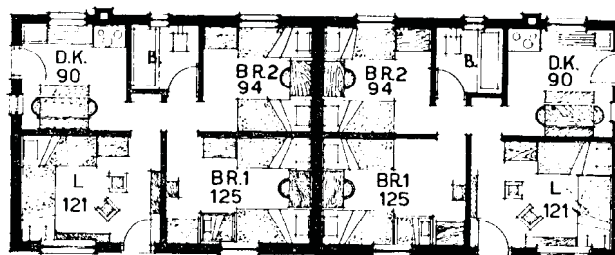
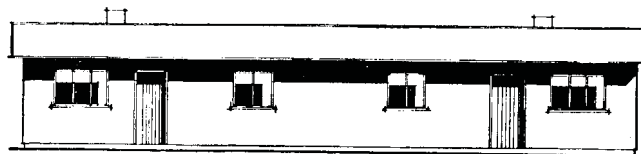
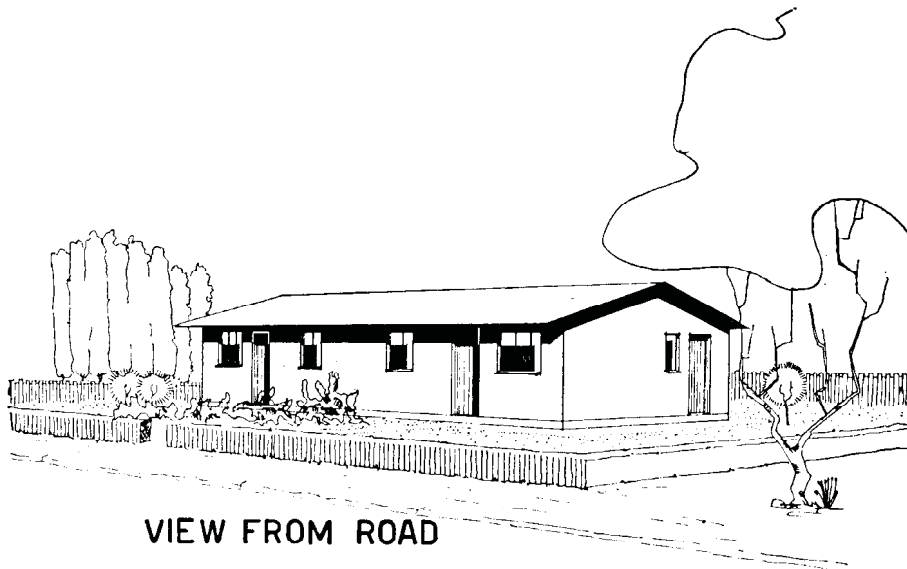


PLAN



3 ROOMED HOUSE.
NE 51/9.

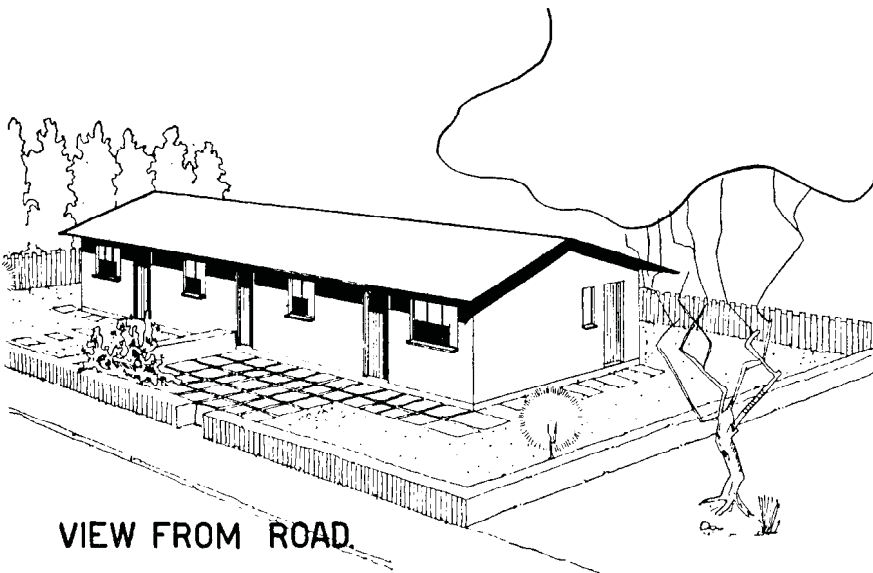
Fig. 16.



