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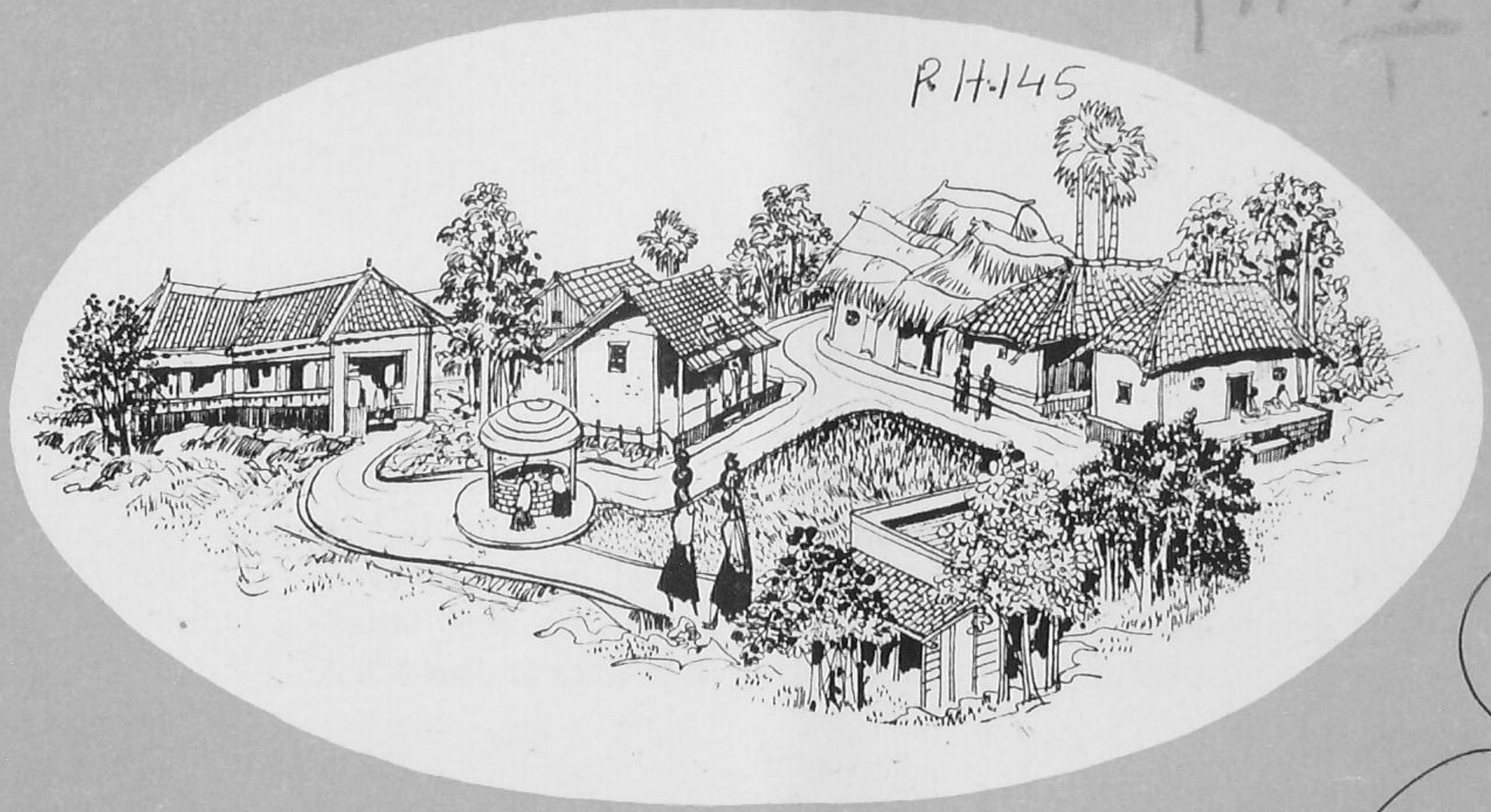
Rural Housing Manual

RURAL HOUSING MANUAL



GOVERNMENT OF INDIA

MINISTRY OF WORKS, HOUSING AND SUPPLY

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FOREWORD

The draft Manual on Rural Housing, which was first published a few years ago, made an attempt to depict what our villages could look like if proper attention was paid to design and detail. The principle of aided self-help, the use of local building materials, no less of local crafts and skills, it was emphasised, could transform the face of the village.

With the introduction of the Village Housing Projects Scheme in 1957 and the growing demand for the Manual from the architects, engineers and planners and from the workers, who have dedicated themselves to the cause of rural development, it has become necessary to revise the Manual. In doing this, some modifications and alterations have been made in the light of experience gained.

I hope that this Manual, with its scientific and human approach to the matter of village housing and planning, will be an instructive guide to all those who are striving to raise the standards of rural living in India.

Nabi Ahmad Khanna

New Delhi,
21st June 1962.

MINISTER FOR WORKS, HOUSING & SUPPLY

CONTENTS

GANDHI JI'S COTTAGE AT SEVAGRAM

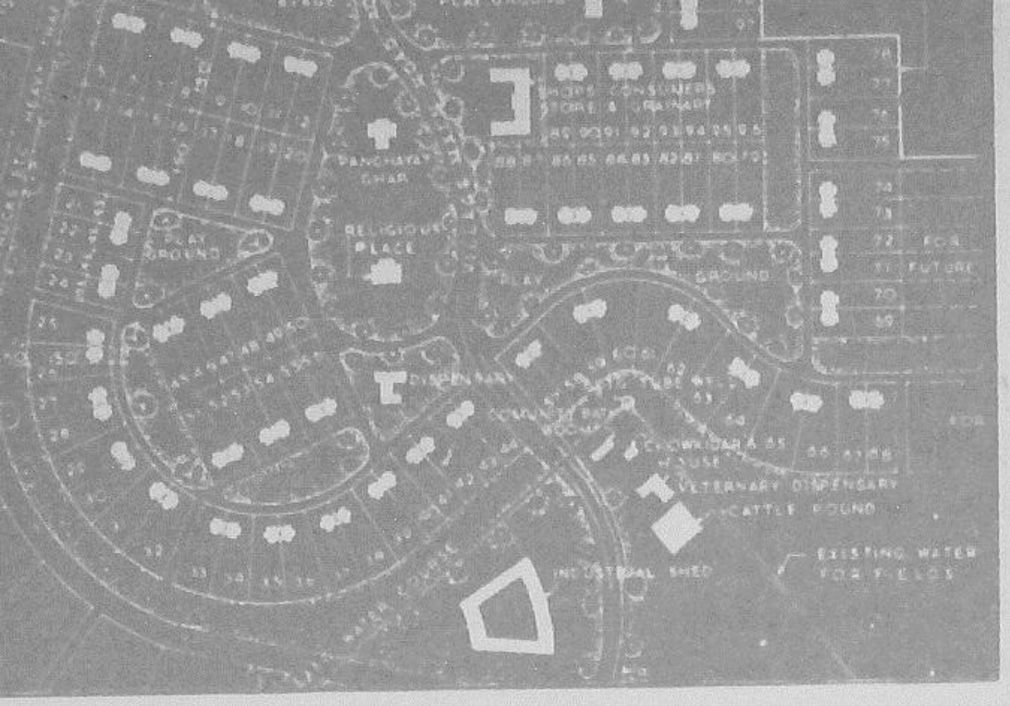
An ideal Indian village will be so constructed as to lend itself to perfect sanitation. It will have cottages with sufficient light and ventilation built of a material obtainable within a radius of five miles of it. The cottages will have courtyards, enabling house-holders to plant vegetables for domestic use and to house their cattle. The village lanes and streets will be free of all avoidable dust. It will have wells according to its needs and accessible to all. It will have houses of worship for all, also a common meeting place, a village common for grazing its cattle, a co-operative dairy, primary and secondary schools in which industrial education will be the central fact, and it will have Panchayats for settling disputes. It will produce its own grains, vegetables and fruit, and its own Khadi. This is roughly my idea of a model village.

— MAHATMA GANDHI

INTRODUCTION

An attempt has been made in this booklet to project the ideal village on the drawing board, to capture it in line and form, and to visualise what it will look like, if planned reconstruction with aided self-help is allowed free play. In the succeeding paragraphs, the broad principles of village planning, house designs and specifications and environmental hygiene are discussed at some length. These principles are then translated into 34 indicative drawings, with an explanatory note for each. The drawings comprise of five village layouts, a sketch indicating how to improve an existing rural house and 28 type designs for rural houses, residence-cum-shop or work place, smokeless kitchen, sanitary latrines, public acqua privy, village well, primary school, health centre, community centre, multi-purpose stage, bus stand and whole-sale market centre. These layouts and designs should be considered to be indicative only, as it is extremely unwise to recommend or follow standard plans and specifications for such a large country like ours with varying climates and habits, requirements and customs.

In the preparation of the layouts and type designs contained in the booklet, care has been taken to emphasize the use of indigenous building materials; to see that the cost of construction is as low as possible and that the construction technique itself is such that the houses and other structures can be built by the labour of the villager, his family and friends. The stress, therefore, throughout is on aided self-help, which is the key-note of the Village Housing Projects Scheme of the Government of India. Under this Scheme, layout plans of about 1,900 villages were drawn up during the Second Plan and loans amounting to Rs. 27 million were sanctioned for construction of about 25,000 houses. In the Third Plan, Rs. 127 million have been allotted for the Scheme.

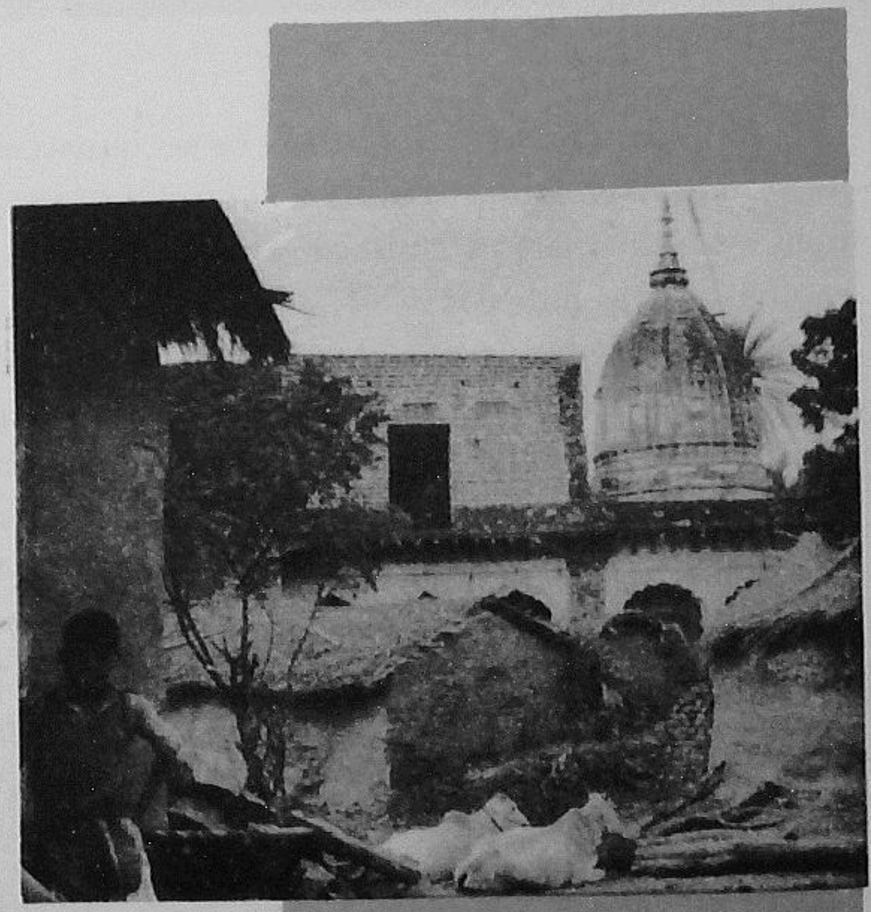


VILLAGE PLANNING

There is little sign of conscious planning in any of our villages and rural areas. Back to back houses sprawling along narrow streets and alleys, with little or no open space to lend a breath of cheer, form the conglomerates which we know as villages throughout the length and breadth of our country.

2. Village planning calls for a good deal of ingenuity and a flexible approach. It is necessary to carry out PHYSICAL AND SOCIO-ECONOMIC SURVEYS before the layout for a new village or for remodelling and existing village is prepared. While preparing the village layout, it is essential to keep in view the REQUIREMENTS OF LAND for house plots, roads and lanes, community facilities, such as schools, play-fields, dispensaries, panchayatghars and future expansion of the village. In replanning an existing village, special care has to be taken to preserve shady trees, public wells and structures which are worth retaining. It is obviously difficult to apply the optimum planning standards to such structures.

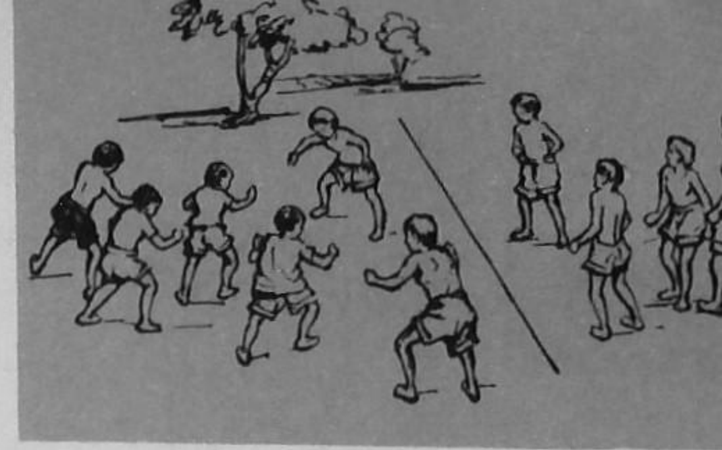
3. An important aspect of planning is the PATTERN AND THE WIDTH OF THE STREETS. The pattern of streets depends upon the topography and other local features, while the width of the streets is determined by considerations of the intensity and nature of traffic, space required for services, and adequacy of lighting and ventilation for the structures abutting on the streets. Ordinarily, the bullock cart is the only vehicular traffic expected on most of the village streets. The street width should, therefore, be adequate for the bullock carts to ply without any hindrance. Some allowance must also be made for the space that may be taken up on the streets for the running of drains. A minimum width of 15′ –20′ may be allowed for local streets and 20′ –30′ for streets passing through shopping centres or carrying through traffic to main streets and surrounding villages. It should be remembered that too many wide streets inside a village can be a handicap, when it comes to paving, lighting, cleaning and drainage. Ribbon development should also be avoided.



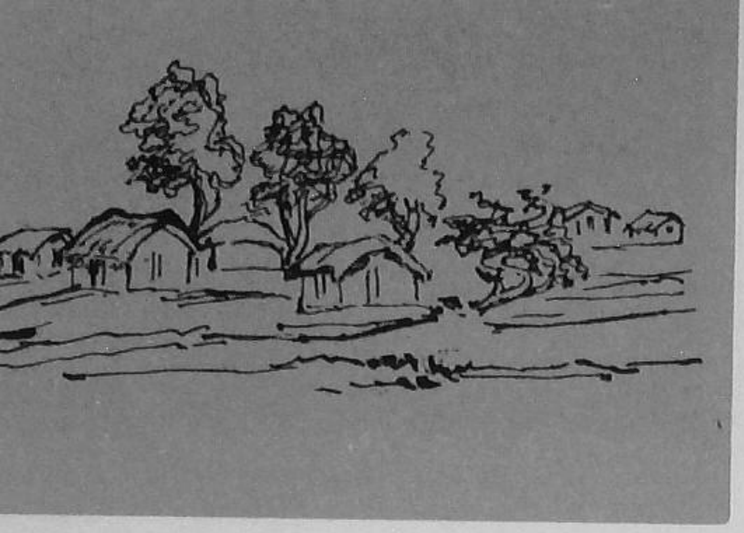
ILL-PLANNED DEVELOPMENT
HAS DISFIGURED
THE VILLAGE TEMPLE

4. An amenity which is often lacking, is the provision of OPEN PLAYING SPACES for the children. Open areas are also required for some other common purposes, such as social gatherings and fairs, public wells and baths, compost and soakage pits, refuse dumps etc. Adequate provision for open spaces should, therefore, be made in the layout.

5. The ways of rural life demand a closely knit village with social cohesion and informal neighbourliness. A well-planned village may have a GROSS DENSITY of about 10—15 houses per acre. In areas where land is cheap and easily available, a planner may go in for thinner density, but it should be kept in view that a sprawling village results in lack of cohesion and much greater length of public streets, drains and other services. The advantage of large plots, wide streets and extensive open spaces should, therefore, be carefully weighed against the loss of cohesion and the disadvantage of longer streets, drains etc., to be constructed and maintained. In densely populated areas where land is scarce and expensive, a higher density may have to be allowed by restricting the size of house plots, widths of streets and open spaces.



A PLAYGROUND MAKES THE VILLAGE LIVELY

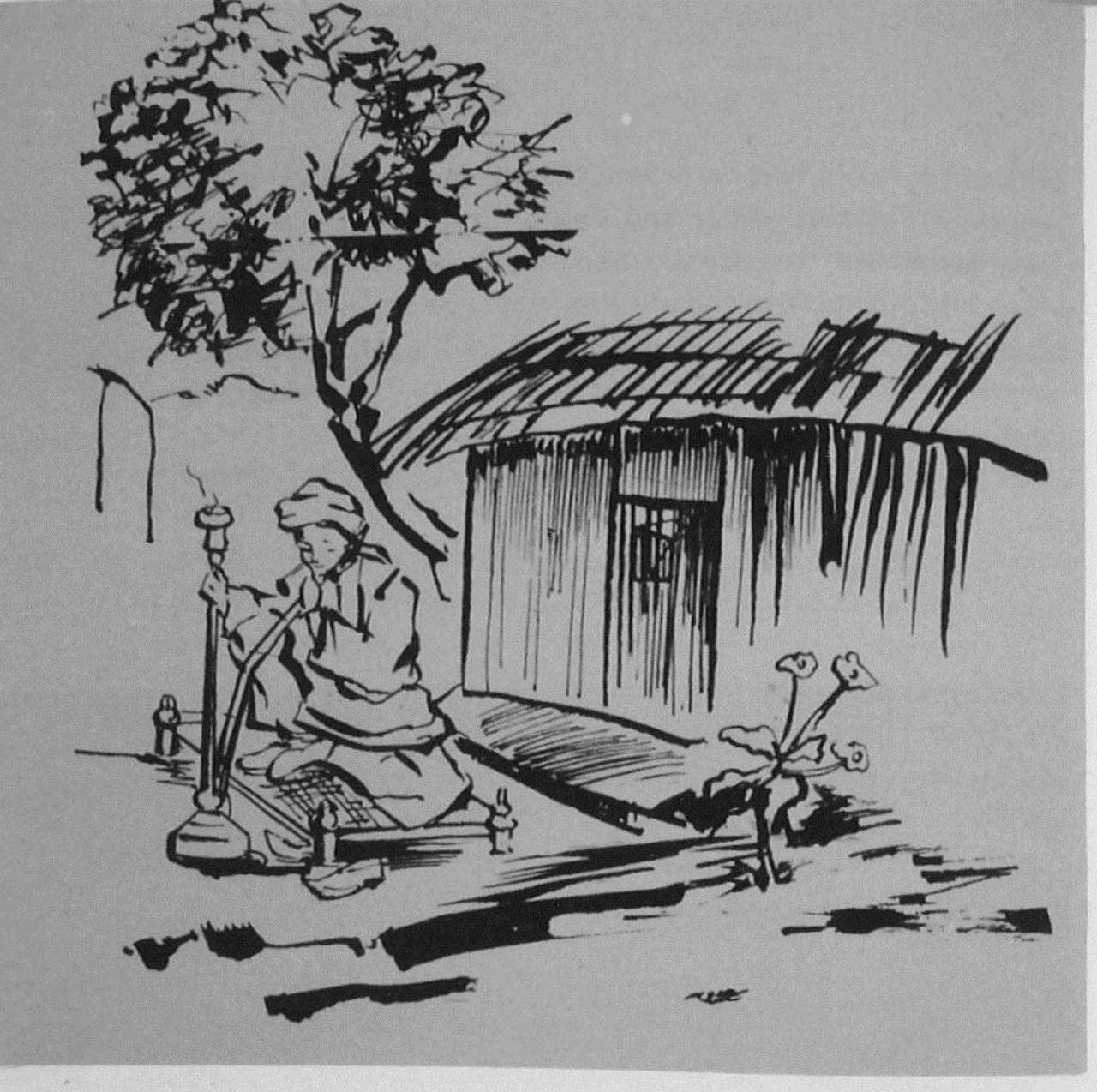


HOUSE DESIGNS

For obvious reasons, houses in rural areas will mainly be SINGLE-STOREYED. Their character—design, construction, appearance and grouping—must be in harmony with the rural landscape and surroundings, special care being taken to avoid the dull and uniform array of typical urban structures.

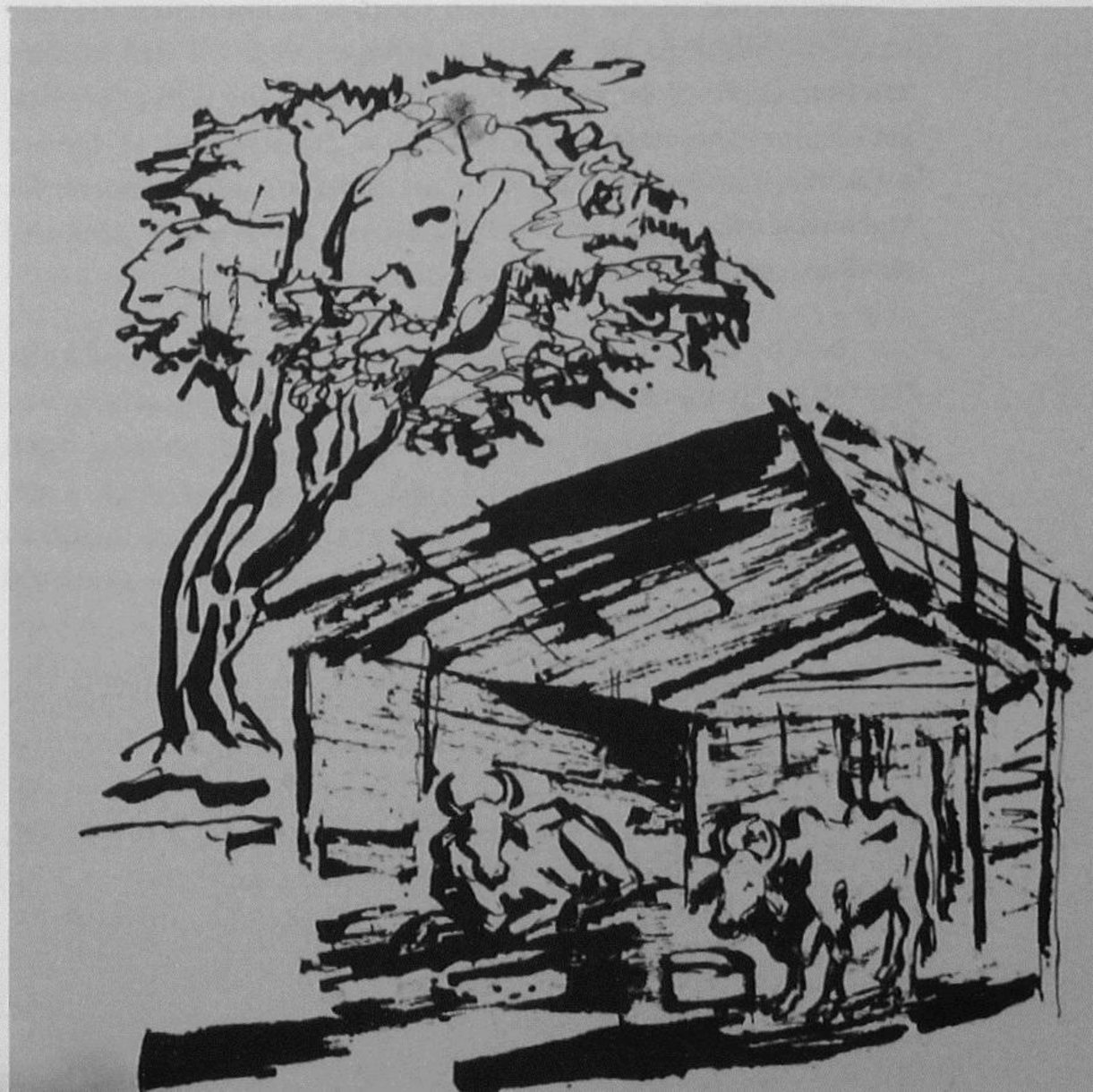
2. In rural areas, the need for space is greater than in urban areas, because of different living conditions. Space is needed for the storage of articles, such as grains, pulses, oil, cotton and fuel. As such, a modest TWO-ROOMED HOUSE with a verandah, kitchen, store, bathing platform and latrine, built on a fair-sized plot with sufficient land for courtyards, cattle shed, fodder and grain stores is the minimum requirement for a rural family. If some villagers cannot afford a two-roomed house to begin with, and only a one-roomed house is provided, there should be provision in the house design for the addition of another room at a later stage. In other types of houses also, it is desirable to make provision for future expansion, as the size and needs of the family increase progressively.

A SETTLEMENT IN HARMONY WITH ITS SURROUNDINGS



3. It is more comfortable and healthy in most parts of the country, to live and work outside the house for a number of months in a year. A COURTYARD is, therefore, an important adjunct to the house, and its design and layout should receive adequate attention. A courtyard located at the back of the house affords greater privacy and is, therefore, more useful to the women-folk than one in the front. It is also desirable to have a smaller front courtyard which can be used by the men.

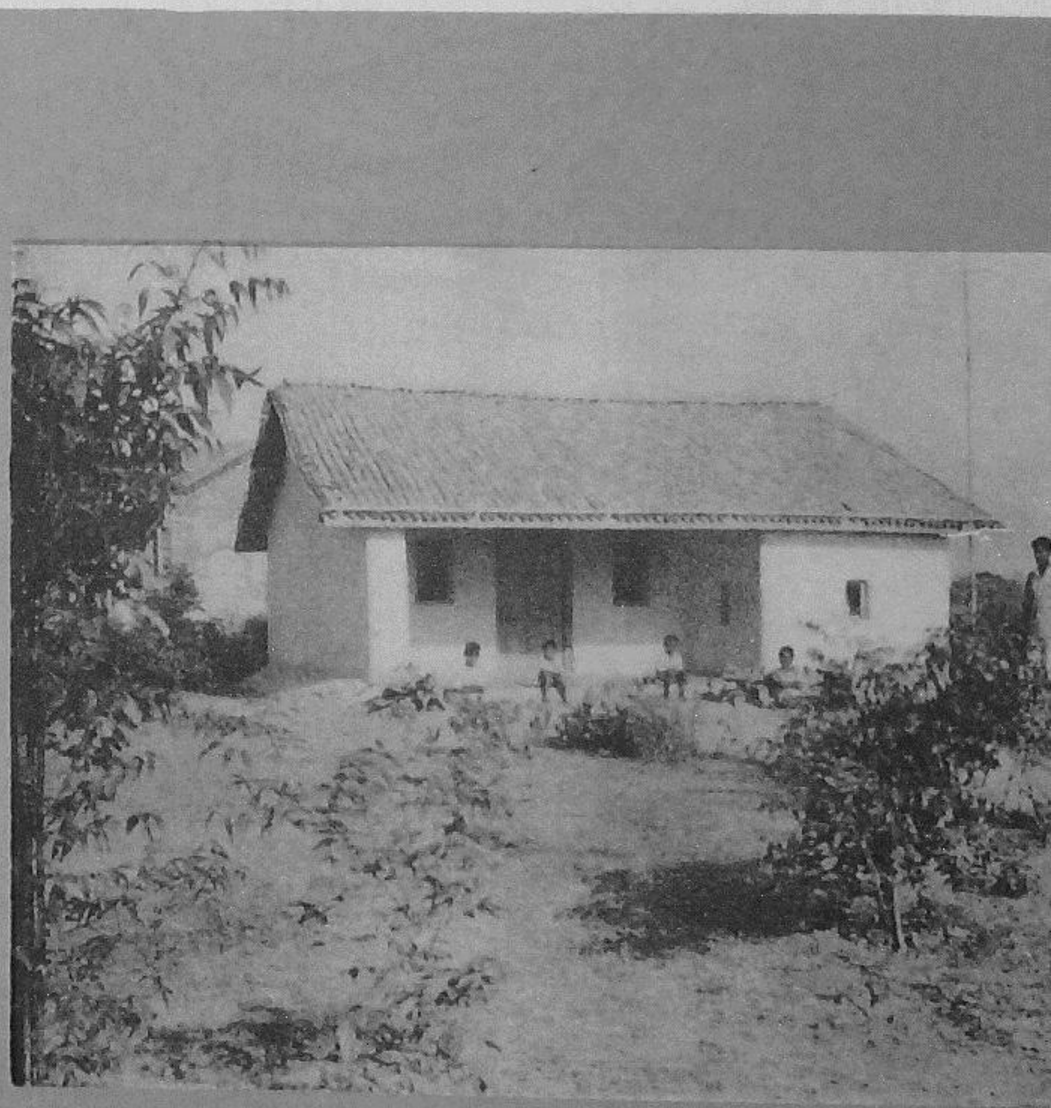
4. Apart from the space needed for human habitation, there should be separate ACCOMMODATION FOR CATTLE in the form of a shed along with store room for fodder, agricultural implements and agricultural products. In case of artisans, such as weavers, carpenters, blacksmiths and shoemakers the designs of the houses should provide for suitable WORK SPACE to meet the special needs of their trade. Similarly, a shop-keeper may also require space for a shop as part of his house.



5. In one respect, the present village houses are particularly defective; they do not have adequate windows with the result that the rooms are ill-ventilated and dark. Even doors are of inadequate height, in most cases. For a house to be healthy and comfortable, the minimum AREA OF WINDOWS should be 8% of the room area for the hot and arid regions and 15% for the hot and humid regions. The HEIGHT OF DOORS should not generally be less than 6′—6″. The window in the kitchen should be of adequate size and so placed that there is sufficient light on the space reserved for cooking. In case of store rooms not intended for human habitation, the need for lighting and ventilation is much less than that for living rooms. Another common defect in an existing village house is the smoky kitchen. Quite often, the cooking is done in the living room itself. From considerations of health, it is essential to have a separate place for cooking with an efficient arrangement for the outlet of smoke. It is also important to provide adequate shelf space in the kitchen.

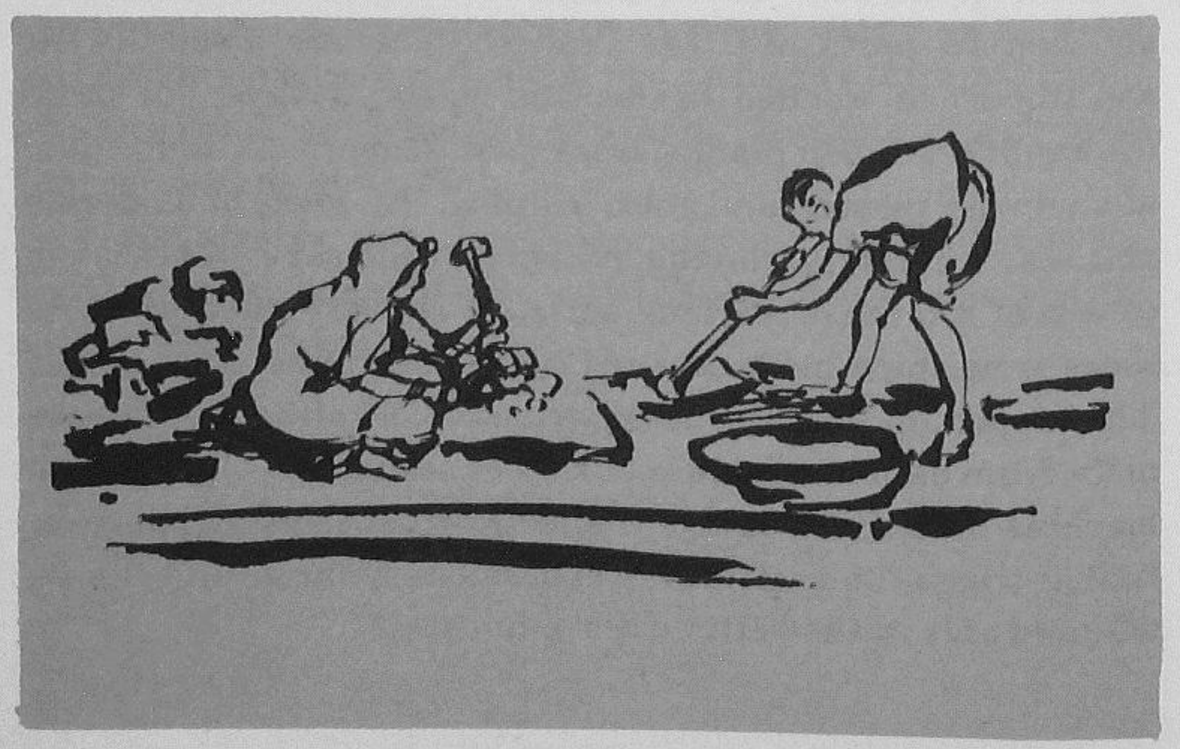
6. The matter of PLINTH HEIGHT in a house should also receive adequate attention. The floors of houses mostly consist of rammed clay or soil with some sort of mud plaster. Such floors naturally get damp and cold during rains and are unhealthy. It is necessary, therefore, that the floor level should be higher than the general ground level and the houses should have a plinth at least one foot high.

7. An important consideration in the design of the house is whether it should be in a row, semi-detached or detached. ROW HOUSES are economical in the use of land, but present certain difficulties about the keeping of cattle. In a row house, the cattle have to be kept either in the front courtyard—a practice which is unhygienic—or a back lane has to be provided for taking the cattle to the rear courtyard. A back lane, which generally remains dirty and insanitary, is not desirable. Detached houses require too much land and are suitable for only well-to-do classes. SEMI-DETACHED HOUSES with no back lanes should, for various reasons, best meet the requirements in most cases in our villages. They also provide better security for the cattle kept in the rear courtyard.



COSY AND DETACHED: BUT MAY BE EXPENSIVE

8. The size and proportion of a HOUSE PLOT is another matter which needs the serious consideration of the planner. For a small semi-detached house, a minimum width of 25′ –30′ is usually required. This width allows for a side passage to the back courtyard for the movement of cattle. It is considered desirable to have a depth of about 75′ –90′ for the house plot, so that there may be adequate space for cattle shed, grain store, latrine and courtyard, with reasonable distance between the cattle shed and the living rooms. However, in intensely cultivated areas, where there is much pressure on land, a lesser depth may have to be adopted. For row and detached houses, the minimum size of plots may be 20′ x 60′ and 40′ x 75′ respectively. There should generally be a set-back of about 10′ – 20′ in the front, depending upon the size of the plot, so that the house is reasonably free from dust and noise of the street and has better privacy.



SPECIFICATIONS

In the matter of specifications, a basic point for consideration is the extent to which the age-old methods of construction need a change, so as to make use of the manufactured materials, such as bricks, cement, steel and roofing sheets,etc. There is no doubt that from the engineering point of view, use of such materials would result in better and stronger structures. But in view of the poor economic conditions in the villages at present, will this be a practicable proposition? There is the difficulty of transport which makes very difficult the procurement of materials like coal (for burning bricks), cement, steel, roofing sheets and factory made tiles. Apart from the question of transport, the production of these materials is also limited at present and is hardly adequate for urban requirements. Moreover, most of the villagers cannot go in for anything which needs hard cash. Their investment on housing can, therefore, be mainly in the shape of personal labour. From all these considerations, it is apparent, that any large scale programme of village housing, to be successful, cannot be based on the use of such raw and manufactured materials which involve long distance transport. We will have to depend on what is locally available, or what can be manufactured in the villages on a small scale with the help of local labour and materials. It is only thus, that the cost of village houses can be kept within the means of the villager. When supply of fuel for burning bricks and its transport do not present any problem and cost of the house with burnt-bricks is not beyond the economic means of the villager, it is possible and preferable to go in for a house with burnt-brick walls.

2. Specifications for rural houses vary from region to region, depending upon the climate, and the availability of materials. In some parts of NORTHERN INDIA, the summers are hot, the winters cold and rainfall low. Due to extreme variation in temperature, the construction has necessarily to be heavy for comfort in summer and winter. As good earth is generally available, construction may be of burnt-bricks or stabilized mud walls. In the COASTAL AREAS, the climate is hot and humid, with a higher rainfall than in the north. In most of the coastal areas and in the south, bamboos, ballies, palmyra and local timber are fairly cheap. Therefore, light structures using these materials and having a sloping roof are suitable for these areas. In the HILLY AREAS, where the climate is temperate, but the rainfall is heavy, it is essential to provide waterproof roofs and high plinths, in order to keep away the moisture. The houses may either be elevated on wooden posts as in Assam, or constructed on pucca masonry plinths sufficiently high to avoid dampness. The roof has to be sloping, using tiles or sheets.

HEAVY CONSTRUCTION ENSURES
THERMAL COMFORT IN NORTHERN INDIA

3. Some of the specifications suitable for rural areas are described below for general guidance:—

FOUNDATION AND PLINTH. At present generally speaking, no proper foundations are provided in village houses. From the view-point of durability, however, it is necessary that walls should have foundations and plinth of some material like stabilized soil, lime concrete, burnt-brick masonry or stone masonry. In case of regions with heavy rainfall such as Assam, where walls consist of posts with panels of accra, foundation is mainly needed for the insertion of the posts in the ground, while panels generally do not require any elaborate foundations.

WALLS. Walls may consist of sun-dried mud bricks, clay lumps, rammed earth, stabilized soil, laterite blocks, burnt bricks or stone masonry in mud or lime mortar or wooden or bamboo posts with accra panels.

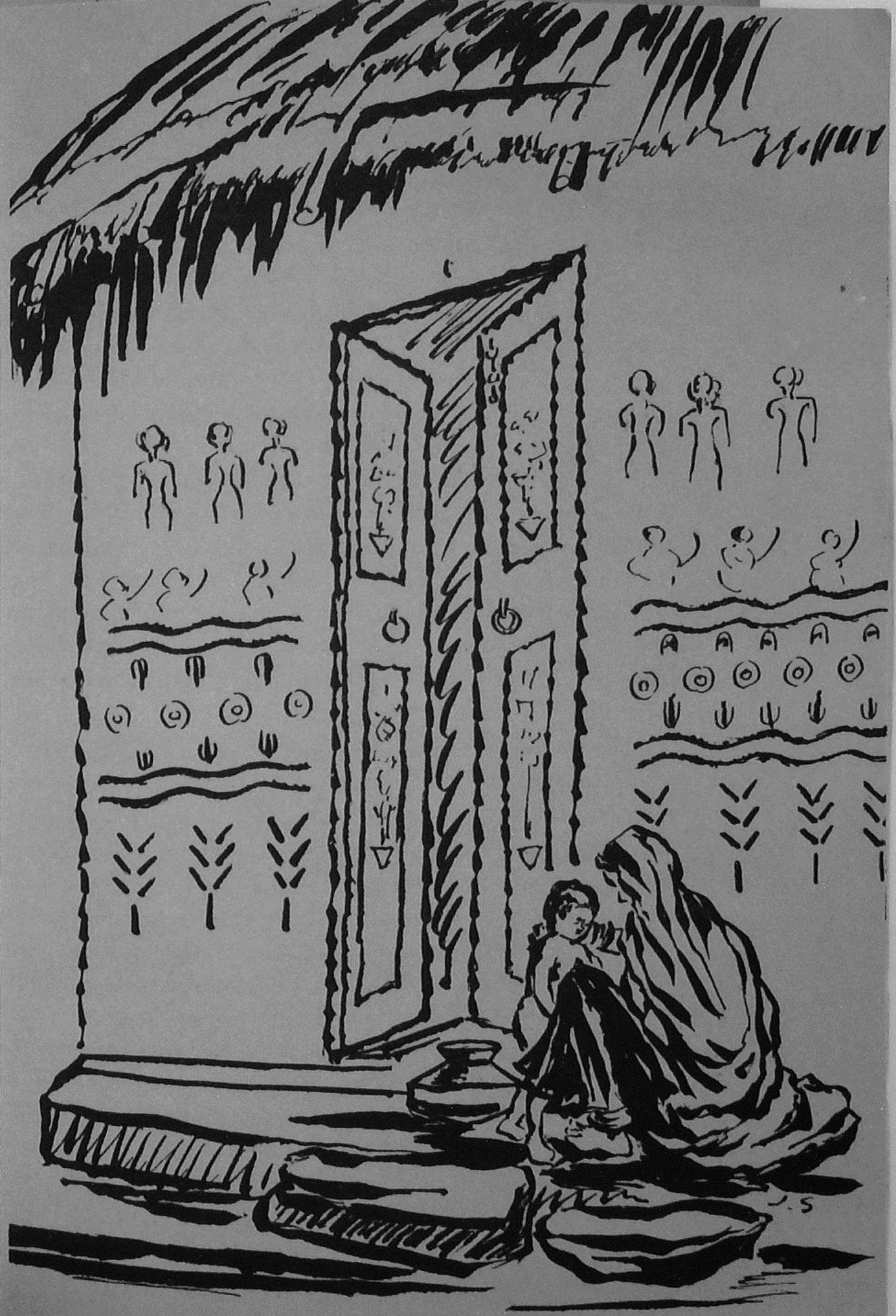
ROOFING. The roof is one of the most difficult and expensive items of construction in a rural house. In hot and humid regions, such as the plains of Punjab and Rajasthan and western parts of Uttar Pradesh, roofs are generally flat and consist of wooden beams and joists, a layer of reeds (Sirkanda), wooden planks, brick tiles, stone slabs and a layer of mud with plaster and gobri leaping. In areas of moderate and heavy rainfall, sloping roofs are necessary. These may consist of thatch of various sorts, or country tiles, or stone slates or machine-made tiles or C.G.I. sheets or asbestos sheets. The supporting frame generally consists of rafters and trusses made from bamboos, ballies or timber scantlings. Roofs with machine-made tiles or C.G.I. sheets or asbestos sheets over timber trusses and rafters are generally expensive and can be adopted only in the better class of houses.

FLOORING. By and large, floors are of rammed earth finished with mud plaster and gobri leaping. Better class houses, however, may have floors paved with bricks or stone slabs. For kitchen, bath and latrine, it is necessary to have floors of some hard impervious material, such as burnt bricks, stone, lime concrete or cement concrete.

DOORS AND WINDOWS. Doors and windows are generally made from bamboo or local wood and may be braced and battened or planked. Use of glass panes in windows has to be avoided, for the present, on grounds of economy. Glass panes cannot be procured easily and are difficult to replace.

FINISHING. Burnt-brick or stone walls may be pointed with lime or cement mortar on the outside. Mud walls require mud plaster on the outside for protection against rain. This means continual maintenance and replacement, as the plaster gets eroded due to rain. By research and experimentation, a specification using 5% bitumen emulsion has been evolved for non-erodable mud plaster which when externally applied to the mud wall, reduces maintenance and frequent replacement. The details of this specification are available in the publication WATER-PROOF RENDERINGS FOR WALLS by the National Buildings Organisation, Ministry of Works, Housing and Supply, Government of India, New Delhi.

Mud plaster with gobri leaping is generally used on the inside. In better class houses with brick or stone walls, lime or cement plaster may be used.



ENVIRONMENTAL HYGIENE

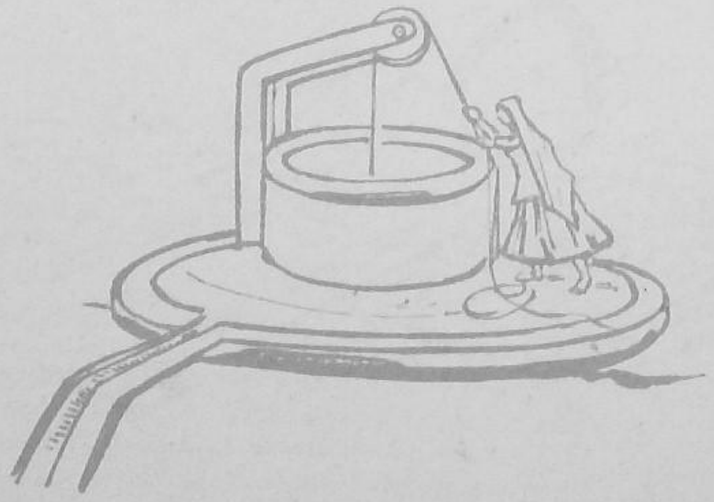
One of the main causes of insanitation and prevalence of disease is the absence of proper latrines in the houses and the consequent unsatisfactory disposal of human excreta. Provision of sanitary latrines in village houses is, therefore, of prime importance and the use of such latrines should be promoted, even though there may be some initial reluctance on the part of the villagers to use the latrines.

2. There should be no contamination of surface soil, surface water and ground water in a satisfactory latrine. There should be freedom from odours or unsightly conditions. No handling of excreta should be involved and it should not be accessible to flies and animals. The latrines should be simple and inexpensive in construction and operation: designs of some types of latrines which come closest to fulfilling these requirements are contained in this booklet.

3. Special care has to be taken while locating the latrines to obviate the possibility of contaminating the drinking water supply. There can be no arbitrary rule governing the distance that is necessary for safety, between the latrines and a source of water supply, as there are many factors, such as the slope and level of the ground water and soil permeability which effect the travel of bacteria to ground water. Generally speaking, however,the chance of ground water pollution is virtually reduced to the minimum, if the bottom of the latrine is more than 5′ above the ground water table and if the distance between the latrine and the source of water supply is not less than 50′. In case of sloping areas, it is important to avoid, if possible, the placing of the latrine directly uphill from a well.

4. Another cause of insanitation is the lack of drainage. Dirty water is often found stagnating in pools and kutcha drains, because of improper disposal of waste water from wells and hand pumps. With proper drainage arrangement, the village well can become some sort of a community centre where women can meet, chat and relax while doing their work. It is very essential to have pucca drains of bricks, stone or concrete to lead away the waste water, which should be absorbed on a plot of land by growing some plants. As far as possible, drains should be of semi-circular or U shape, as drains of these shapes can be kept clean more easily. It may be found expedient sometimes to get bricks of these shapes specially prepared for the purpose. If conditions permit, every house should have its own arrangement for the disposal of waste water in the back courtyard. It is not a good practice to let waste water flow into the village pond.

5. Apart from the disposal of waste water, some arrangement for the drainage of rain water is also necessary. The village economy at present cannot, however, bear the cost of regular storm water drains and reliance has to be placed on kutcha or natural drainage for the purpose. That is why villages are usually located on high ground, so that the rain water may flow to the surrounding areas by gravity. It is not an uncommon sight, however, to come across a village virtually converted into an island during the rainy season, because of pits formed all round due to digging that has been taking place for the construction and upkeep of the houses. To prevent the rain water collecting in pools and pits in a village, it is essential that all depressions should be suitably filled, and indiscriminate digging of earth for the construction of houses stopped. As far as possible, the rain water from a village, which is generally dirty and contaminated, should not be allowed to flow into the village pond which is used by the villagers for diverse purposes.

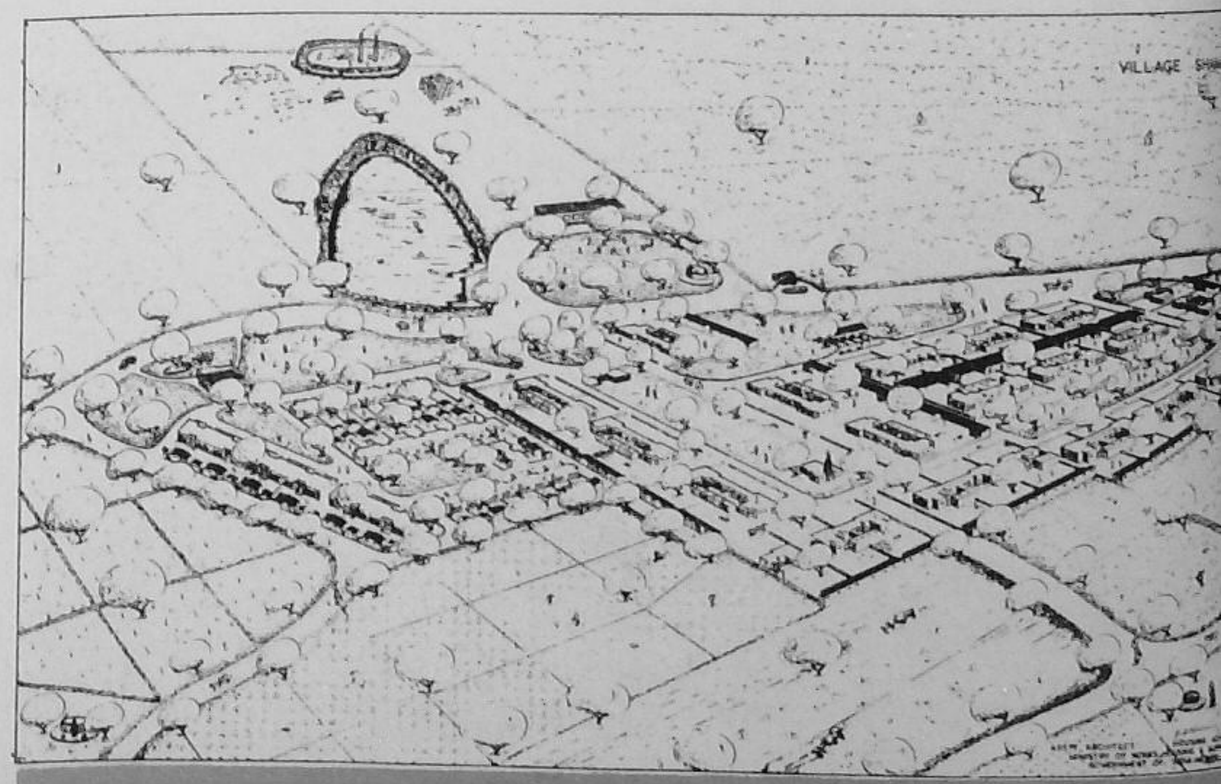


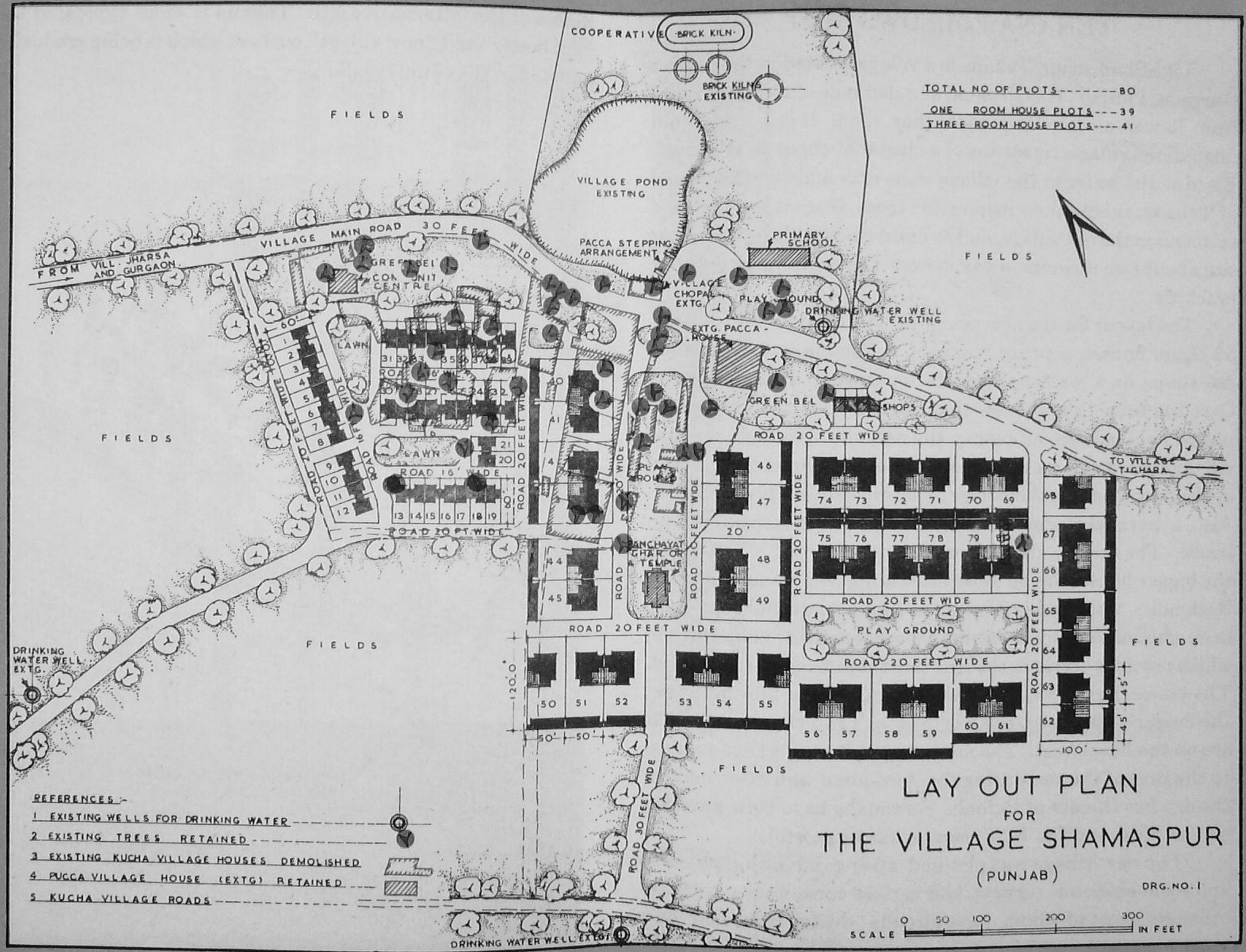
AIDED SELF-HELP SHOWS THE WAY

Aided self-help shows the way to better housing in rural areas. The entire village of Shamaspur in district Gurgaon, Punjab, was demolished and re-built by the villagers themselves in 1957 with self-help and Government aid. During the period of reconstruction, the enthusiastic villagers braved the winter's cold and lived in tents: they pooled the land and redistributed it among themselves, before commencing the reconstruction of the village according to a proper layout plan. They were closely associated with the preparation of the layout and the house designs, which were evolved after conducting physical and socio-economic surveys, and taking into account the need and resources of each family, as well as the requirements of community life.

The layout provides for 39 small houses, 41 bigger houses, community wells, playgrounds, a primary school, a community centre, a place of worship, a few shops, and the siting of a co-operative brick kiln. The small houses are on plots measuring 20′ x 60′, and have been constructed in rows, in order to economise on land and on cost of construction and services. The bigger houses are semi-detached on plots measuring 45′ x 100′ and 50′ x 120′. The layout is compact and the houses have been planned around open spaces. This arrangement has preserved the community feeling among the villagers and at the same time has avoided congestion. Special care has been taken to retain all the existing shady trees.

All buildings are electrified and some homes can now boast of even electric fans.





LAY OUT PLAN
FOR
THE VILLAGE SHAMASPUR
(PUNJAB)

DRG. NO. 1

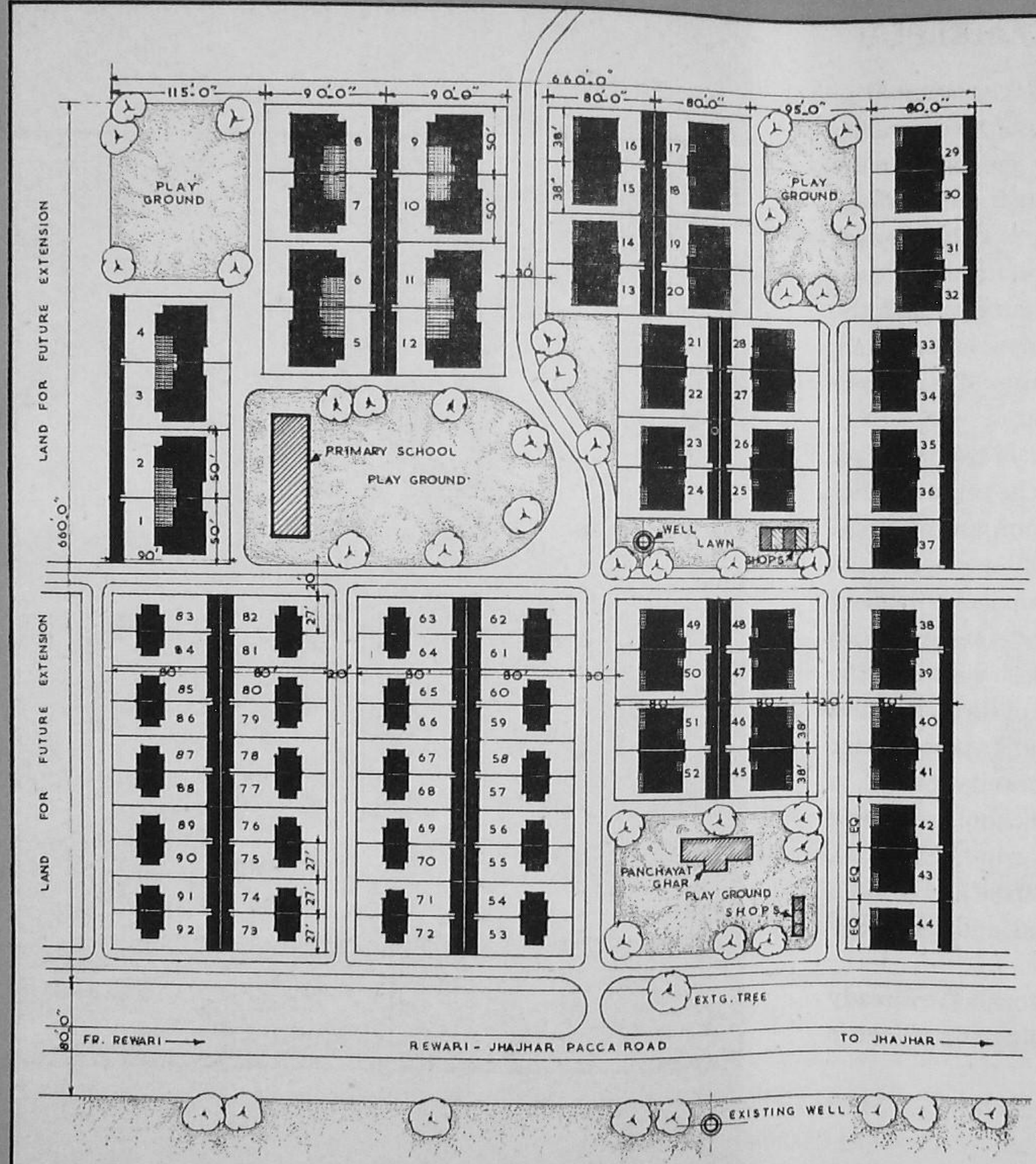
TEHANA FOLLOWS SUIT

Like Shamaspur, Tehana is a village located in the district Gurgaon, Punjab. It is situated at a distance of about six miles from Rewari on the Rewari-Jhajhar road. It is a typical old dilapidated village, consisting of a cluster of about 90 mud huts. Besides, the water in the village wells is brackish. The people of Tehana, taking their inspiration from Shamaspur, decided to abandon the old village, and to build a new village at another site about two furlongs away, where the well water was not brackish.

The layout for the new village provides for 40 small houses, 52 bigger houses, a primary school, a Panchayat Ghar, and a few shops, on a well-drained site measuring about ten acres. Care has been taken to see that suitable land for future expansion is available adjoining the new site. Though the new village is sited along a main road, ribbon development has been avoided by planning the village in depth on one side of the road. Also, a parallel feeder road takes care of the internal village traffic. The small houses are on plots measuring 27′ x 80′, and the bigger houses are on plots measuring 38′x 80′ and 50′x 90′. Back lanes, which generally lead to insanitary conditions, have been eliminated, by adopting semi-detached construction, which provides access to the rear courtyard from the front road. The houses have been oriented facing North or South, so that the longer walls are on the North-South and the shorter walls are on the East-West. The minimum wall area is thus exposed to the rays of the sun during the fore-noon and after-noon in the dry hot climate of Punjab. Verandahs have been provided on the West and the East sides, as far as possible.

The new village was planned after conducting physical and socio-economic surveys, and in close consultation with the villagers, most of whom have already shifted into their new homes at the alternative site. Tehana is thus typical of the "live better" and "new village" outlook which is being gradually adopted in the countryside.

SELF-HELP IN ACTION



1. TOTAL NO. OF PLOTS 92
2. ONE ROOMED HOUSE PLOTS ... 40
3. TWO ROOMED HOUSE PLOTS ... 40
4. THREE ROOMED HOUSE PLOTS ... 12

LAY OUT PLAN
FOR
THE VILLAGE TEHANA
(PUNJAB)

SCALE 0 25 50 75 150 225 IN FEET

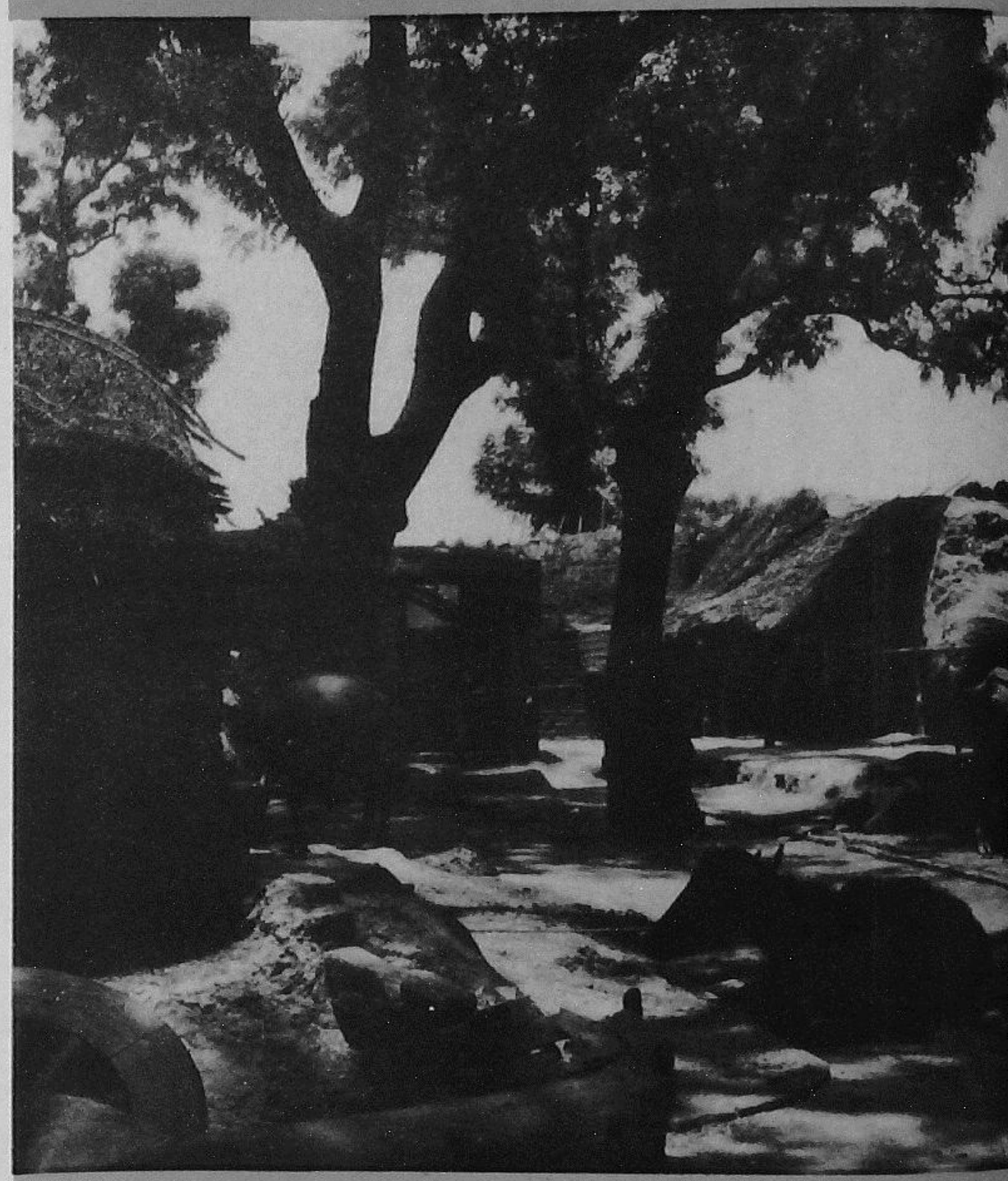
DRG. NO. 2

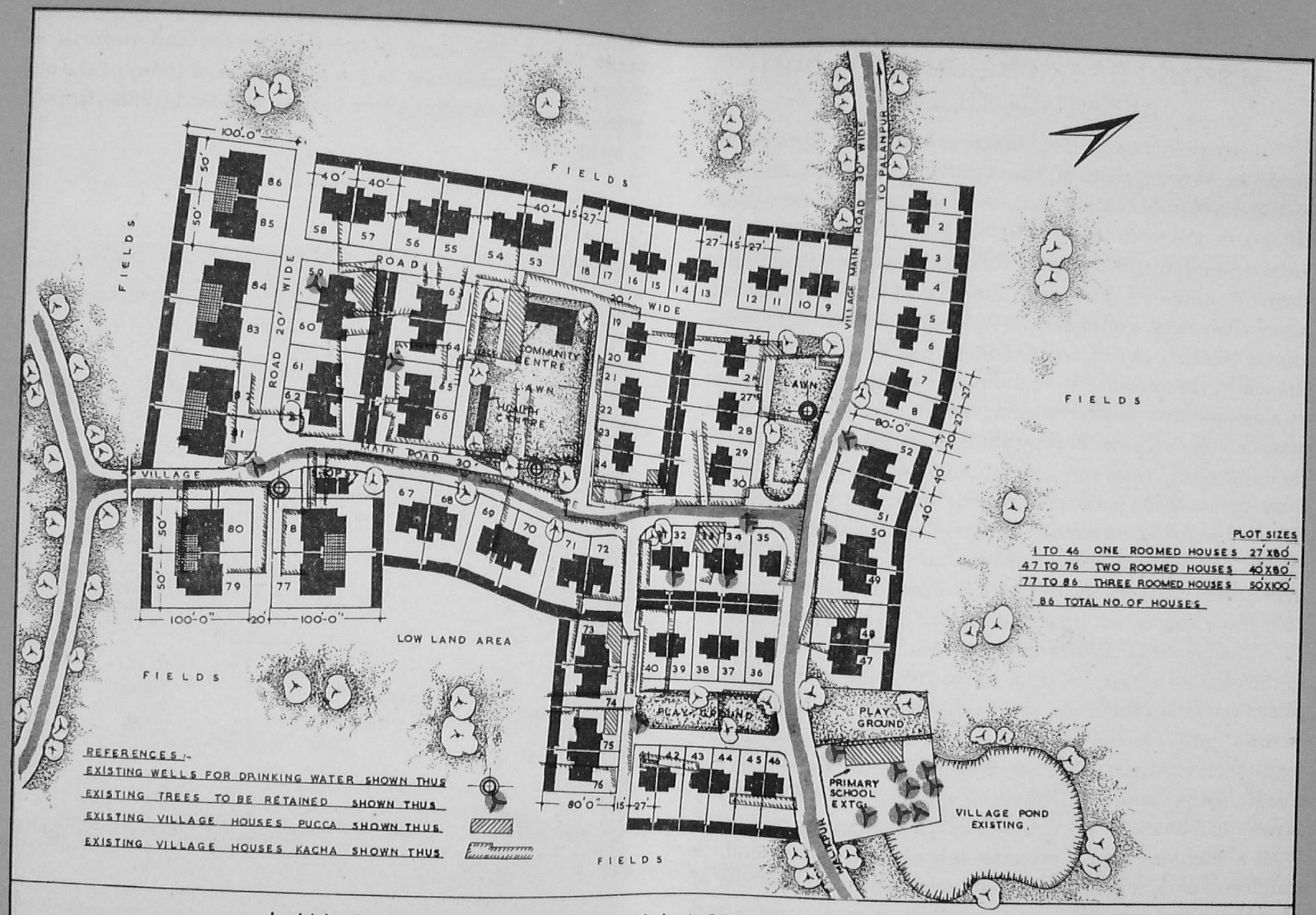
REMODELLING OF VILLAGE KAMELPUR

Kamelpur is a typical Indian village. It is situated in district Moradabad, Uttar Pradesh. The eighty-six families residing in the village benefited, among other things, from the Intensive Area Scheme of the All India Khadi and Village Industries Commission. Consequently, they put their heads together and resolved to improve the living conditions in their village and plan for better homes. Rather than demolish the entire village and rebuild it according to a new layout plan, they decided to remodel it with the minimum disturbance in the ownership of land and certain structures.

The village had grown, over a number of years, along two narrow and crooked lanes which formed the main arteries for the village traffic. In order to cause the minimum dislocation, the layout for the remodelling of the village retains the winding pattern of these two arteries, and proposes only their widening to a width of 30′. The existing cross lanes have also been retained, as far as possible. The layout also preserves the existing shady trees, wells and other useful structures, and has met with the general approval of the villagers. It provides for 46 small houses, 40 bigger houses, a community centre, a health centre, a playground for the existing school, and a few shops. The small houses are on plots measuring 27′ x 80′, and the bigger houses are on plots measuring 40′x80′ and 50′x100′. Semi-detached construction has been proposed, and insanitary back lanes have been eliminated.

Quite a few houses as proposed in the layout have already come up, and the programme for re-modelling the village is well in hand.





LAY OUT PLAN FOR VILLAGE KAMELPUR

DISTRICT MORADABAD (U.P)

SCALE 0 25 50 75 150 225 IN FEET

DRG. NO. 3

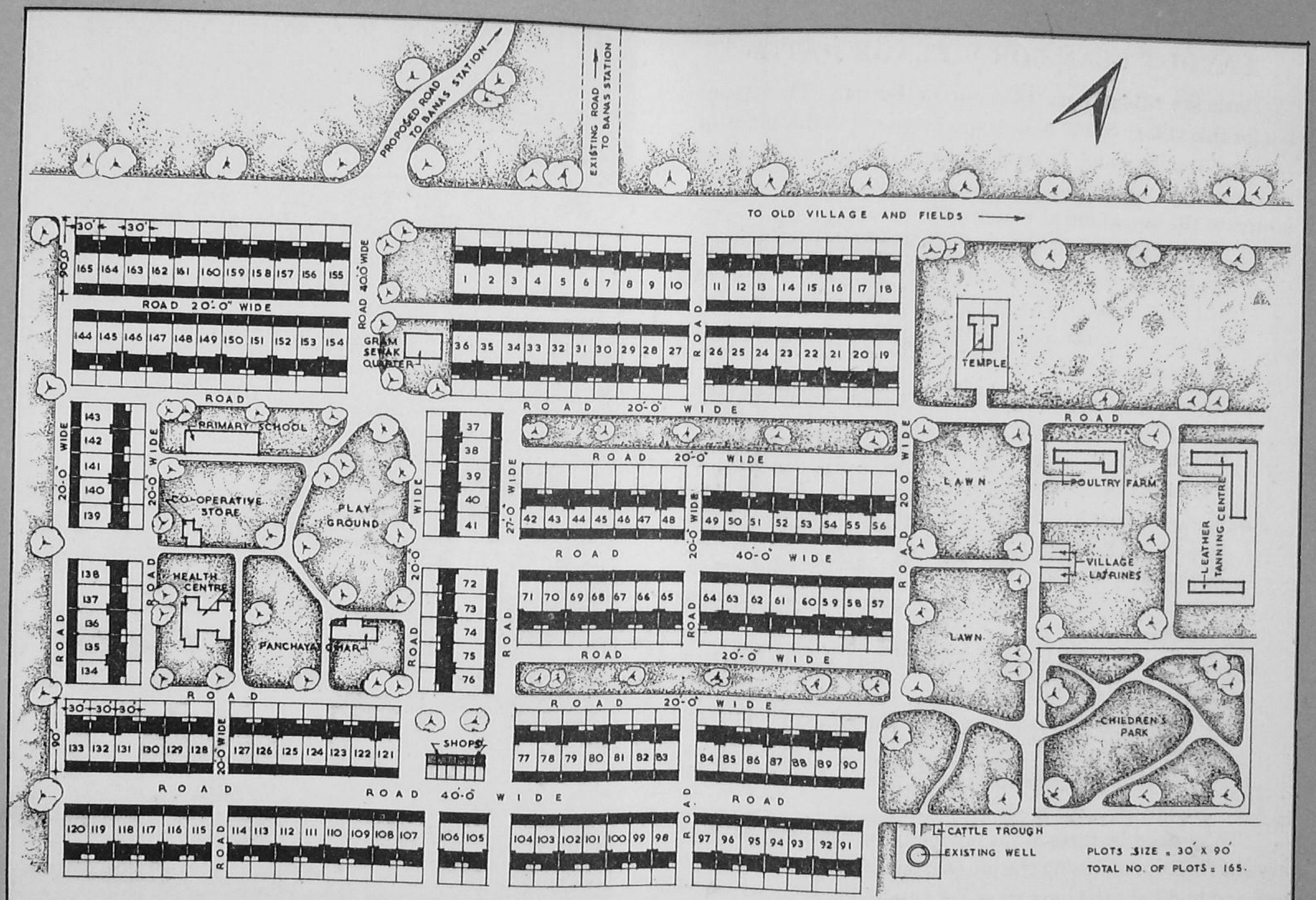
RESITING OF DOONGARI – A FLOOD AFFECTED VILLAGE

Every year, a number of villages are seriously damaged by floods in various parts of the country. Doongari, situated in district Sirohi (Rajasthan), was one of the many such villages in the year 1956. The villagers of Doongari were, however, resourceful enough to turn the disastrous situation to their advantage. They obtained, free of cost from Government, a new village site, well above the flood level, measuring approximately 30 acres, at a distance of about half a mile from the old site which they decided to abandon altogether. They then set up a co-operative kiln for burning bricks, and another for the manufacture of lime. Furthermore, they planted about one thousand shady trees and contributed unskilled labour for the construction of the houses and roads. Government gave, besides the land, loans, some subsidy, and technical guidance to the villagers. Thus with active self-help and Government aid, the industrious villagers succeeded in building a new village with 105 pucca houses, within a short period of about two years.

The layout at the new site provides for a future increase in the number of houses from 105 to 165. The houses are on plots measuring 30'x90', and have been constructed economically in rows, mostly facing North or South, so that the minimum wall area is exposed to the East-West rays of the sun during the hot Rajasthan summer. Provision has also been made in the layout for a house for the Gram Sewak, a community well fitted with a pumping set, a primary school and playground, a children's park, a panchayat ghar, a health centre, a place of worship, a co-operative store, some shops, a poultry farm, and a leather tanning centre.

A new village humming with life and activity has thus sprung up in place of a decadent cluster of mud-huts vulnerable to the floods. This story of the destruction and re-birth of Doongari illustrates how, in the rural India of today, "the old order changeth, yielding place to new, and God fulfils Himself in many ways".

THE NEW DOONGARI



LAY OUT PLAN FOR THE VILLAGE DOONGARI

PINDWARA BLOCK. DISTRICT SIROHI. (RAJASTHAN)

SCALE 0 50 100 200 300 IN FEET

DRG. NO. 4

LAYOUT PLAN FOR VILLAGE DATIA

Datia is a village near Bilaspur in Punjab. The layout plan for this village of 160 houses was prepared in the office of the Chief Architect and Town Planner, C.P.W.D., after taking into consideration the local requirements. Some commendable features of the layout are as under:—

(i) The village is sited sufficiently away from the highway, so that it is safe from the dust and the hazard of through traffic. The strip of land left between the highway and the village can be utilised as a green belt of grass and shady trees;

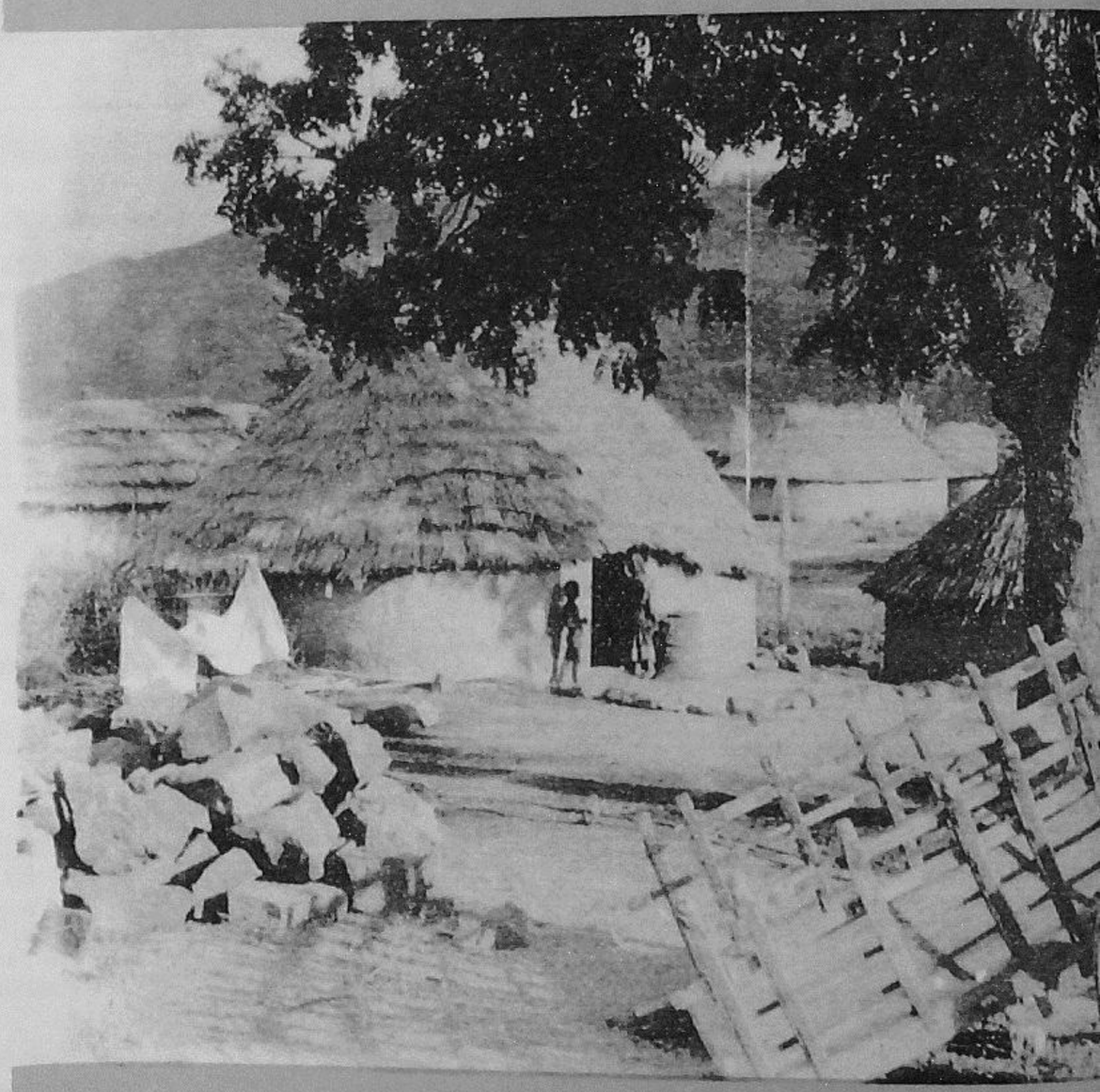
(ii) Shops and community buildings, such as dispensary, post office, police chowki, a place of worship, school, community centre, etc. are sited centrally with reference to the whole village;

(iii) Congestion is avoided by siting semi-detached houses in groups round open spaces and playgrounds. This arrangement also promotes among the villagers, a sense of interest in each other's welfare as a community;

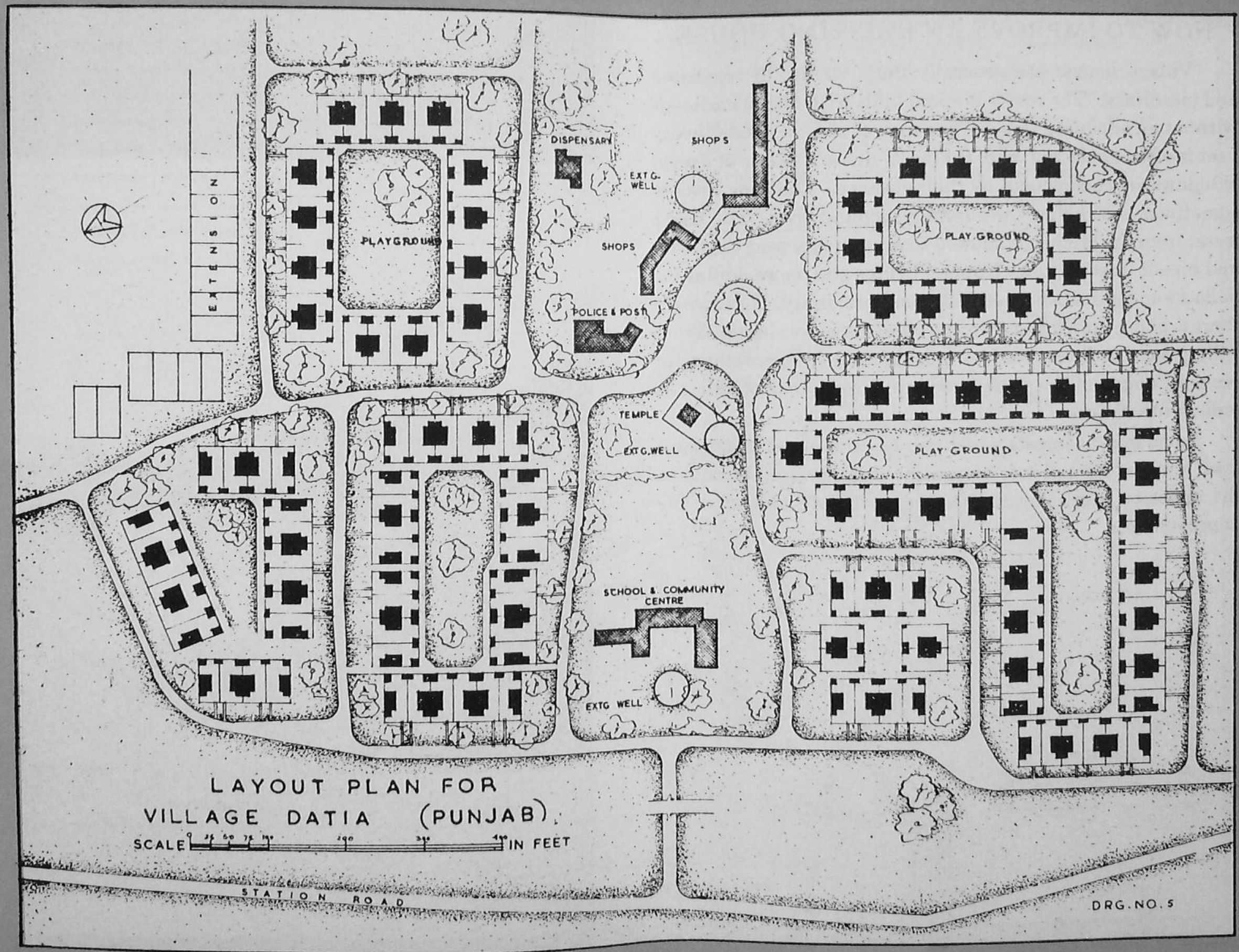
(iv) The house groupings and the roads do not follow a rigid geometrical pattern, out of harmony with the rural character of the dwellings and the surroundings; and

(v) Provision is made for the future extension of the village.

These good features of the layout are not accidental; they are the result of assigning the job to qualified technical personnel, and highlight the importance of employing such personnel for the planning of the villages, even though the number of houses in a village usually does not exceed 200.



LABOUR HUTS ON A FARM


EXTENSION
PLAYGROUND
DISPENSARY
EXT G. WELL
SHOPS
SHOPS
POLICE & POST
PLAY GROUND
TEMPLE
EXT G. WELL
PLAY GROUND
SCHOOL & COMMUNITY CENTRE
EXTG WELL
LAYOUT PLAN FOR
VILLAGE DATIA (PUNJAB).
SCALE
IN FEET
STATION ROAD
DRG. NO. 5

HOW TO IMPROVE AN EXISTING HOUSE

Village houses are generally dark, damp, ill-ventilated and insanitary. The roof is low and built with flimsy materials without an adequate slope. The renewal of mud plaster every year is often neglected and the walls are in a state of decay. Windows are conspicuous by their absence. The floor level is sometimes even below the adjoining ground level. The waste water from the kitchen is allowed to accumulate near the house and breeds mosquitoes. Human beings and cows, buffaloes, bullocks and goats live together in close proximity. Fortunately there is now a growing urge in the villagers to live better, and it will, sooner or later, lead to a large scale improvement or reconditioning of the existing dilapidated stock of about 50 million rural houses.

Some improvements which can be carried out in a typical rural house at a small cost are indicated in the two sketches on the opposite page, showing the house before and after the improvements.

THE OLD. . . .

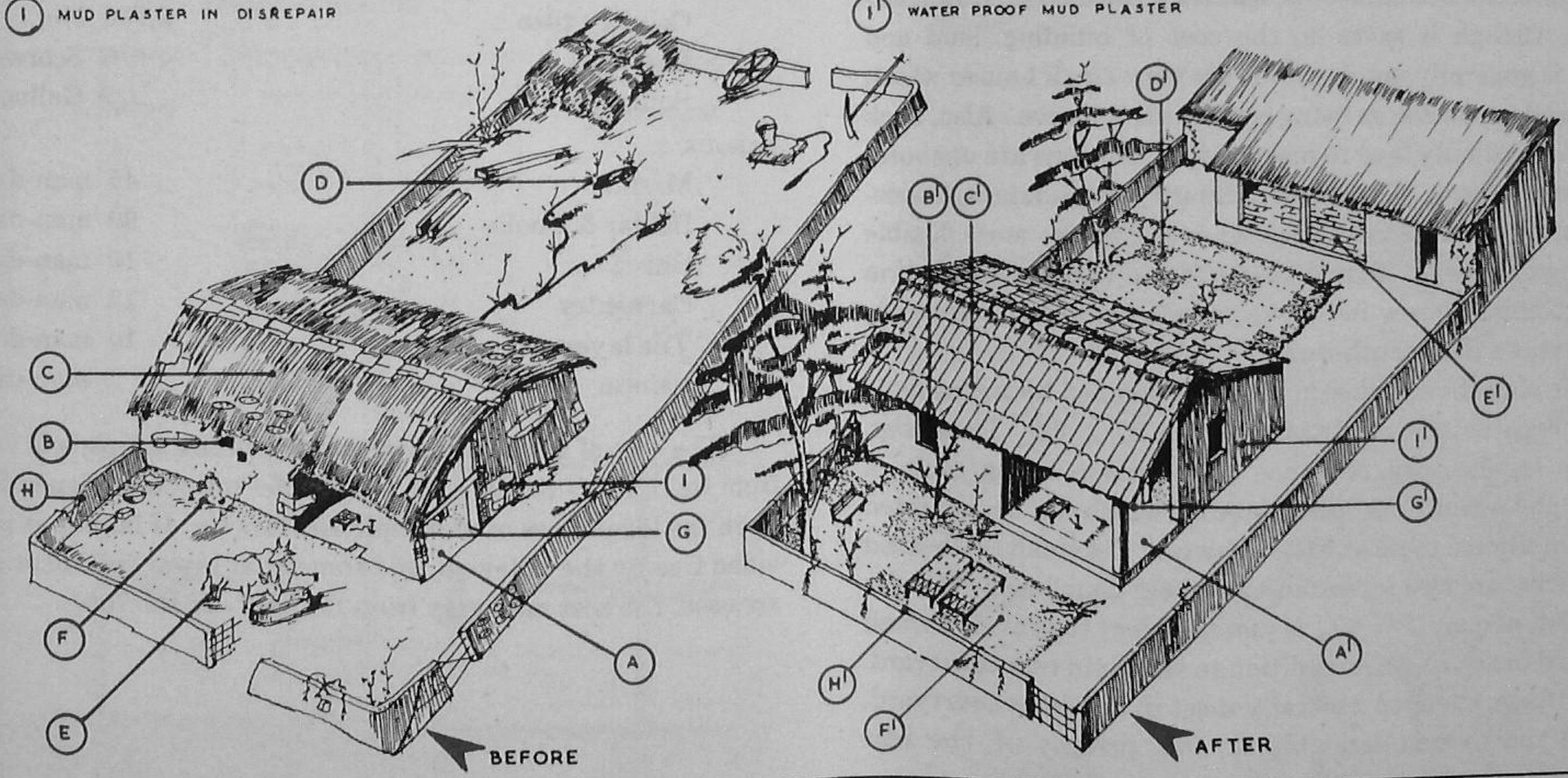
. . . . THE NEW

AS EXISTS TODAY

- (A) FLOOR LEVEL BELOW THE ADJOINING GROUND
- (B) SMALL HOLES INSTEAD OF WINDOWS
- (C) ROOF WITH THATCH ETC. WITHOUT PROPER SLOPE
- (D) CONTAMINATION OF THE GROUND WITH KITCHEN & BATH WATER
- (E) DOMESTIC ANIMALS TIED CLOSE TO THE HOUSE
- (F) COURTYARD SPOILED WITH RUBBISH
- (G) VERY LOW ROOF HEIGHT
- (H) IRREGULAR COMPOUND WALL
- (I) MUD PLASTER IN DISREPAIR

IMPROVEMENTS

- (A') FLOOR LEVEL RAISED ONE FOOT ABOVE THE ADJOINING GROUND
- (B') WINDOWS PROVIDED FOR ADEQUATE LIGHT AND VENTILATION
- (C') IMPROVED ROOF WITH COUNTRY TILES ETC. LAID TO PROPER SLOPE
- (D') WASTE WATER FROM KITCHEN & BATH UTILISED FOR VEGETABLE GARDEN
- (E') CATTLE-SHED AS FAR AWAY AS POSSIBLE FROM THE HOUSE
- (F') COURTYARD KEPT CLEAN TIDY AND PLANTED WITH TREES
- (G') ROOF HEIGHT RAISED TO PROVIDE 6'-6" HEADWAY
- (H') REGULAR COMPOUND WALL
- (I') WATER PROOF MUD PLASTER



A TYPICAL VILLAGE HOUSE

BEFORE AND AFTER IMPROVEMENTS

DRG. NO. 6

DESIGN FOR A ONE ROOMED HOUSE (A)

In the present context of things, a dwelling with only one room and a separate kitchen, verandah, and courtyard cannot be ruled out altogether for the housing of the very poor and backward sections of the village community. They are not in a position to repay even the small housing loans and have to depend mostly upon Government subsidies. Such a one-roomed house, constructed in rows of six to eight units, provides the barest minimum accommodation at the lowest cost. Row construction, though it saves on the cost of building, land and services is generally not desirable for very small houses which would need expansion as living conditions improve. Also, back lanes which usually lead to insanitary conditions are unavoidable in row housing. Therefore, ordinarily, semi-detached construction, which eliminates back lanes and is also more flexible for future expansion, should be preferred to the construction of one-roomed houses in rows, unless stringent economic considerations dictate otherwise.

The plan shows a design for a one-roomed house, suitable for row construction, with plots of size 20′ x 60′. The design provides for an open entrance platform, a living room, a kitchen, and a multi-purpose verandah, which can be converted into an additional room at little extra cost. A small cattle-shed and a latrine are also indicated in the rear courtyard. The size of the plot, namely 20′x 60′, is just sufficient to provide a small courtyard in the front, in addition to the main rear courtyard. In the village, the men generally meet in the front courtyard, whereas the women assemble in the privacy of the rear courtyard.

The approximate requirement of materials and labour for row construction of the one-roomed house, if built to better specifications, is given below:—

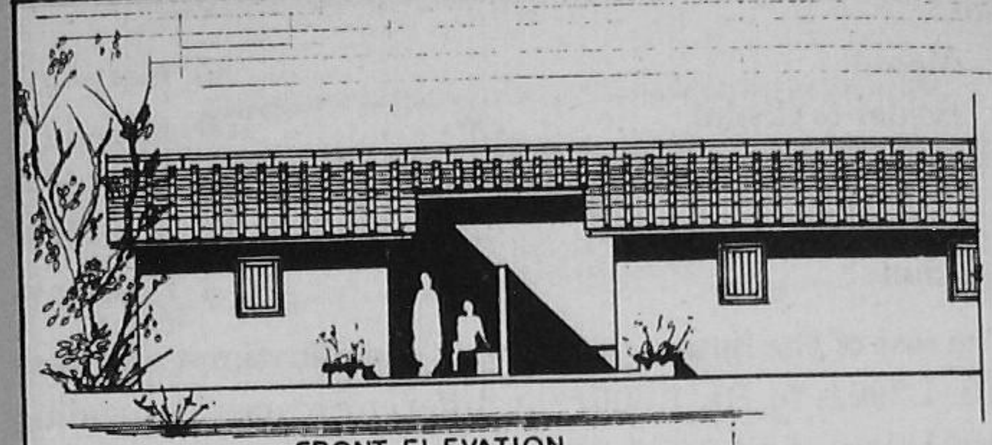
MATERIALS:

Cement	. . . . .	5 Cwt.
Lime	. . . . .	45 Cft.
Sand	. . . . .	150 Cft.
Brick ballast 1½″ gauge	. . . . .	80 Cft.
Bricks	. . . . .	11,000 Nos.
Stone ballast ½″ gauge	. . . . .	10 Cft.
Sal ballies 4″ dia.	. . . . .	160 Rft.
Soft wood	. . . . .	12 Cft.
Country tiles	. . . . .	2,700 Nos.
Bamboos	. . . . .	6 Scores
Solignum	. . . .	2 Gallons

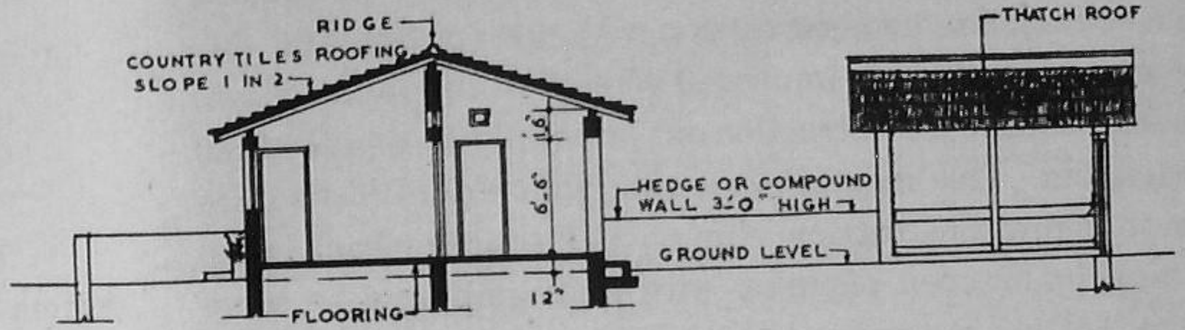
LABOUR:

Mason	. . . . .	45 man-days.
Beldar & Coolie	. . . . .	90 man-days.
Bhisti	. . . . .	10 man-days.
Carpenter	. . . . .	15 man-days.
Tile layer	. . . . .	10 man-days.
Painter	. . . . .	3 man-days.

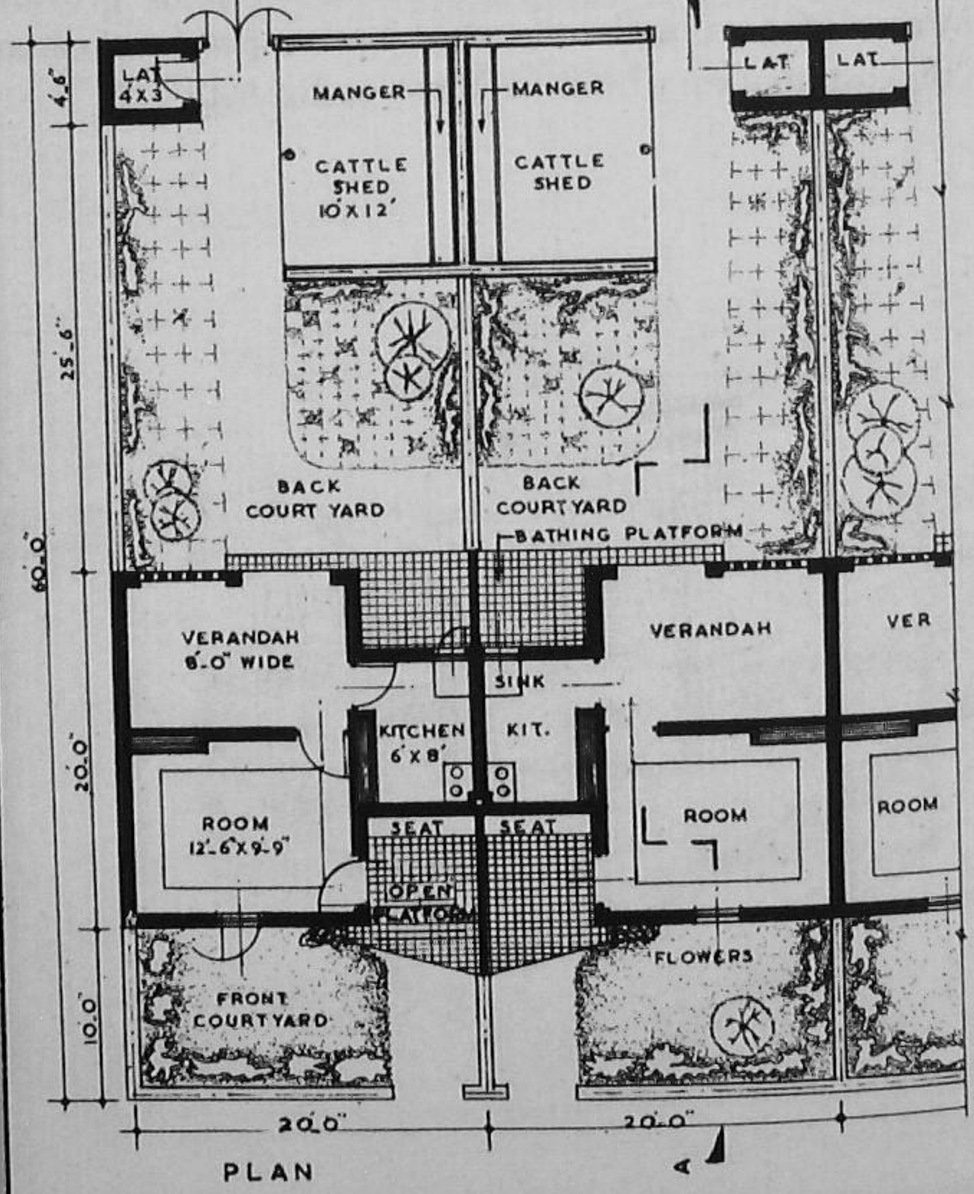
The cost of the house, with better specifications, will vary from Rs. 1,100/- to Rs. 1,400/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 550/- to Rs. 700/-



FRONT ELEVATION

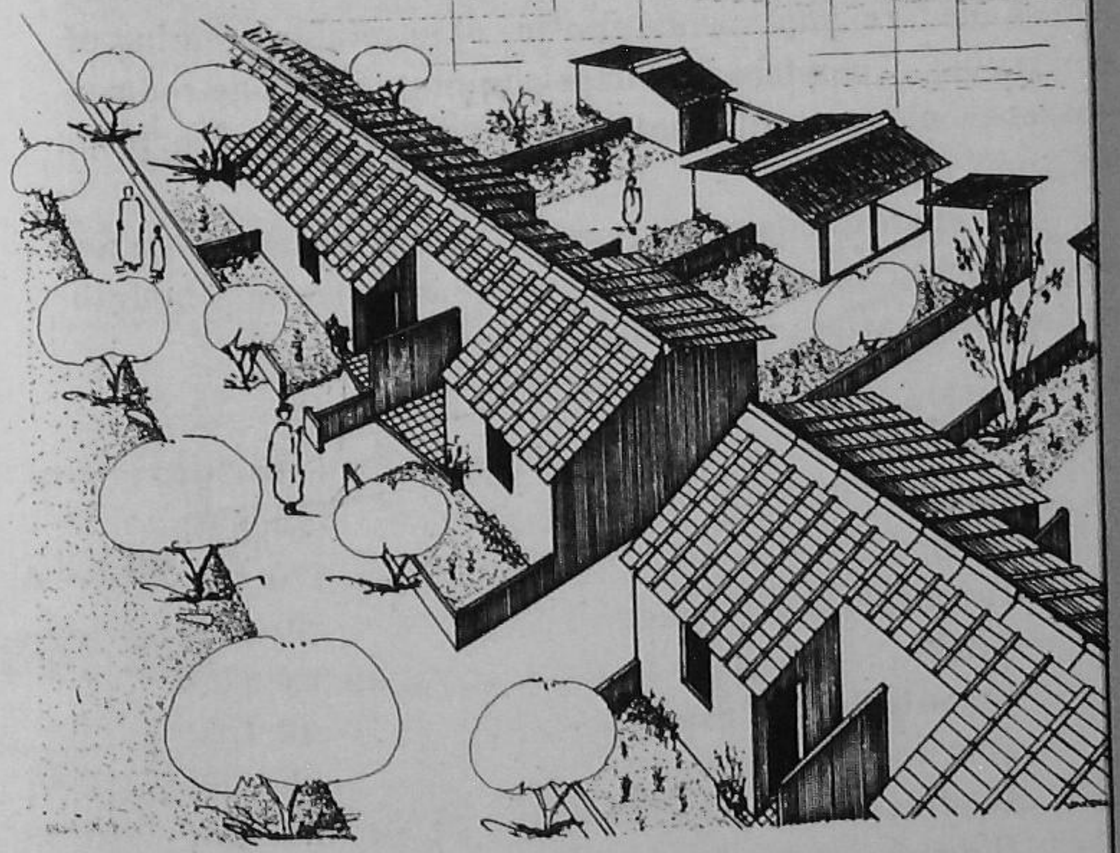


SECTION AT A.A



PLAN

PLINTH AREA 336 SQ FEET



ONE ROOMED HOUSE (A)

(ROW CONSTRUCTION)

SCALE 0 2 4 6 8 12 16 24 32 IN FEET

DRG.NO. 7

DESIGN FOR A ONE ROOMED HOUSE (B)

The preceding plan showed a design for a one-roomed house, suitable for row construction with plots of size 20′ x 60′. The plan opposite is an improved version of the same design, with semi-detached construction on larger plots of size 27′x80′ for each unit. This arrangement, though it would cost a little more than row construction, eliminates insanitary back lanes, and provides for open planning with sufficient land to serve the needs of an average rural house-hold. Apart from the built-up area of the house, the rural family requires front and rear courtyards for domestic and social activities, and space for sheltering the cattle, parking of bullock carts, storage of grains, fodder and farm implements, growing of vegetables, rearing of poultry etc. Therefore, in village planning, even one-roomed houses should have sufficient land for each unit, with plots 60′ to 80′ in depth.