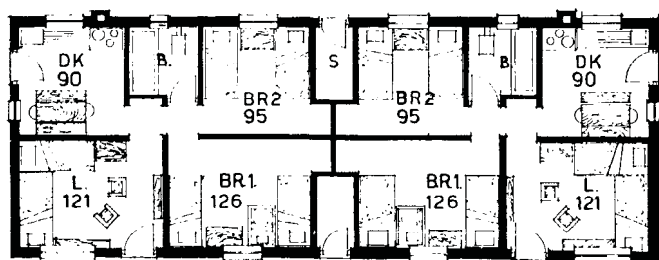
2 0 5 10 15 20
SCALE IN FEET.

3 ROOMED SEMI-DETACHED HOUSE.
NE 51/10

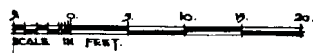
Fig. 17.



ELEVATION

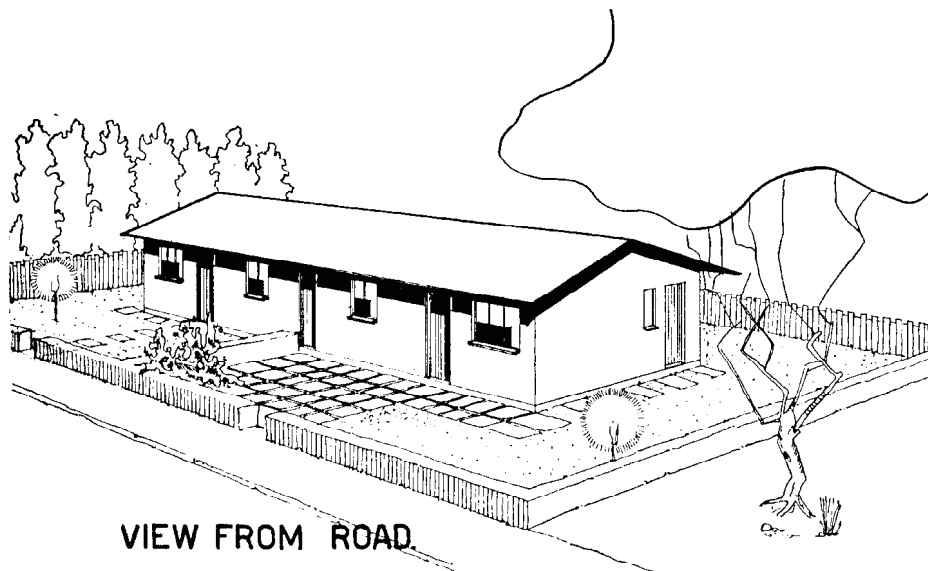


PLAN

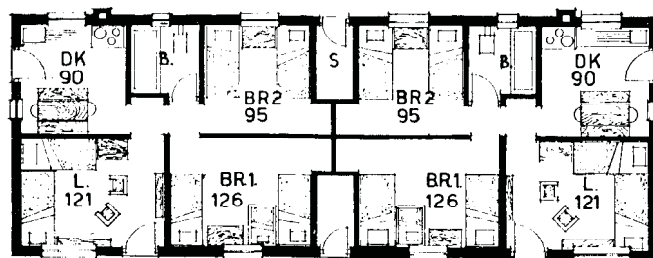


3 ROOMED SEMI-DETACHED HOUSE.
NE 51/11.

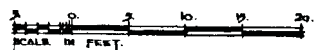
Fig. 18.