The approximate requirement of materials and labour for semi-detached construction of the one-roomed house, if built to better specifications, is given below:–

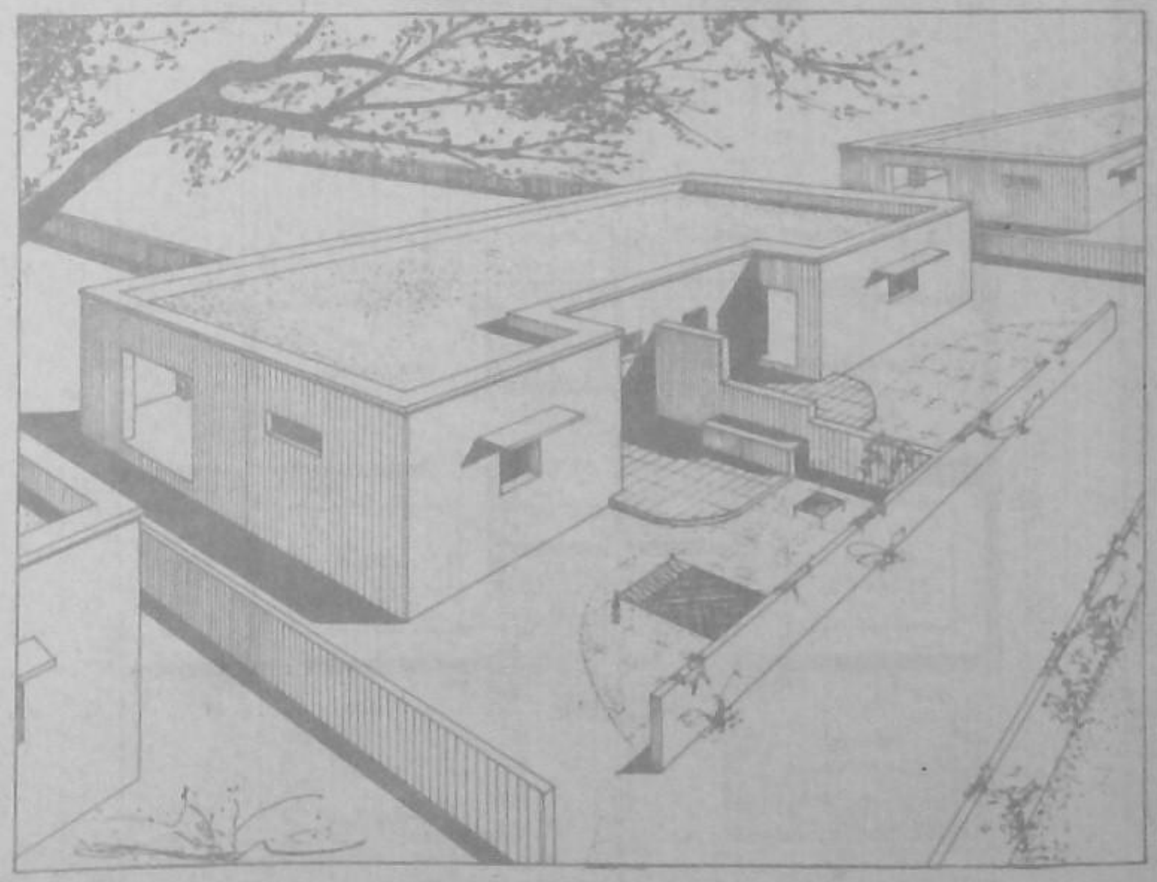
MATERIALS:

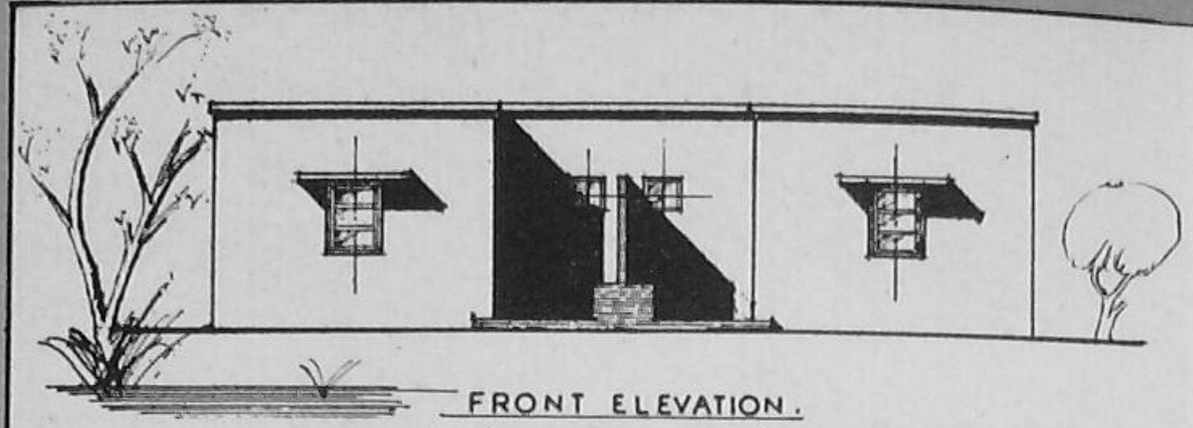
Cement	. . . . .	6 Cwt.
Lime	. . . . .	50 Cft.
Sand	. . . . .	170 Cft.
Brick ballast 1½″ gauge	. . . . .	90 Cft.
Bricks	. . . . .	12,000 Nos.
Stone ballast ½″ gauge	. . . . .	12 Cft.
Soft wood	. . . . .	22 Cft.
Roofing sheets	. . . . .	570 Sft.
Ridging	. . . . .	22 Rft.
Solignum	. . . . .	3 Gallons

LABOUR:

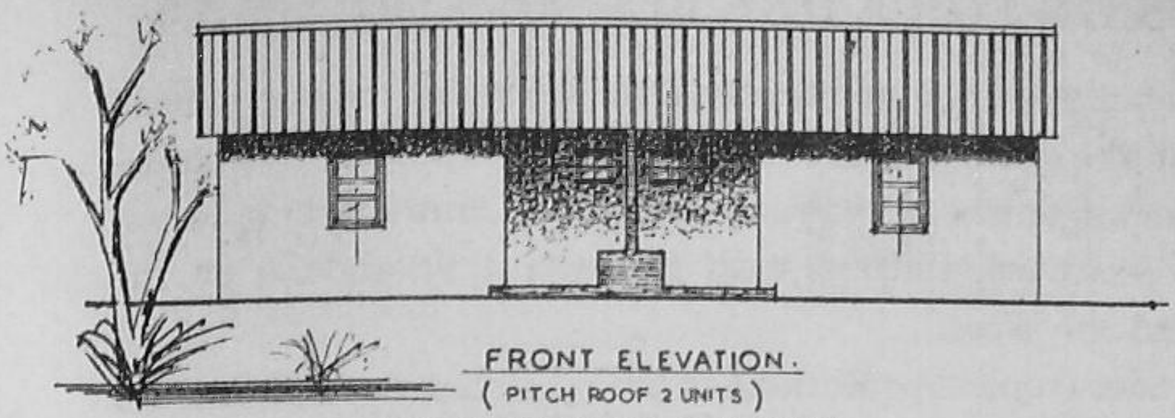
Mason	. . . . .	50 man-days.
Beldar & Coolie	. . . . .	100 man-days.
Bhisti	. . . . .	10 man-days.
Carpenter	. . . . .	16 man-days.
Painter	. . . . .	4 man-days.

The cost of the house, with better specifications, will vary from Rs. 1,200/- to Rs. 1,600/- at different places, depending upon local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 600/- to Rs. 800/ -.

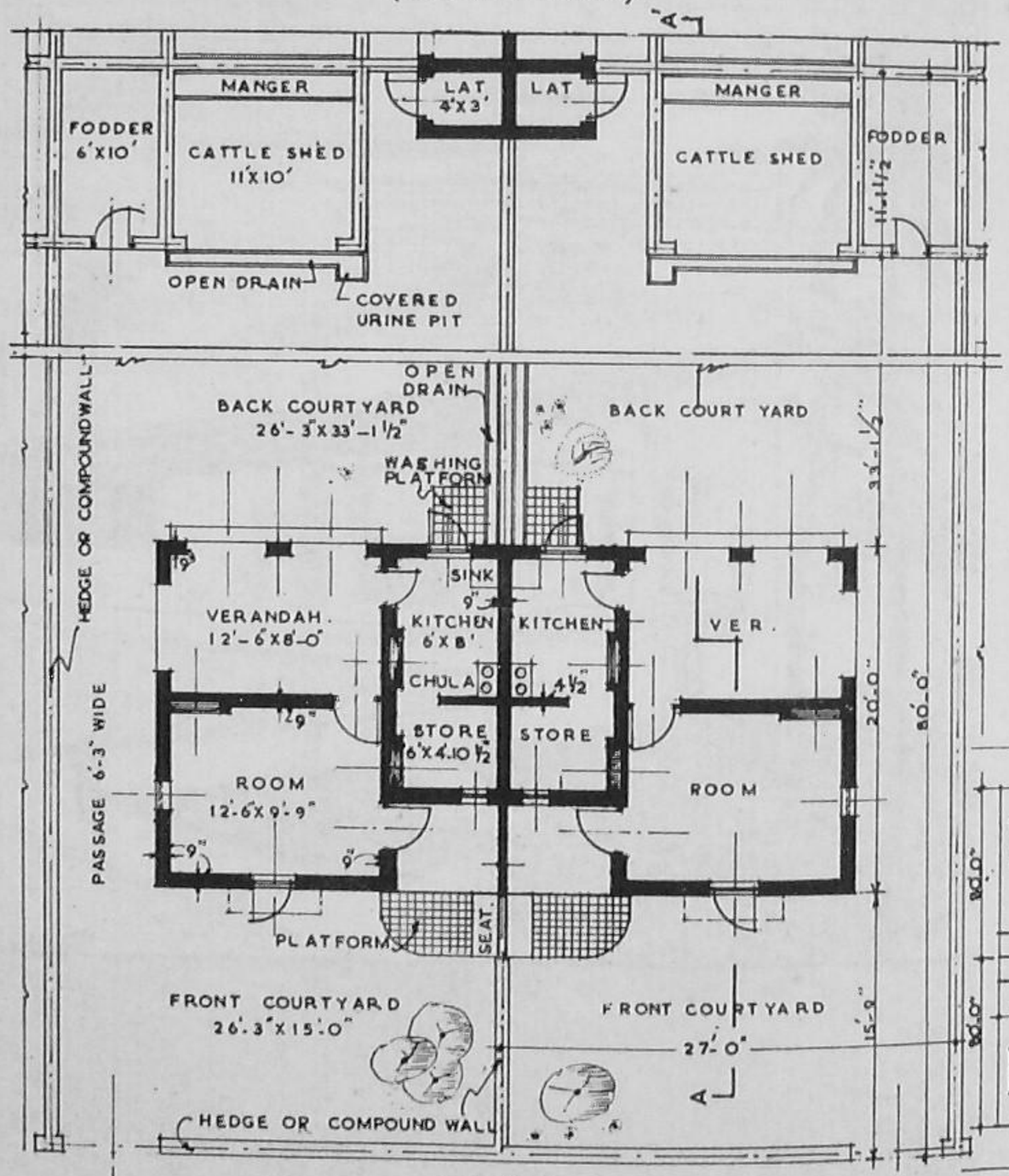




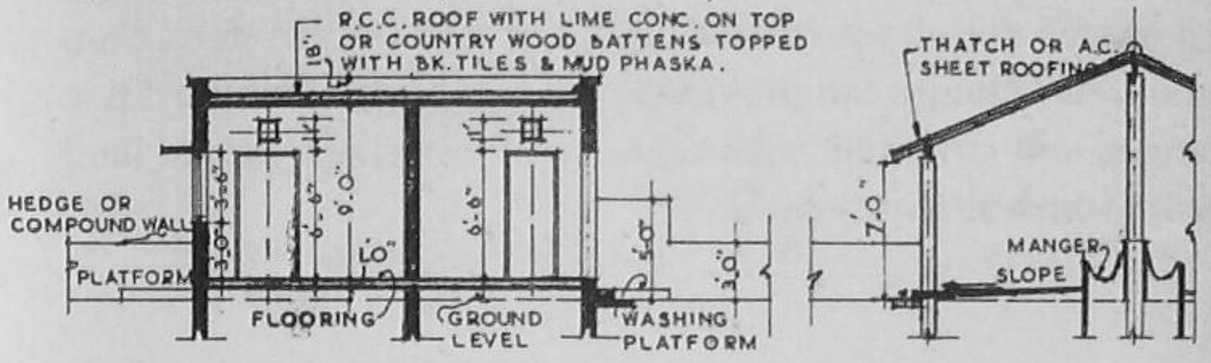
FRONT ELEVATION.
(FLAT ROOF 2 UNITS)



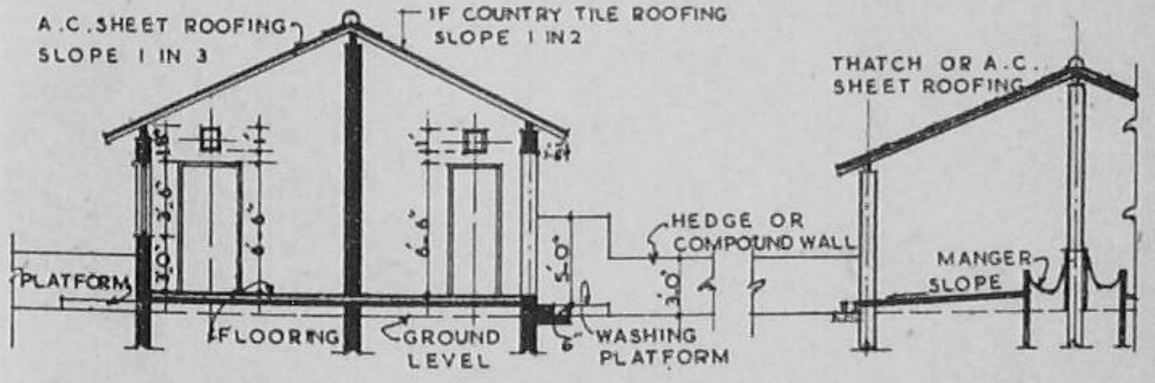
FRONT ELEVATION.
(PITCH ROOF 2 UNITS)



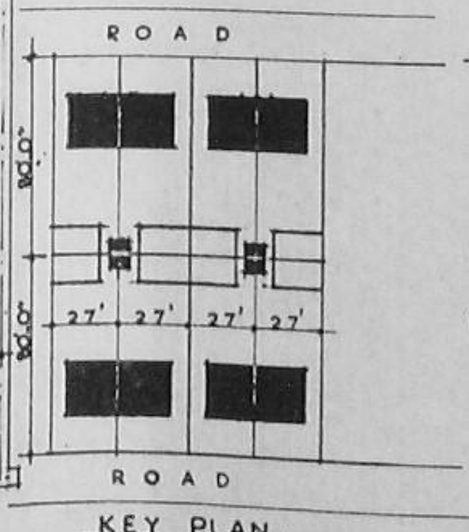
PLAN
(TWO - UNITS .)



SECTION AT A.A'
(FLAT ROOF)



SECTION AT A.A'
(PITCH ROOF)



KEY PLAN.
SCALE 64' TO AN INCH

PLINTH AREA OF ONE UNIT 373 SQ. FT.

ONE ROOMED HOUSE (B)

(SEMI DETACHED)

SCALE IN FEET 0 2 4 6 8 12 16 20

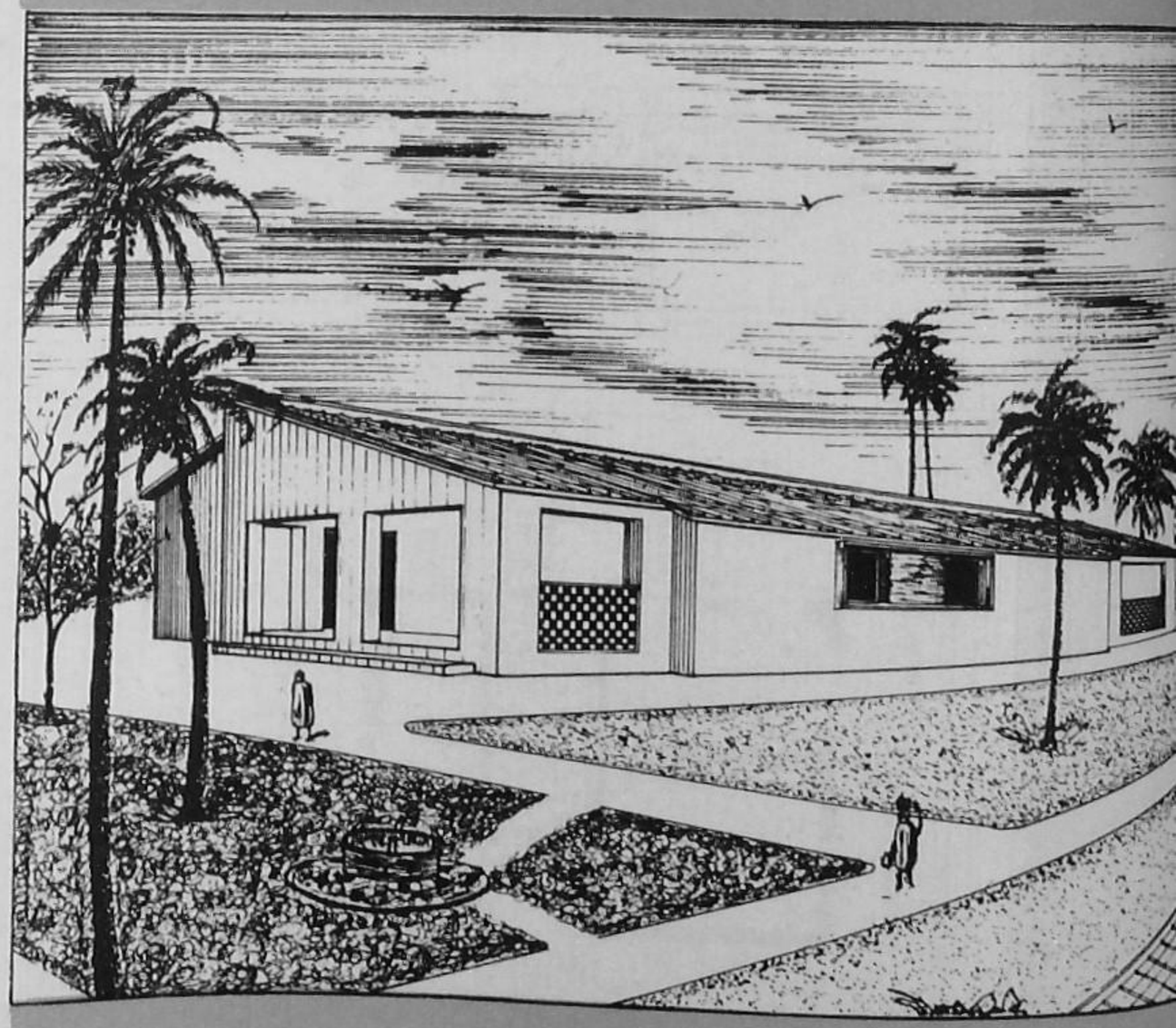
DRG. NO. 8

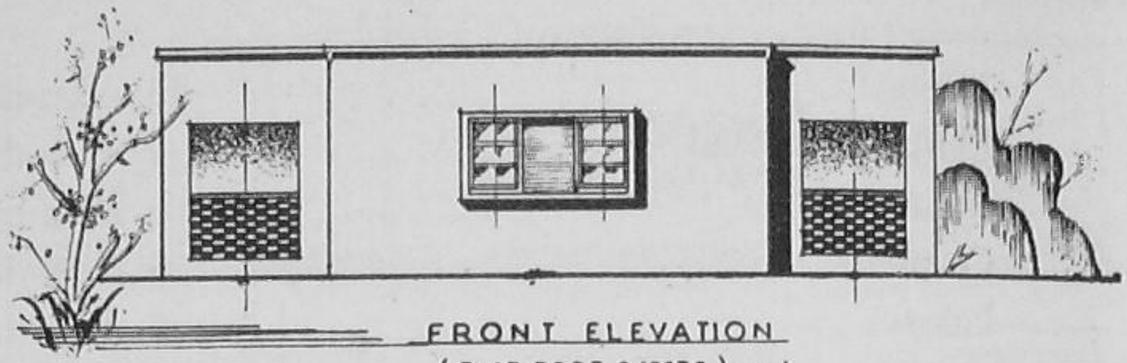
DESIGN FOR A ONE ROOMED HOUSE (C)

In hot and dry climatic areas, the design of the one-roomed house in the preceding plan may be modified as shown opposite, by re-arrangement of the room, verandah, and kitchen, to suit North-South orientation with protective verandahs on the East and the West.

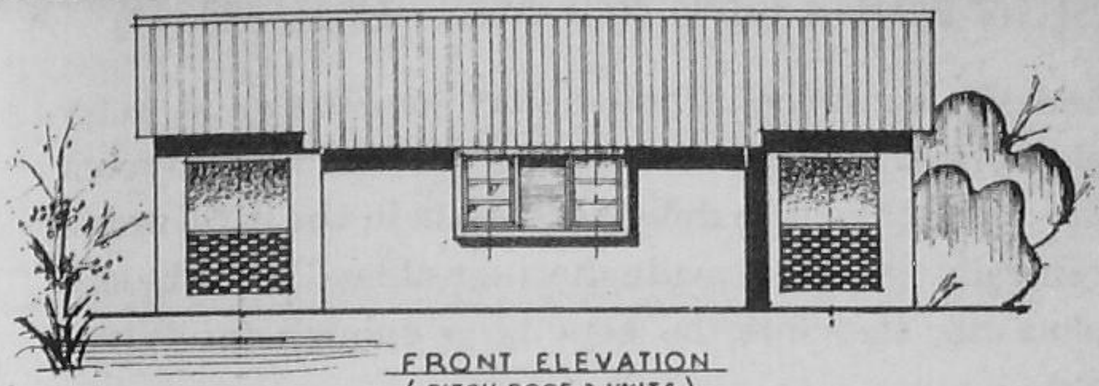
Under tropical conditions of living, a considerable amount of domestic activity is carried on in the open. Therefore, even a small rural house can provide tolerable living comfort, if it is planned and oriented with care, on a fair-sized plot of land planted with shady trees.

IN DRY HOT CLIMATE, TREE-PLANTING IS A MUST

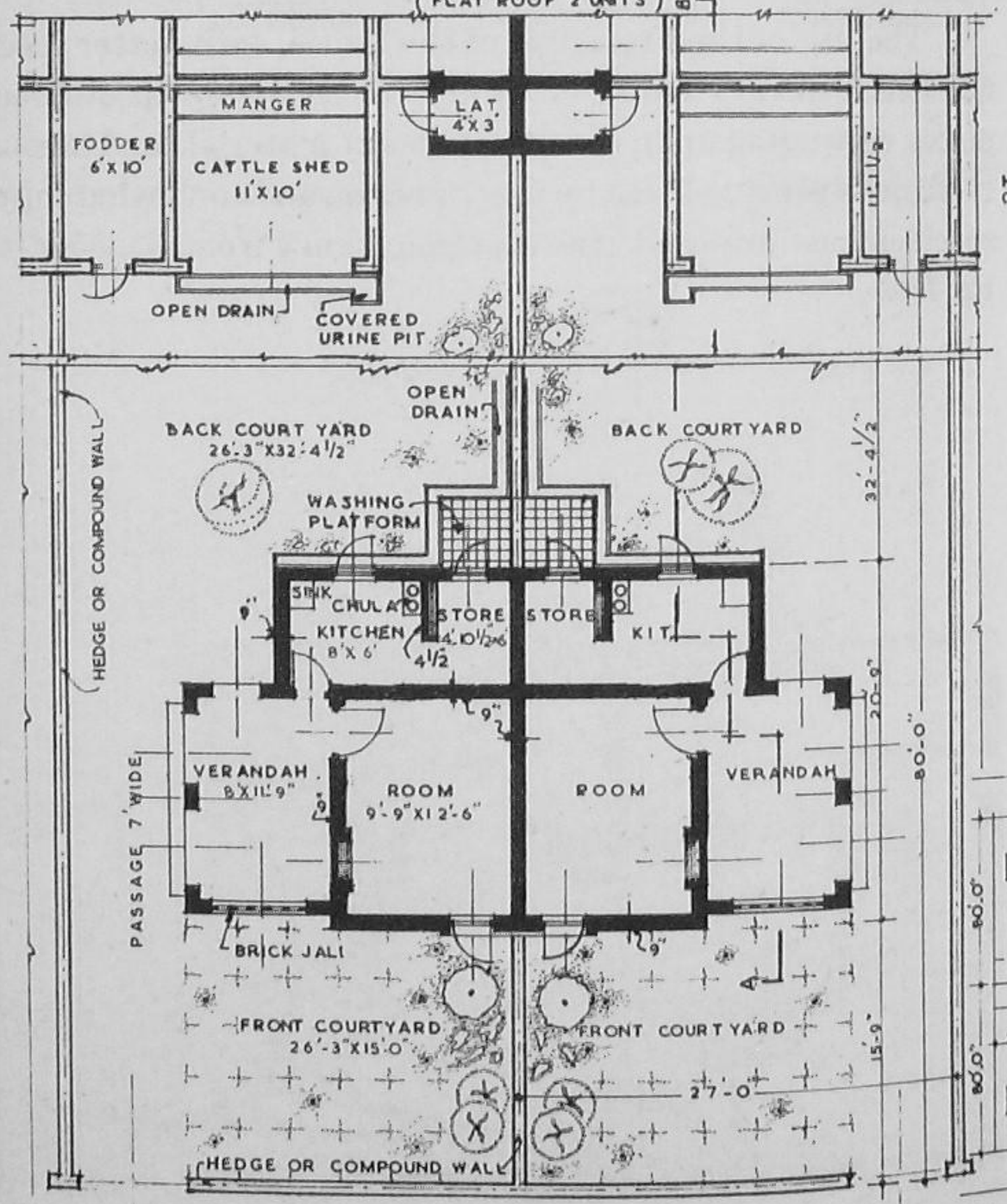




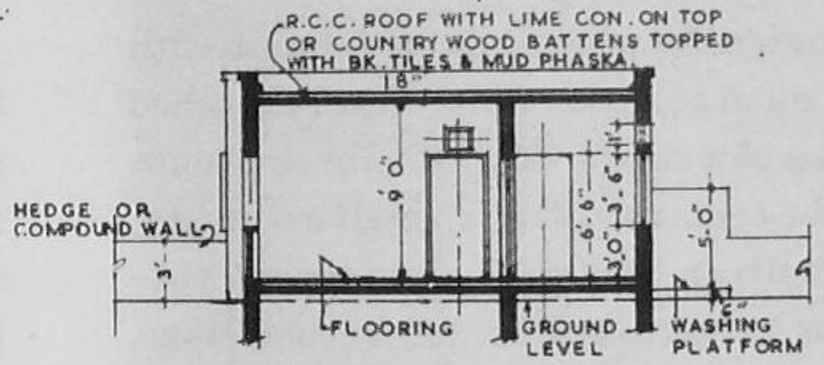
FRONT ELEVATION
(FLAT ROOF 2 UNITS)

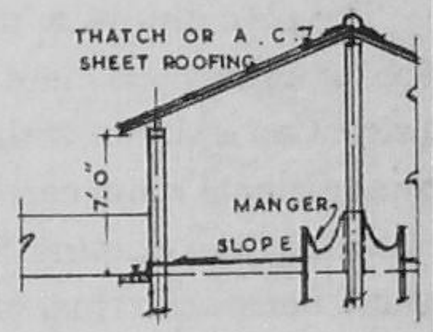


FRONT ELEVATION
(PITCH ROOF 2 UNITS)

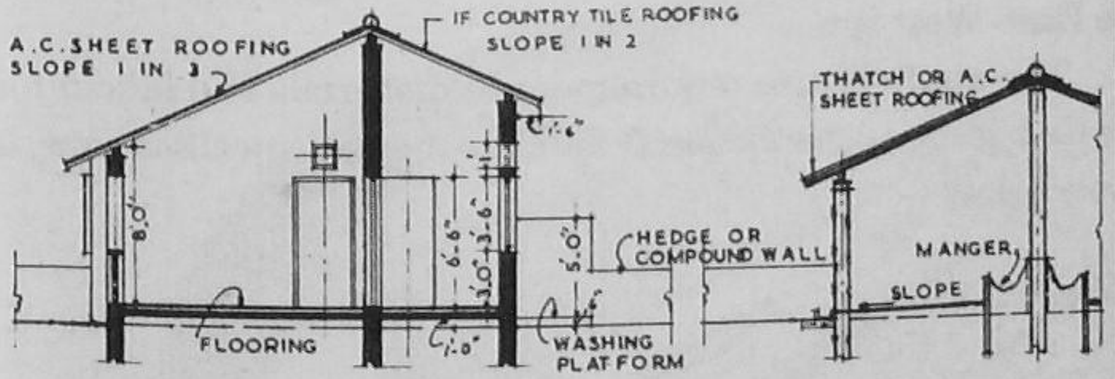


PLAN
(TWO UNITS)

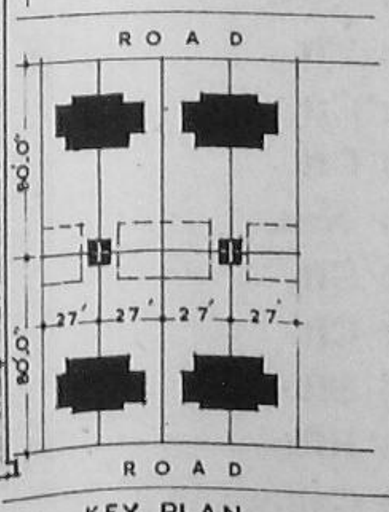




SECTION AT A.B
(FLAT ROOF)



SECTION AT A.B
(PITCH ROOF)



KEY PLAN
SCALE 64' TO AN INCH.

PLINTH AREA OF ONE UNIT 365 SQ.FT.

ONE ROOMED HOUSE ©

(SEMI DETACHED)

SCALE IN FEET 0 2 4 6 8 12 16 24

DRG. NO. 9

DESIGN FOR A ONE ROOMED HOUSE (D)

The design and layout of one-roomed houses should, as far as possible, provide for the construction of an additional room in future. It should not be difficult to do so in the rural areas, where generally there is no acute shortage of land, and the size of the plots can, therefore, be kept large enough for future expansion.

The plan shows a design for a one-roomed house with scope for adding one more room at a later date. Semi-detached construction is shown with a plot size of 32′ x 70′ for each unit. The additional room can be constructed at a small extra cost, by utilising the existing walls on two sides. A compact two-roomed house can thus be constructed in the second stage, suitable for North-South orientation in hot-dry climatic region, with minimum area of wall surfaces exposed to the hot rays of the East-West sun.

The approximate requirement of materials and labour for the first stage of the house, if built to better specifications, is given below:—

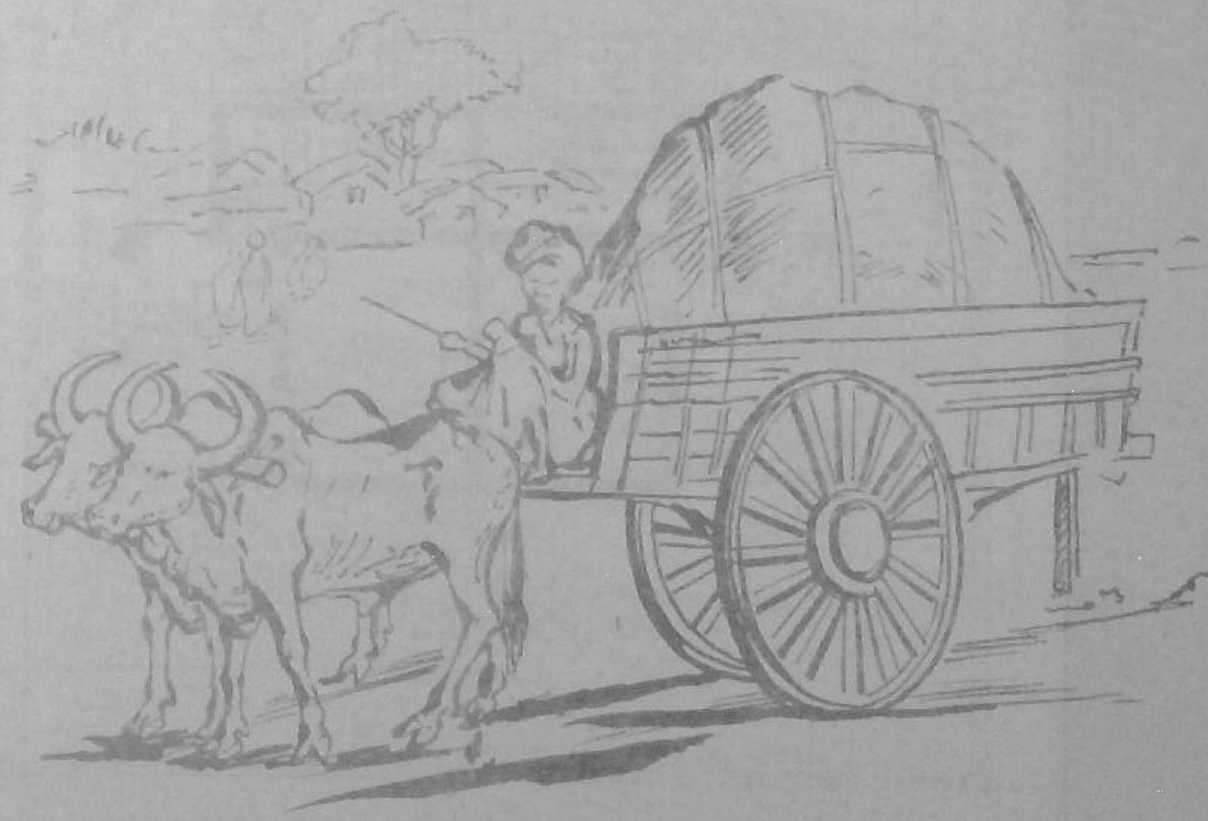
MATERIALS:

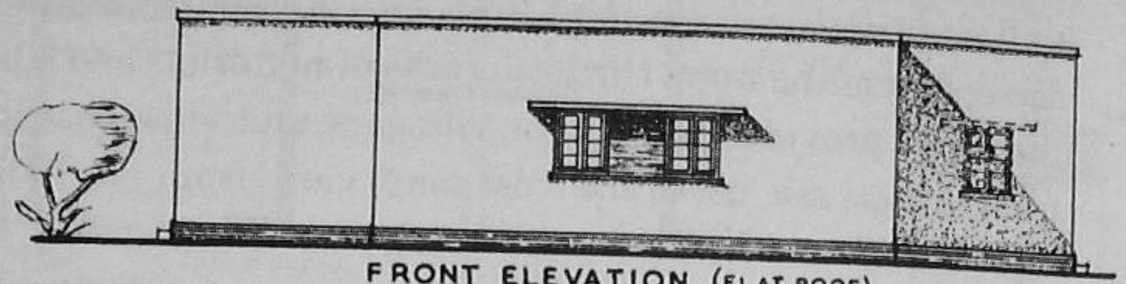
Cement	. . . . .	5 Cwt.
Lime	. . . . .	45 Cft.
Sand	. . . . .	150 Cft.
Brick ballast 1½″ gauge	. . . . .	80 Cft.
Bricks	. . . . .	11,000 Nos.
Stone ballast ½″ gauge	. . . . .	10 Cft.
Soft wood	. . . . .	22 Cft.
Roofing sheets	. . . . .	500 Sft.
Ridging	. . . . .	15 Rft.
Solignum	. . . . .	3 Gallons

LABOUR:

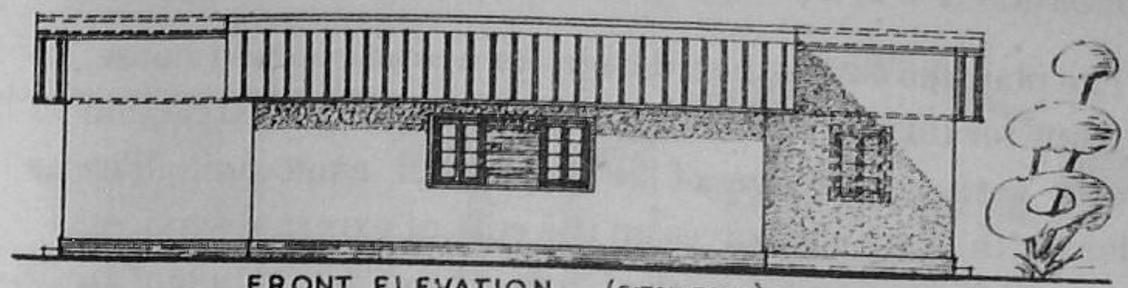
Mason	. . . . .	45 man-days.
Beldar & Coolie	. . . . .	90 man-days.
Bhisti	. . . . .	10 man-days.
Carpenter	. . . . .	16 man-days.
Painter	. . . . .	4 man-days.

The cost of the first stage of the house, with better specifications, will vary from Rs. 1100/- to Rs. 1500/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 550/- to Rs. 750/-.

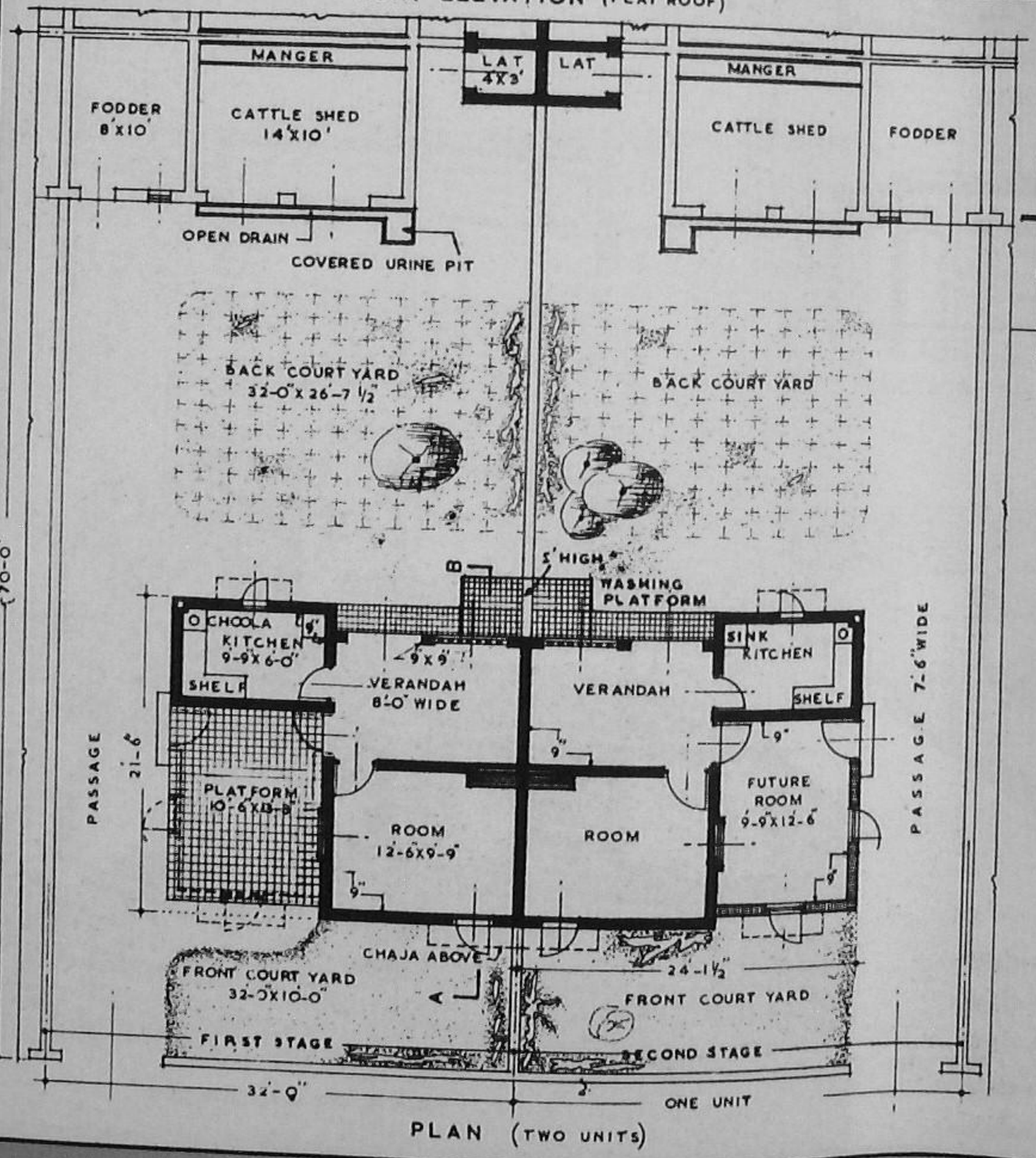




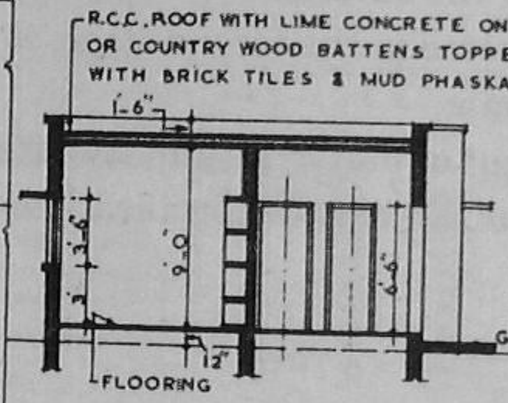
FRONT ELEVATION (FLAT ROOF)



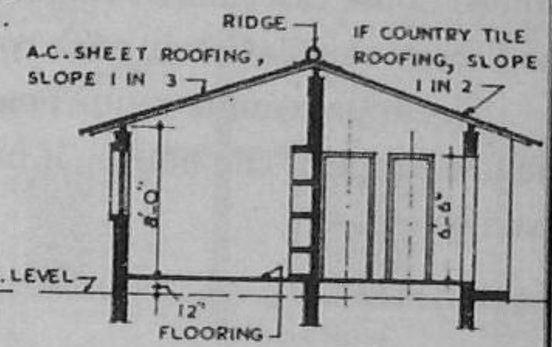
FRONT ELEVATION (PITCH ROOF)



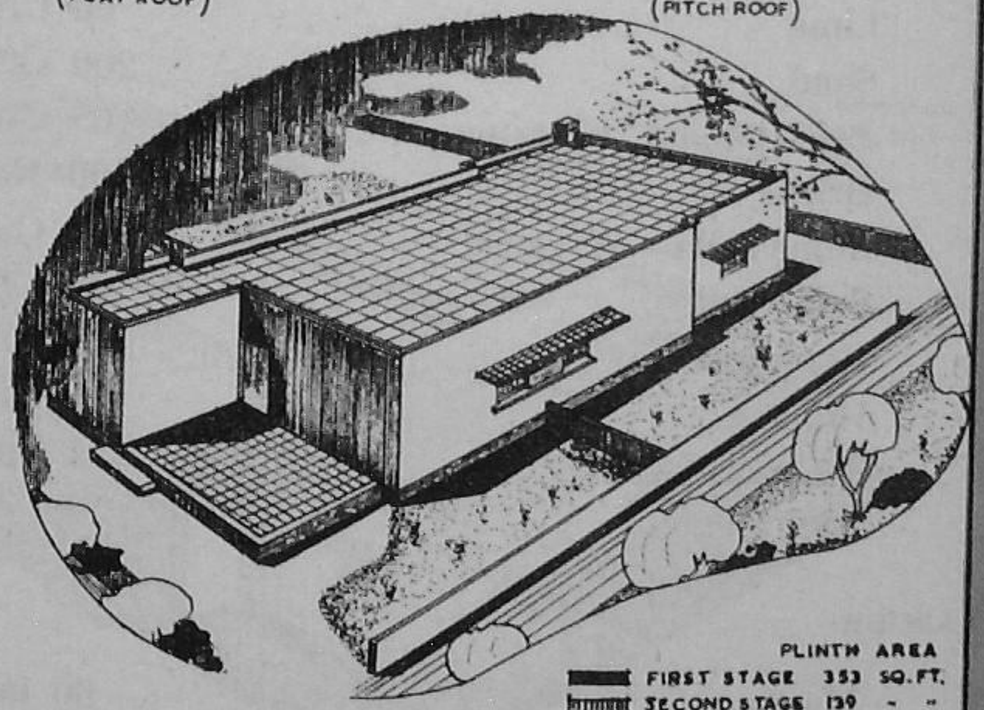
PLAN (TWO UNITS)



SECTION ON A.B. (FLAT ROOF)



SECTION ON A.B. (PITCH ROOF)



PLINTH AREA
FIRST STAGE 353 SQ.FT.
SECOND STAGE 139 - "

ONE ROOMED HOUSE (D)

(WITH FUTURE EXPANSION)

DRG NO 10

SCALE 0 2 4 6 8 12 16 24 32 IN FEET

DESIGN FOR A ONE ROOMED HOUSE (E)

The plan shows another design for a one-roomed house, with scope for future expansion. Semi-detached construction is shown with a plot size of 23′ x 100′ for each unit. The smaller width of the plot saves on the cost of external services, whereas its greater depth is suitable for the construction of an additional room in the privacy of the back courtyard. A two-roomed house can thus be constructed in the second stage, with good cross ventilation in each room.

The approximate requirement of materials and labour for the first stage of the house, if built to better specifications is given below:—

MATERIALS:

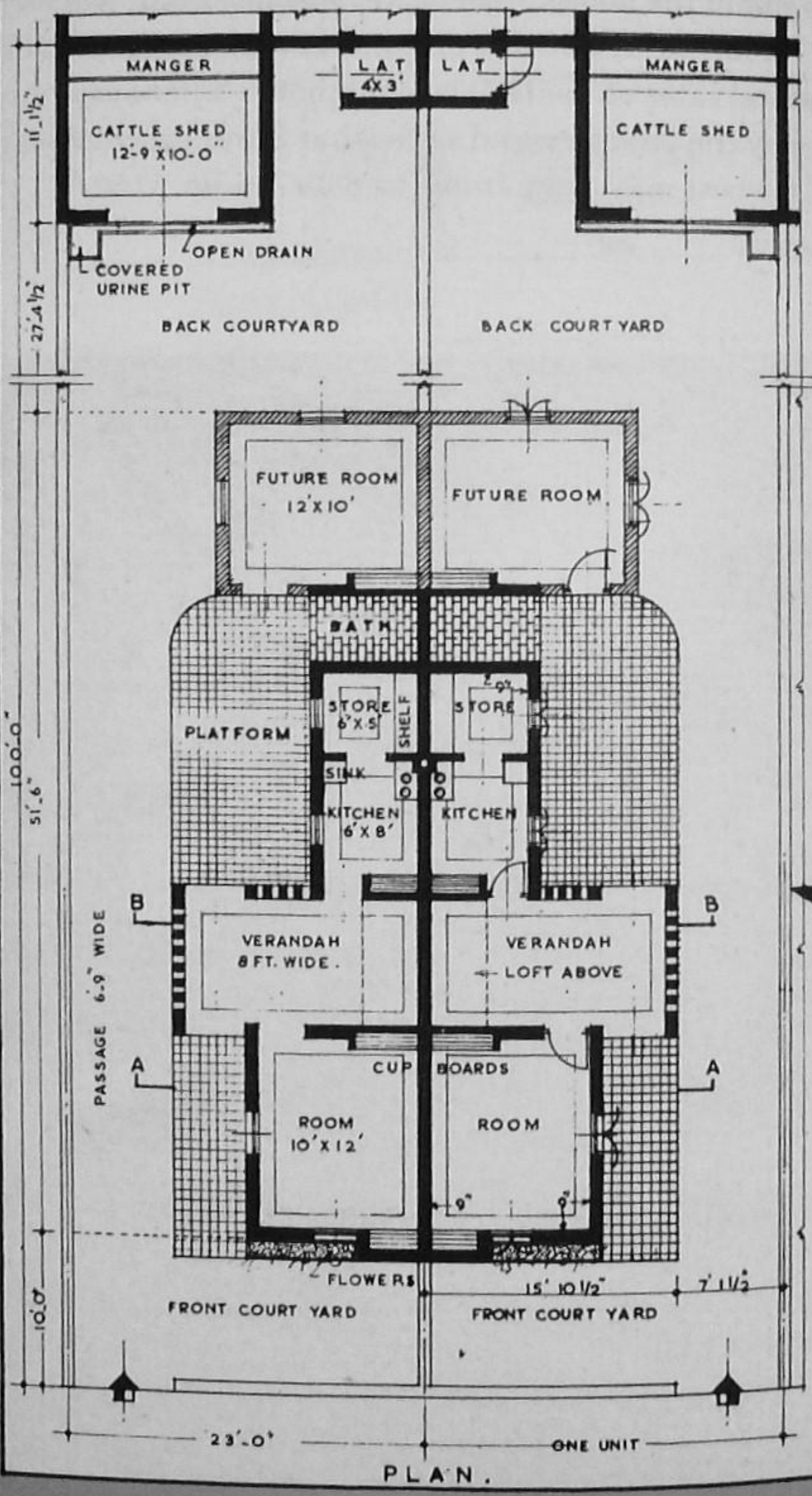
Cement	. . . . .	7 Cwt.
Lime	. . . . .	60 Cft.
Sand	. . . . .	200 Cft.
Brick ballast 1½″ gauge	. . . . .	105 Cft.
Bricks	. . . . .	14,000 Nos.
Stone ballast ½″ gauge	. . . . .	15 Cft.
Soft wood	. . . . .	25 Cft.
Roofing sheets	. . . . .	650 Sft.
Ridging	. . . . .	25 Rft.
Solignum	. . . . .	4 Gallons

LABOUR:

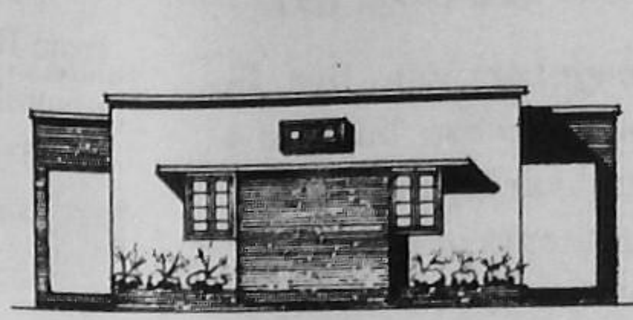
Mason	. . . . .	60 man-days.
Beldar & Coolie	. . . . .	120 man-days.
Bhisti	. . . . .	12 man-days.
Carpenter	. . . . .	18 man-days.
Painter	. . . . .	4 man-days.

The cost of the first stage of the house, with better specifications, will vary from Rs. 1400/- to Rs. 1900/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 700/- to Rs. 950/-.

NICE AND NEIGHBOURLY

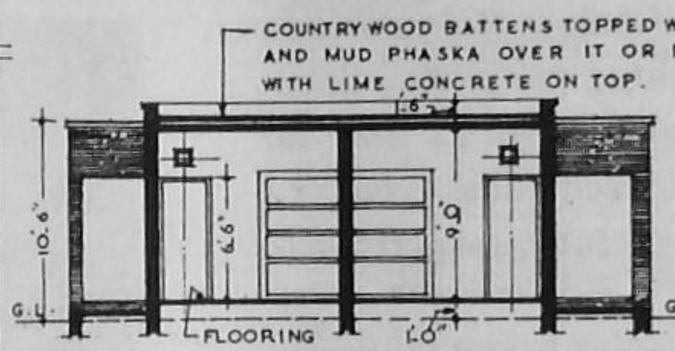


PLAN.

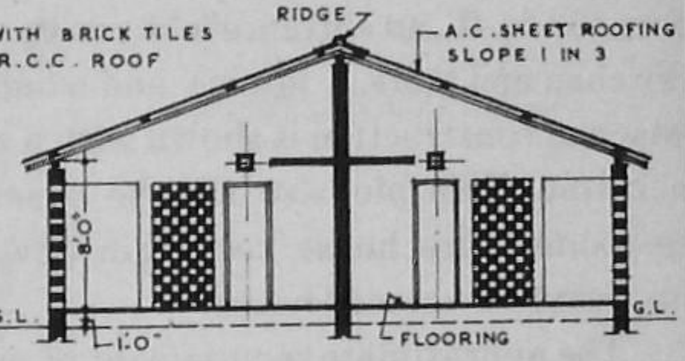


FRONT ELEVATION (FLAT ROOF)

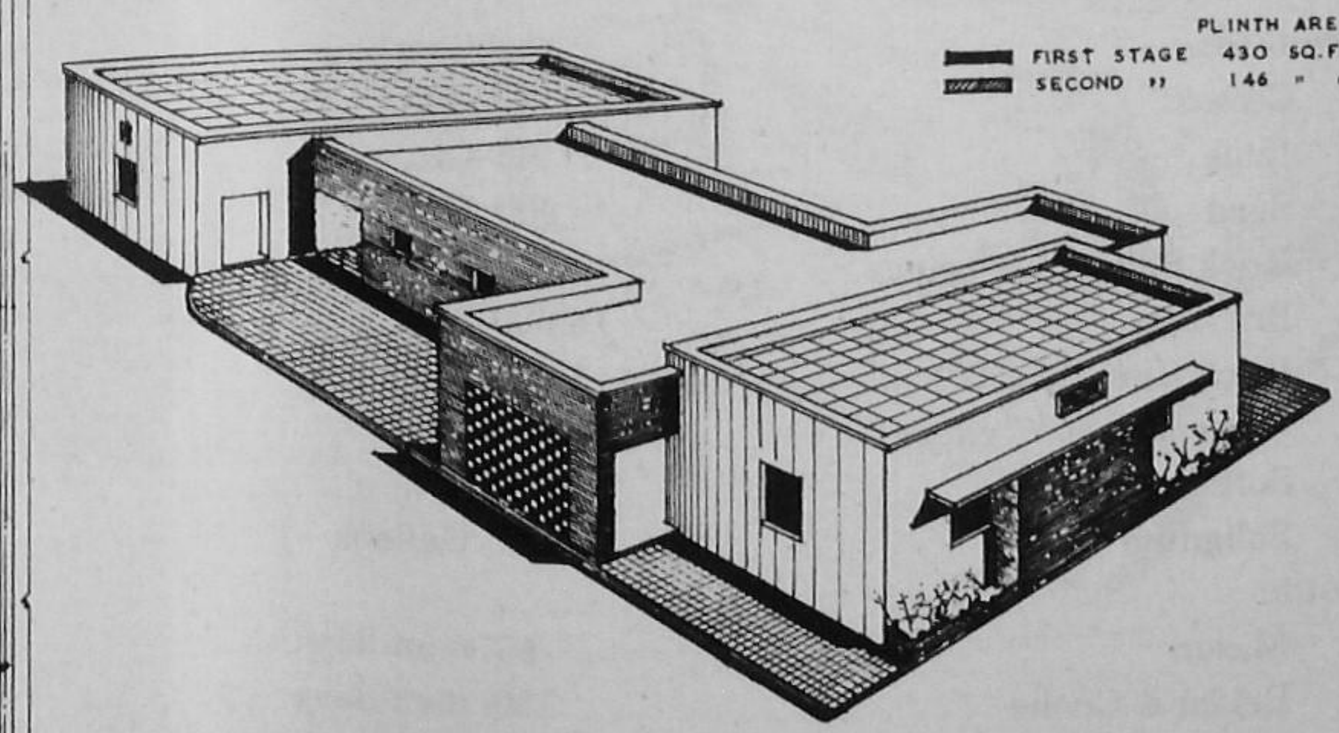
FRONT ELEVATION (PITCH ROOF)



SECTION ON A.A. (FLAT ROOF)



SECTION ON B.B. (PITCH ROOF)



ONE ROOMED HOUSE (E) (WITH FUTURE EXPANSION)

SCALE 0 4 8 12 16 24 IN FEET

DRG. NO. 11

DESIGN FOR A TWO ROOMED HOUSE (A)

A rural family of four to five members can live in reasonable comfort in a modest two-roomed house, built on a fair-sized plot with sufficient land for courtyards, cattle-shed, fodder and grain stores, and other requirements of village life. A design for such a house, having a floor area of 417 sq.ft., is shown in the plan opposite. It has one room 120 sq. ft., another room 102 sq. ft., an entrance lobby in the front, a rear verandah, a kitchen and store, a latrine and a bathing platform. Semi-detached construction is shown with a plot size of 32′ x80′ for each unit. This plot size may be considered ideal even for a one-roomed rural house, keeping in view its future expansion to a modest two -roomed house.

The approximate requirement of materials and labour for the two-roomed house, if built to better specifications, is given below:—

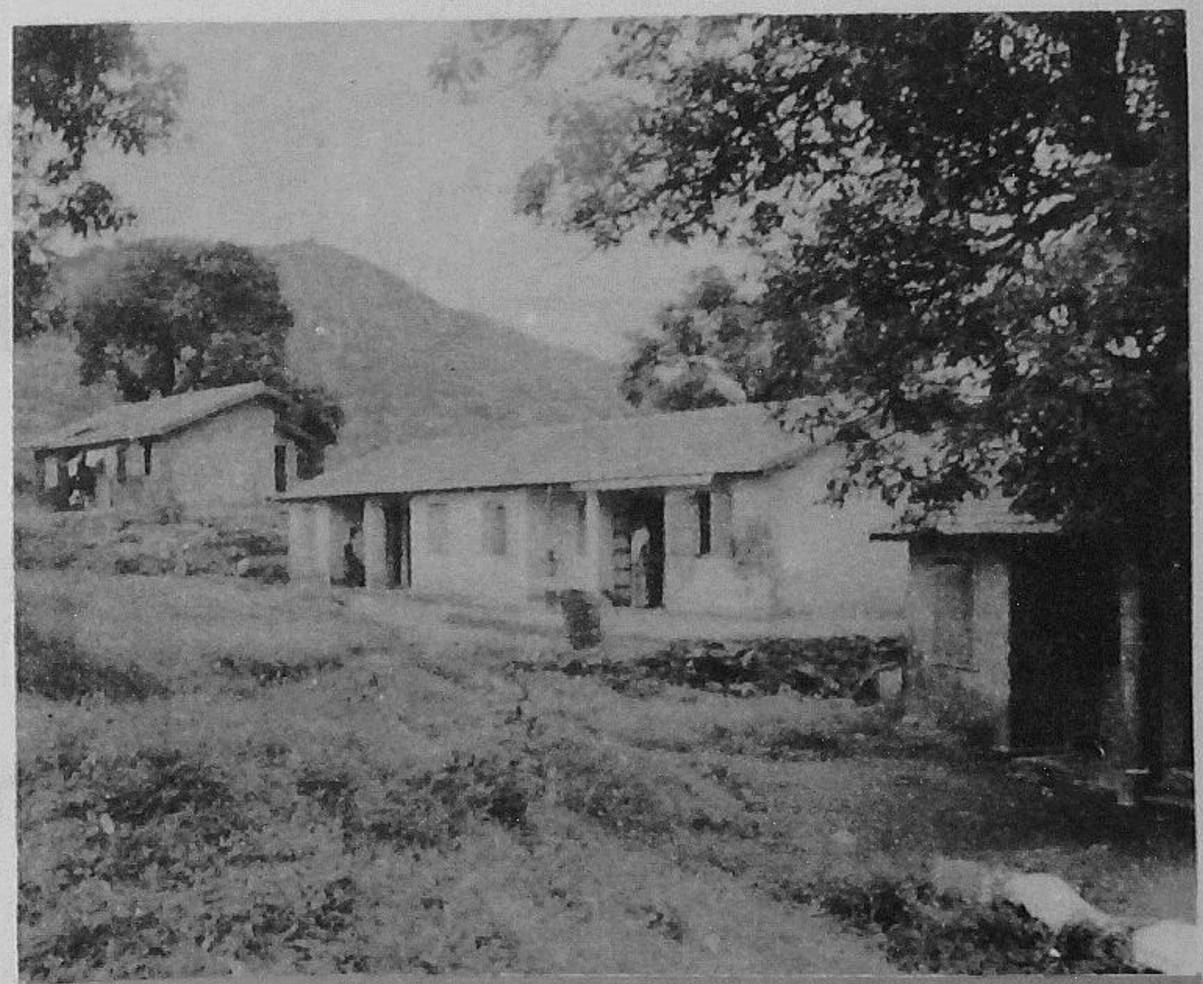
MATERIALS:

Cement	. . . . .	8 Cwt.
Lime	. . . . .	65 Cft.
Sand	. . . . .	200 Cft.
Brick Ballast 1½″ gauge	. . . . .	160 Cft.
Bricks	. . . . .	15,000 Nos.
Brick tiles 12″x 6″x 2″	. . . . .	1,000 Nos.
Stone ballast ½″ gauge	. . . . .	15 Cft.
Soft wood	. . . . .	60 Cft.
Solignum	. . . . .	4 Gallons

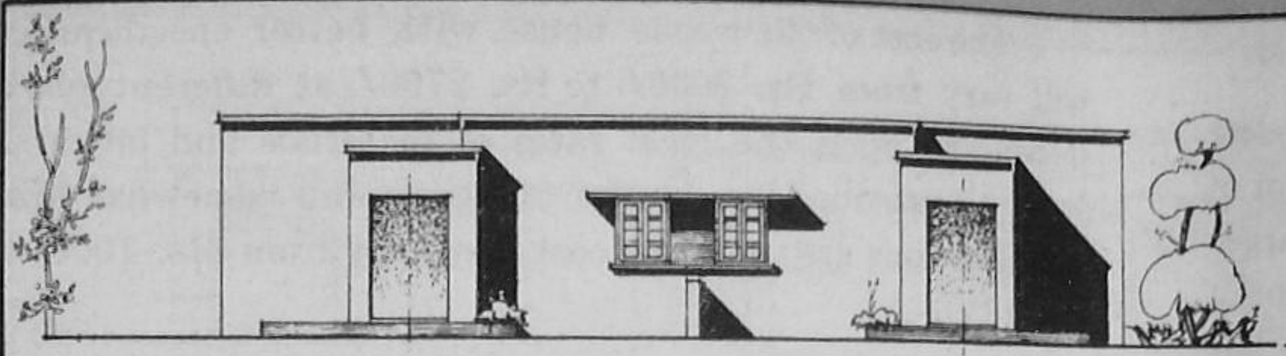
LABOUR:

Mason	. . . . .	65 man-days.
Beldar & Coolie	. . . . .	130 man-days.
Bhisti	. . . . .	15 man-days.
Carpenter	. . . . .	30 man-days.
Painter	. . . . .	5 man-days.

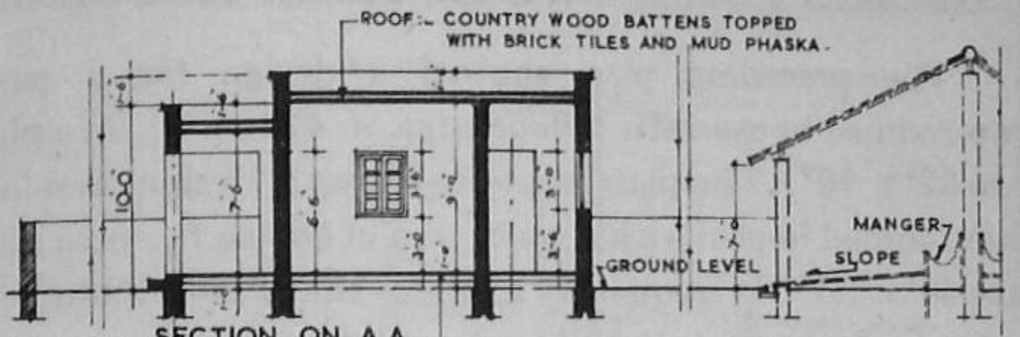
The cost of the house, with better specifications, will vary from Rs. 1700/- to Rs. 2300/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 850/- to Rs. 1150/-.



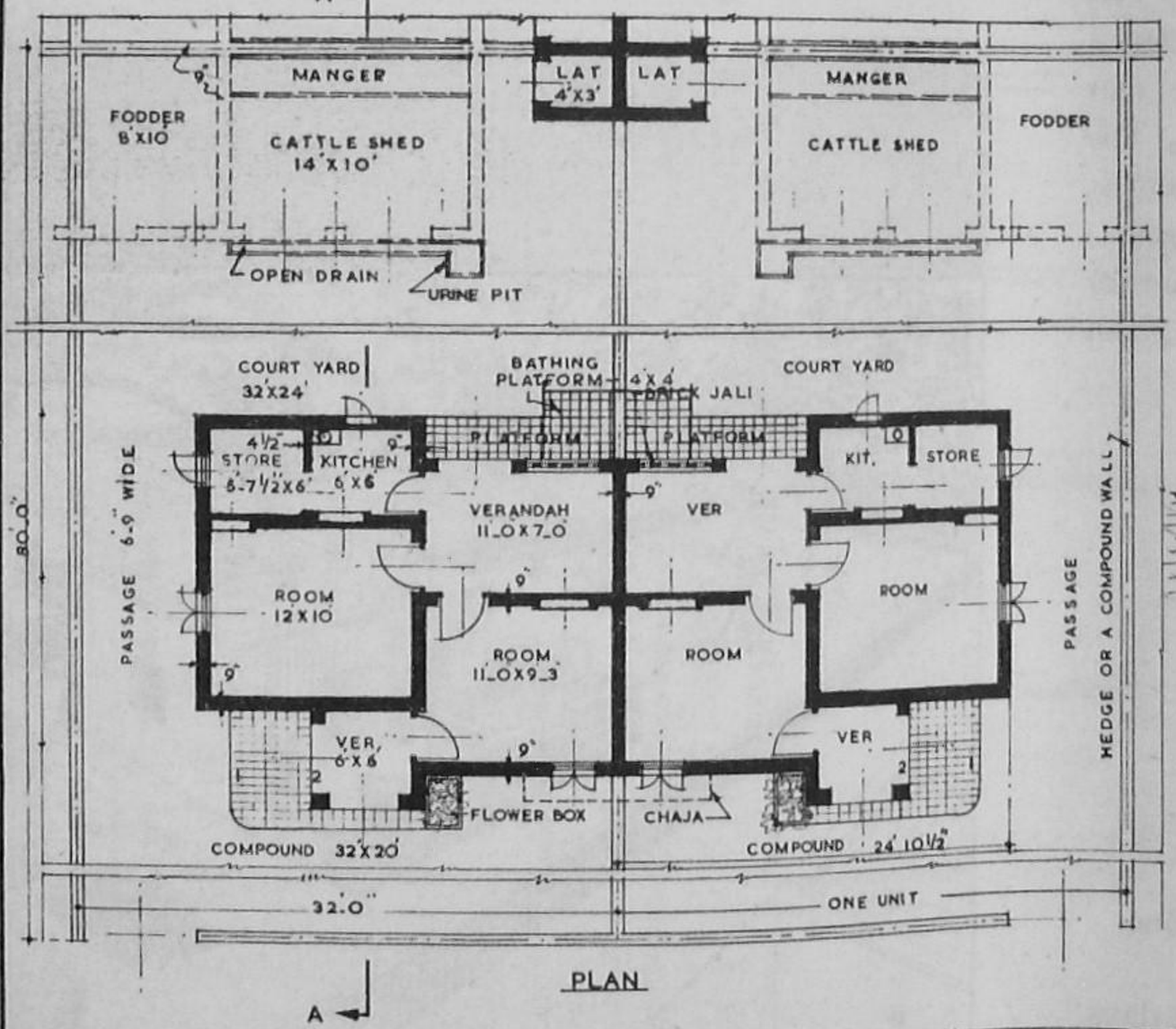
SLOPING ROOFS BLEND WITH THE BACKGROUND



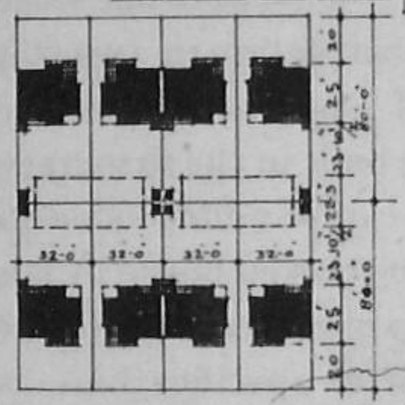
FRONT ELEVATION



SECTION ON A.A.

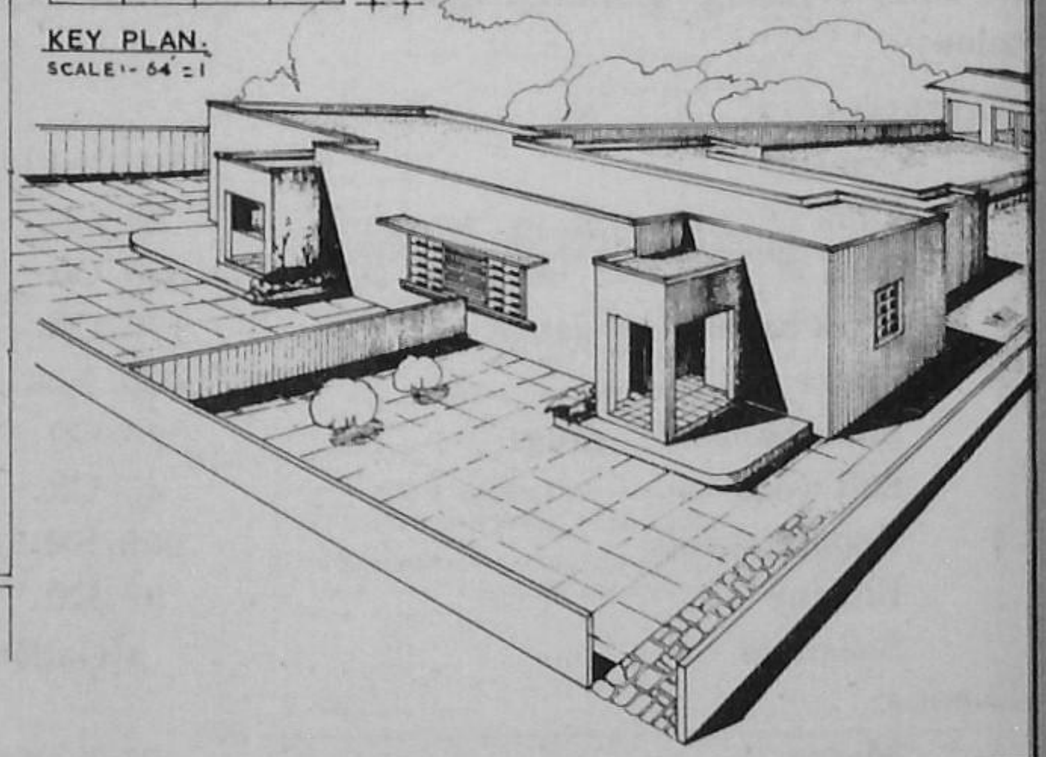


PLAN



PLINTH AREA = 507 SQ. FT.

KEY PLAN.
SCALE :- 64' = 1"



TWO ROOMED HOUSE (A)

(SEMI DETACHED)

DRG. NO 12

SCALE 0 4 8 12 16 24 32 IN FEET

DESIGN FOR A TWO ROOMED HOUSE (B)

The preceding plan showed a design for a modest two-roomed house with a floor area of 417 sq. ft. on a plot of size 32′ x 80′. The plan opposite shows a design for a larger two-roomed house with a floor area of 500 sq.ft., on a plot of size 40′ x 90′. It frequently happens that a rural family has not enough resources to build so large a house in one stage. The design, therefore, provides for construction in two stages. A part of the house comprising of one room, kitchen, rear verandah, bath and latrine, can be built in the first stage. The end room and the front verandah can be added subsequently, thus completing a comfortable two-roomed house by stages.

The approximate requirement of materials and labour for the complete house, if built to better specifications, is given below:—

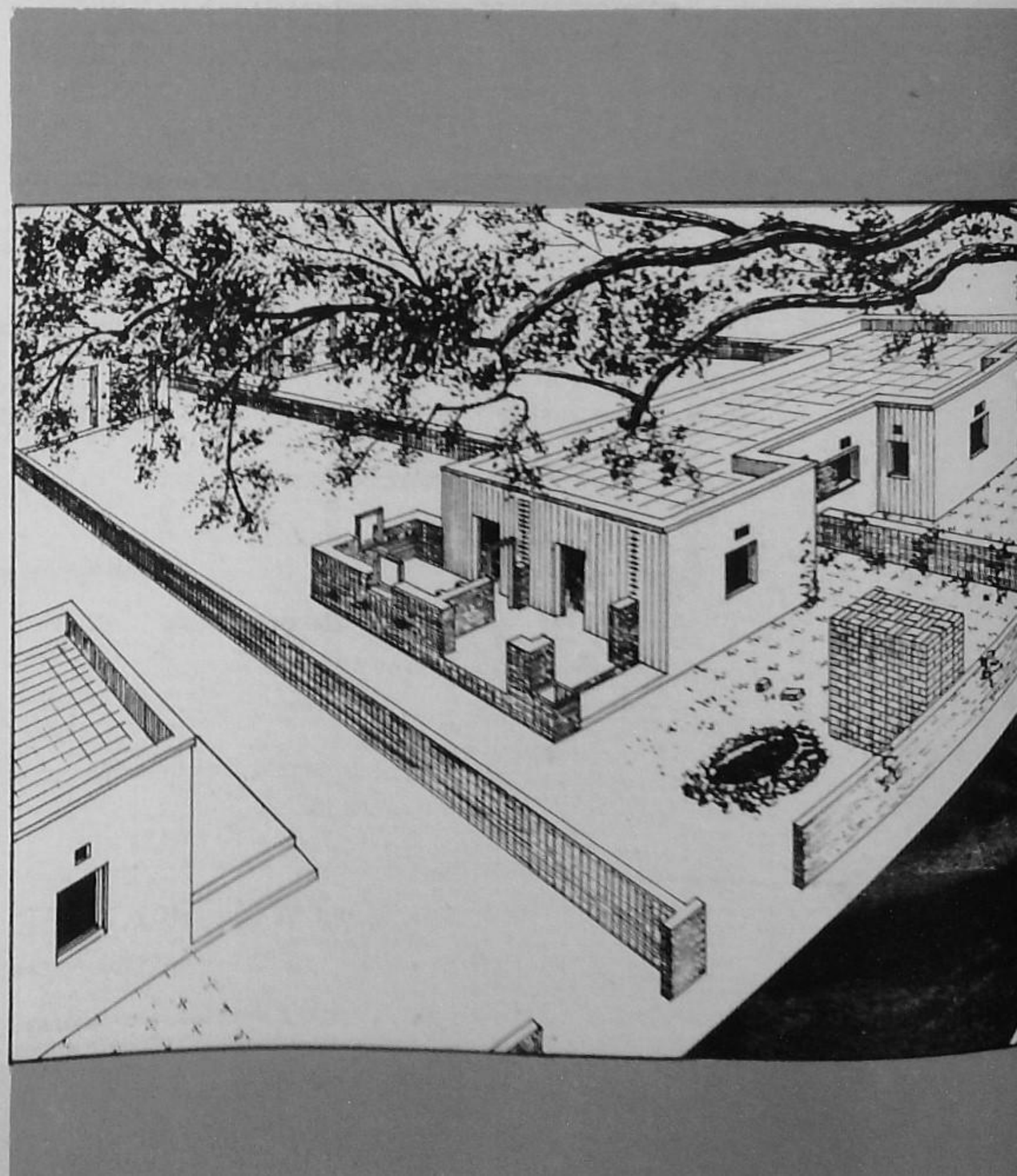
MATERIALS:

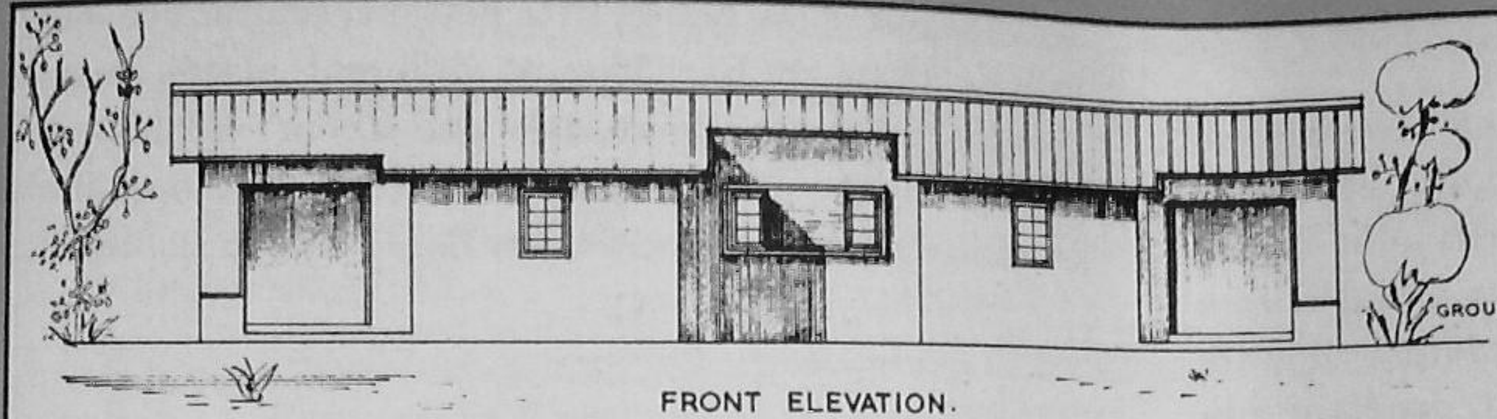
Cement	10 Cwt.
Lime	80 Cft.
Sand	300 Cft.
Brick ballast 1½″ gauge	170 Cft.
Bricks	19,000 Nos.
Stone ballast ½″ gauge	20 Cft.
Soft wood	45 Cft.
Roofing sheets	900 Sft.
Ridging	32 Rft.
Solignum	4 Gallons

LABOUR:

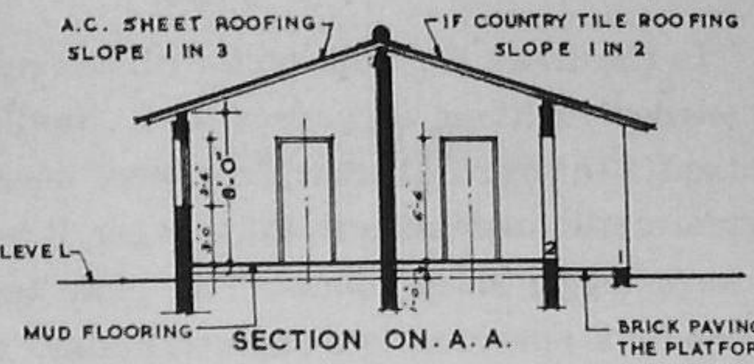
Mason	75 man-days.
Beldar & Coolie	150 man-days.
Bhisti	15 man-days.
Carpenter	30 man-days.
Painter	6 man-days.

The cost of the whole house, with better specifications, will vary from Rs. 2000/- to Rs. 2700/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 1000/- to Rs. 1350/-.

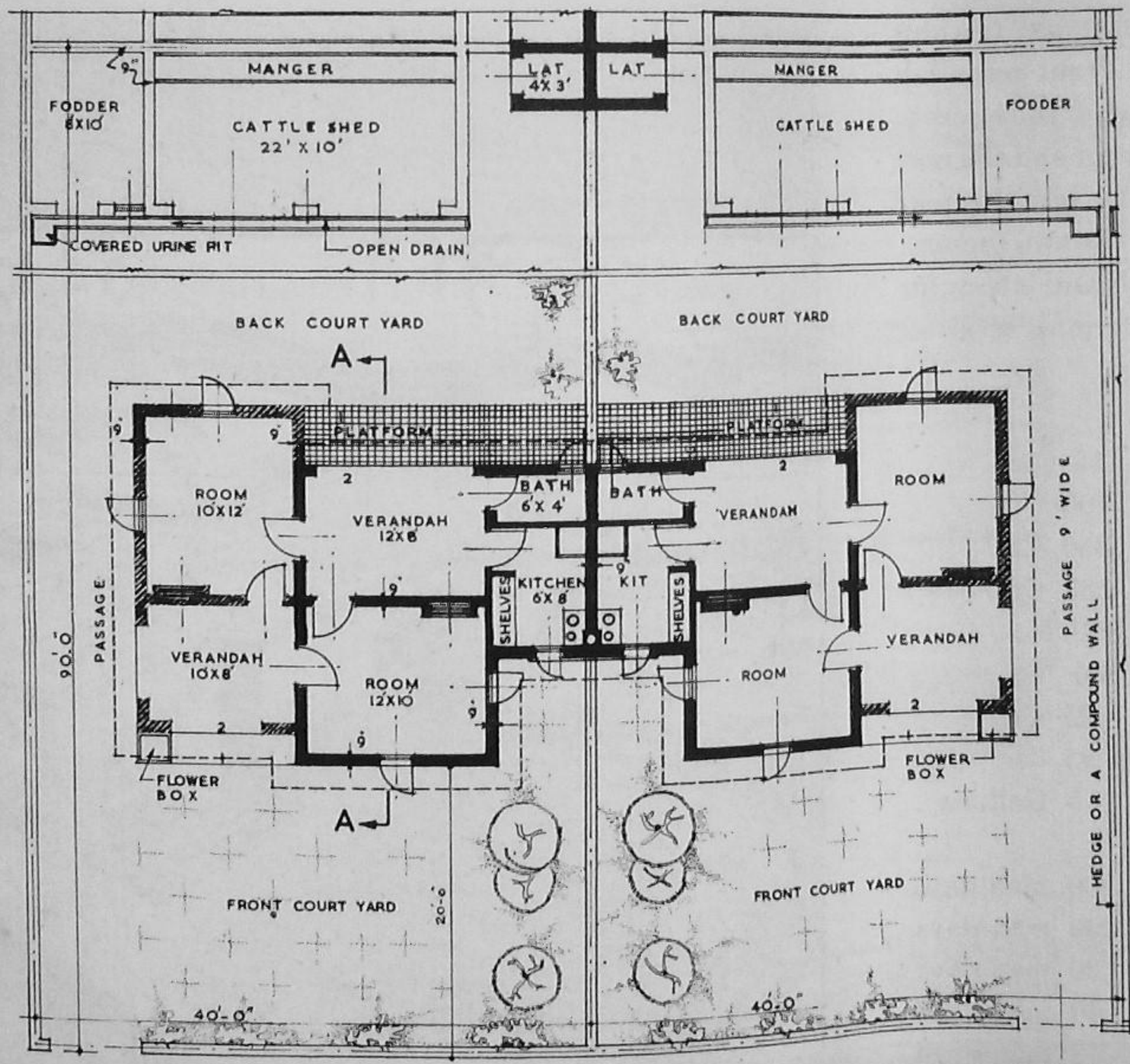




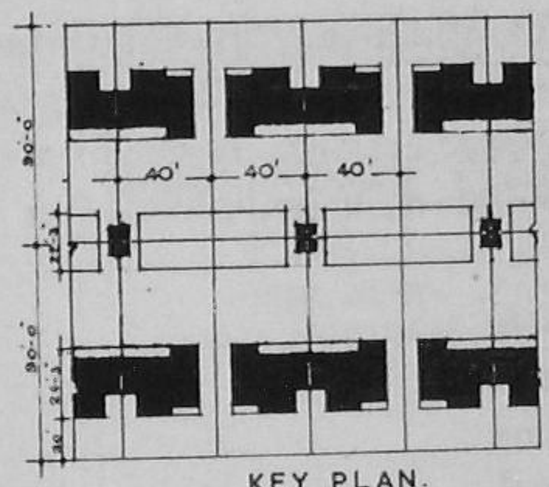
FRONT ELEVATION.



SECTION ON. A. A.



PLAN



KEY PLAN.

SCALE:- 64 FEET TO AN INCH.

NOTE:—

1. FIRST STAGE SHOWN THUS ———
2. SECOND STAGE SHOWN THUS ———
3. PLINTH AREA OF THE FIRST STAGE 363 SQ.FT.
4 " " " " SECOND " 242 " "

TWO ROOMED HOUSE Ⓑ

(BY STAGES)

SCALE 0 4 8 12 16 24 32 IN FEET

DRG NO. 13

DESIGN FOR A TWO ROOMED HOUSE (C)

In the urban areas, families with low incomes have become reconciled to living in houses with small rooms of 100 to 120 sq.ft. In the rural areas, however, where the joint family system is still predominant, the villager, if he can afford it, likes to have bigger sized rooms. The plan accordingly shows a design for a spacious two-roomed house, with rooms of size about 150 sq.ft. As in the preceding design, this house can also be built in two stages, the end room and the front verandah being built in the second stage. Another feature of the house is the direct inter-communication between the front and the rear verandahs. This arrangement facilitates entry into the rear part of the house without disturbing either of the two rooms.

The approximate requirement of materials and labour for the whole house, if built to better specifications, is given below:—

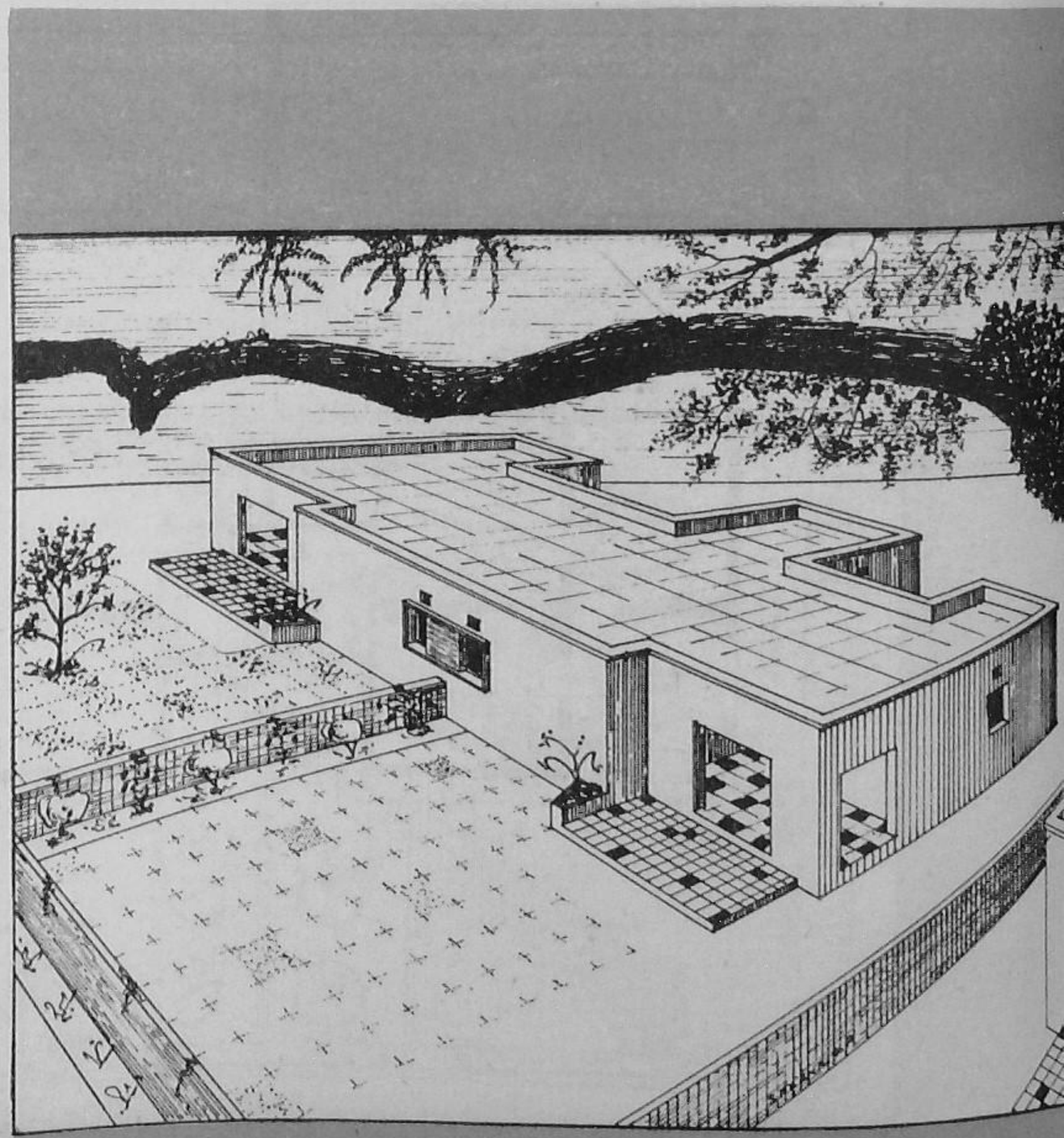
MATERIALS:

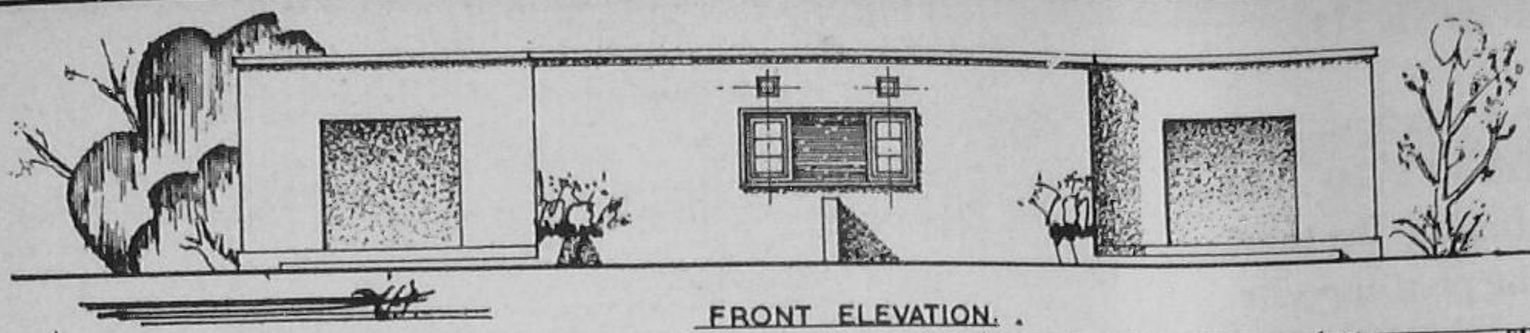
Cement	. . . . .	13 Cwt.
Lime	. . . . .	100 Cft.
Sand	. . . . .	350 Cft.
Brick ballast 1½" gauge	. . . . .	180 Cft.
Bricks	. . . . .	25,000 Nos.
Brick tiles 12" x 6" x 2"	. . . .	1,500 Nos.
Stone ballast ½" gauge	. . . . .	25 Cft.
Soft wood	. . . . .	85 Cft.
Solignum	. . . . .	5 Gallons

LABOUR:

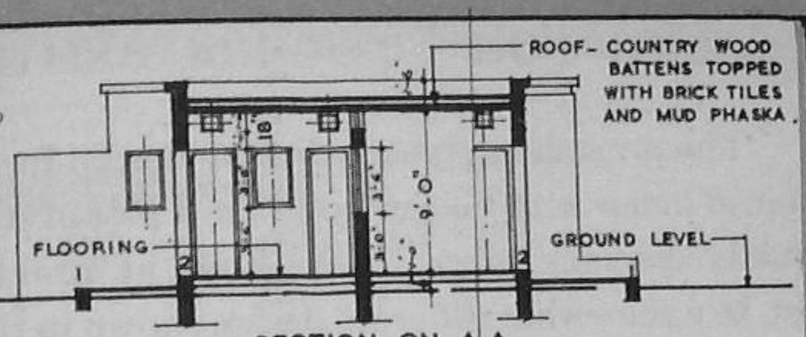
Mason	. . . . .	100 man-days.
Beldar and Coolie	. . . . .	200 man-days.
Bhisti	. . . . .	20 man-days.
Carpenter	. . . . .	40 man-days.
Painter	. . . . .	8 man-days.

The cost of the house, with better specifications, will vary from Rs. 2500/- to Rs. 3300/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 1250/- to Rs. 1650/-.

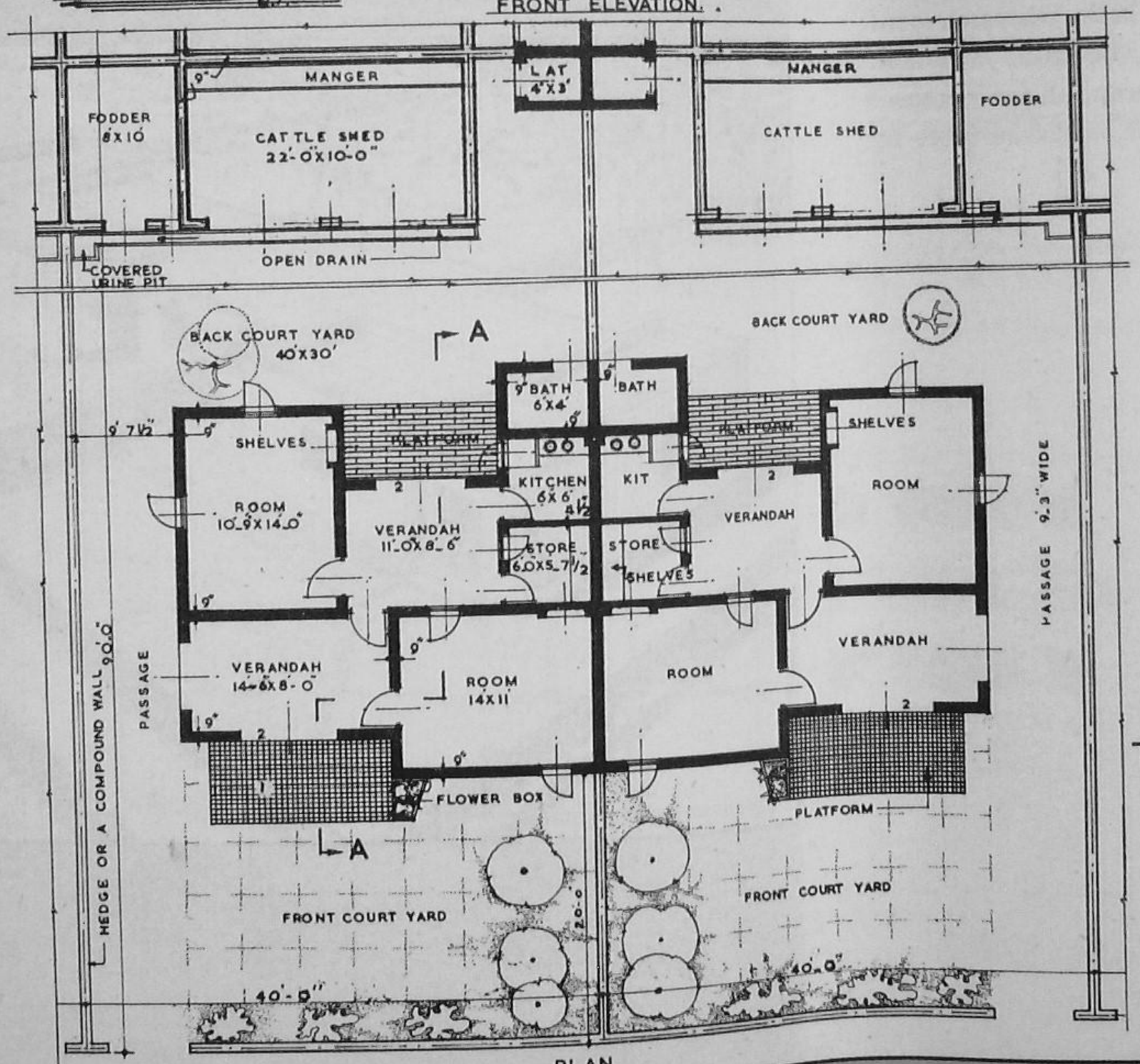




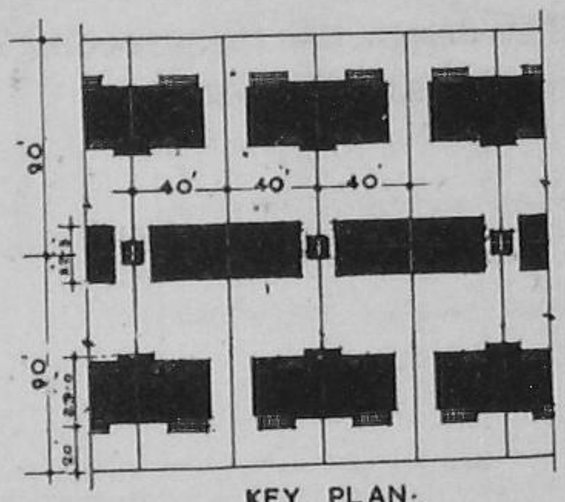
FRONT ELEVATION.



SECTION ON A.A.



PLAN



KEY PLAN.

SCALE:- 64 FEET TO AN INCH.

PLINTH AREA = 741· SQ. FEET

TWO ROOMED HOUSE ©

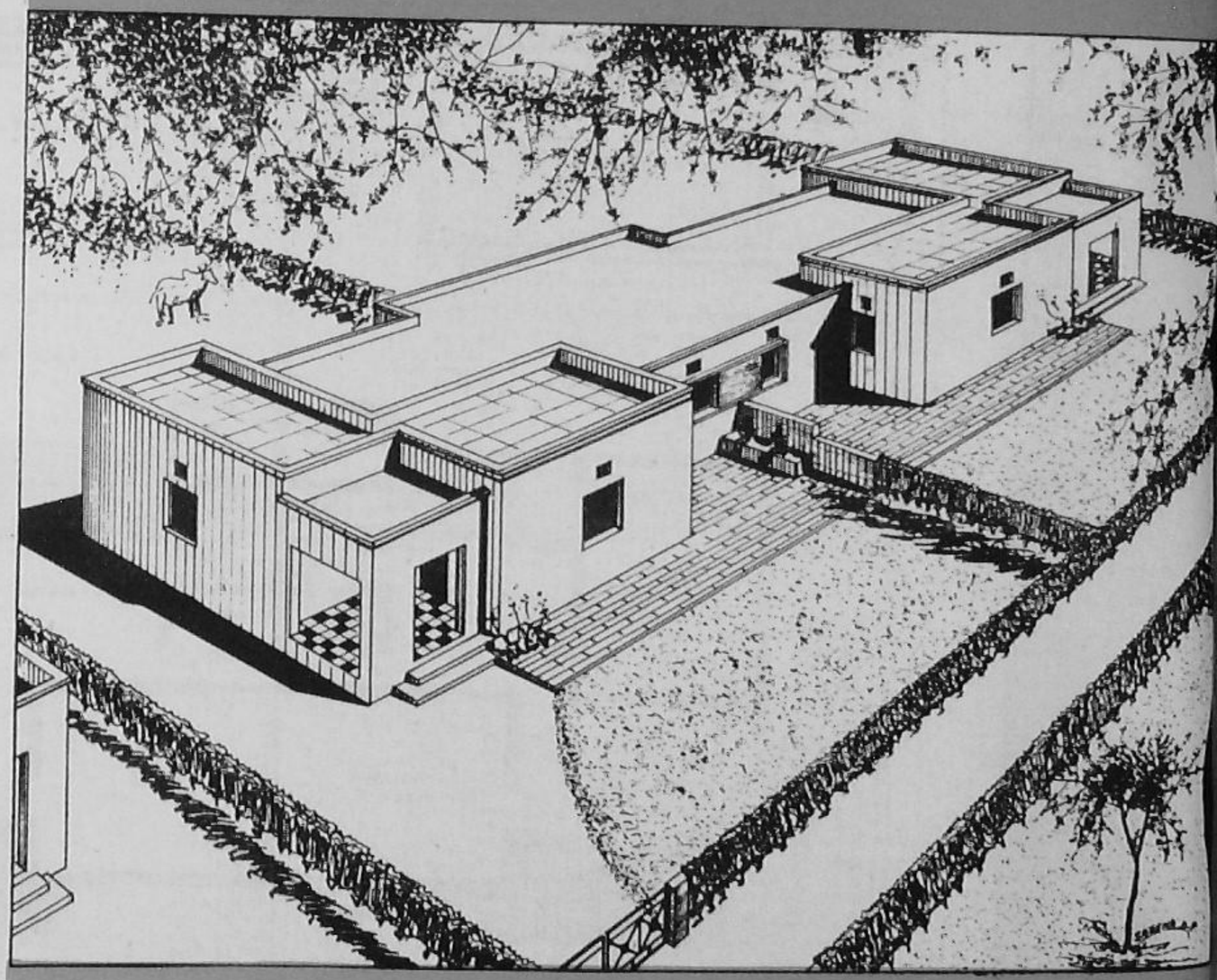
(SEMI DETACHED)

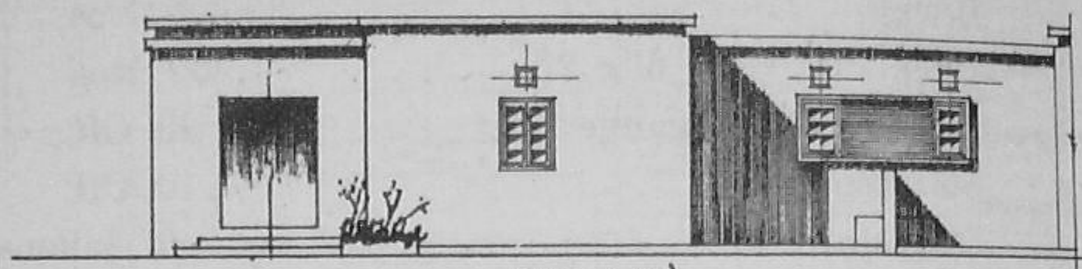
SCALE 0 2 4 6 8 12 16 24 IN FEET.

DRG.NO.14

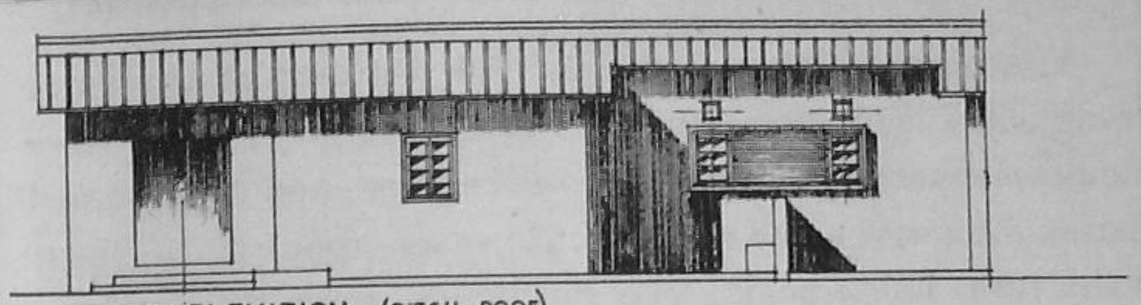
DESIGN FOR A TWO ROOMED HOUSE (D)

The preceding plan showed a design for a spacious two-roomed house with bigger rooms, on a plot of size 40′ x 90′. An equally spacious house can be built, at practically the same cost, to a somewhat different design shown in the plan opposite. The plot size is changed to 45′x80′ and a little rearrangement is effected in the house plan, whereby the front verandah is reduced and the kitchen and the rear verandah are increased in size. This design, like the preceding one, is also suitable for building the house in two stages.

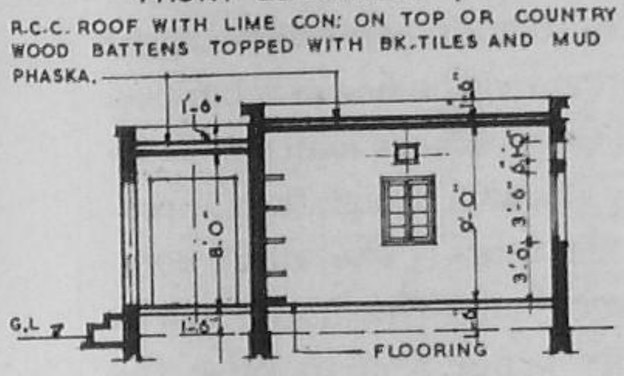




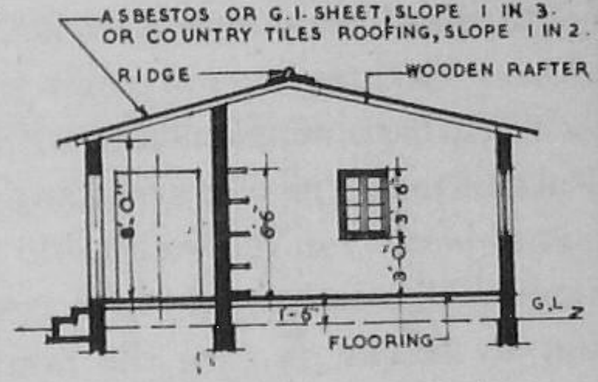
FRONT ELEVATION. (FLAT ROOF)



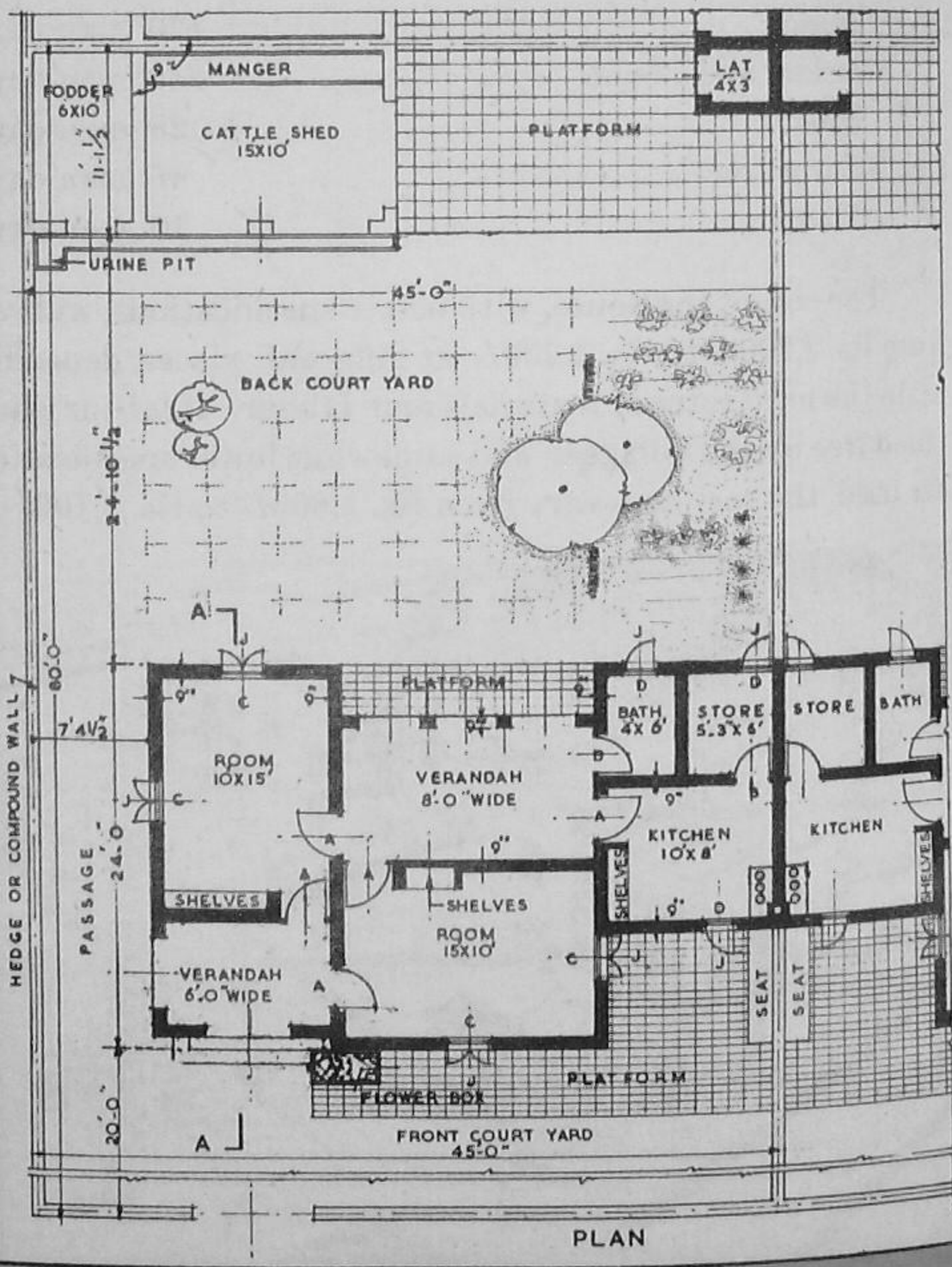
FRONT ELEVATION. (PITCH ROOF)



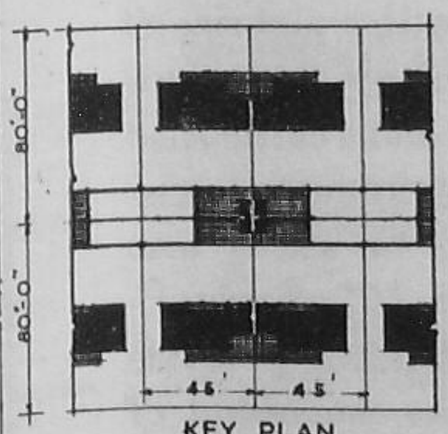
SECTION ON. A.A. (FLAT ROOF)



SECTION ON. A.A (PITCH ROOF)



PLAN



KEY PLAN

SCALE 1-64 FEET TO AN INCH

SCHEDULE OF DOORS AND WINDOWS

TYPE	DESCAIPTION	SIZES
A	DOOR BATTENED & BRACED SINGLE HUNG	3'0 X 6'-6"
B	DOOR BATTENED & BRACED SINGLE HUNG	2'-6X6'-6"
C	WINDOW HALF GLAZED & HALF PANELLED DOUBLE HUNG	2'-9X3'-6"
D	WINDOW HALF GLAZED & HALF PANELLED SINGLE HUNG	2'-0X3'-0"
J	CONCRETE OR STONE JALI	1'-0X1'-0"

PLINTH AREA = 757 SQ FEET.