ELEVATION

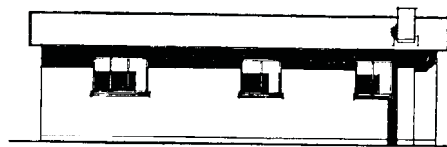
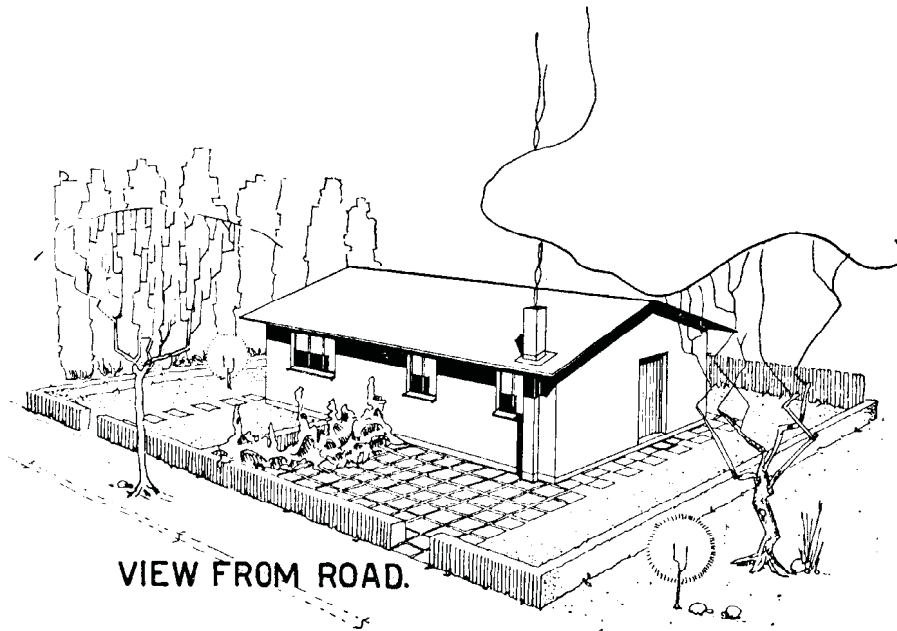


PLAN

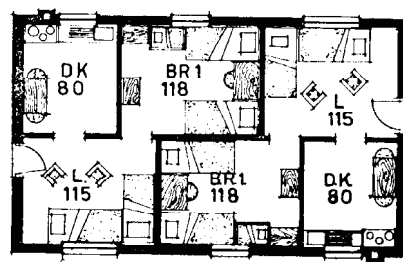


3 ROOMED SEMI-DETACHED HOUSE.
NE 51/11.

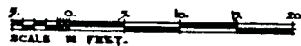
Fig. 18.



ELEVATION

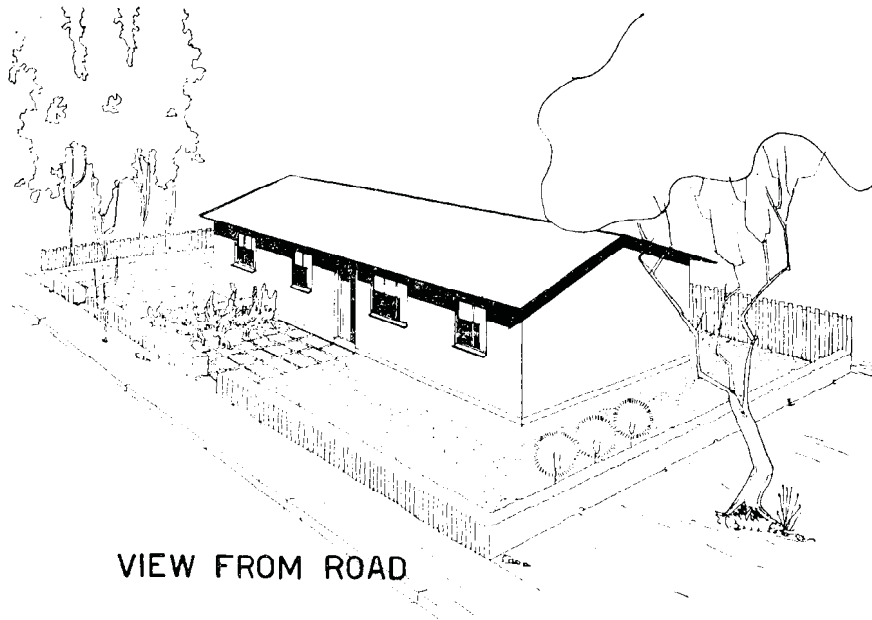


PLAN



2 ROOMED SEMI-DETACHED HOUSE.
NE 51/12A.

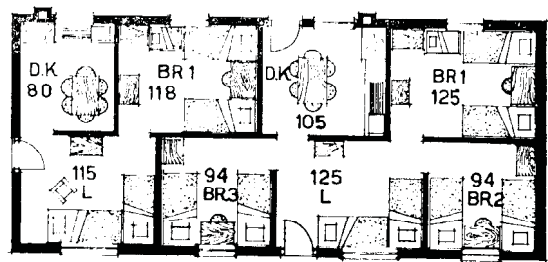
Fig. 19.