TWO ROOMED HOUSE (D)

(SEMI DETACHED)

SCALE 0 4 8 12 16 24 IN FEET

DRG.NO.15

DESIGN FOR A THREE ROOMED HOUSE (A)

The monthly income of about 80 per cent of the rural house-holds is much below Rs. 150/-, and they hardly have enough resources to build small one-roomed and two-roomed houses, even with aided-self-help. However, about 20 per cent of the rural house-holds, who earn more than Rs. 150/-per month, may have sufficient resources to build somewhat bigger houses with three or more rooms, provided the house is built on a self-help basis, supplemented with Government loan and technical guidance. The plan accordingly shows a design for a three-roomed house for the well-to-do sections of the rural community. The design, however, is such that the house can be built by stages, in case the family is not able to raise the required resources all at one time.

The house consists of two fairly big rooms, one small room, a kitchen, a store, front and rear verandahs, a bath room and a latrine. The construction is semi-detached, with a plot size of 50′x 100′ for each unit. The plot is big enough to provide spacious courtyards in the front and the rear, and a cattle-shed together with a fodder store sufficiently away from the house. The front courtyard 25′x 50′ provides space for use by men and children, whereas the rear courtyard 32′ x 50′ affords privacy for women and is useful in several other ways. A side passage of about 10′ width is provided for the movement of carts and cattle from the front to the rear, thereby eliminating the back lanes.

The approximate requirement of materials and labour for the house, if built to better specifications, is given below:–

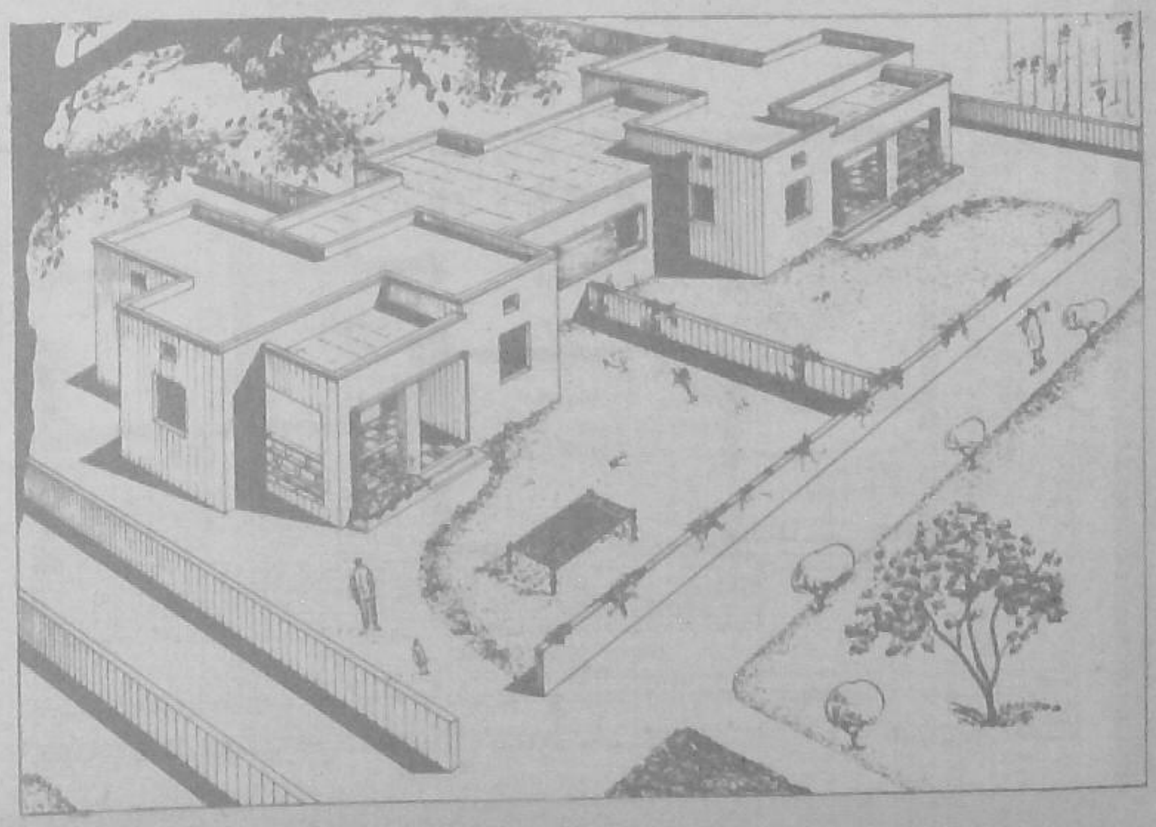
MATERIALS:

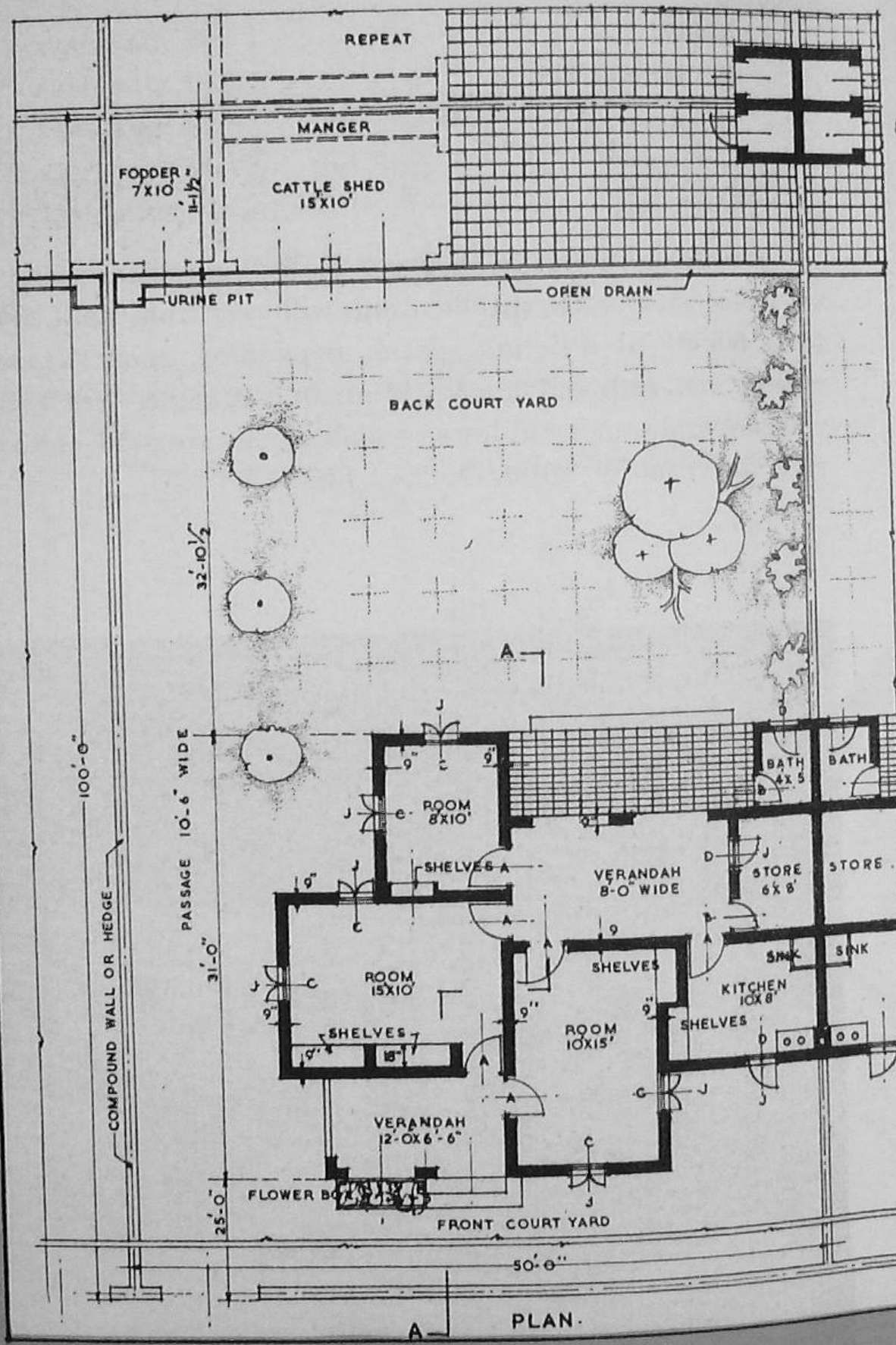
Cement	. . . . .	15 Cwt.
Lime	. . . . .	125 Cft.
Sand	. . . . .	400 Cft.
Brick ballast 1½″ gauge	. . . . .	240 Cft.
Bricks	. . . . .	30,000 Nos.
Brick tiles 12″x 6″x 2″	. . . . .	1,900 Nos.
Stone ballast ½″gauge	. . . . .	30 Cft.
Soft wood	. . . . .	110 Cft.
Solignum	. . . . .	6 Gallons.

LABOUR:

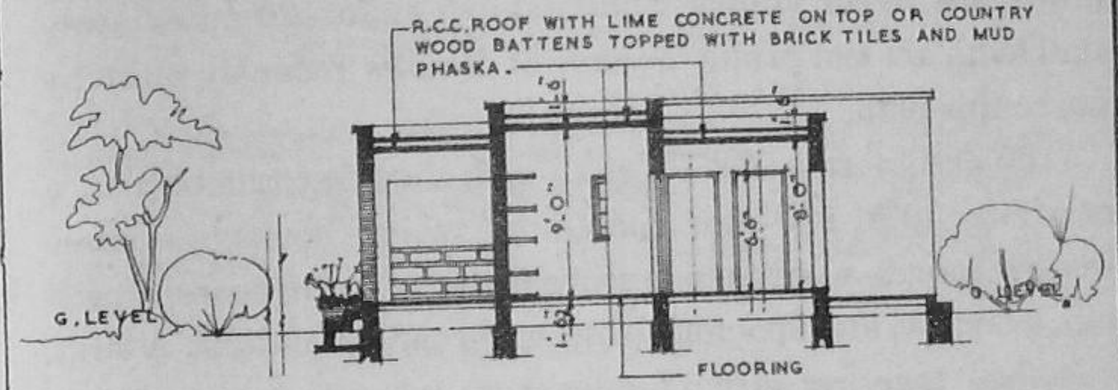
Mason	. . . . .	120 man-days.
Beldar and Coolie	. . . . .	240 man-days.
Bhisti	. . . . .	25 man-days.
Carpenter	. . . . .	45 man-days.
Painter	. . . . .	10 man-days.

The cost of the house, with better specifications, will vary from Rs. 3,200/- to Rs. 4,200/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 1,600/- to Rs. 2,100/-.

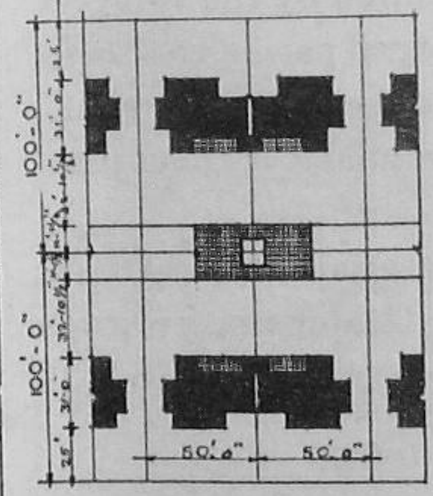




FRONT ELEVATION.



SECTION ON. A.A.



KEY PLAN.

SCALE 64 FEET TO AN INCH

SCHEDULE OF DOORS & WINDOWS

TYPE	DESCRIPTION	SIZES
A	DOOR BATTENED & BRACED SINGLE HUNG	3'-0"X6'-6"
B	DOOR BATTENED & BRACED SINGLE HUNG	2'-6"X6'-6"
C	WINDOW HALF GLAZED HALF PANELLED DOUBLE HUNG	2'-9"X3'-6"
D	WINDOW HALF GLAZED HALF PANELLED SINGLE HUNG	2'-6"X3'-6"
J	CONCRETE OR STONE JALI	1'-0"X1'-0"

PLINTH AREA 932 .SQ. FEET.

THREE ROOMED HOUSE (A)

(SEMI DETACHED)

DRG. NO. 16

SCALE 0 4 8 12 16 24 32 IN FEET

DESIGN FOR A THREE ROOMED HOUSE (B)

A small proportion of the rural families may be prosperous farmers with sizeable land holdings, or others who are well-placed in life. They would like to own and live in a fairly big house of the type shown in the plan opposite. In fact, quite a few families in the village Shamaspur, about 20 miles away from Delhi, are the proud owners of houses recently built by them to this plan.

The design provides for semi-detached construction on a plot of size 50′ x 100′ for each unit, which consists of three fairly big rooms, a kitchen, a store room, a grain store, a bath room, a latrine, and spacious front and rear verandahs. A large cattle-shed together with a fodder store is located at one extremity of the plot, as far from the house as possible. A special feature of the design, very much appreciated by the villagers, is the inner courtyard which forms an integral part of the house. Another good feature of the design is the direct inter-communication between the front and the rear verandahs, without passing through any of the rooms.

The approximate requirement of materials and labour for the house, excluding the cattle-shed and fodder store, is given below for construction to better specifications:—

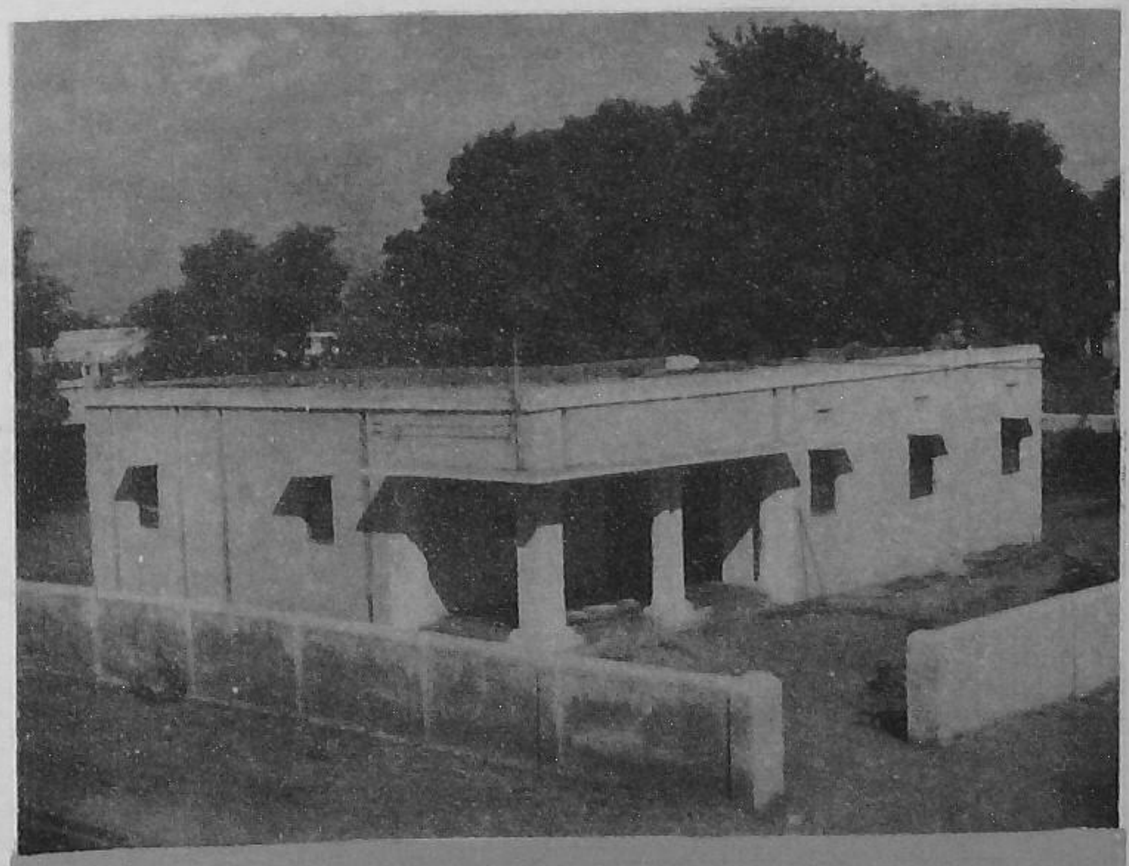
MATERIALS:

Cement	. . . . .	20 Cwt.
Lime	. . . . .	160 Cft.
Sand	. . . . .	600 Cft.
Brick ballast 1½″ gauge	. . . . .	350 Cft.
Bricks	. . . . .	40,000 Nos.
Brick tiles 12″ x 6″ x 2″	. . . . .	2,500 Nos.
Stone ballast ½″ gauge	. . . . .	40 Cft.
Soft wood	. . . . .	160 Cft.
Solignum	. . . . .	7 Gallons

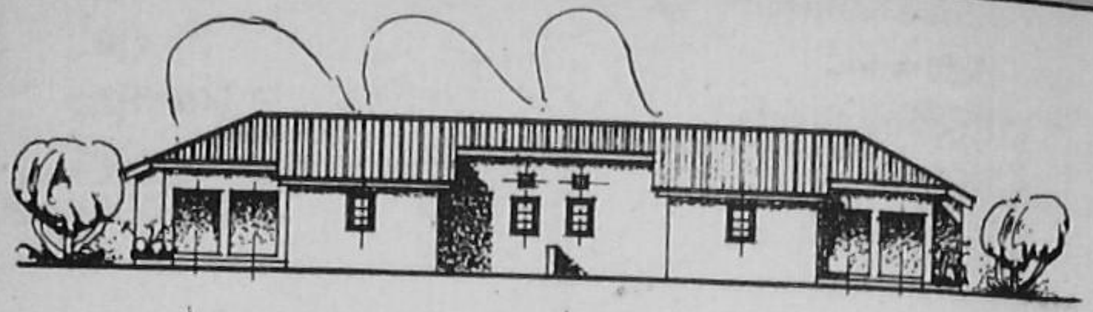
LABOUR:

Mason	. . . . .	160 man-days.
Beldar and Coolie	. . . . .	320 man-days.
Bhisti	. . . . .	30 man-days.
Carpenter	. . . . .	60 man-days.
Painter	. . . . .	10 man-days.

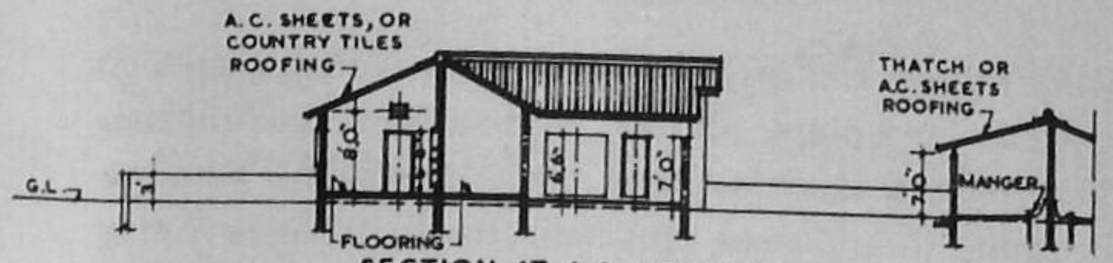
Excluding the cattle-shed and the fodder store, the cost of the house with better specifications will vary from Rs. 4,200/- to Rs. 5,600/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the villagers, and somewhat lower specifications are used, the cost may vary from Rs. 2,100/- to Rs. 2,800/-.



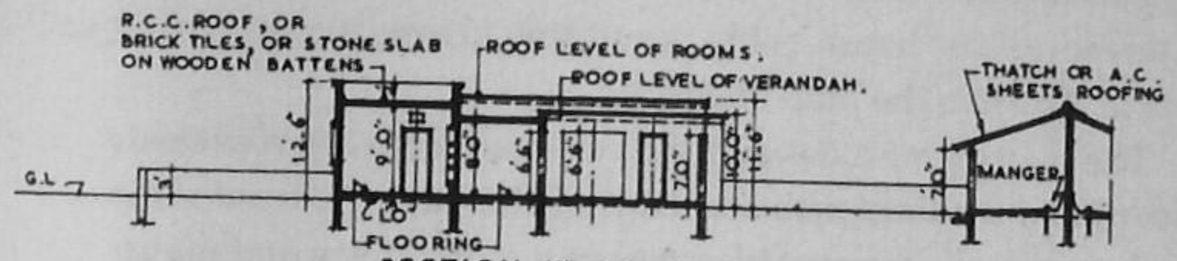
SPACIOUS THREE-ROOMED HOUSE AT SHAMASPUR



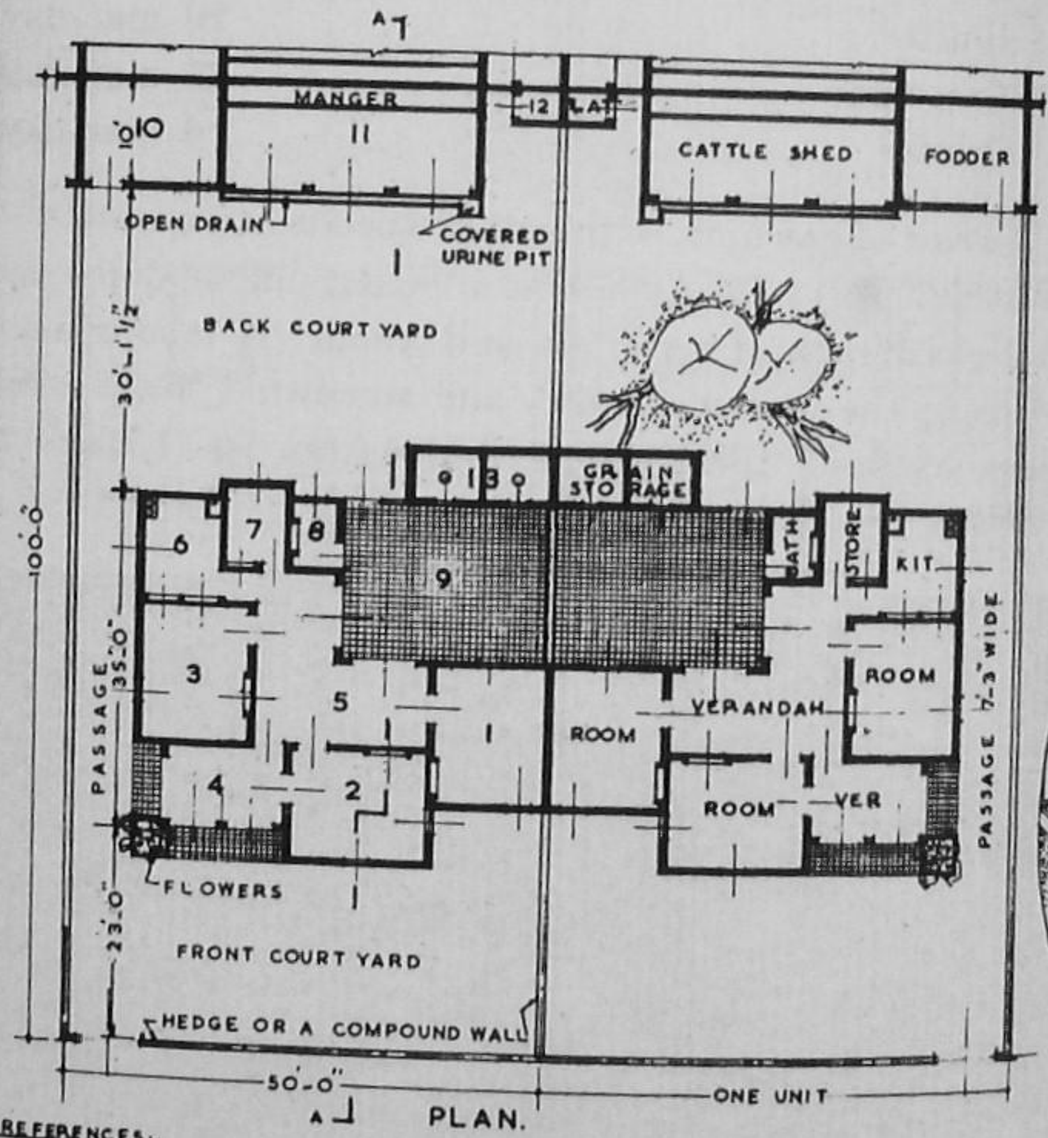
FRONT ELEVATION (PITCH ROOF)



SECTION AT A.A. (PITCH ROOF)



SECTION AT A.A. (FLAT ROOF)

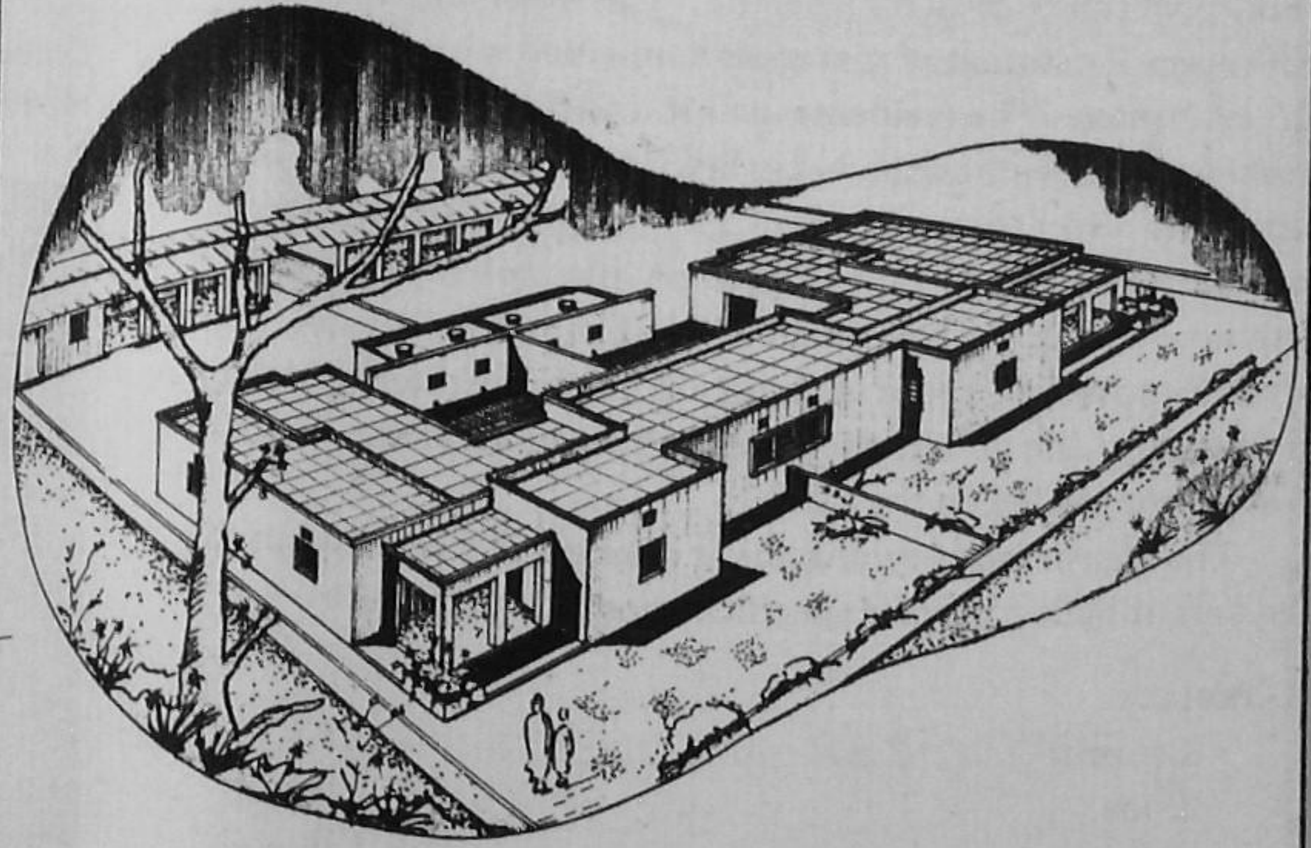


PLAN.

REFERENCES:-

1, 2 & 3, ROOMS 14'-0"X11'-0"
4 & 5, VERANDAHS 8' WIDE
6, KITCHEN 8'-0"X10'-0"
7, STORE 6'-0"X8'-0"
8, BATH 4'-3"X6'-0"
9, PAVED COURT YARD 20'.9"X15'.9"
10, FODDER STORE 14'-0"X10'-0"
11, CATTLE SHED 26'-0"X10'-0"
12, LATRINE --- 4'-0"X 3'-0"
13, GRAIN STORAGE 14'.0"X5'.0"

PLINTH AREA OF THE HOUSE 1250 SQ. FT.
PLINTH AREA OF CATTLE SHED ETC. 533. SQ. FT.



THREE ROOMED HOUSE (B)

SCALE 0 4 8 12 16 24 32 40 48 IN FEET DRG.NO.17

DESIGN FOR A WORK PLACE CUM RESIDENCE

Every village has its artisans and craftsmen, such as black-smiths, carpenters, potters, gold-smiths, shoe-makers, etc. whose residence is also their place of work. Therefore, while designing their houses, provision should be made so that they can carry on their work and trade, without disturbing the privacy of the house-hold. A suitable arrangement to that effect is shown in the plan opposite.

The plan shows a design for a two-roomed work place cum residence for a village artisan. During the day, the front room together with the courtyard serves as a work place and makes it convenient for him to dispose of his customers without their intruding upon the privacy of his home. During the night, the work-room can be used for sleeping. The inner courtyard provides space for storage of materials connected with the trade of the craftsmen. The residential unit, consisting of one room, kitchen, store, verandah, bath, latrine, and a spacious back courtyard, is located in the rear. The design is suitable for row construction in six to eight units, on plots of size 25′ x 75′, with access from the front road as well as the back lane. It is advisable to leave a space of about 15′ from the road boundary to the face of the building for the parking of carts etc. in order to avoid congestion on the road.

The approximate requirement of materials and labour for one unit, if built to better specifications, is given below:—

MATERIALS:

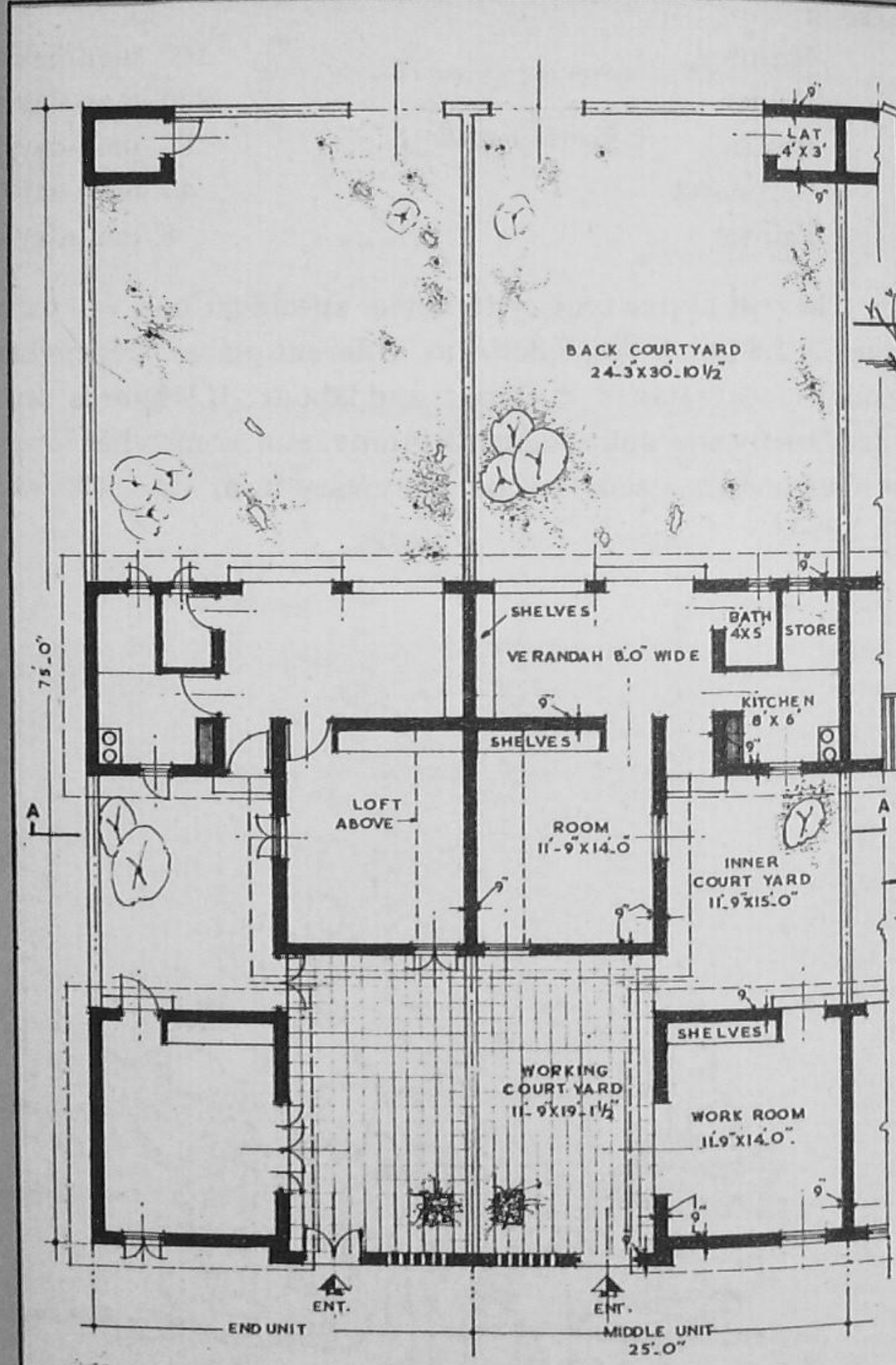
Cement	. . . . .	11 Cwt.
Lime	. . . . .	90 Cft.
Sand	. . . . .	350 Cft.
Brick ballast 1½″ gauge	. . . . .	170 Cft.
Bricks	. . . . .	23,000 Nos.
Stone ballast ½″ gauge	. . . . .	25 Cft.
Soft wood	. . . . .	70 Cft.
Roofing sheets	. . . . .	1,000 Sft.
Ridging	. . . . .	20 Rft.
Solignum	. . . . .	4 Gallons.

LABOUR:

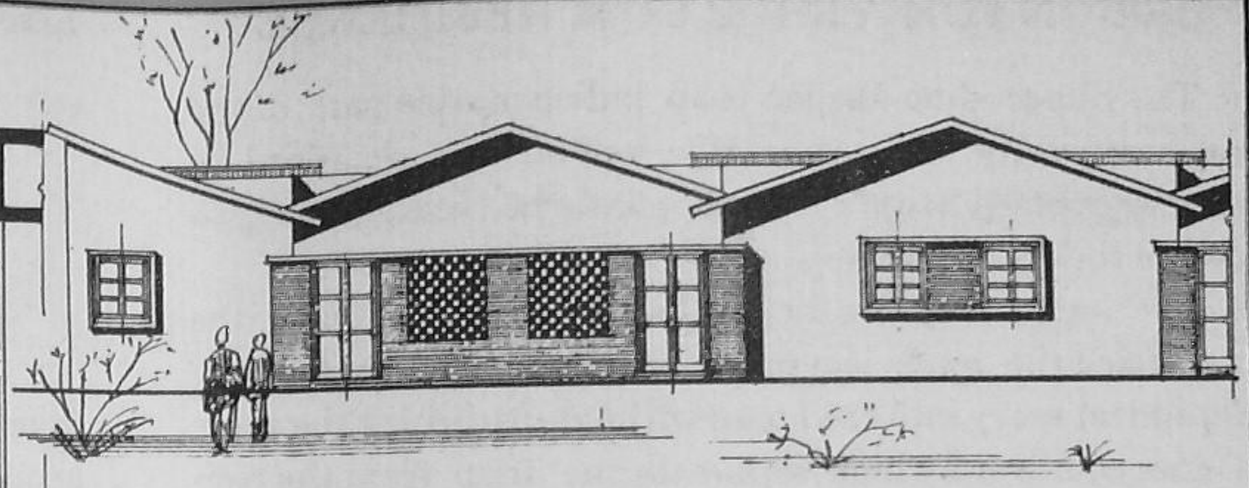
Mason	. . . . .	90 man-days.
Beldar and Coolie	. . . . .	180 man-days.
Bhisti	. . . . .	20 man-days.
Carpenter	. . . . .	35 man-days.
Painter	. . . . .	6 man-days.

The cost of one unit, with better specifications, will vary from Rs. 2,200/- to Rs. 3,000/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the artisan's family, and somewhat lower specifications are used, the cost may vary from Rs. 1,100/- to Rs. 1,500/-.

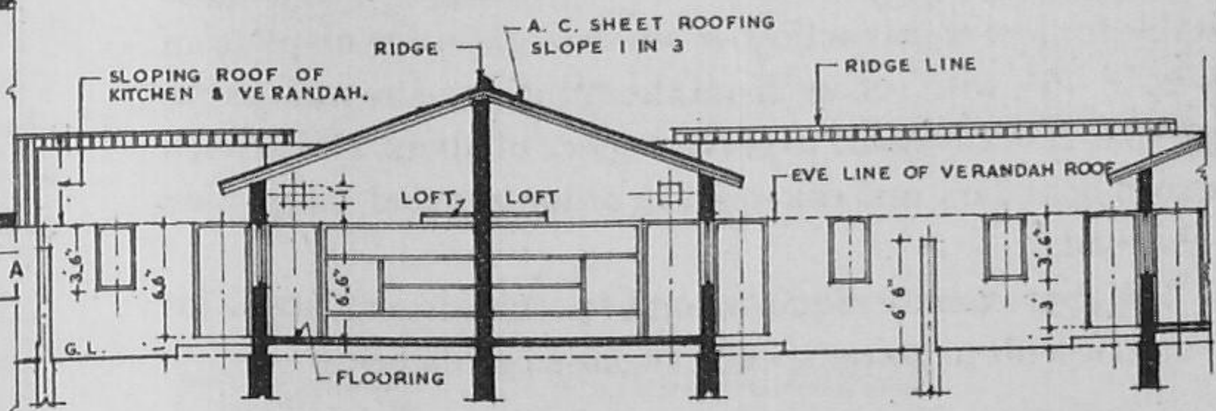
THE WORKING SPACE HERE IS PART OF THE HOUSE



PLAN



FRONT ELEVATION



CROSS SECTION ON A.A.

PLINTH AREA 670 SQ.FT.

WORK PLACE CUM RESIDENCE

SCALE 0 2 4 6 8 12 16 24 IN FEET

DRG.NO. 18

DESIGN FOR A SHOP CUM RESIDENCE

The village shop-keeper is an indispensable part of the rural community. He is generally well off and can afford to own a two-roomed house with a shop attached to it, of the type shown in the plan opposite.

The design provides for the location of the shop in the front facing the road, leaving a four feet wide passage for independent entry into the house without disturbing the shop. An inner courtyard which separates the shop from the residential unit, provides privacy to the house-hold and also serves as a storage space for sacks, crates, boxes etc. The residence, consisting of two rooms, kitchen, store, verandah, bath, latrine, and a back courtyard is located behind the shop. The design is suitable for row construction in six to eight units on plots of size 25′ x 75′, with access from the front road as well as the back lane. It is advisable to leave a space of about 15′ between the road boundary and the shop, in order to avoid congestion on the road.

The approximate requirement of materials and labour for one unit, if built to better specifications, is given below:—

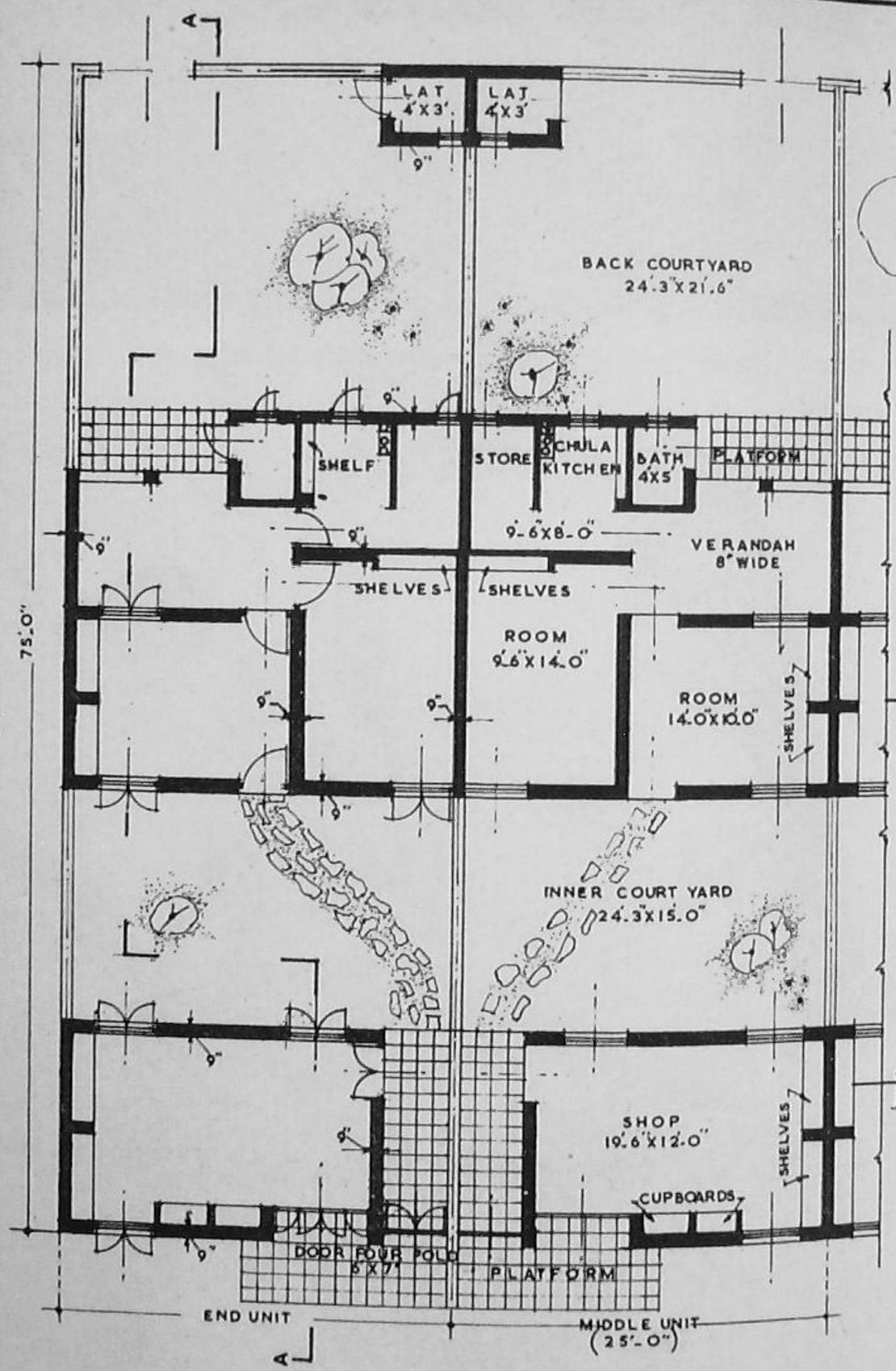
MATERIALS:

Cement	. . . . .	14 Cwt.
Lime	. . . . .	115 Cft.
Sand	. . . . .	380 Cft.
Brick ballast 1½″ gauge	. . . . .	210 Cft.
Bricks	. . . . .	28,000 Nos.
Stone ballast ½″ gauge	. . . . .	25 Cft.
Soft wood	. . . . .	75 Cft.
Roofing sheets	. . . . .	1,200 Sft.
Ridging	. . . . .	47 Rft.
Solignum	. . . . .	5 Gallons.

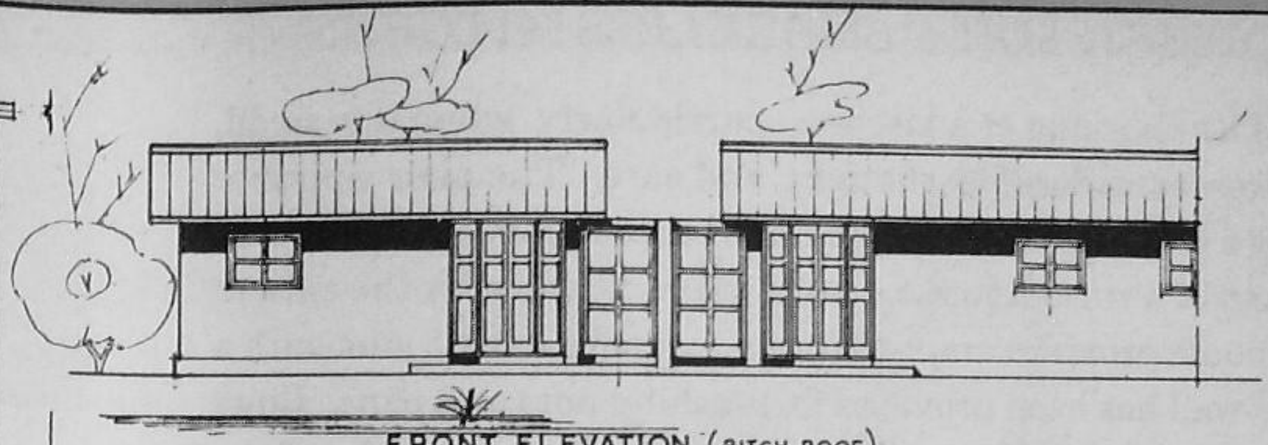
LABOUR:

Mason	. . . . .	110 man-days.
Beldar	. . . . .	220 man-days.
Bhisti	. . . . .	20 man-days.
Carpenter	. . . . .	40 man-days.
Painter	. . . . .	8 man-days.

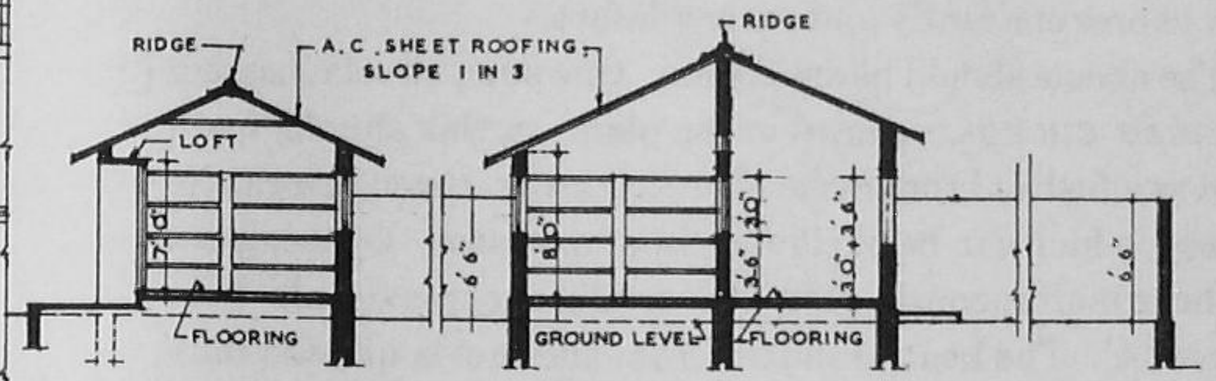
The cost of one unit, with better specifications, will vary from Rs. 2,800/- to Rs. 3,800/- at different places, depending upon the local rates of materials and labour. If labour is provided free by the shop-keeper's family, and somewhat lower spcifications are used, the cost may vary from Rs. 1,400/- to Rs. 1,900/-.



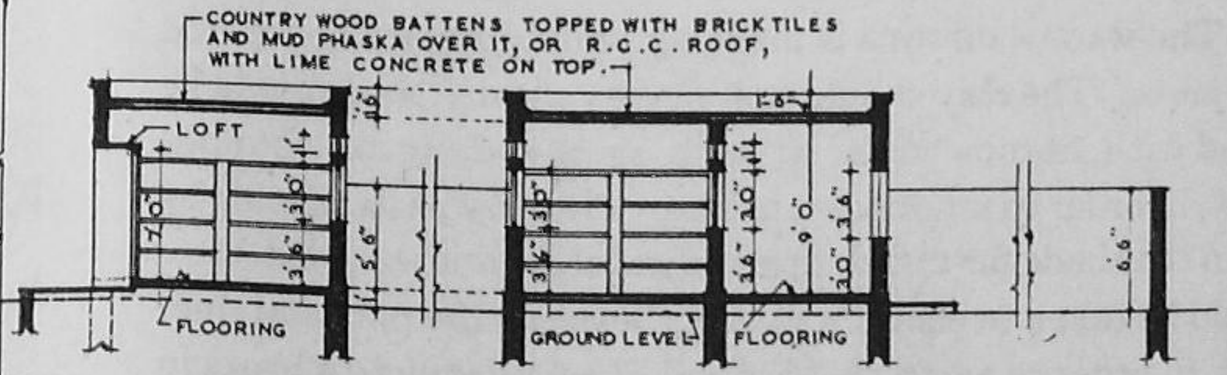
PLAN



FRONT ELEVATION (PITCH ROOF)



SECTION ON A A (PITCH ROOF)



SECTION ON A A (FLAT ROOF)

PLINTH AREA 846 SQ. FT.

SHOP CUM RESIDENCE

SCALE 0 2 4 6 8 12 16 24 IN FEET

DRG. NO. 19

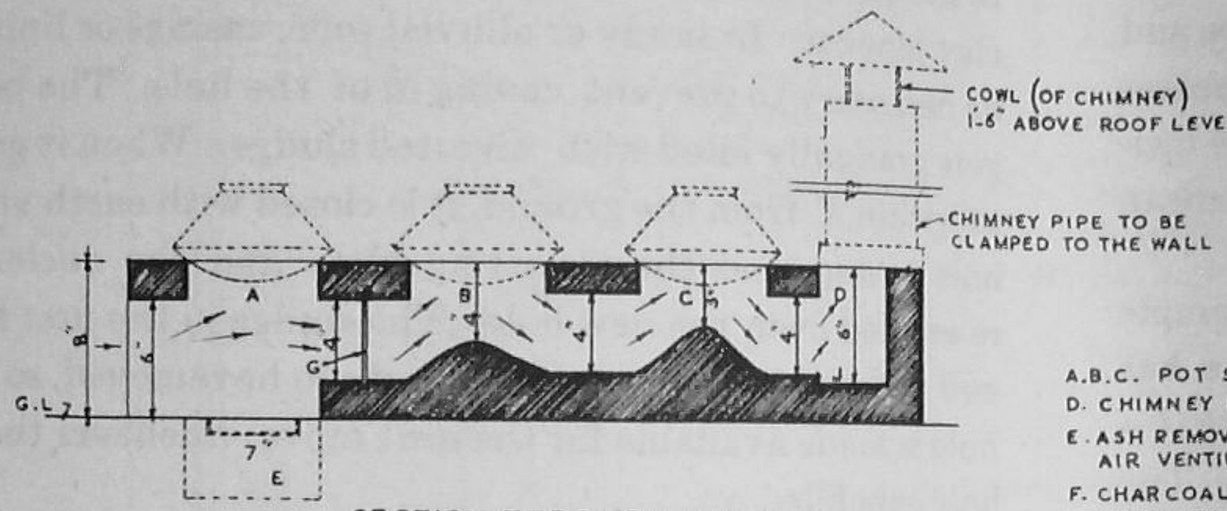
DESIGN FOR A SMOKELESS KITCHEN

The planning of a kitchen, particularly when it is small, requires considerable thought and care. The plan opposite shows a convenient arrangement of the choola etc. in a small kitchen of a rural house. A good sized window by the side of the choola provides ample light and ventilation. A sink with a dwarf wall has been provided for washing pots and pans. Rows of shelves have been conveniently located by the side of the choola. The whole arrangement is such that the house-wife can do her chores efficiently and with comfort.

The choola should be smokeless. One such choola, namely the MAGAN CHOOLA is shown in the plan. In this choola, wood is used as a fuel and the smoke is sucked away through a simple chimney, which can be of clay or tin or asbestos. Cooking can be done simultaneously at 'A', 'B' & 'C', the maximum heat being at 'A'. The heat produced from the fuel is utilised fully and its radiation is minimised, thereby saving on the fuel and keeping down the heat in the kitchen.

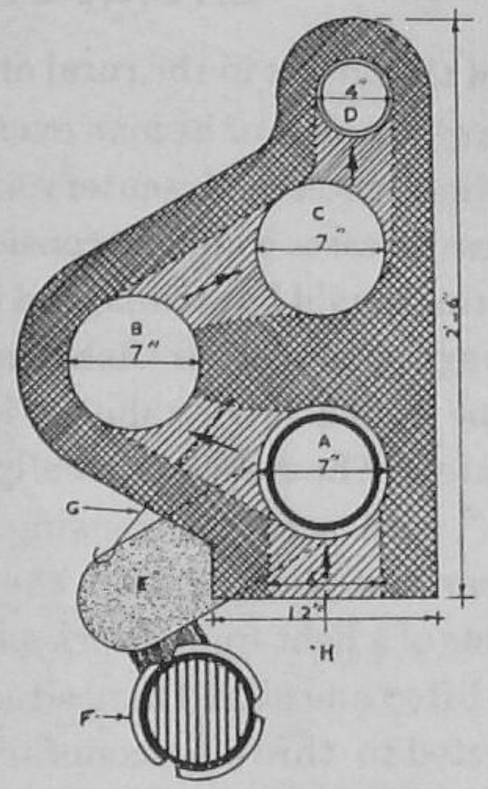
The MAGAN CHOOLA is made by moulding well prepared clay paste. The clay should not be very plastic, and should be mixed with fibrous material such as cow-dung or chopped straw, in order to minimise cracking. The clay paste should be left in the shade for two to three days before it is moulded. Care should be taken to ensure a close fit between the pots and their seats, in order to avoid the creation of smoke due to a break in the draught from the fuel to the chimney. The connection with the chimney should also be air-tight.

THERE IS SOMETHING WRONG ABOUT THIS PICTURE

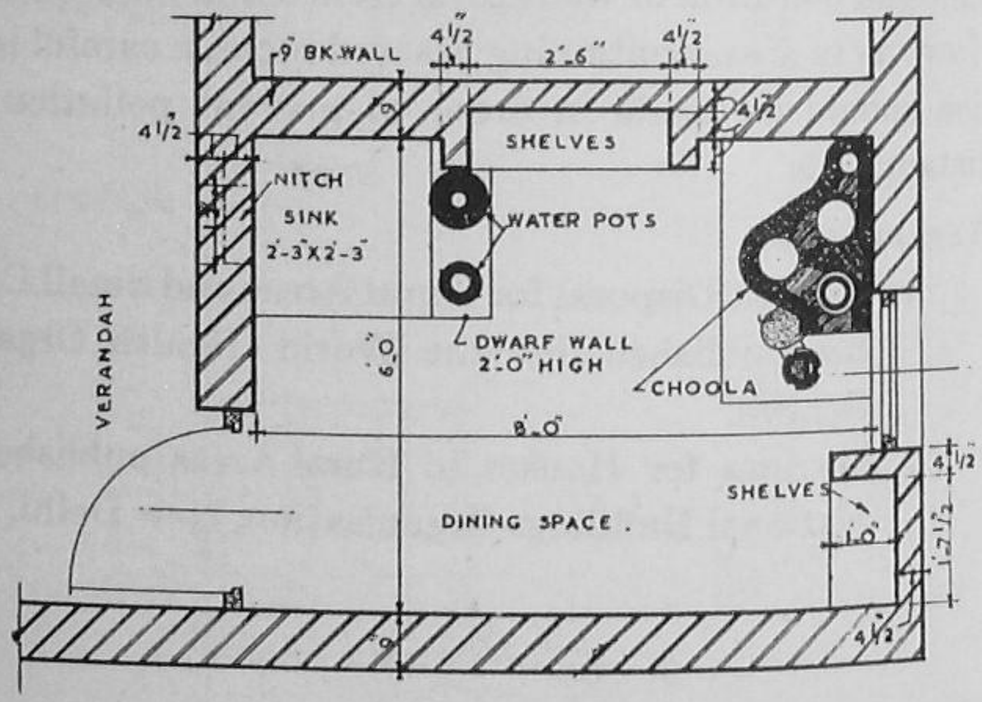


SECTION THROUGH CHOOLA

A.B.C. POT SEATS
D. CHIMNEY BASE
E. ASH REMOVING PIT & ADDITIONAL AIR VENTILATION
F. CHARCOAL STOVE ON FLOOR-LEVEL FOR ROTI BAKING
G. DAMPER THROUGH CHOOLA WALL
H. FUEL FEED
J. CHIMNEY PIT FOR SOOT ACCUMULATION



PLAN OF MAGAN CHOOLA



PLAN OF KITCHEN

DESIGN FOR A SMOKELESS KITCHEN

DRG.NO 20

DESIGN FOR TRENCH AND BORE HOLE LATRINES

Most of the houses in the rural areas have no latrines, and the insanitary disposal of human excreta gives rise to diseases such as typhoid, cholera, dysentery and hookworm. The incidence of these diseases would be considerably reduced, if cheap sanitary latrines could be popularised in the villages.

At Sevagram and other Ashrams, the use of the simple Wardha type trench latrine shown in the plan opposite, has been advocated. The trench is usually 12″ wide and is dug to a depth of 24″, with a length ranging from 3 to 10 feet. The excavated earth is piled around the trench, and the latrine which consists of a light frame-work and thin walling of matting or sheets, is lifted and placed in position over the trench. Each user is expected to throw a scoopful of loose earth over the faeces deposited. When the filling reaches to a depth of about one foot from the ground, the trench underneath the latrine is covered up with earth, and the superstructure is shifted to a new position over the trench. Under tropical conditions, the decomposition of faeces is completed in about eight weeks, and the resulting humus may be dug out and utilised to fertilise garden crops. Trench latrines are easy and cheap to build and fit in well with the simple habits of the village folk in many areas. They, however, give rise to a number of health hazards such as pollution of the soil and water, breeding of flies, odour nuisance, and unsightly conditions. Therefore ordinarily, the trench latrine is considered suitable only for temporary use in camps, melas etc.

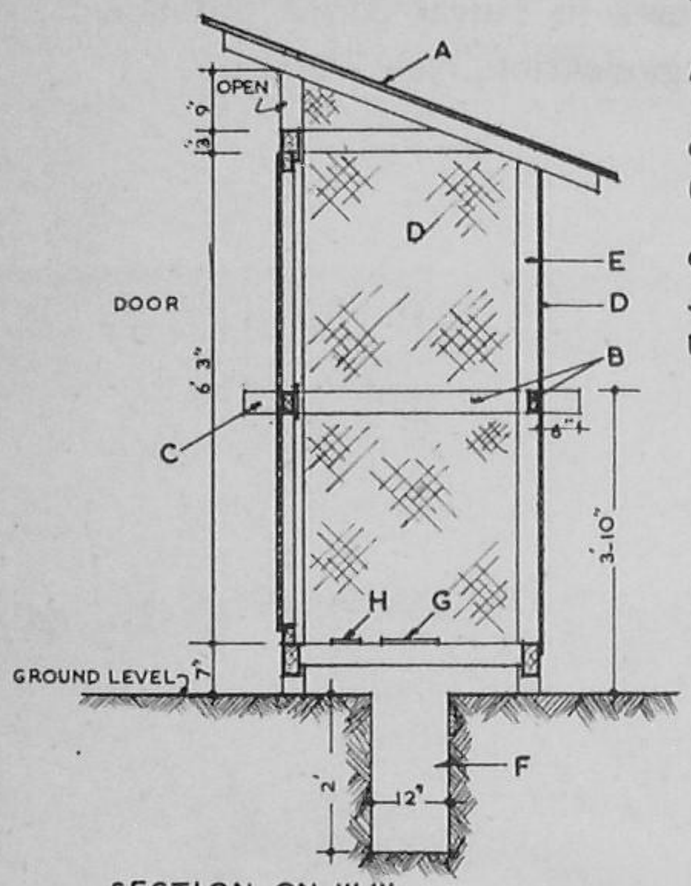
The bore-hole latrine as shown in the plan opposite is a self-contained hygienic latrine. It consists of bore-hole 14″ to 16″ in diameter, with a concrete squatting plate installed over the hole, and an enclosure built around it for privacy. The hole is dug by a special auger to a depth of about 20′ or about 3′ below the water table. It is good practice to line the upper 12″ to 24″ of the hole with a tight impervious lining of concrete or clay pipe etc. In sandy or alluvial soils, casings or linings may be necessary to prevent caving in of the hole. The bore-hole gets gradually filled with digested sludge. When it gets filled to within 3′ from the ground, it is closed with earth and a new hole is dug, and the squatting plate and the enclosure are re-erected over the new hole. The sludge in the first hole gets well digested in about one year and can be removed, so that the hole is made available for the next move, whenever the second hole gets filled up.

Ordinarily a distance of 50′ is sufficient to prevent bacterial pollution of wells from trench and bore-hole latrines. However in areas containing fissured rocks, a careful investigation should be made in order to prevent pollution of even distant wells.

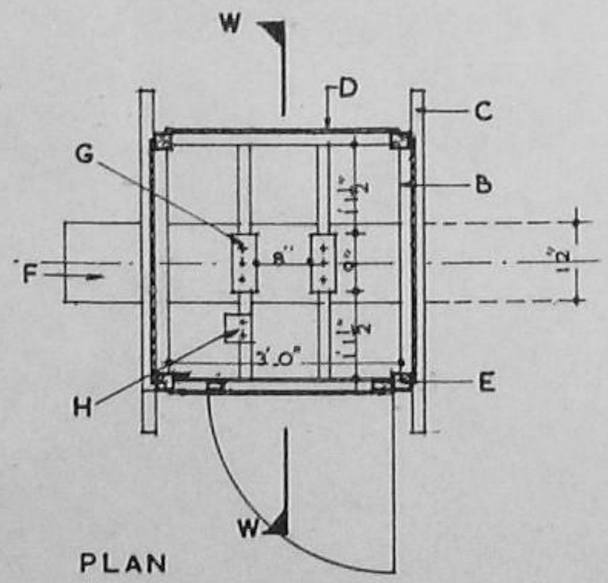
REFERENCES.

1. Excreta Disposal for Rural Areas and Small Communities published by the World Health Organisation, Geneva.
2. Latrines for Houses in Rural Areas published by the National Buildings Organisation, New Delhi.

TRENCH LATRINE



SECTION ON W.W.

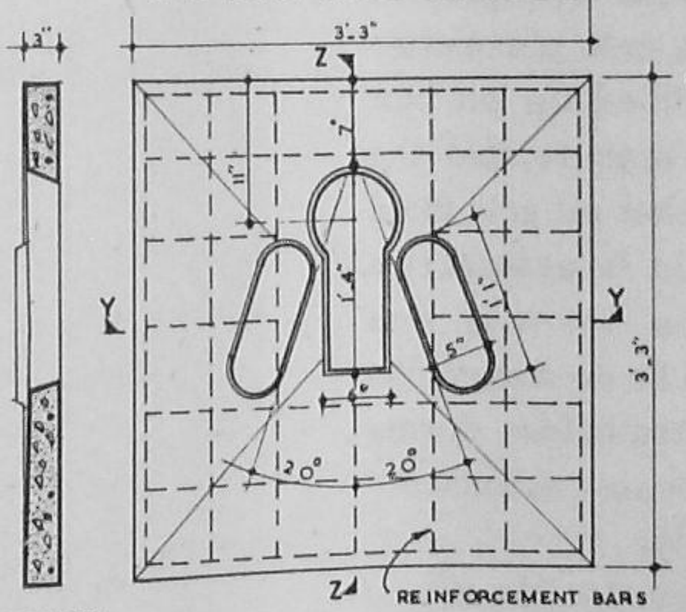


PLAN

REFERENCES

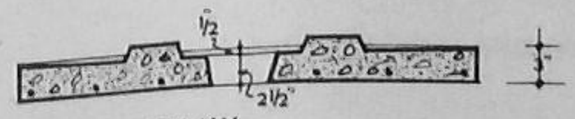
A A.C., G.I. SHEETS, THATCH OR COUNTRY TILES ROOFING
B BRACINGS
C LIFTING BARS
D CHATAI MATTING G.I. OR A.C. SHEETS
E BALLIES, ANGLE IRON OR WOODEN POSTS
F TRENCH
G FOOT RESTS
H WATER POT STAND
J BORE HOLE 14" TO 16" DIAMETER.
K LINING WITH BAMBOO MATTING, CLAY PIPES, ETC:
L EARTH MOUND
M BRICK WORK

DETAIL OF CONCRETE SLAB FOR PIT AND BORE HOLE LATRINES.



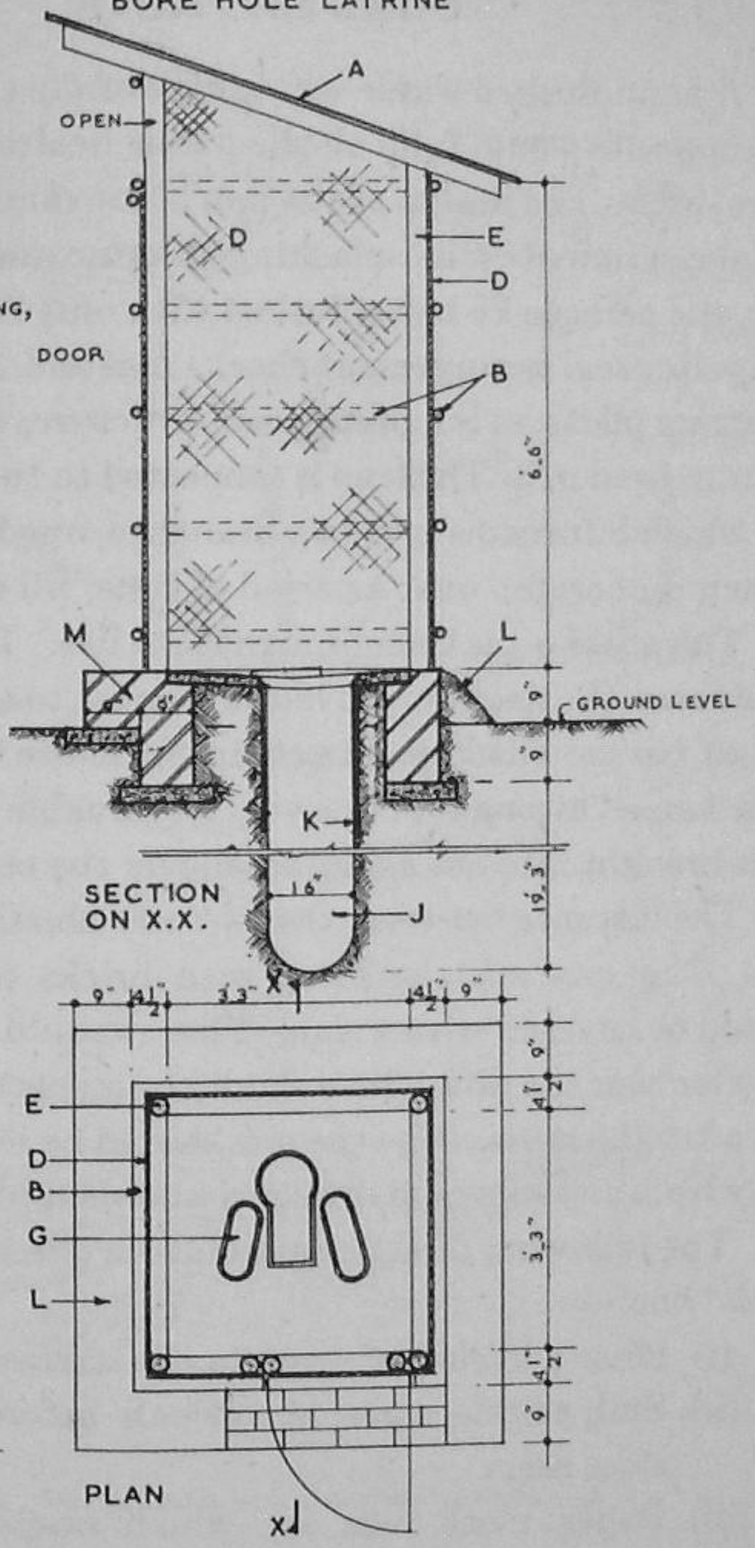
SECTION ON Z.Z.

PLAN



SECTION ON Y.Y.

BORE HOLE LATRINE



SECTION ON X.X.

PLAN

VILLAGE LATRINES

SCALE IN FEET 0 1 2 3 4 6 FOR LATRINES

SCALE IN FEET 0 1 3 FOR DETAILS

DRG. NO. 21

DESIGN FOR A HAND FLUSHED WATER SEAL LATRINE

A hand-flushed water-seal latrine of the type shown in the plan opposite would fulfil all the public health requirements in a rural area. The design of the pan is convenient for squatting and also eliminates the splashing of urine and excreta. Moreover, the pan can be hand-flushed with only one lota of water. The water seal arrangement checks flies and foul odour. The squatting platform is a premanent structure, with the pan and the trap fixed in it. The trap is connected to two pits by a 3″pipe line which bifurcates into two branches, one for each pit. One branch is operated over a period of time, till one pit gets filled up. The other pit is then brought into use. This arrangement eliminates the need to move the latrine to a new place after one pit has got filled up. The sludge from the filled up pit can be reclaimed after about one year as valuable manure, and the pit is brought into use again, whenever the other pit gets filled up. The distance between the two pits should be at least two feet. The pits may be lined with bricks on the top and should be covered with a slab. There should be no stagnation of water near the pits, which should be inspected before, during and after the rains. Also the pits should be located at least 50′ away from any source of drinking water supply.

The following directions should be observed in the use of the latrine:—

(i) Place a bucket of water in the latrine;

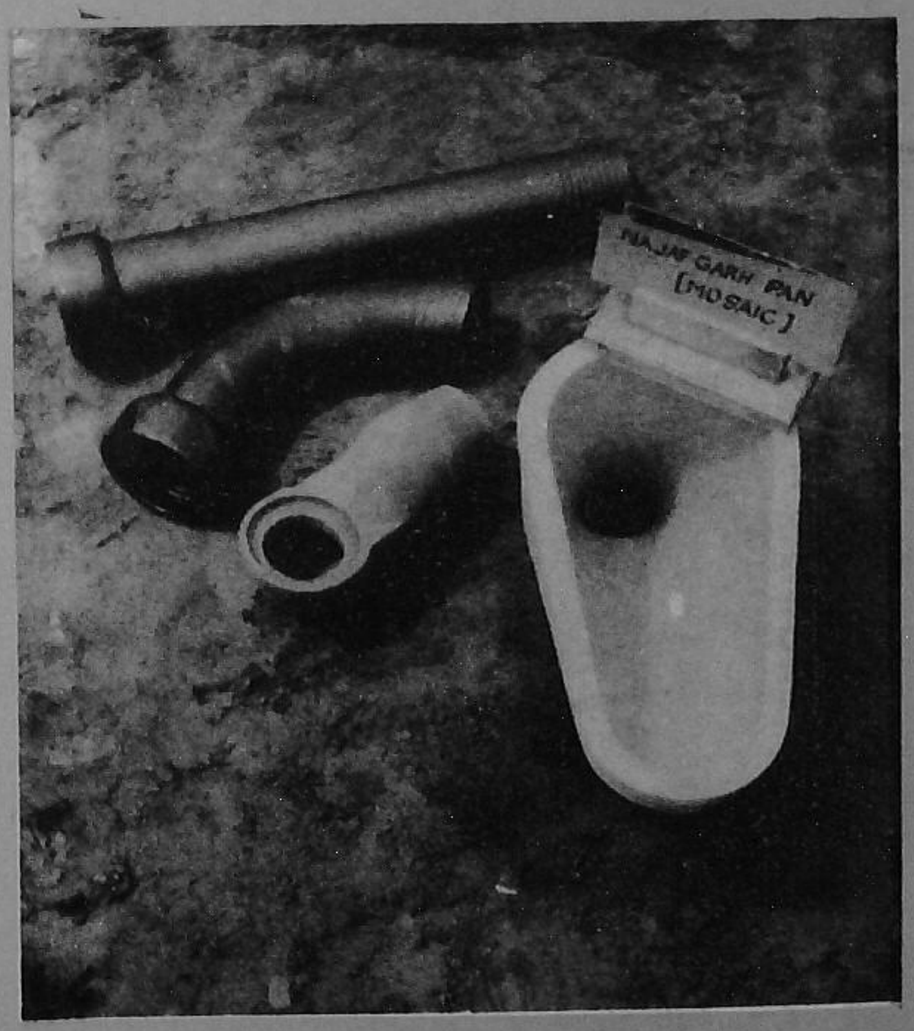
(ii) Spill a little water in the pan before use and flush it after use;

(iii) Paper, cloth rags etc. which would choke the trap should not be used; and

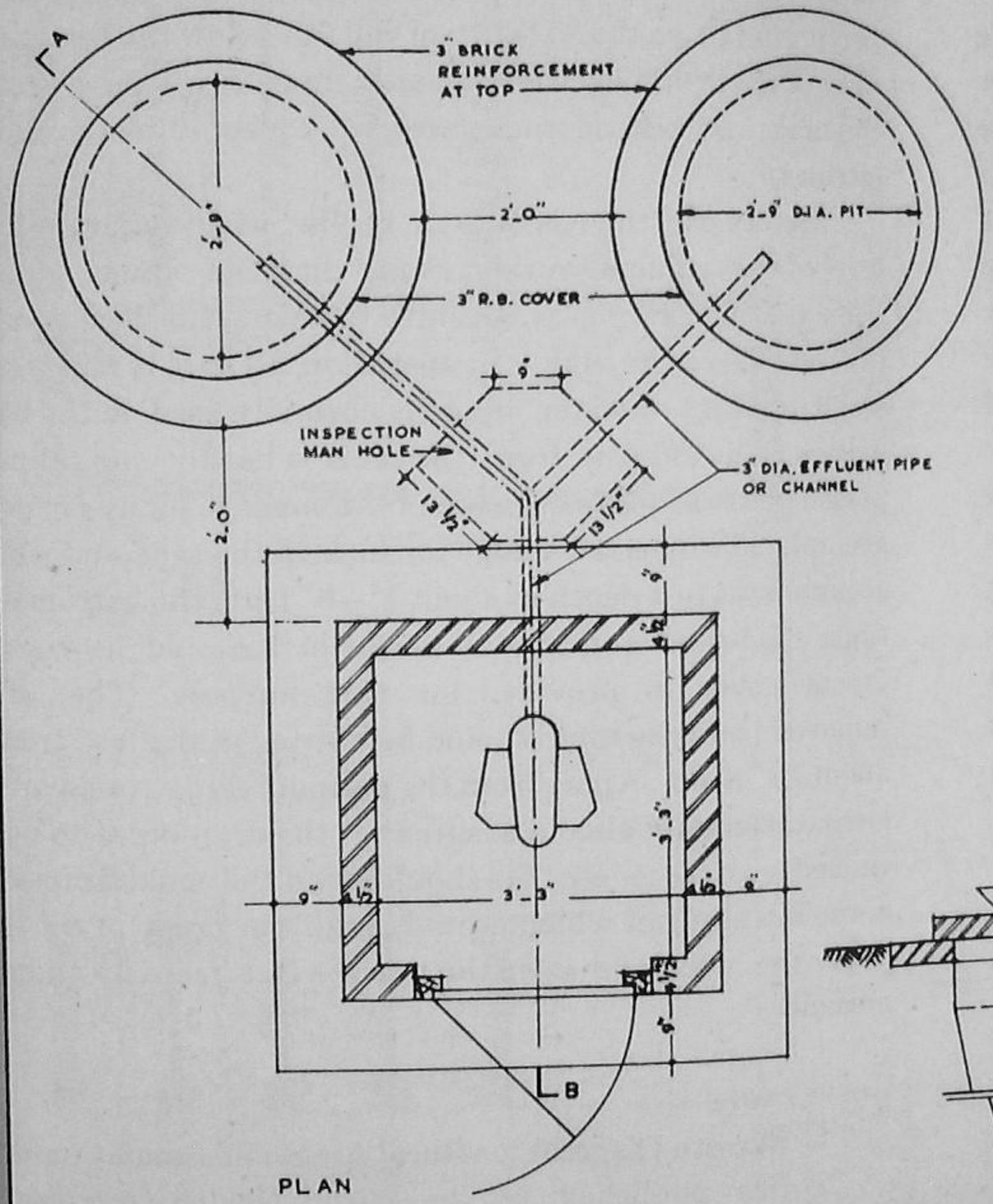
(iv) Disinfectant should not be used; only water should be used.

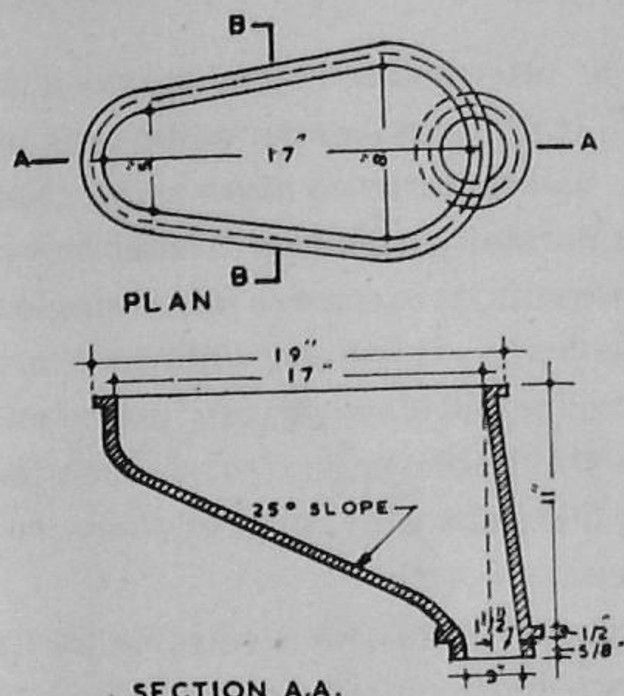
REFERENCE.

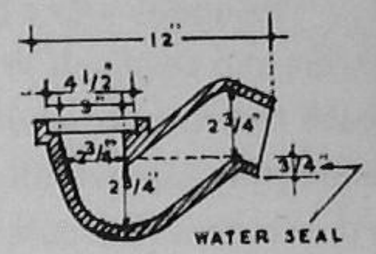
Latrines for Houses in Rural Areas published by the National Buildings Organisation, New Delhi.

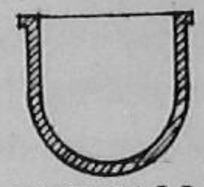


PAN, TRAP AND CONNECTION PIPES OF A WATER-SEAL LATRINE

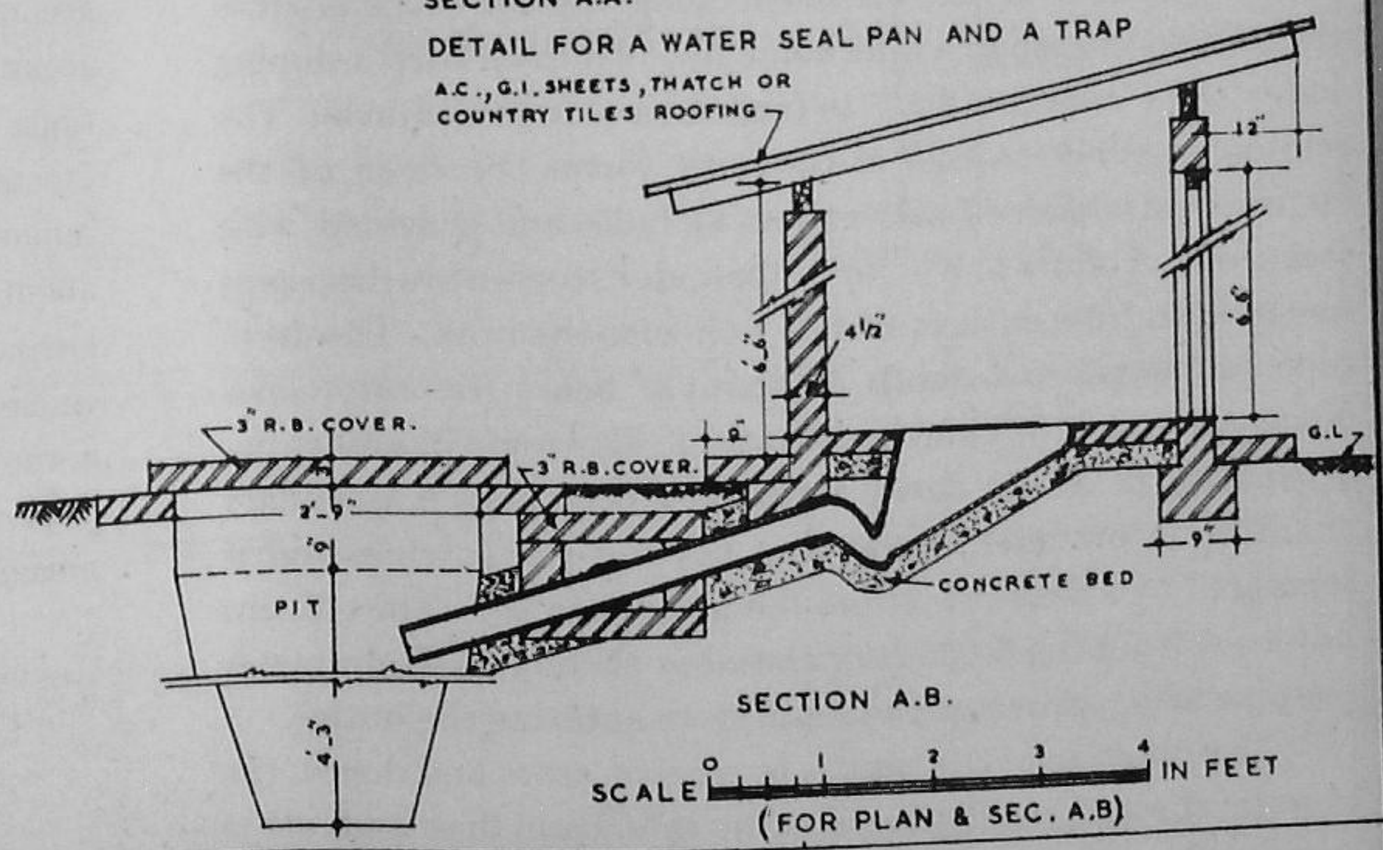








DETAIL FOR A WATER SEAL PAN AND A TRAP



HANDFLUSHED WATERSEAL LATRINE

DRG. NO. 22

DESIGN FOR A PUBLIC ACQUA PRIVY

The acqua privy is an intermediate type between the pit latrine and the flush W.C. It provides its own septic tank underneath the squatting slab, and requires no more water than the small quantity which is normally used in a basket privy. Its rather high initial cost prevents its extensive use in single units for individual rural house-holds. However, where community latrines are required as in a public place or institution, and no water-borne sewerage exists, public acqua privies can be provided at not too high a cost, ensuring hygienic service and sanitary disposal of sewage.

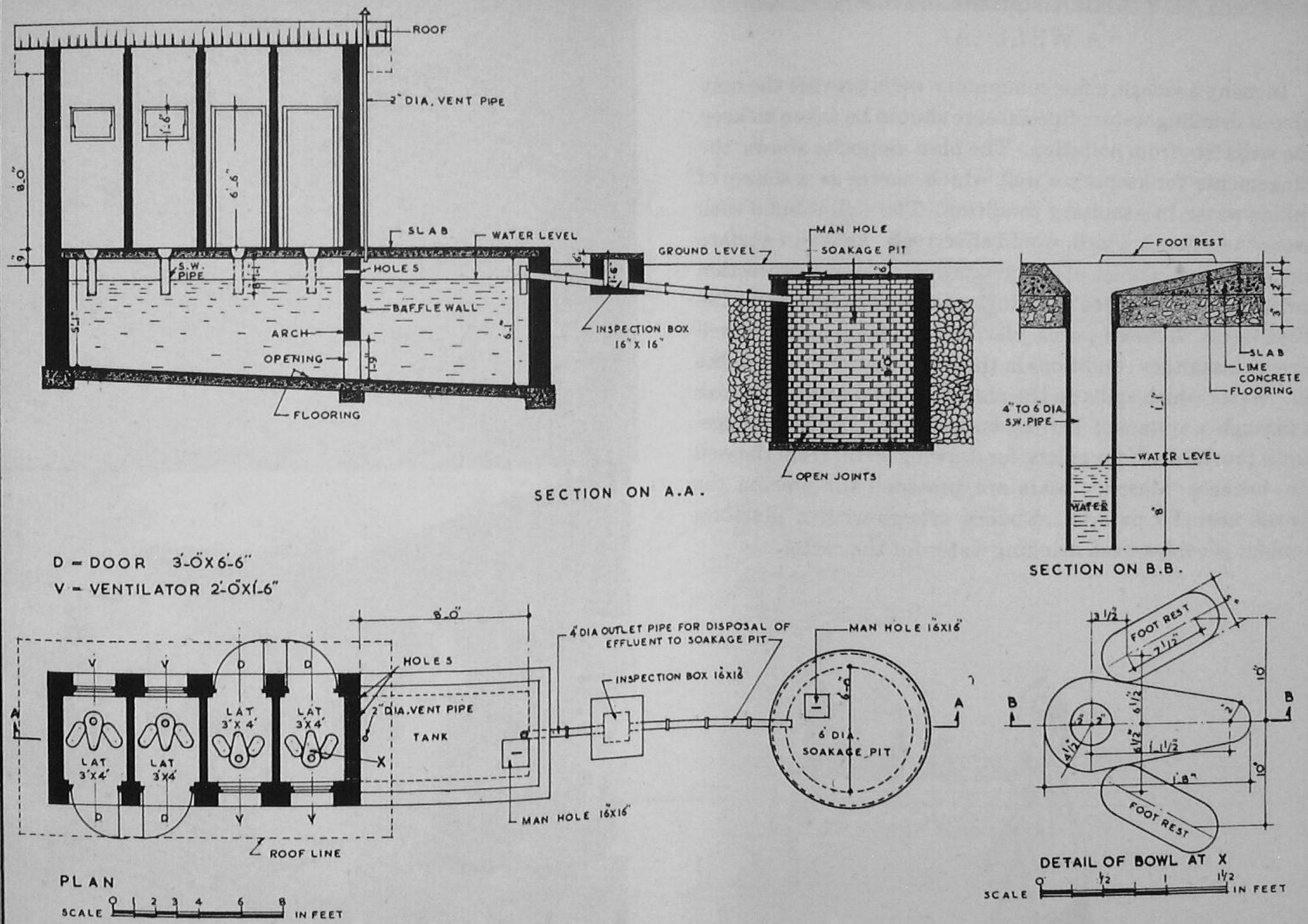
A public acqua privy with four seats is suitable for use by 60 to 80 persons. As shown in the plan opposite, the latrines are built on the top of a tank some five feet deep with a sloping water tight concrete floor to facilitate sludge removal. The reinforced concrete roof of the tank forms the floor of the latrines and is pierced with squatting holes and provided with foot-rests. A chute or a 4″ to 6″ diameter stone-ware drop-pipe hangs down from each squatting hole into the tank. The drop-pipe submerges to a depth of about 9″ below the water level when the tank is full and in operation. The main chamber has a capacity of about three cubic feet per user. A secondary chamber is provided, extending beyond the latrines and is separated by a baffle wall from the main chamber. The effluent flows out from the secondary chamber through a 4″ diameter tee-pipe which prevents the scum from entering the outlet.

The function of the tank is to receive, store and digest the excreta through anaerobic action, safe from flies and other vermin. No disinfectant should be used, as it is fatal to the digestion process. A vent pipe is provided for the escape of gas which is produced in the tank in large volume by decomposition of the excreta. The tank must be absolutely water tight and should be tested before use. If there is any leakage, the acqua privy will fail, as the water level will fall below the lower extremity of the drop-pipe; consequently flies etc. will have access to the tank, and also odorous gases will escape directly into the latrines.

Before use, the whole tank is filled with water up to the level of the effluent outlet. Some digested sludge obtained from another privy may be added to hasten the decomposition process. Once the tank is in operation, all that is required is a small quantity of water which is normally used in the basket privies. The effluent from the tank is hardly one gallon per person per day, and is disposed of in a soakage pit dug in porous ground. The digested sludge remains in the tank and when it accumulates to a depth of about 1′–6″ from the bottom of the tank, it is bailed out. A man-hole, which should have a tight fitting cover, is provided for this purpose. The sludge removed from the tank should be burried in shallow trenches about 18″ deep. Apart from the periodic sludge removal, the latrine attendant should ensure that the drop-pipes do not get choked with faeces etc. He should clean the choked pipes with a wooden plunger which would break the crust of the liquid under the holes, and keep the latrines free from fly and smell nuisance.

REFERENCES.

1. Excreta Disposal for Rural Areas and Small Communities published by the World Health Organisation, Geneva.
2. Village Housing in the Tropics by Jane Drew Maxwell Fry and Harry Ford.

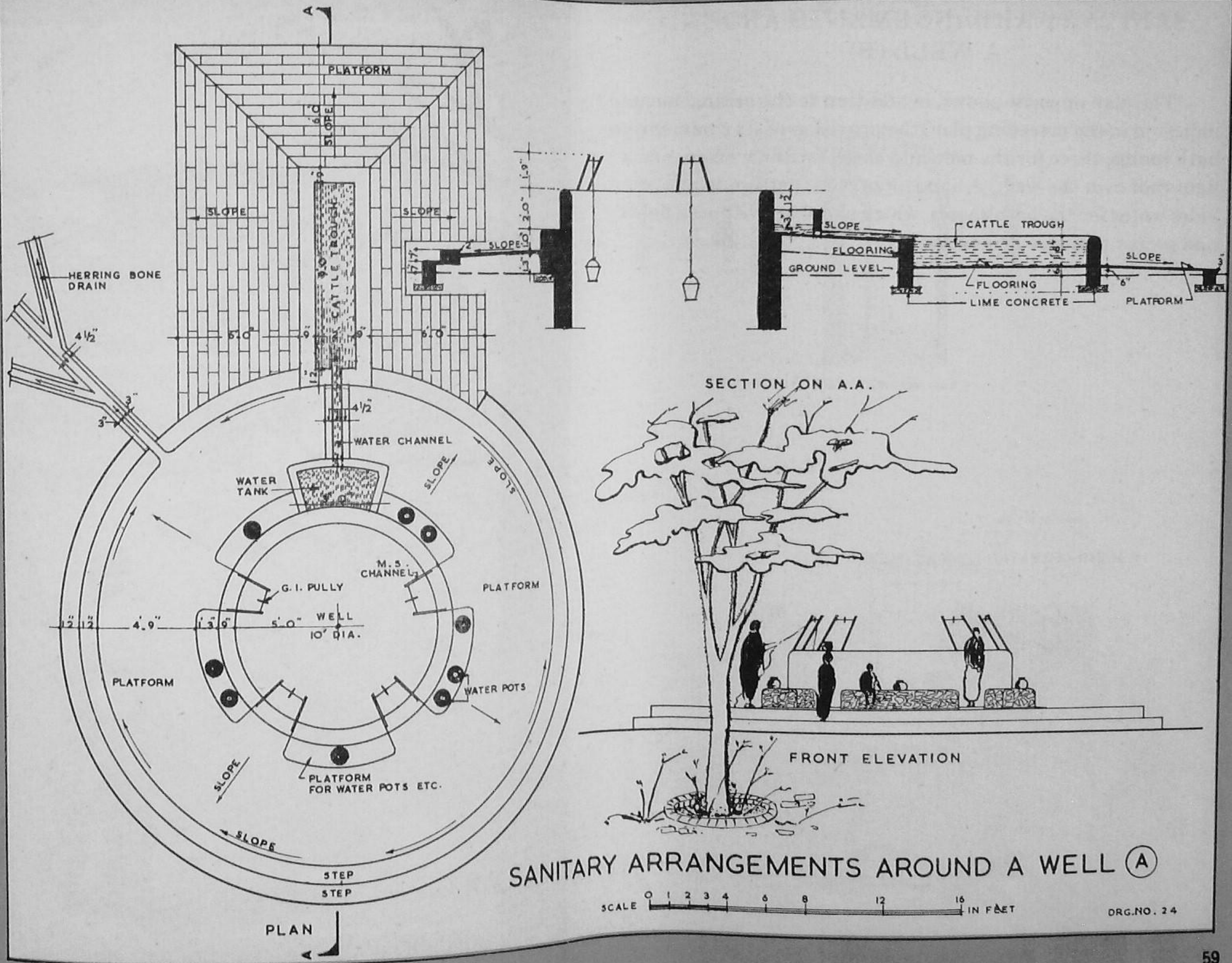


PUBLIC ACQUA PRIVY

DRG. NO. 23

SANITARY ARRANGEMENTS AROUND A WELL (A)

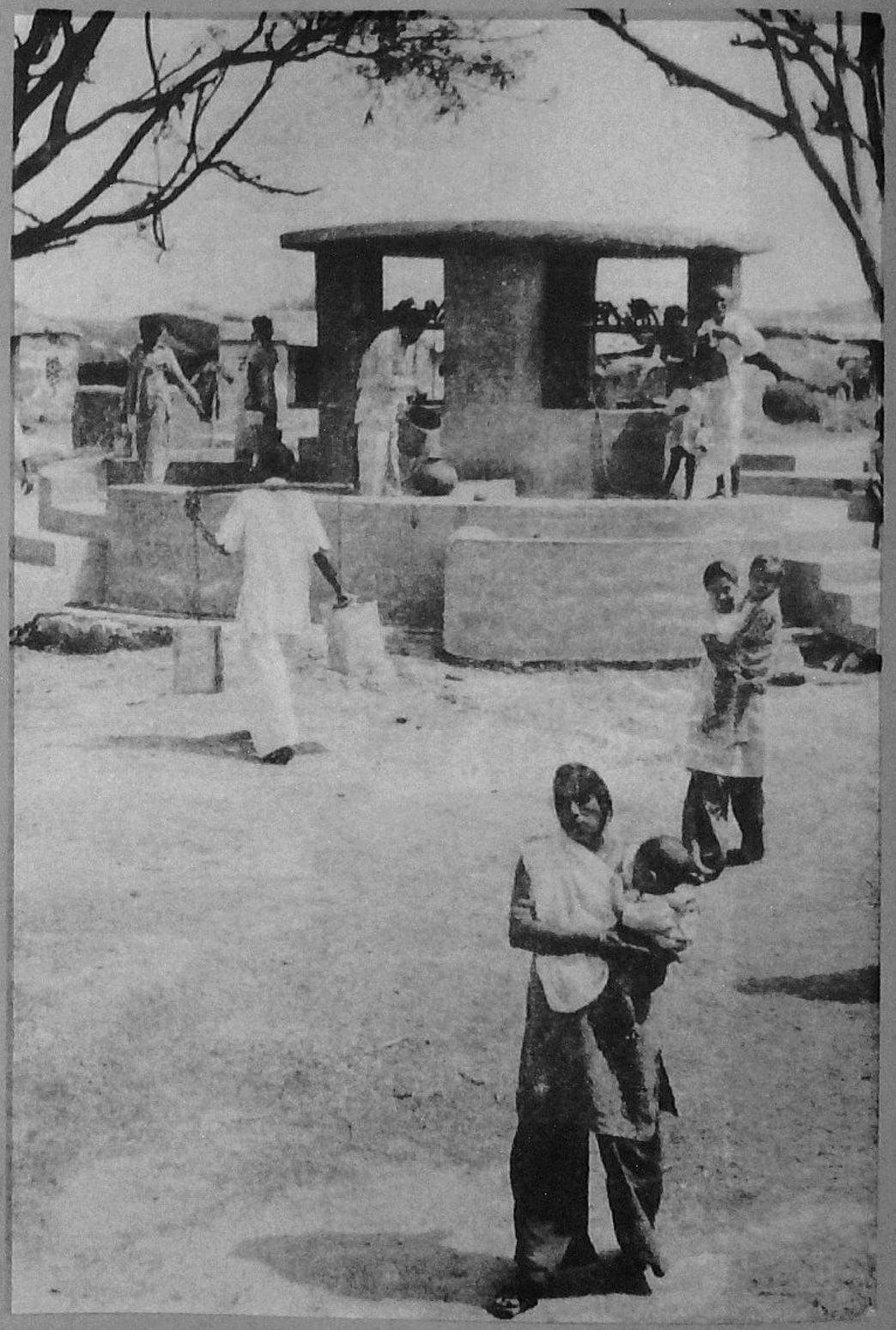
In many a village, a few community wells provide the only source of drinking water. Special care should be taken to keep these wells free from pollution. The plan opposite shows the arrangements for keeping a well, which serves as a source of drinking water, in a sanitary condition. The well is lined with masonry to a depth which would effectively keep out surface water and other sources of contamination. Further protection is afforded by the three feet high parapet wall above the ground level. A raised pucca platform built around the well prevents insanitary conditions in the immediate vicinity of the well. Water which spills on the platform is led away to a soak pit through a system of herring-bone drains. Pulley arrangement is provided at four points, for drawing water from the well with buckets. Masonry seats are provided for placing the utensils near the parapet. A pucca trough with a platform around it provides fresh drinking water for the cattle.


A
PLATFORM
SLOPE
SLOPE
SLOPE
CATTLE TROUGH
HERRING BONE DRAIN
4½"
3"
5'-0"
9"
9"
5'-0"
12"
4½"
WATER CHANNEL
WATER TANK
SLOPE
SLOPE
M.S. CHANNEL
G.I. PULLY
PLATFORM
12" 12" 4'-9" 1'-3" 9" 5'-0" WELL 10' DIA.
PLATFORM
WATER POTS
SLOPE
PLATFORM FOR WATER POTS ETC.
SLOPE
STEP
STEP
PLAN
SLOPE
CATTLE TROUGH
FLOORING
GROUND LEVEL
FLOORING
LIME CONCRETE
SLOPE
PLATFORM
SECTION ON A.A.
FRONT ELEVATION
SANITARY ARRANGEMENTS AROUND A WELL (A)
SCALE 0 1 2 3 4 6 8 12 16 IN FEET
DRG.NO. 24

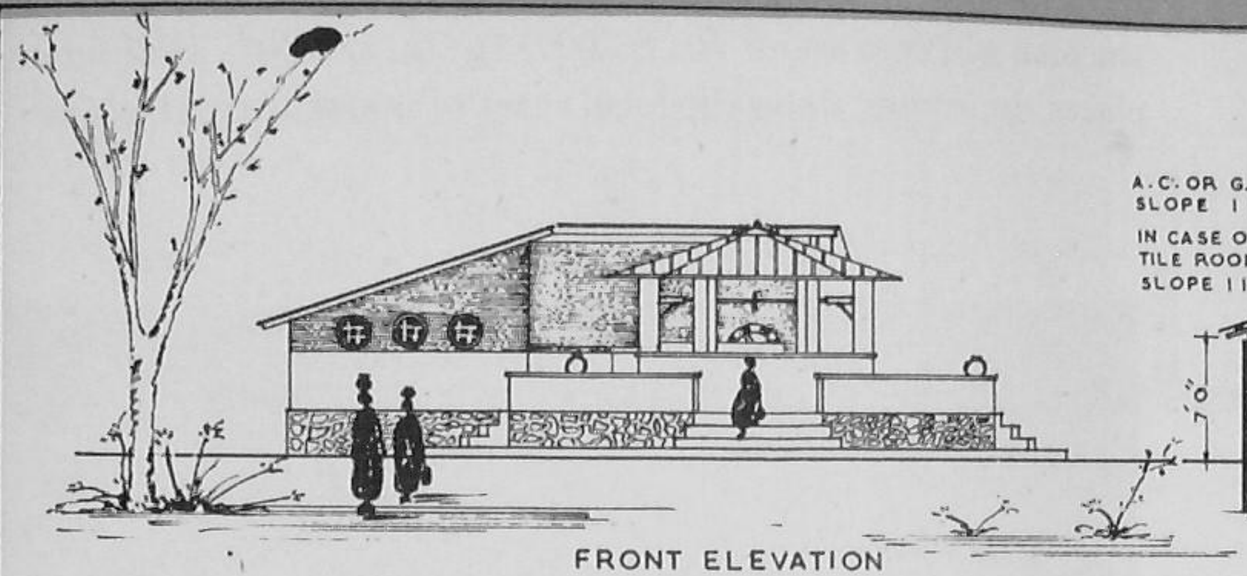
SANITARY ARRANGEMENTS AROUND A WELL (B)

The plan opposite shows, in addition to the arrangements indicated in the preceding plan, the provision of six community bath rooms, three for the men and three for the women, and a light roof over the well. A hand operated Persian wheel provides water for the bath rooms, which should have pucca floors and proper drainage arrangements.