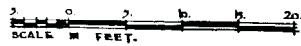
VIEW FROM ROAD



ELEVATION

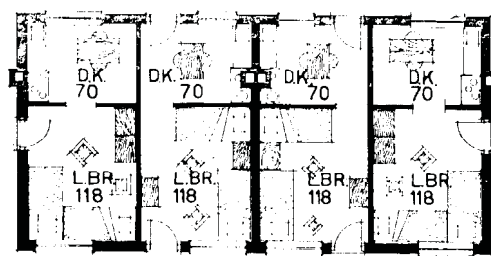
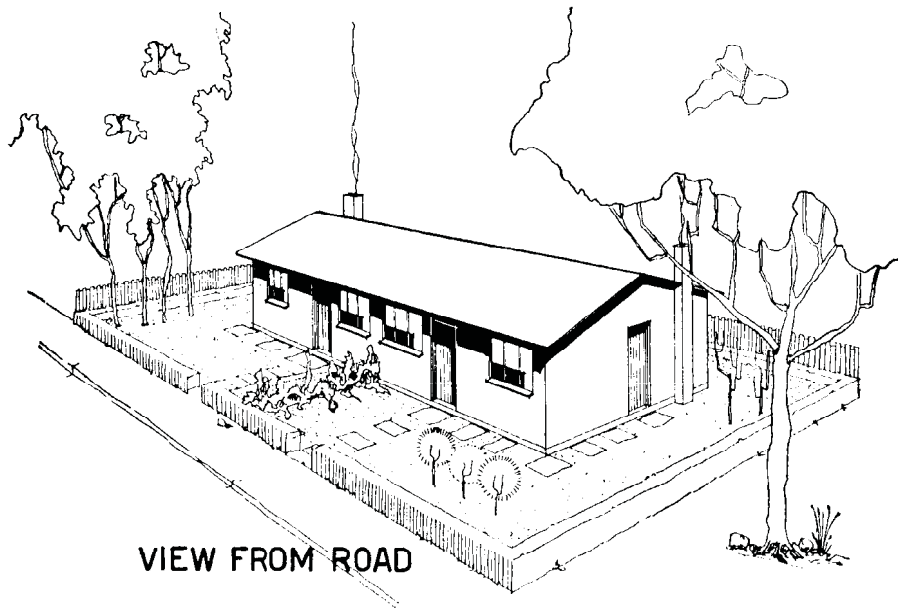


PLAN



2 AND 4 ROOMED SEMI-DETACHED HOUSE.
NE 51/13

Fig. 20.



SCALE IN FEET.

1 ROOMED ROW HOUSE.
NE 51/20A

Fig. 21.

the aesthetics have been given attention but within the limitations of very narrow financial limits. It is realised that these standard plan types will lead to monotony, but it is felt that by townplanning and landscaping much can be done to improve the dreary appearance of Native housing layouts. The grouping of dwelling units, which are all of the same design, can be arranged to give a very pleasant appearance but much work has still to be done in this respect. Then, by careful planting of trees to a predetermined plan, the whole layout can be transformed into a pleasant and attractive environment. More detailed notes on landscaping can be obtained from the author's thesis "An investigation into the functional and aesthetic aspects of landscape architecture", submitted to the University of the Witwatersrand for the degree Master of Architecture.

It is important to note that the investigations of housing prior to 1947 were planned to no real standards, whereas the standard type plans have been. Comparing the average figures obtained in Tables IX, X and XI with the standard type plans, the following results are obtained:

TABLE XV.

Standard Type Plans Compared to Average Areas of Native Housing
Built prior to 1947.

One Bedroomed House. Areas in Square Feet.

	Living room	Kitchen	Bed-room	Store	Stoop	Bath-room.	Total*
Averages prior to 1947.	124	-	127	23	49	30	415
Standard type plan NE51/12A.	115	80	118	-	-	15	413

Two Bedroomed House.

	Living room	Kitchen	Bed-room 1	Bed-room 2	Store	Stoop	Bath-room	Total*
Averages prior to 1947.	140	55	110	108	22	46	25	580
Standard type plan NE 51/9	121	90	125	94	15	-	34	596

Three / ...

* It must be realised that these totals, being based on average figures, cannot correspond to the average room sizes based on the figures prior to 1947. The standard type plans have an allowance for toilet where these are not shown in the plan.