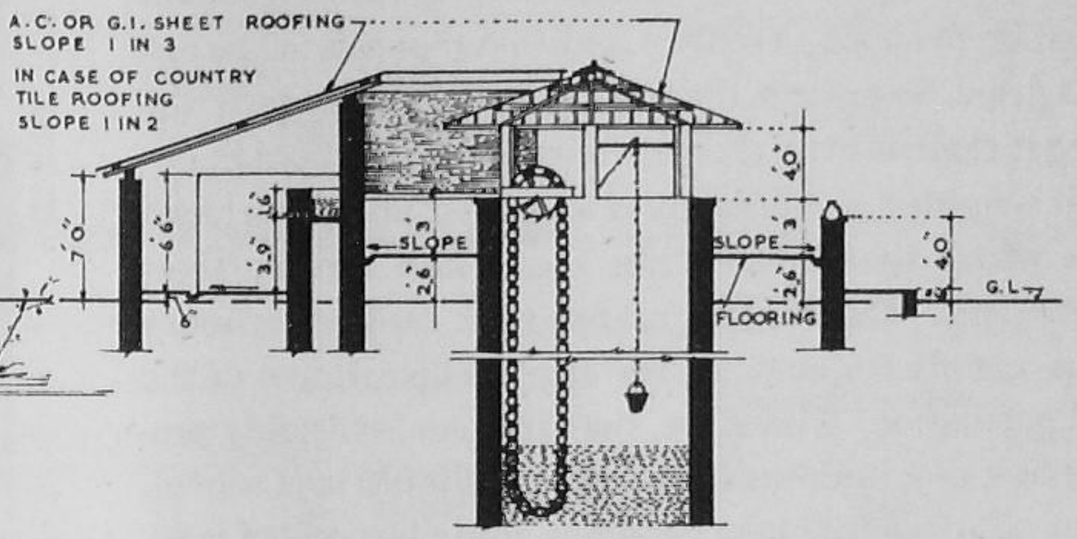
A HAND-OPERATED PERSIAN WHEEL



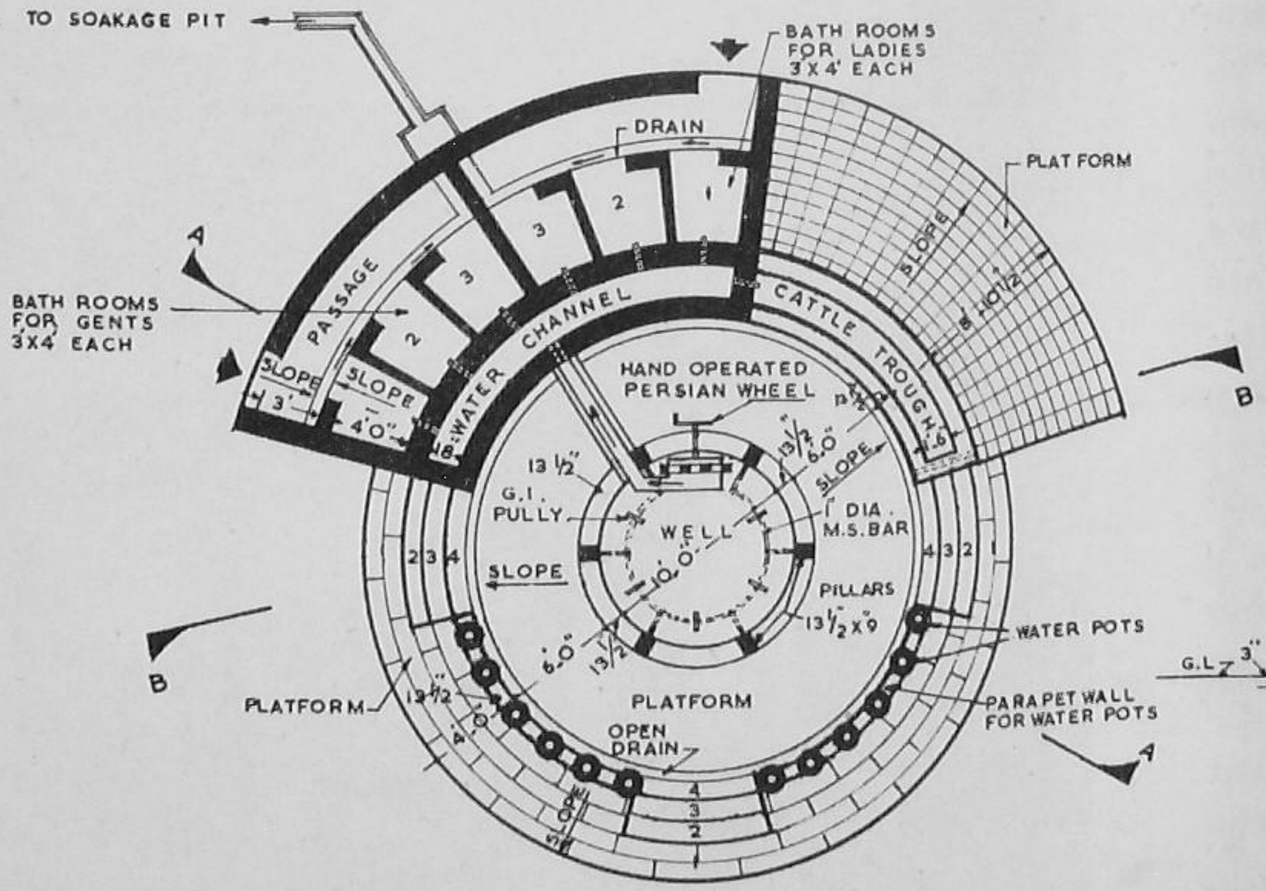
CLEAN WATER MEANS A HEALTHY VILLAGE



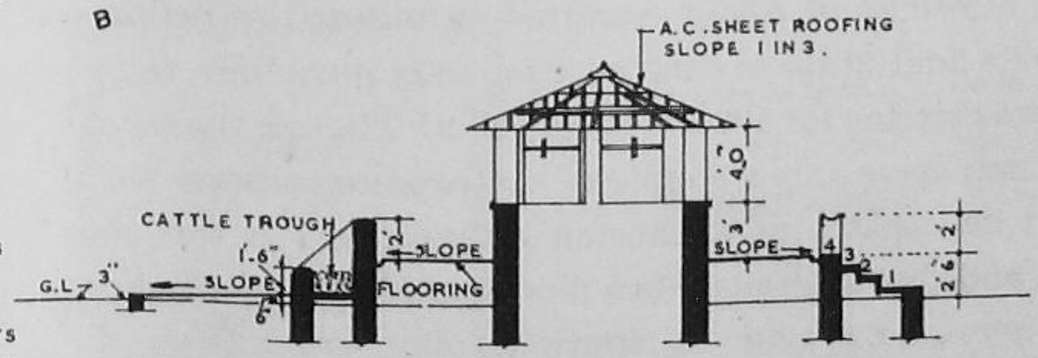
FRONT ELEVATION



SECTION ON A.A.



PLAN



SECTION ON B.B.

SANITARY ARRANGEMENTS AROUND A WELL (B)

(WITH BATH ROOMS)

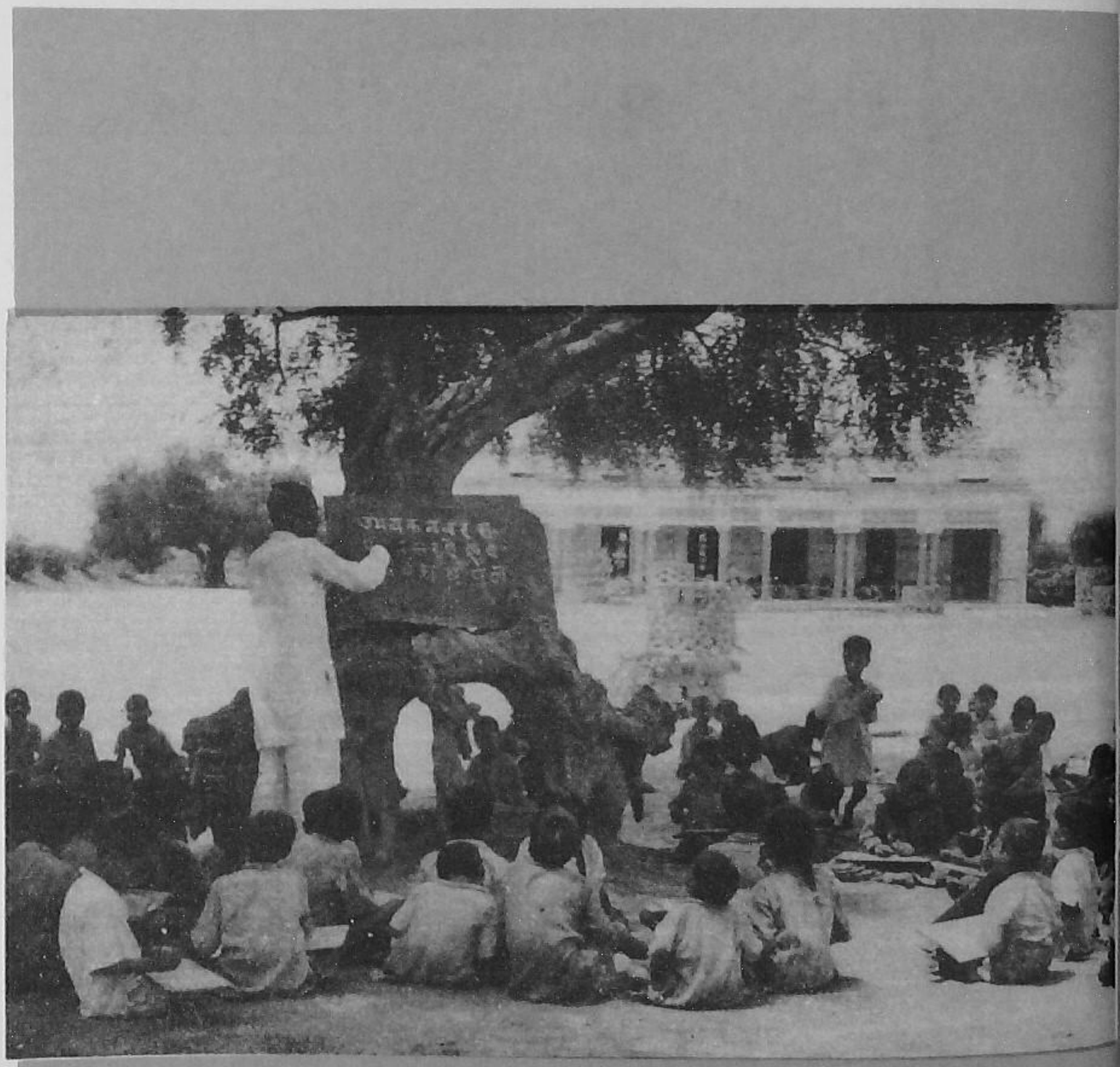
DRG. NO. 25

SCALE 0 2 4 6 8 12 16 24 32 IN FEET

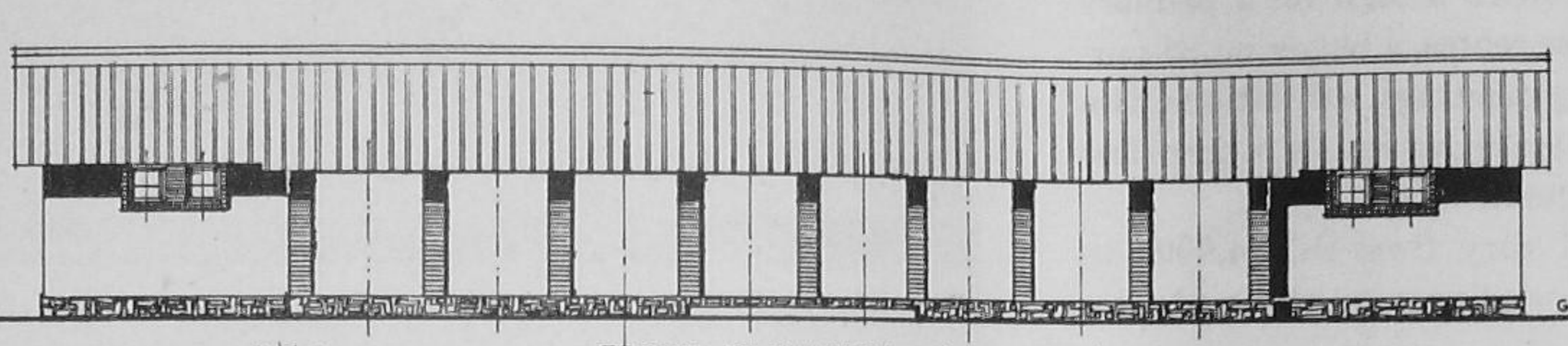
DESIGN FOR A PRIMARY SCHOOL (A)

On a rough estimate, a hundred thousand new primary schools are required to be set up during the years 1961–66, for giving education to about 13 million additional pupils in the age group 6–11 years. So great is the need and hurry to learn the three R's, that there is little time to construct the school building. All that is needed immediately is a teacher and some clean open space where the children can squat and receive their daily instructions. Their elders realise that lack of primary education is mainly responsible for the backwardness of the entire rural population. Therefore, the villagers invariably prefer that the first new building in the village should be a school, and they come forward to make generous contributions of land, labour and money for the provision of school buildings. Thus sooner or later, the open-air primary school gets housed in a small building which keeps on expanding as more resources are mobilised and also as more children are attracted to the institution. In a village of about hundred families, the primary school in its final stage of construction may have four to five class rooms catering for 100 to 150 children. Though the school building may have only a couple of class rooms to begin with, it should be capable of expansion as indicated in the plan opposite, and should be sited on a plot of land measuring about 1.5 to 2 acres, to provide a spacious play ground for the children. The building may be located on one side of the plot so that maximum use can be made of the play ground. The class rooms should have ample natural lighting through windows located, as far as possible, on the north side. The blackboard should be so placed that the light from the windows is preferably on the left of the pupils as they sit facing the board.

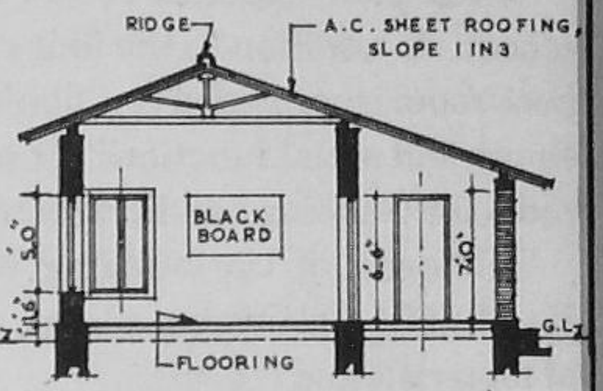
A school building of four class rooms of the type shown in the plan will cost about Rs. 8,500/- to Rs. 12,700/- at different places, depending upon the local rates of materials and labour.



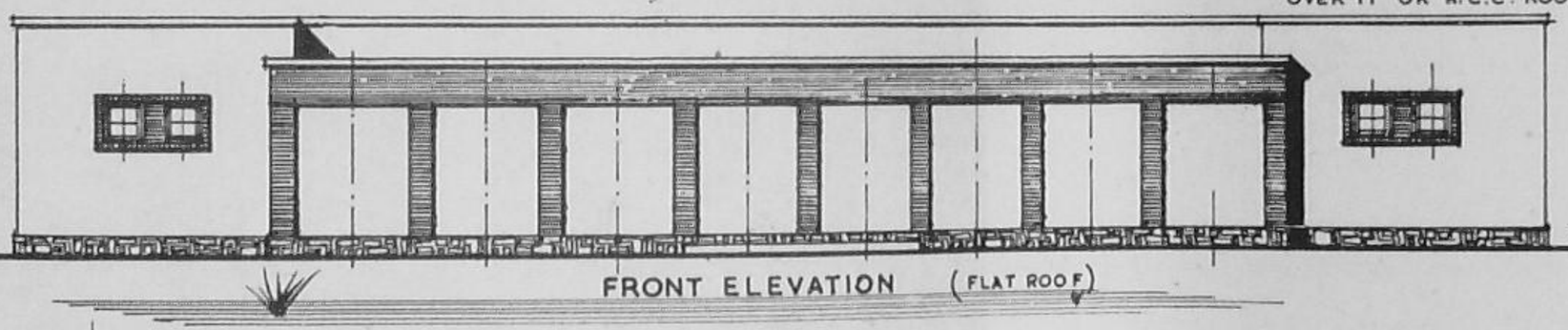
ALPHABET WITHOUT TEARS



FRONT ELEVATION (PITCH ROOF)

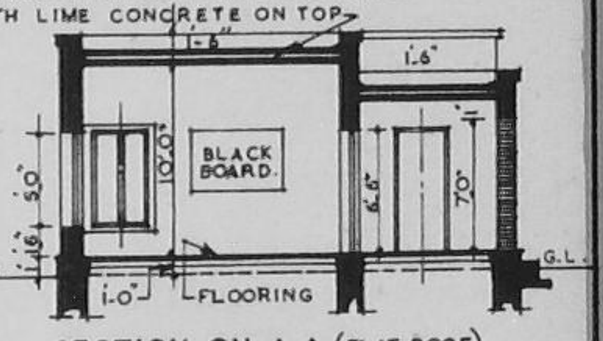


SECTION ON A.A. (PITCH ROOF)

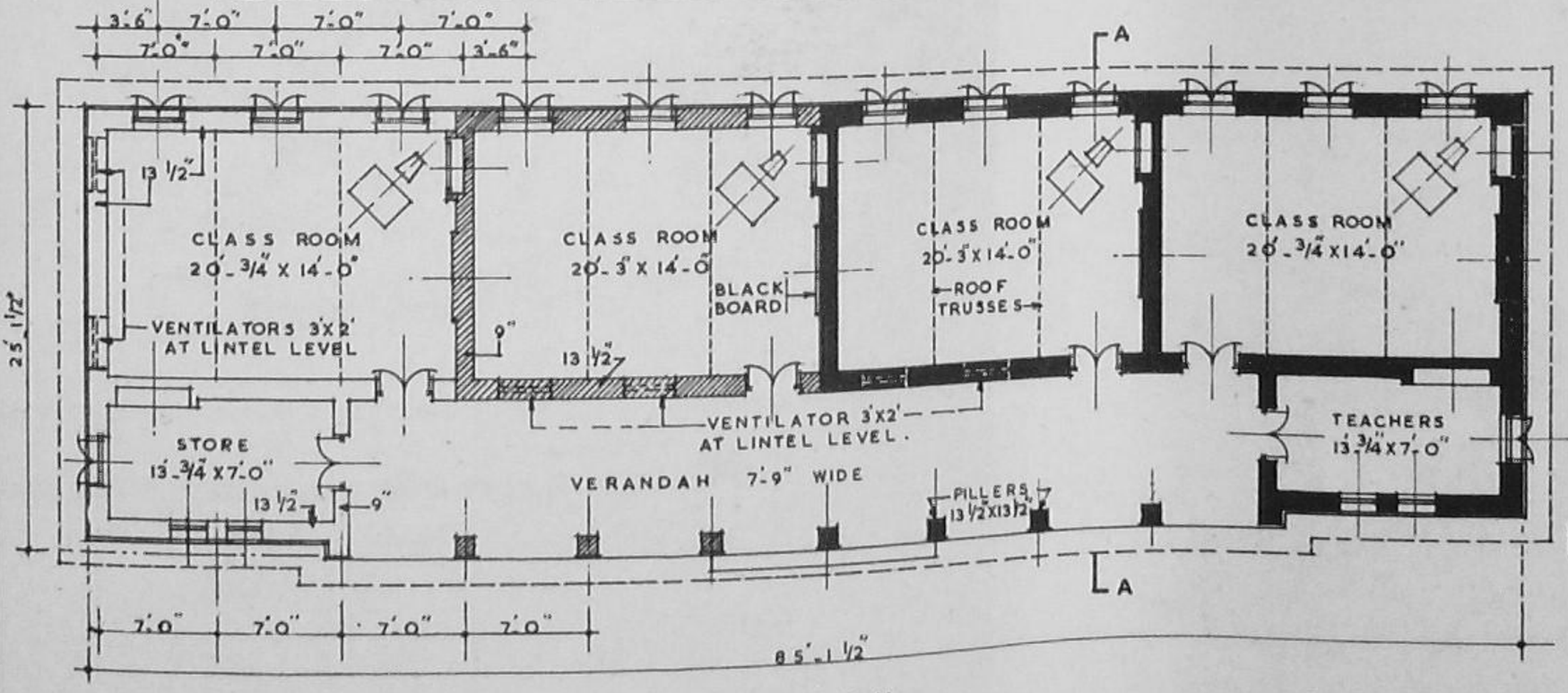


FRONT ELEVATION (FLAT ROOF)

COUNTRY WOOD BATTENS TOPPED WITH BRICK TILES & MUDPHASKA OVER IT OR R.C.C. ROOF WITH LIME CONCRETE ON TOP



SECTION ON A.A. (FLAT ROOF)



PLAN.

	PLINTH AREA
FIRST STAGE	1067 SQ.FT.
SECOND STAGE	528 SQ.FT.
THIRD STAGE	522 SQ.FT.

N

PRIMARY SCHOOL (A)

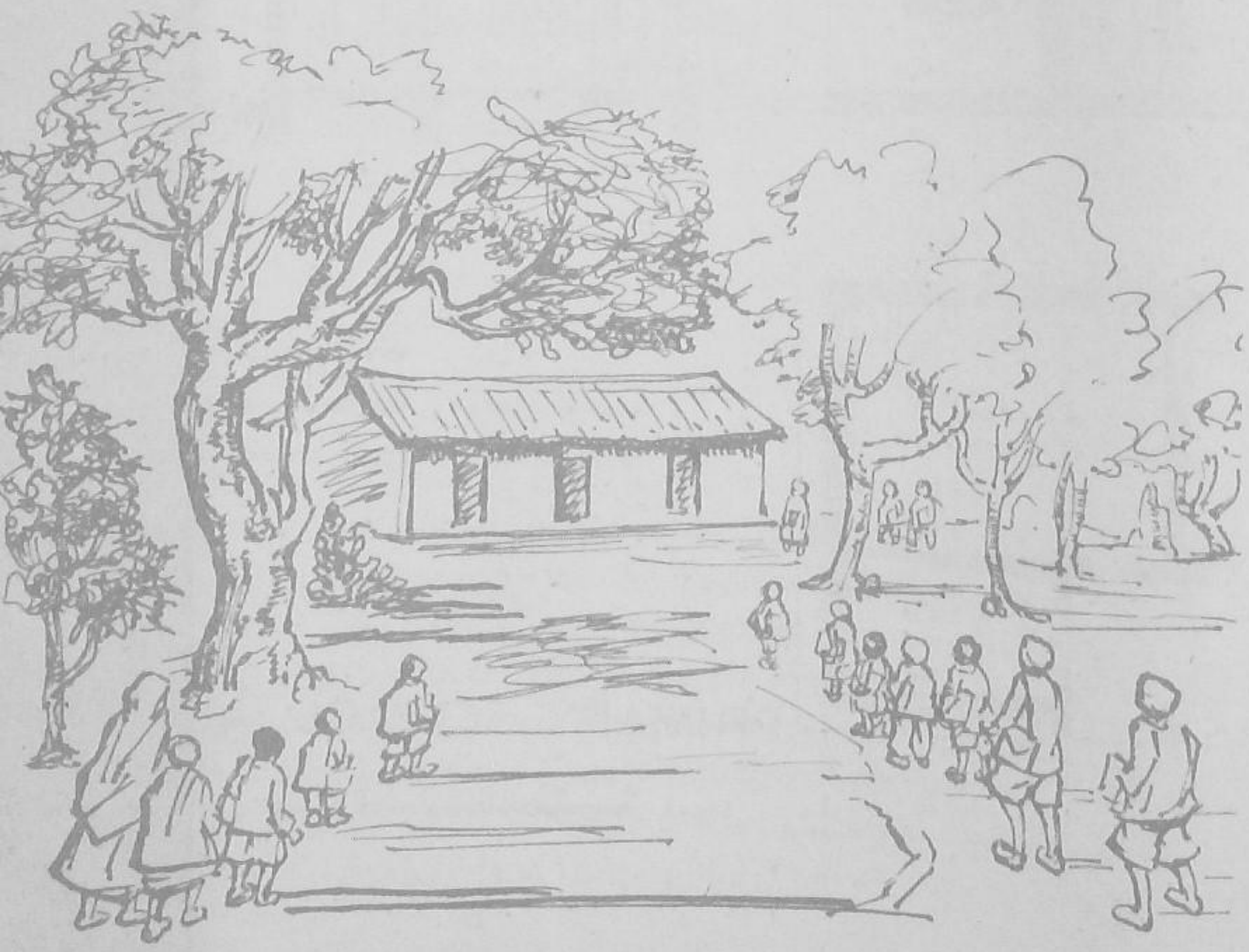
SCALE 0 4 8 16 IN FEET.

DRG. NO. 26

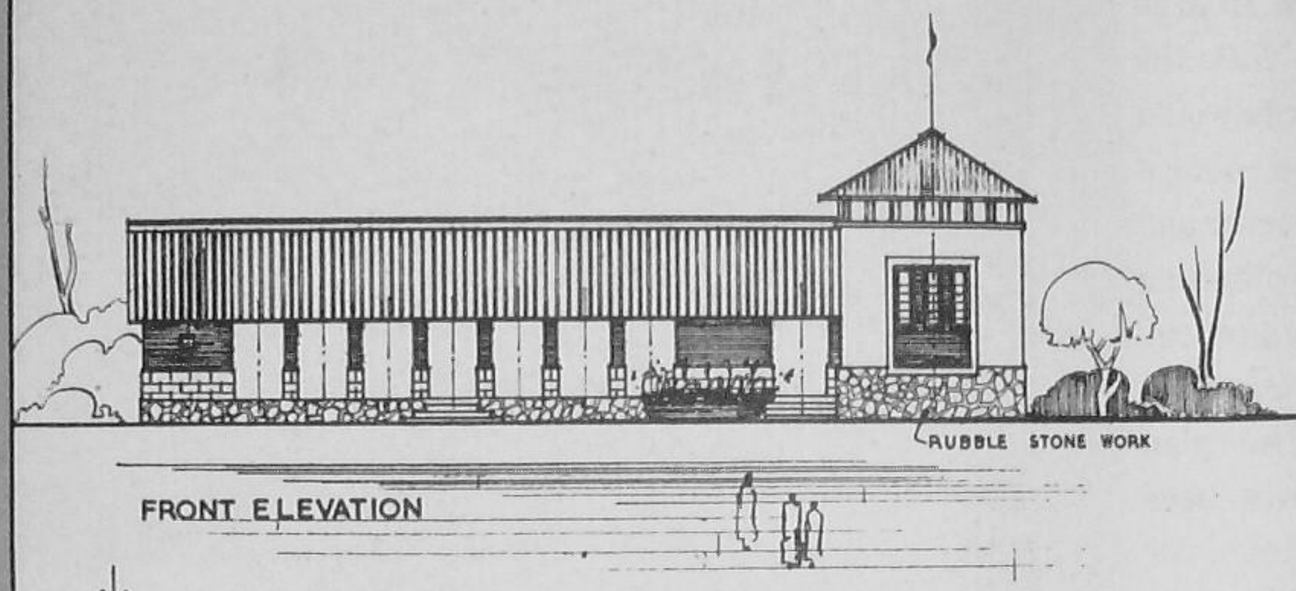
DESIGN FOR A PRIMARY SCHOOL (B)

The plan opposite shows another design for a primary school. In addition to the four class rooms, a bigger multi-purpose room is provided for holding meetings, exhibitions, film shows and social functions. It may also serve as a bigger class room for teaching handicrafts to the children.

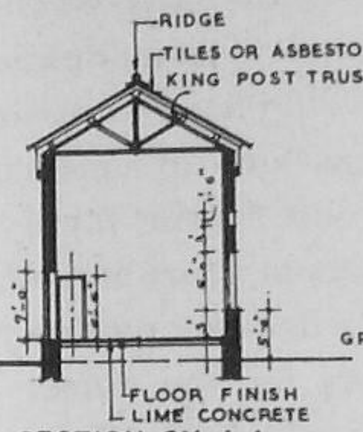
The cost of the building will vary from Rs. 14,600/- to Rs. 19,400/- at different places, depending upon the local rates of materials and labour.



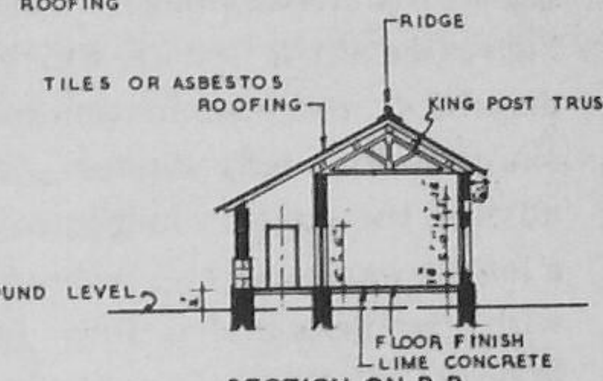
WORK AND NO PLAY WOULD HAVE KEPT THEM AWAY



FRONT ELEVATION

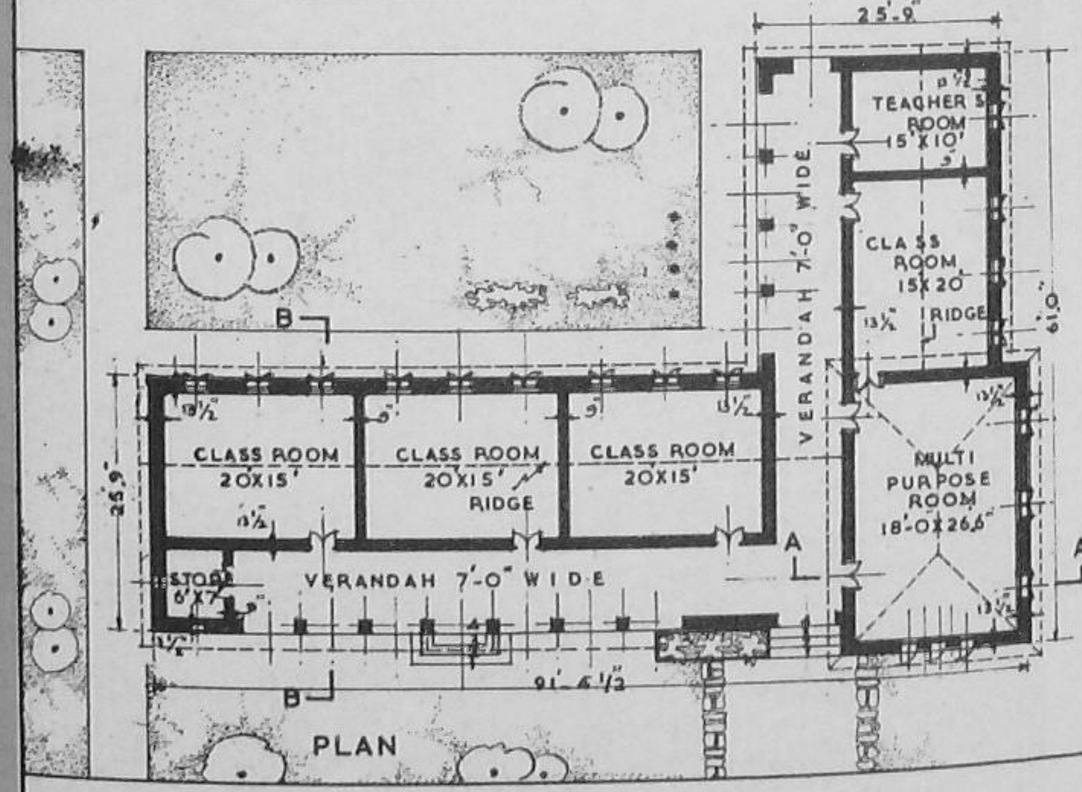


SECTION ON. A-A.

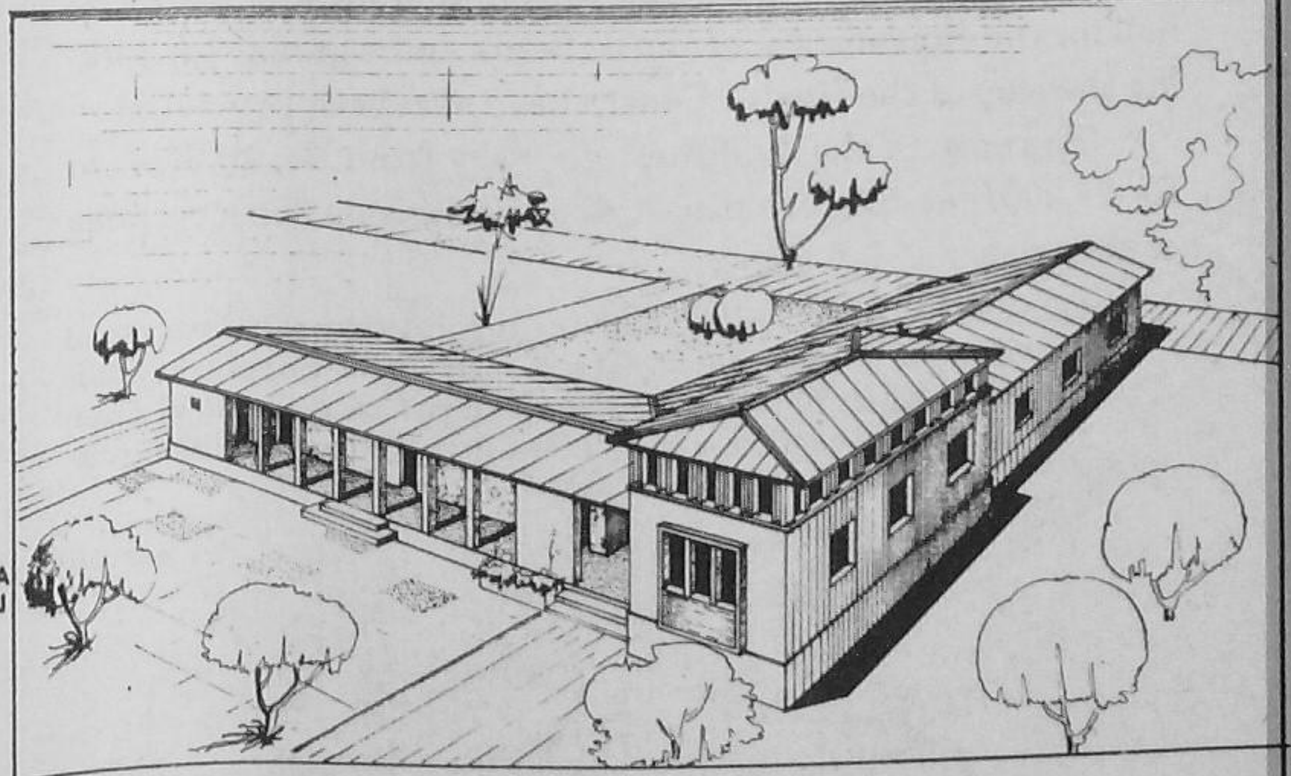


SECTION ON. B. B.

PLINTH AREA 3240 SQ. FEET.



PLAN



DESIGN FOR A PRIMARY SCHOOL (B)

SCALE 0 8 16 24 32 48 64 IN FEET.

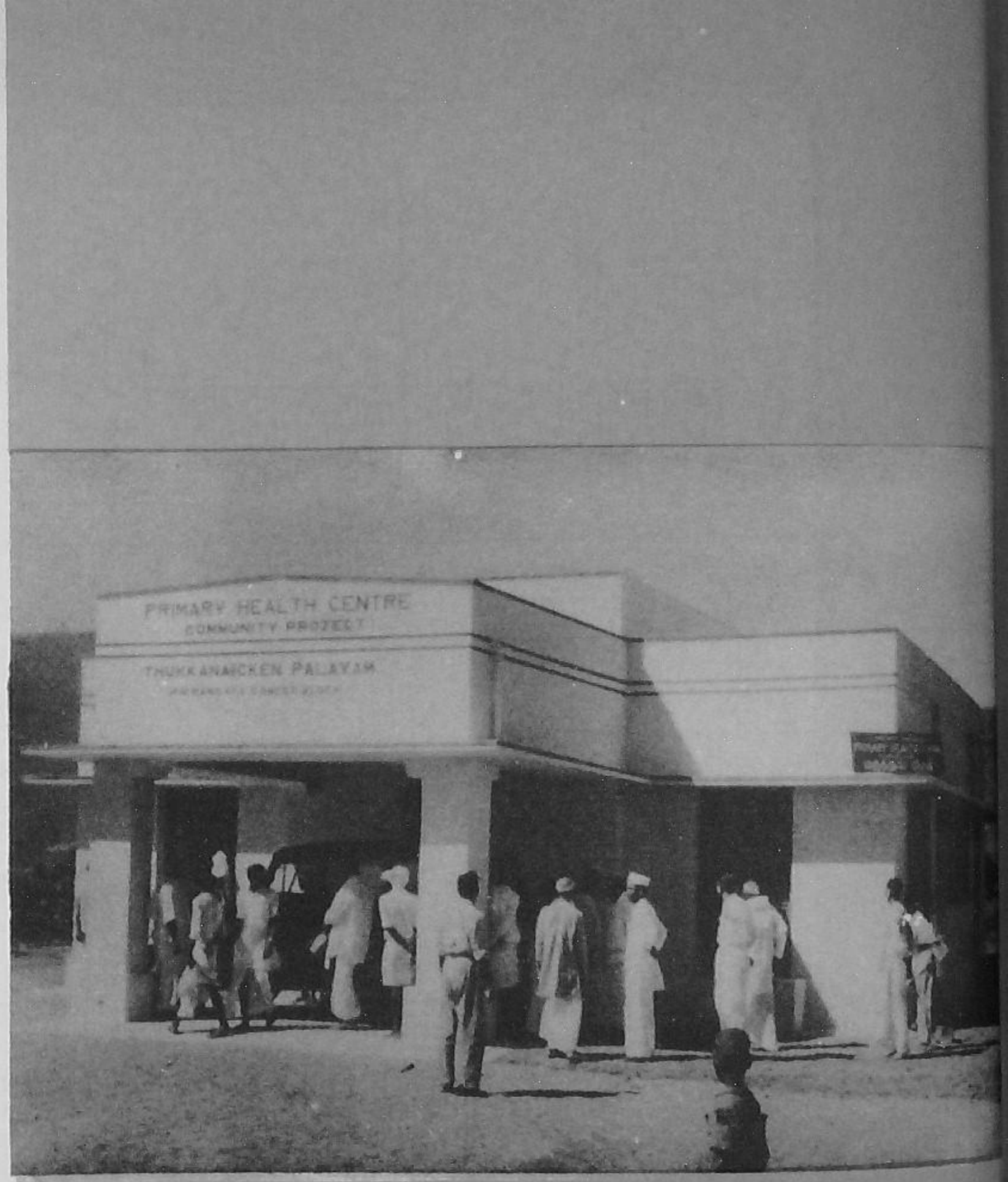
DRG. NO. 27

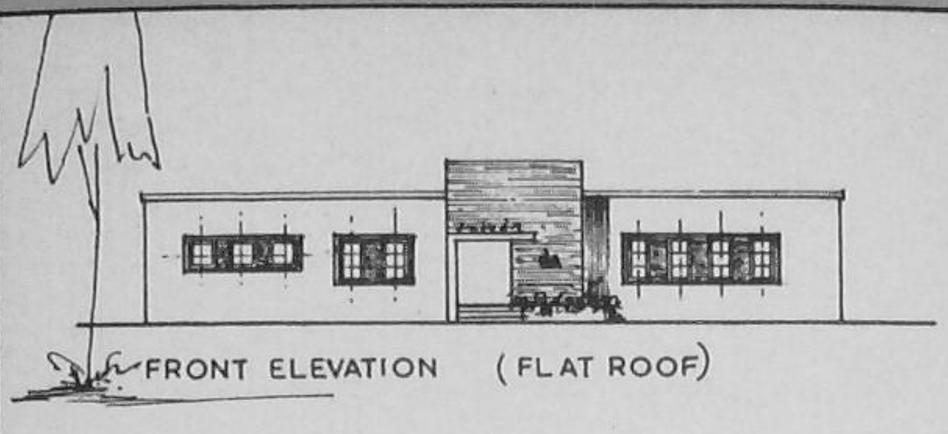
DESIGN FOR A PRIMARY HEALTH CENTRE

A Primary Health Centre may be conveniently located in a bigger village which serves as a nucleus for a group of 15 to 25 small villages. Mobile service health units would link the Centre with these villages. Outdoor and indoor patients would be treated at the Centre, which would have a dressing room, a dispensary, two examination rooms—one for a male doctor and the other for a lady doctor—, a room for the family-planning adviser, the sanitary inspector's room, store and office rooms, a female ward with two beds and a delivery room, a male ward with four beds and a duty room for the nurse. The plan opposite shows a design for such a Centre. The rooms have been so arranged that each section can carry on its activities without causing disturbance to the other units. Verandahs facilitate circulation from one section to another. A waiting hall for the convenience of the patients and a garage for parking the jeep of the Health Centre have also been provided.

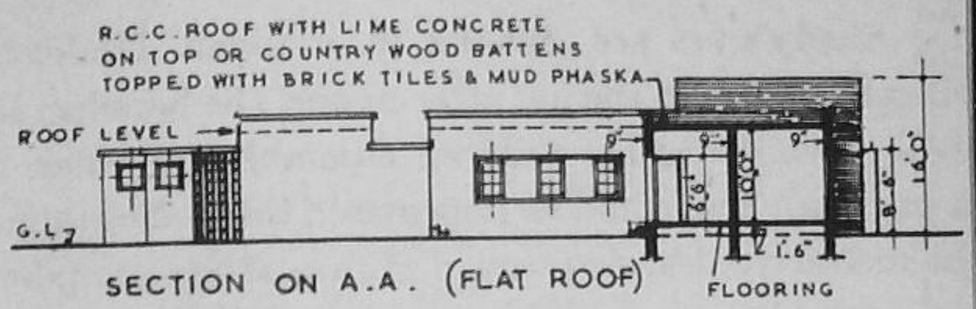
The cost of the building will vary from Rs. 20,000/- to Rs. 27,000/- at different places, depending upon the local rates of materials and labour.

NOTE: The Panel on Health Buildings appointed by the Government of India, Ministry of Works, Housing and Supply has since published its Report on Primary Health Centres in Rural Areas. The Report contains a Model Plan for a Primary Health Centre

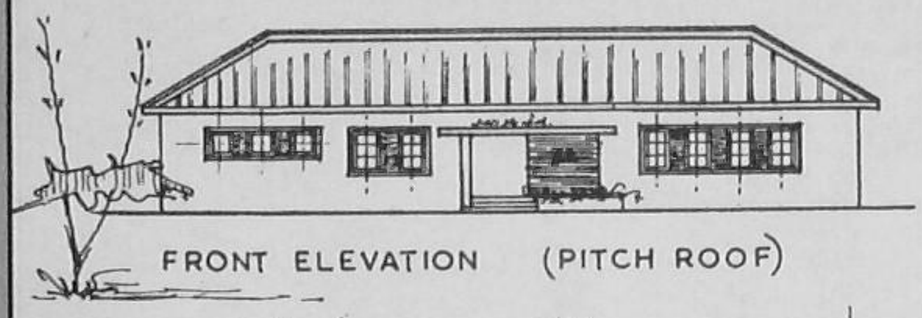




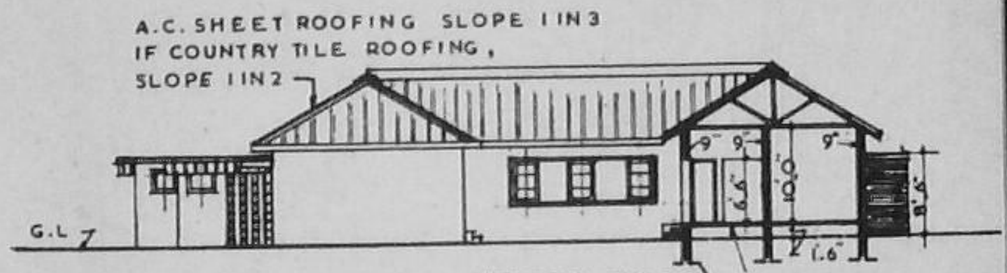
FRONT ELEVATION (FLAT ROOF)



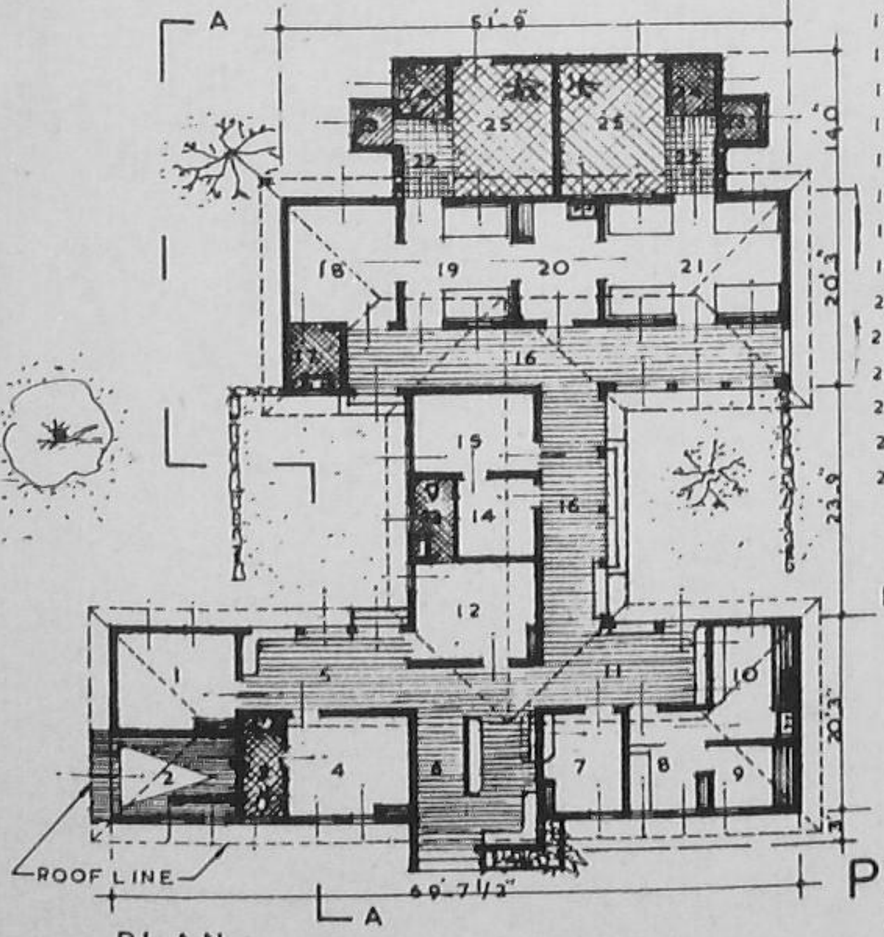
SECTION ON A.A. (FLAT ROOF)



FRONT ELEVATION (PITCH ROOF)



SECTION ON A.A. (PITCH ROOF)

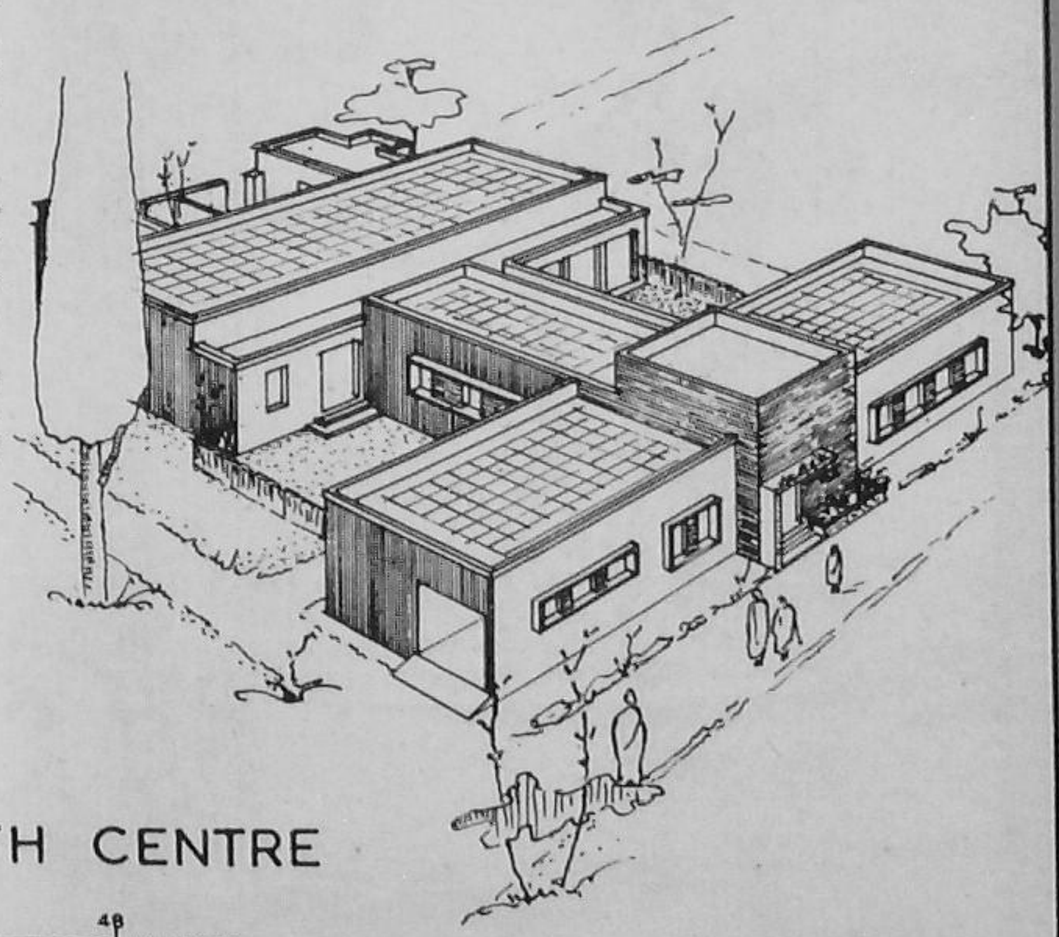


PLAN

REFERENCES

1. FAMILY PLANING — — — 12'-0" X 10'-0"
2. JEEP GARAGE — — — — 12'-0" X 8'-0"
3. LADY DR'S TOILET — — 4'-0" X 10'-0"
4. LADY DOCTOR — — — — 12'-0" X 10'-0"
5. LADIES WAITING — — — — 12'-0" X 8'-0"
6. WAITING HALL — — — — 12'-0" X 18'-9"
7. OFFICE AND RECORD — 8'-0" X 10'-0"
8. DRESSING ROOM — — — 8'-0" X 10'-0"
9. STORE FOR MEDICINES — 8'-0" X 6'-3"
10. DISPENSARY — — — — — 8'-0" X 11'-9"
11. VERANDAH — — — — — — 16'-0" X 8'-0"
12. DOCTOR & EXAMINATION 12'-0" X 10'-0"
13. DOCTOR'S TOILET — — — 4'-0" X 8'-0"
14. STORE — — — — — — — — 7'-7 1/2" X 8'-0"
15. SANITARY INSP. ROOM — 12'-0" X 8'-0"
16. VERANDAH 6 FEET WIDE
17. WASH — — — — — — — — — 5'-0" X 6'-0"
18. DELIVERY ROOM — — — 11'-0" X 12'-0"
19. FEMALE 2 BED WARD — — 11'-0" X 12'-0"
20. DUTY ROOM — — — — — 8'-0" X 12'-0"
21. MALE 4 BED WARD — — — 18'-0" X 12'-0"
22. PASSAGE
23. W. C. — — — — — — — — 3'-6" X 4'-0"
24. WASH — — — — — — — — 4'-6" X 5'-0"
25. OPEN COURT — — — — 10'-1 1/2" X 13'-3"

PLINTH AREA 3200 S. FT.



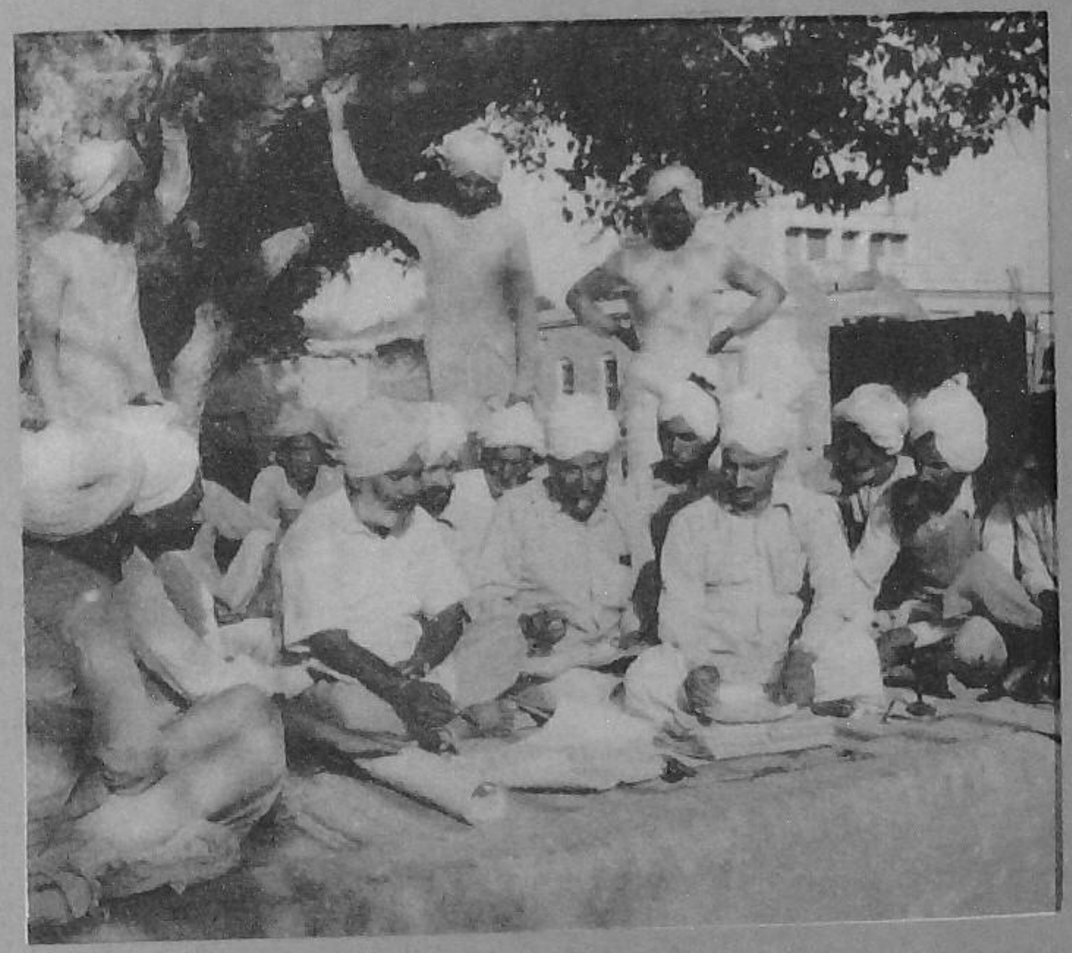
PRIMARY HEALTH CENTRE

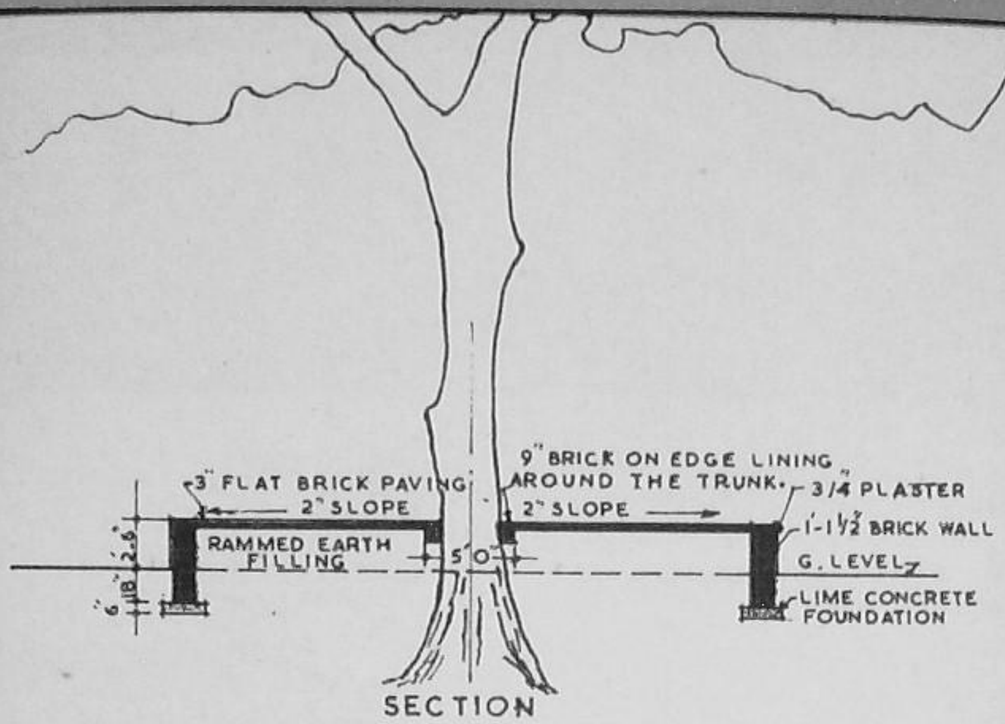
SCALE 0 4 8 12 16 24 32 48 IN FEET.

DRG. NO. 28

DESIGN FOR A PLATFORM AROUND A TREE

Shady trees are an asset in a village. Under them, the village folk rest in the hot after-noons, the panchayat holds its deliberations, and the children assemble for work and play. A big shady tree could be improvised into a community centre for such activities, if a pucca platform of the type shown in the plan opposite is provided around it. The size of the platform may be varied to suit local requirements.





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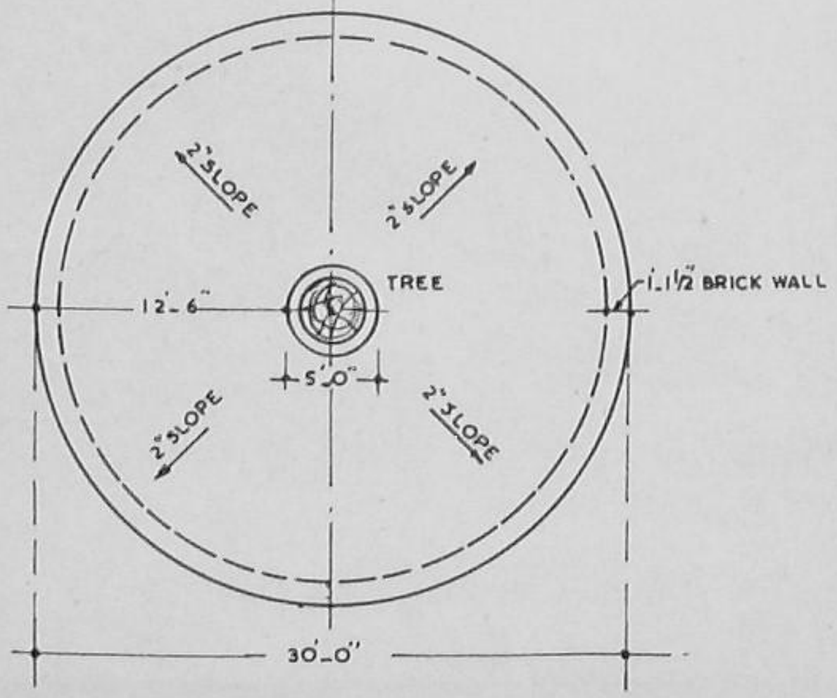
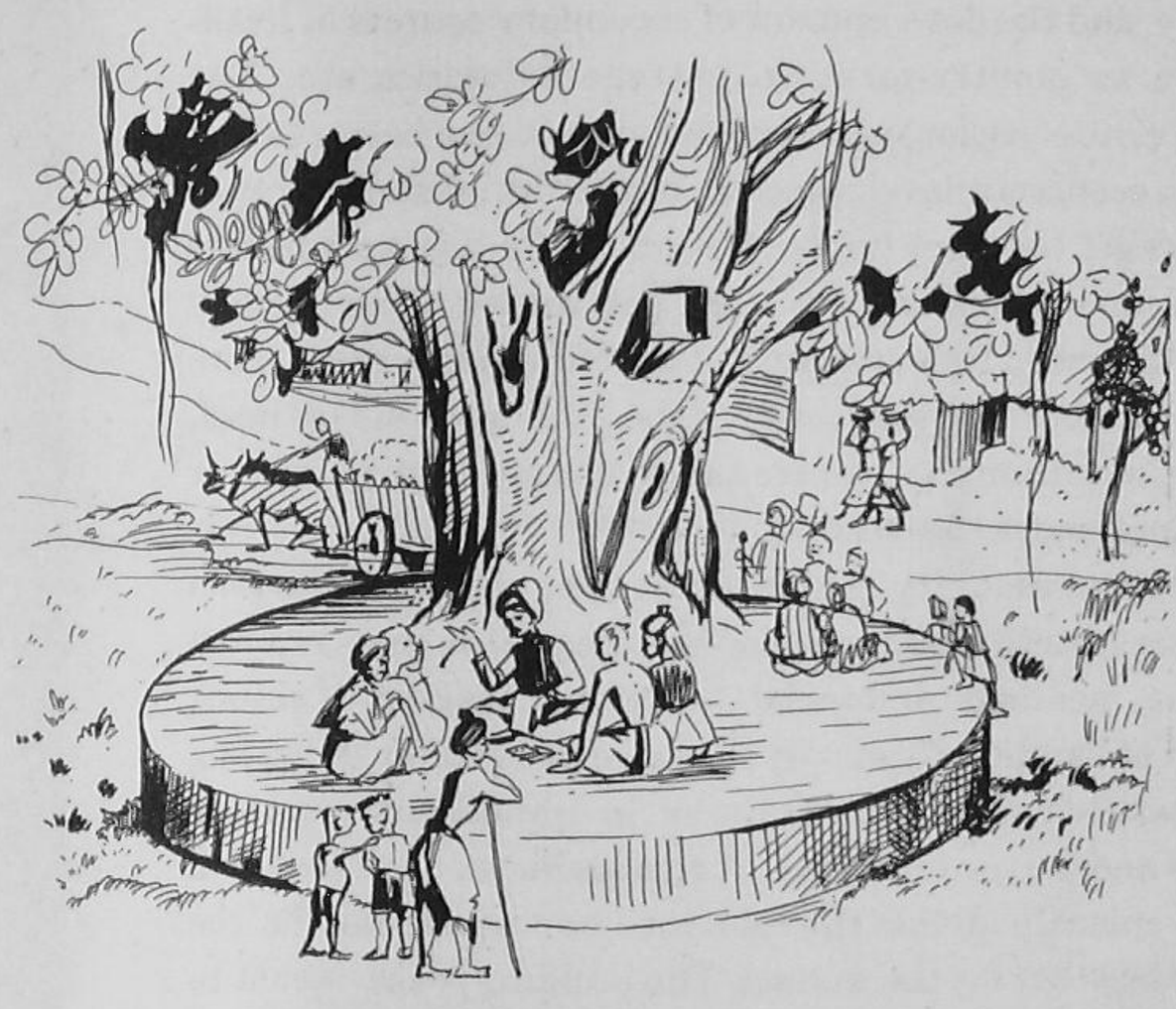


PLAN



NOTE:-
20 FEET TO 30 FEET DIAMETER MASONRY PLATFORM TO BE CONSTRUCTED ROUND A BIG SHADY TREE. THE PLATFORM MAY BE OF BRICK OR STONE IN CEMENT OR LIME MORTAR. THE TOP AND SIDES MAY BE PLASTERED OR POINTED WITH CEMENT OR LIME MORTAR.

TYPICAL PLATFORM AROUND A TREE

SCALE 0 2 4 6 8 12 16 24 32 IN FEET.

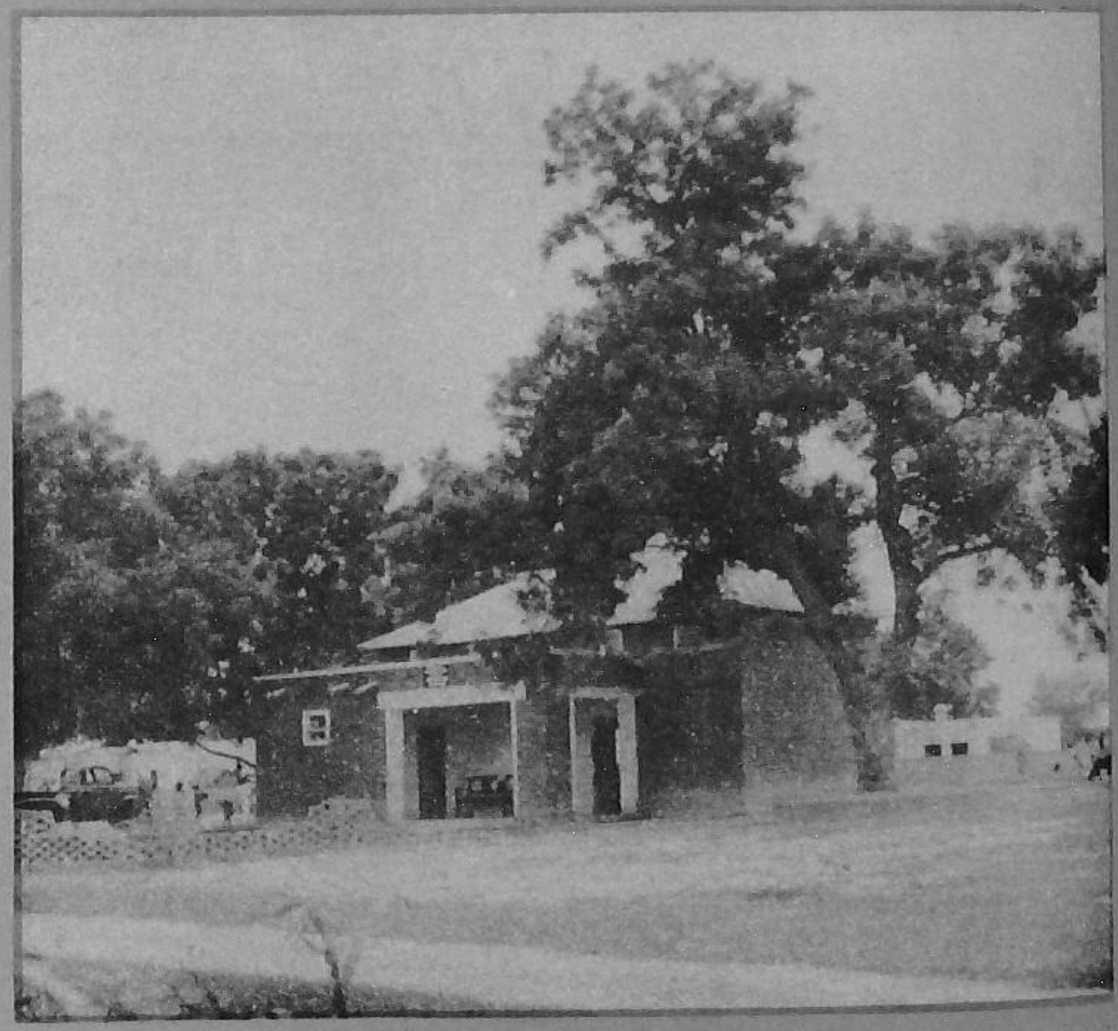
DRG.NO.29

DESIGN FOR A COMMUNITY CENTRE (A)

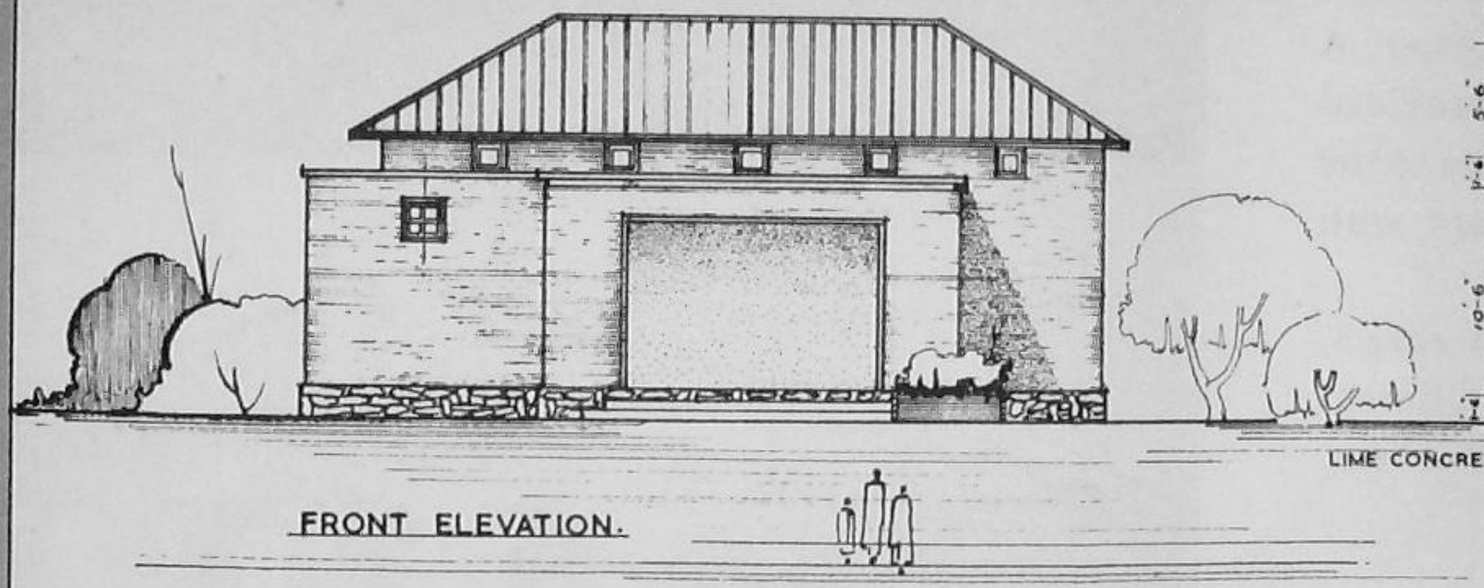
The income level of the villagers is gradually rising with the adoption of improved methods of agriculture and animal husbandry, and the development of secondary sources of livelihood such as poultry-farming, cottage industries, etc. The growth of civic consciousness and the urge to live better follow close upon economic development. In the initial stage, groups of villagers get together under the shade of a tree and discuss their common problems. As they get drawn more closely together, the need for some sort of a community life is more strongly felt. As a first step towards the fulfilment of this need, a plan for a community centre takes shape, and sooner or later the building is constructed.

A small community centre of the type shown in the plan opposite serves as a multi-purpose building. It is used as a hall for holding meetings and social functions, staging of shows, exhibition of handicrafts,etc. It may also be used for imparting adult education as well as training in handicrafts, cottage industries and domestic science. A removable wooden partition may conveniently divide the hall into two parts, one for the men and the other for the women. The building is also meant to contain panchayat records, the community radio, some reading materials, educative posters,etc. The store room in conjunction with the spacious verandah can also be used as a dispensary, till a health centre is built for the village.

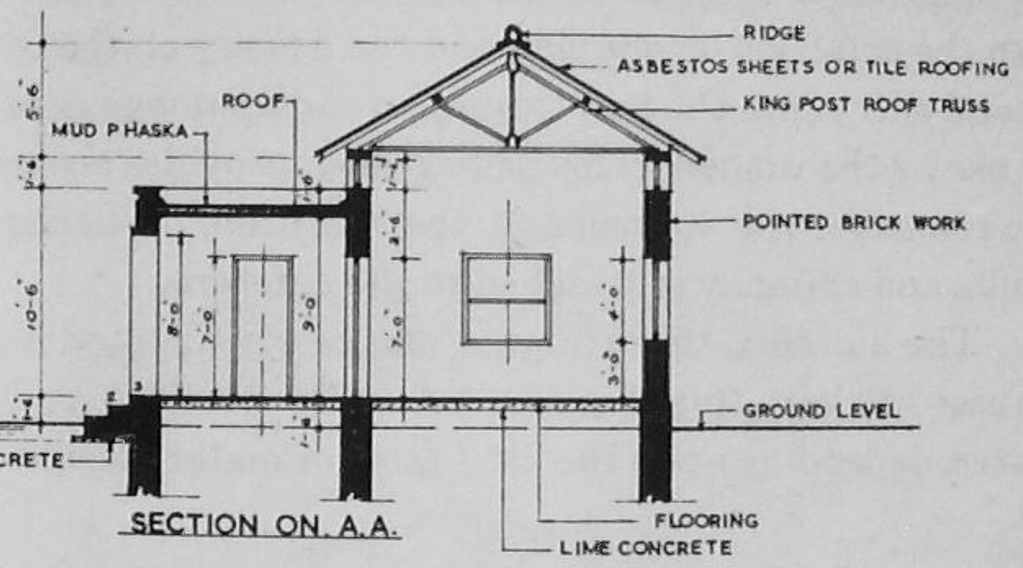
The cost of the building will vary from Rs. 5,000/- to Rs. 7,000/- at different places, depending upon the local rates of materials and labour.



A COMMUNITY CENTRE

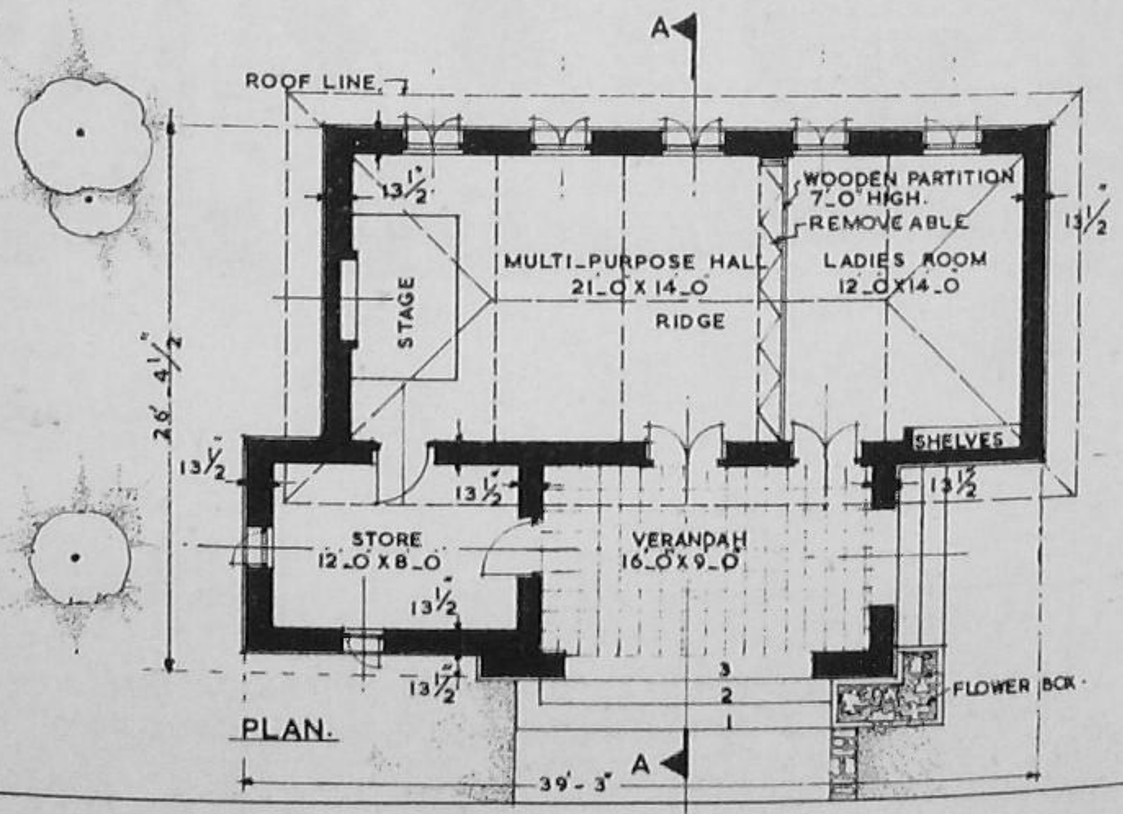


FRONT ELEVATION.

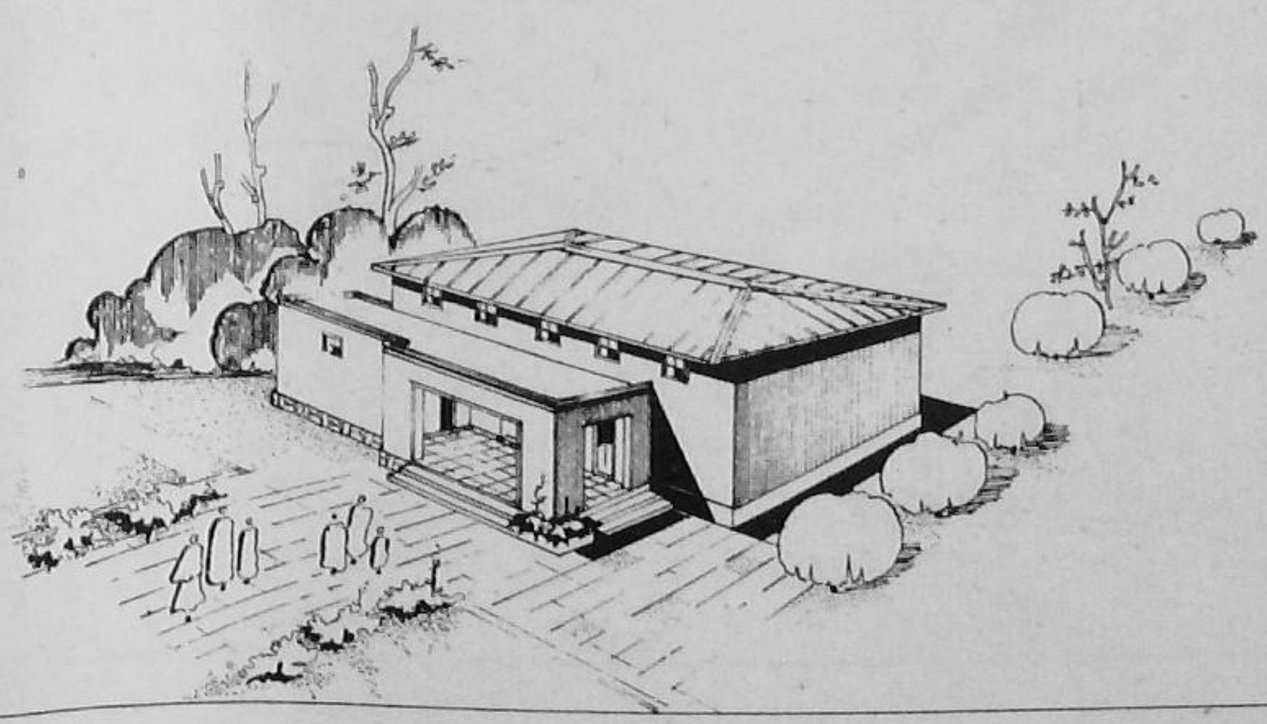


SECTION ON A.A.

PLINTH AREA = 875. SFT.



PLAN.



DESIGN FOR A COMMUNITY CENTRE (A)

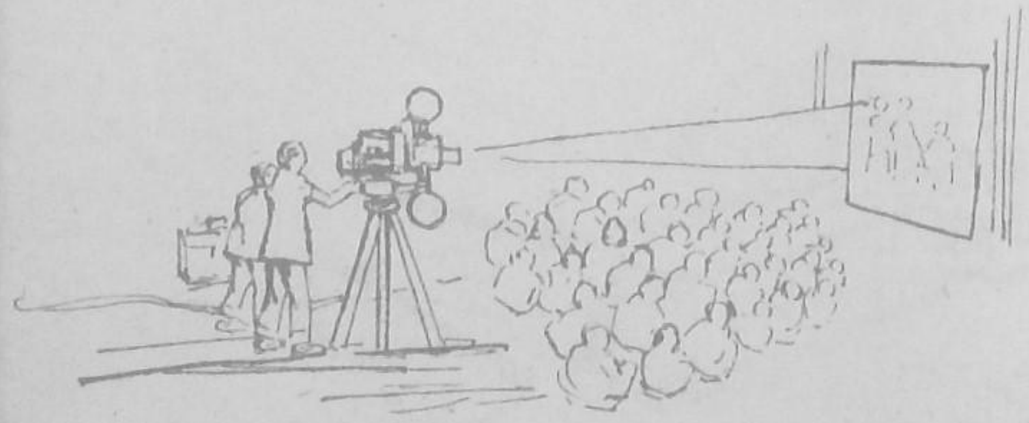
DRG. NO. 30

SCALE 0 4 8 12 16 24 32 IN FEET

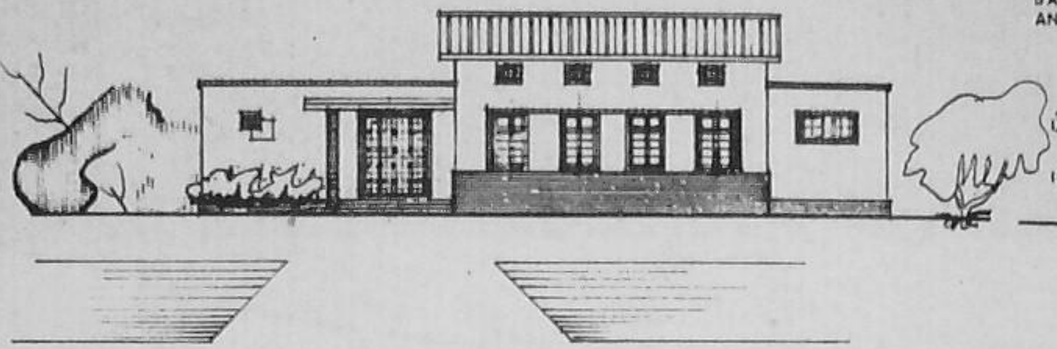
DESIGN FOR A COMMUNITY CENTRE (B)

The plan shows a design for a large community centre for the bigger and more prosperous villages. The spacious hall is used for films, dramas, meetings, social functions, exhibitions, etc. The hall is approached through a vestibule, which links it with the cafeteria on one side and the library on the other. A second entry into the hall through a side passage is provided for use by the women. This passage also provides access to the two rooms for the women and the children. A kitchen with chulla and chimney is attached to the cafeteria.

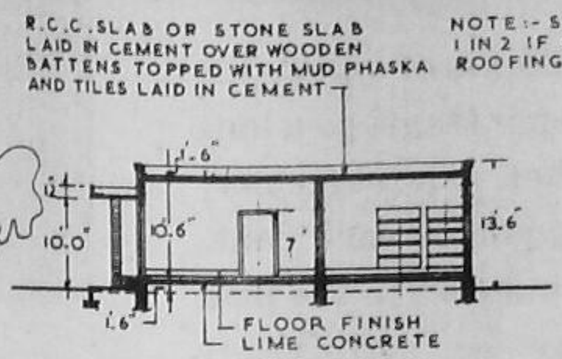
The building, though large, can be constructed in stages. Its cost will vary from Rs. 15,000/- to Rs. 20,000/- at different places, depending upon the local rates of materials and labour.



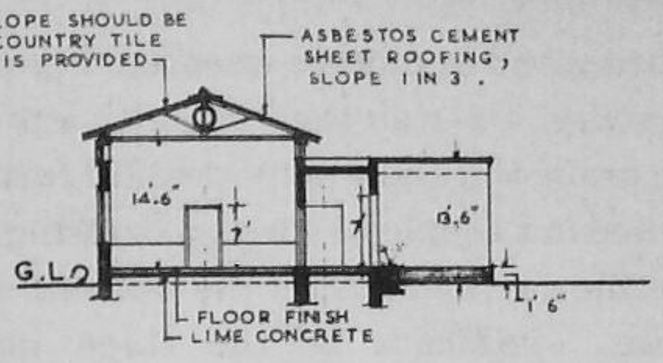
MEETINGS, CULTURAL SHOWS, AND EXHIBITIONS CAN ALL BE HELD IN THIS MULTI-PURPOSE BUILDING



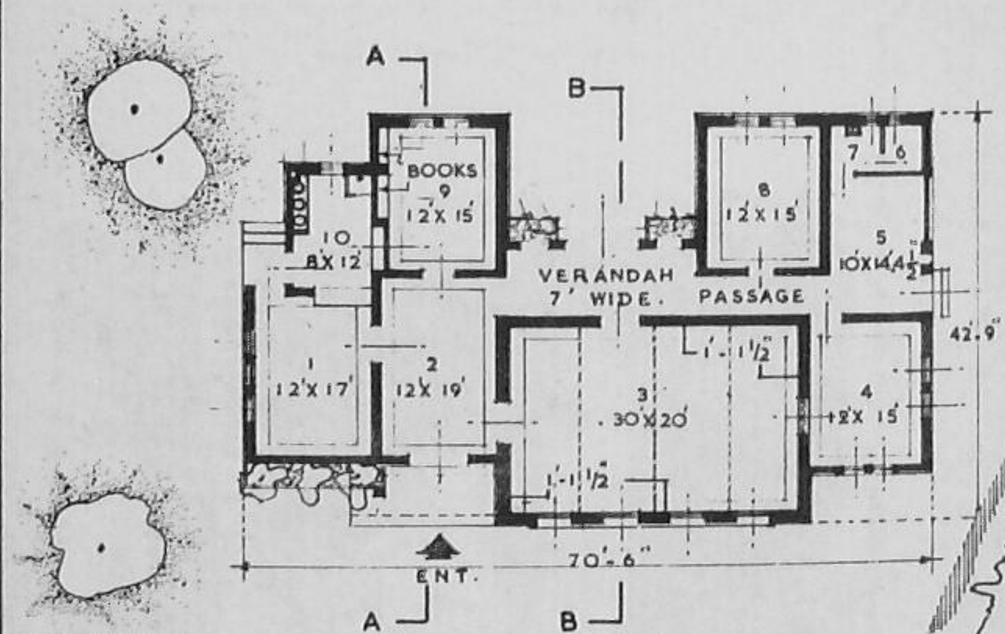
FRONT ELEVATION



SECTION ON A.A.



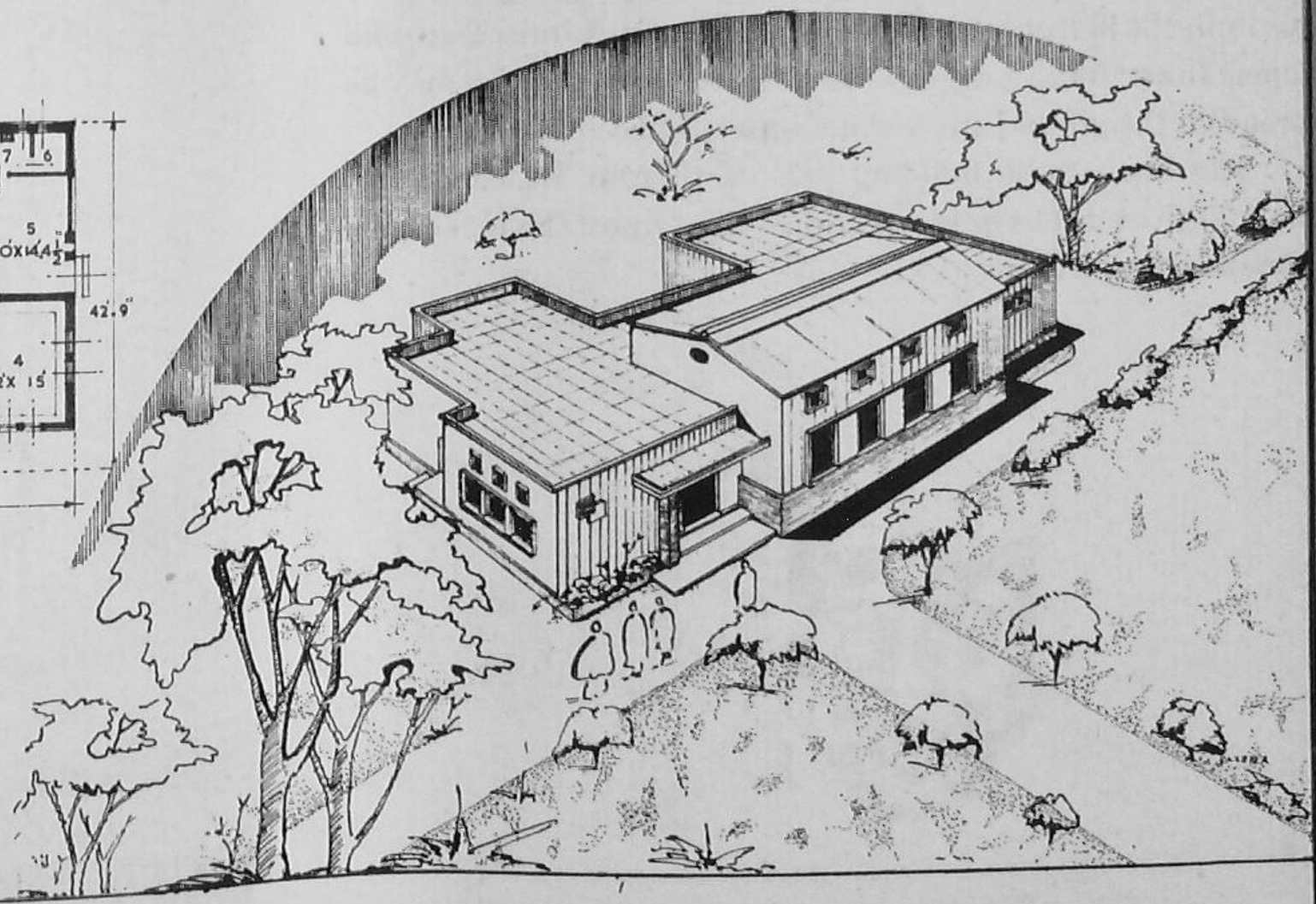
SECTION ON B.B.



PLAN.

REFERENCES:-
1. CAFETARIA.
2. VESTIBULE
3. MULTI PURPOSE HALL FOR LECTURES, FILMS AND DRAMAS ETC.
4. WOMEN'S ROOM.
5. PLAYING VERANDAH 10 FT. WIDE.
6. BATH. 4'X5'
7. WASH. 5'-7 1/2" X 5'-0"
8. CHILDREN'S ROOM.
9. LIBRARY.
10. KITCHEN.

PLINTH AREA · 2416. SQ. FT.



DESIGN FOR A COMMUNITY CENTRE (B)

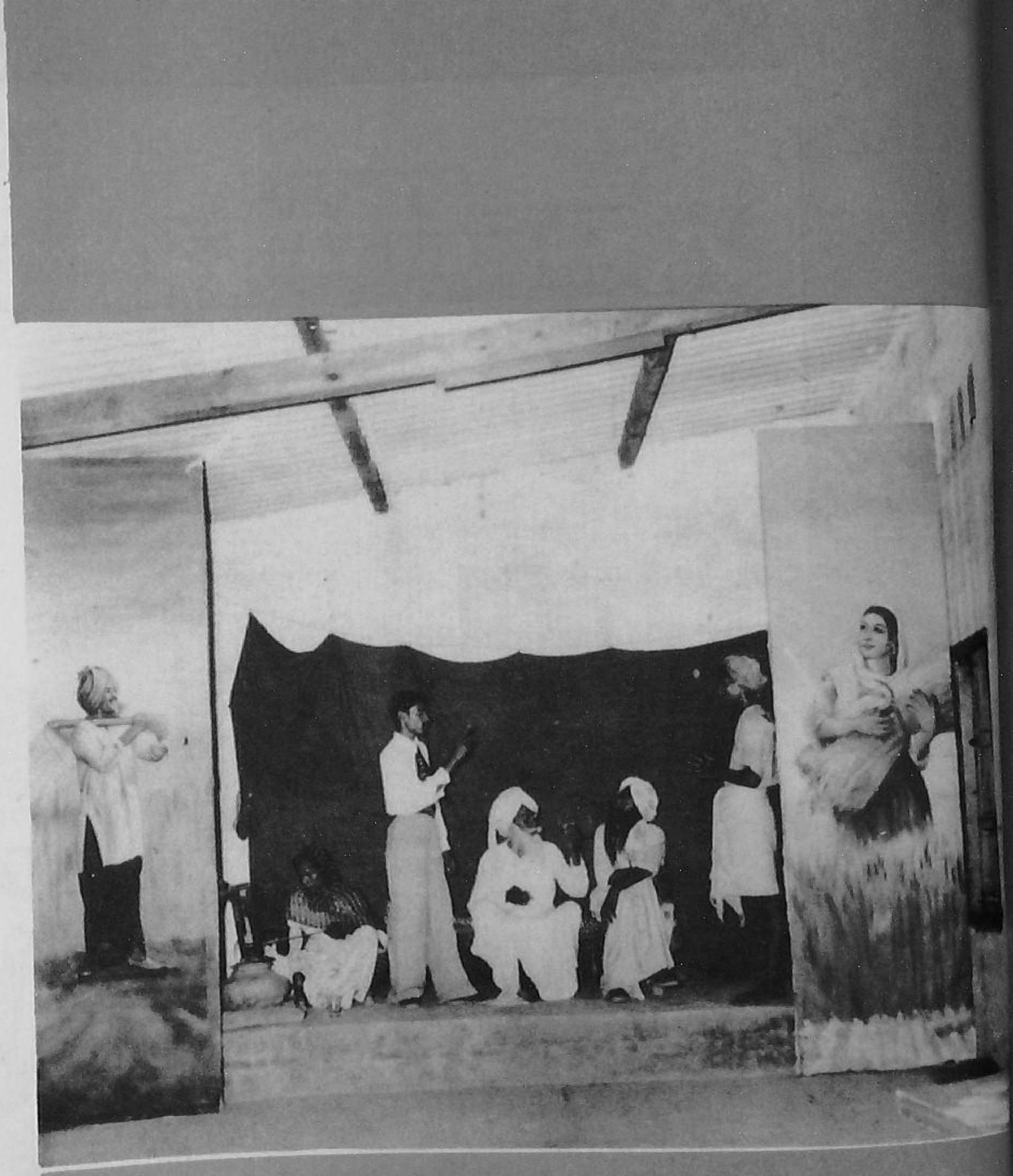
SCALE 0 8 16 24 32 48 64 IN FEET

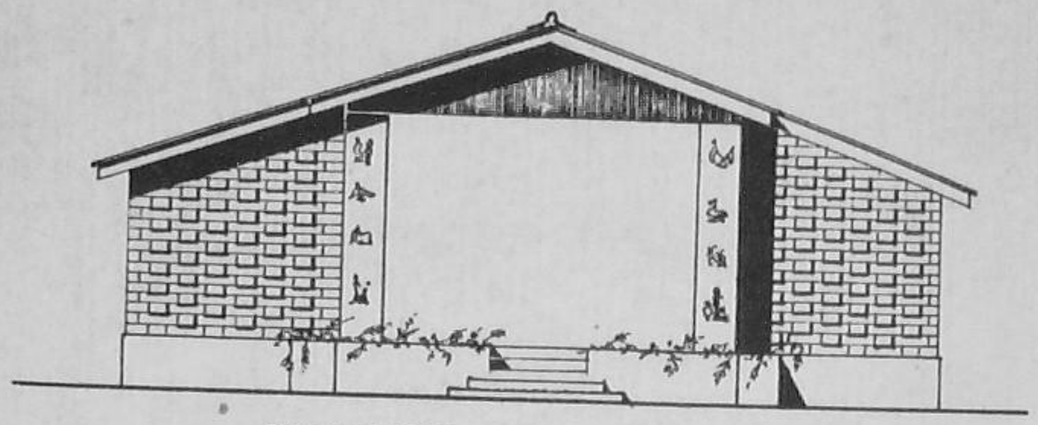
DRG. NO. 31

DESIGN FOR A MULTI-PURPOSE STAGE

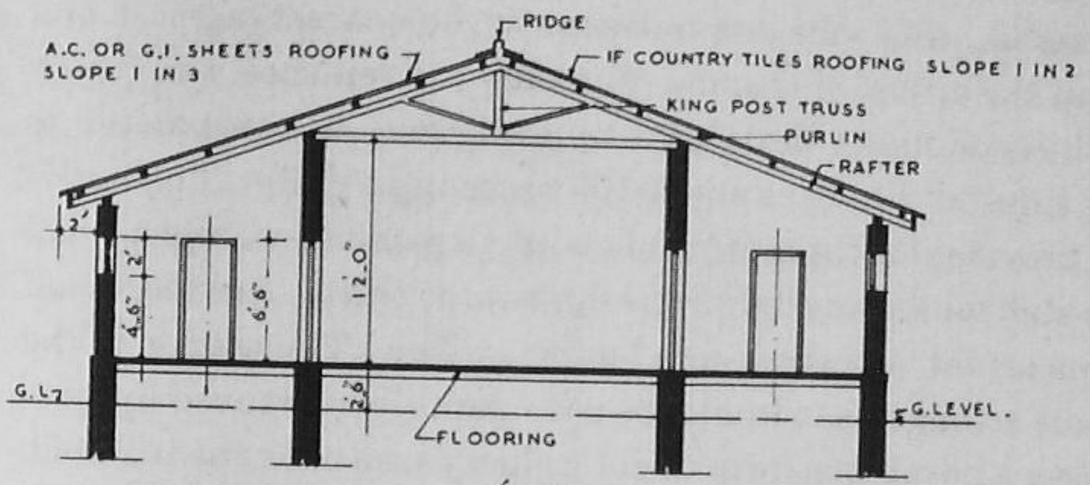
Dance and drama are essential ingredients of village life and activity. Open air theatres, with a proper stage, go a long way in promoting these activities still further. The stage may be housed in a simple hall with a dressing room on each flank, one for the men and one for the women, as shown in the plan opposite. The facade of the stage may be attractively decorated at a small cost. When the stage is not in use, the hall and the two rooms can be used as a multi-purpose building to suit local requirements. The open air sitting arrangement for the audience in front of the stage may be on a raised ground sloping towards the stage. On festive occasions, durries may be spread on the ground and a shamiana may be erected.

The cost of the building will vary from Rs. 3,000/- to Rs. 4,000/- at different places, depending upon the local rates of materials and labour.

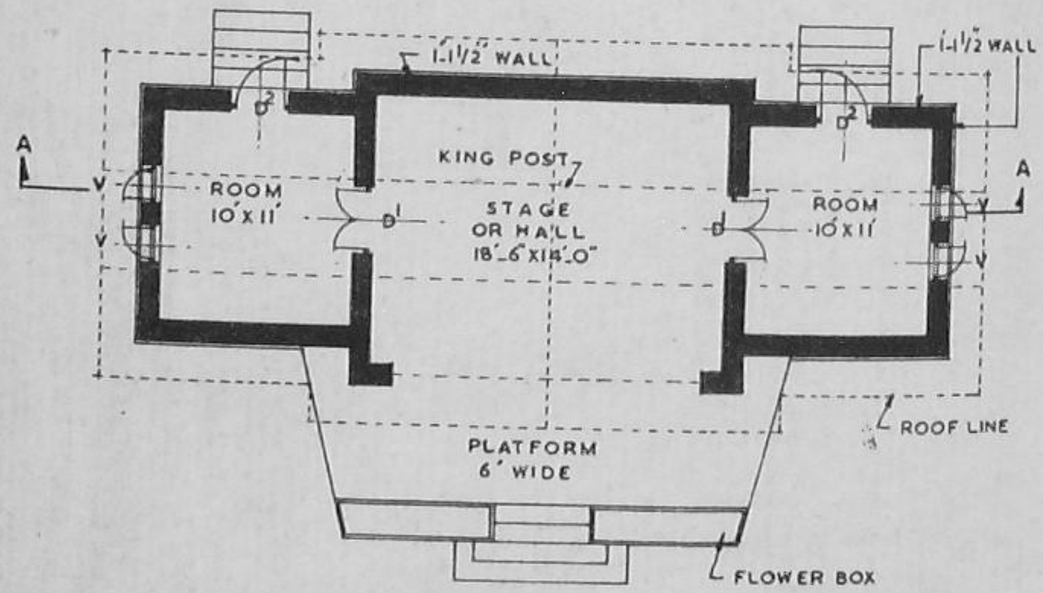




FRONT ELEVATION

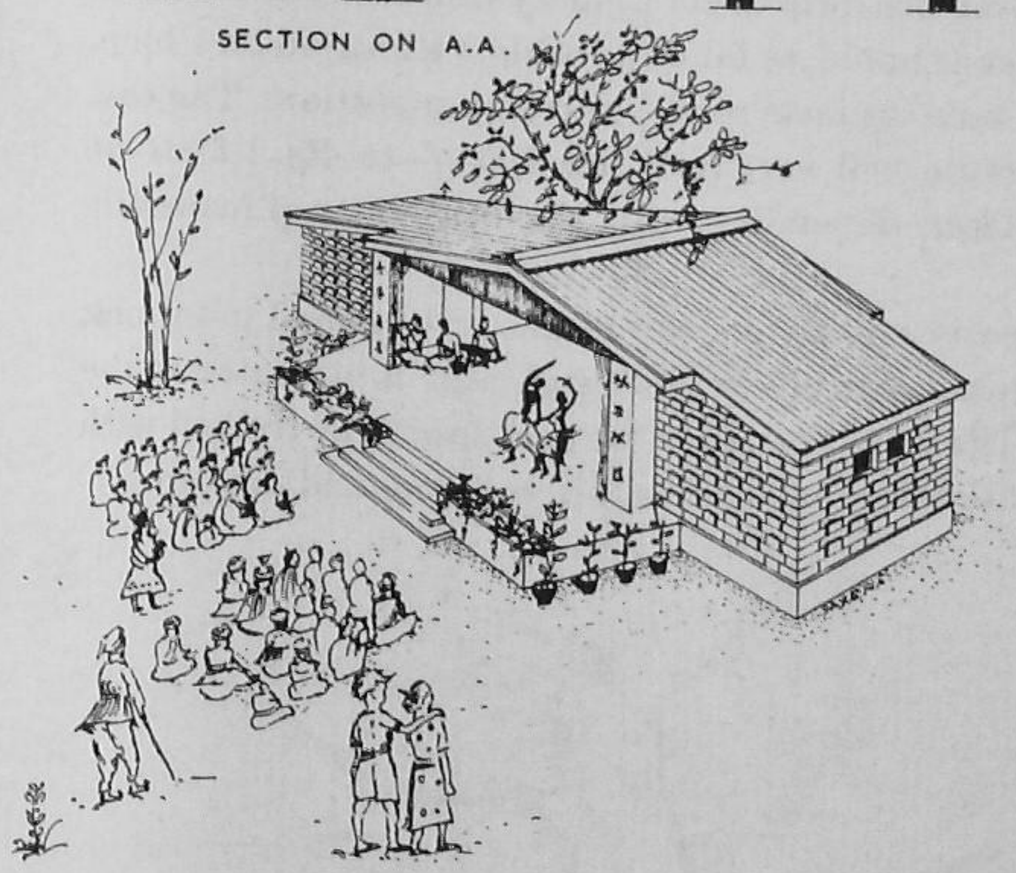


SECTION ON A.A.



PLAN

D¹ DOOR 3'-6"X 6'-6"
D² DOOR 3'-0"X 6'-6"
V VENTILATOR 2'X 2'



MULTI–PURPOSE STAGE

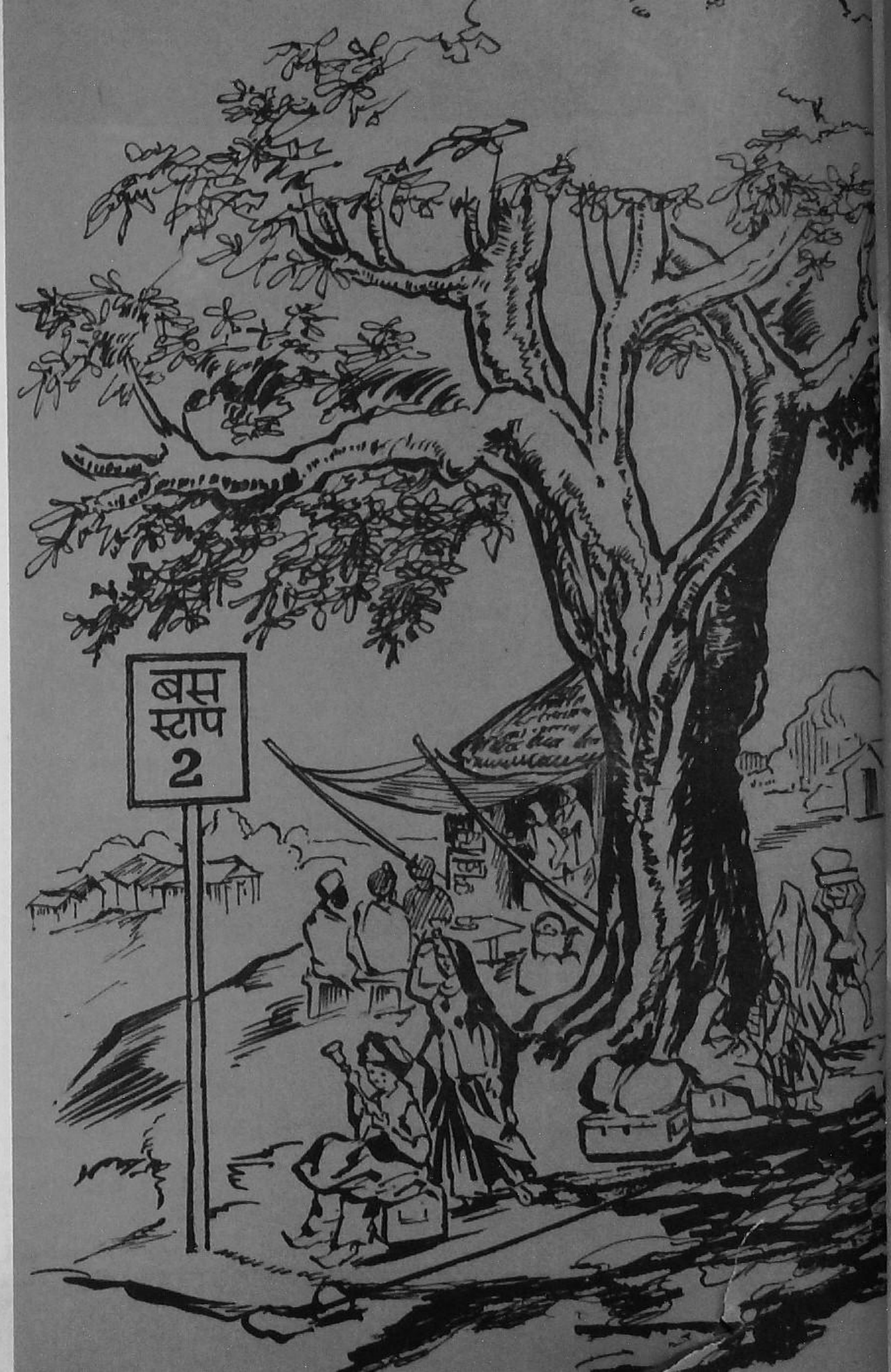
SCALE 0 2 4 6 8 12 16 24 32 IN FEET

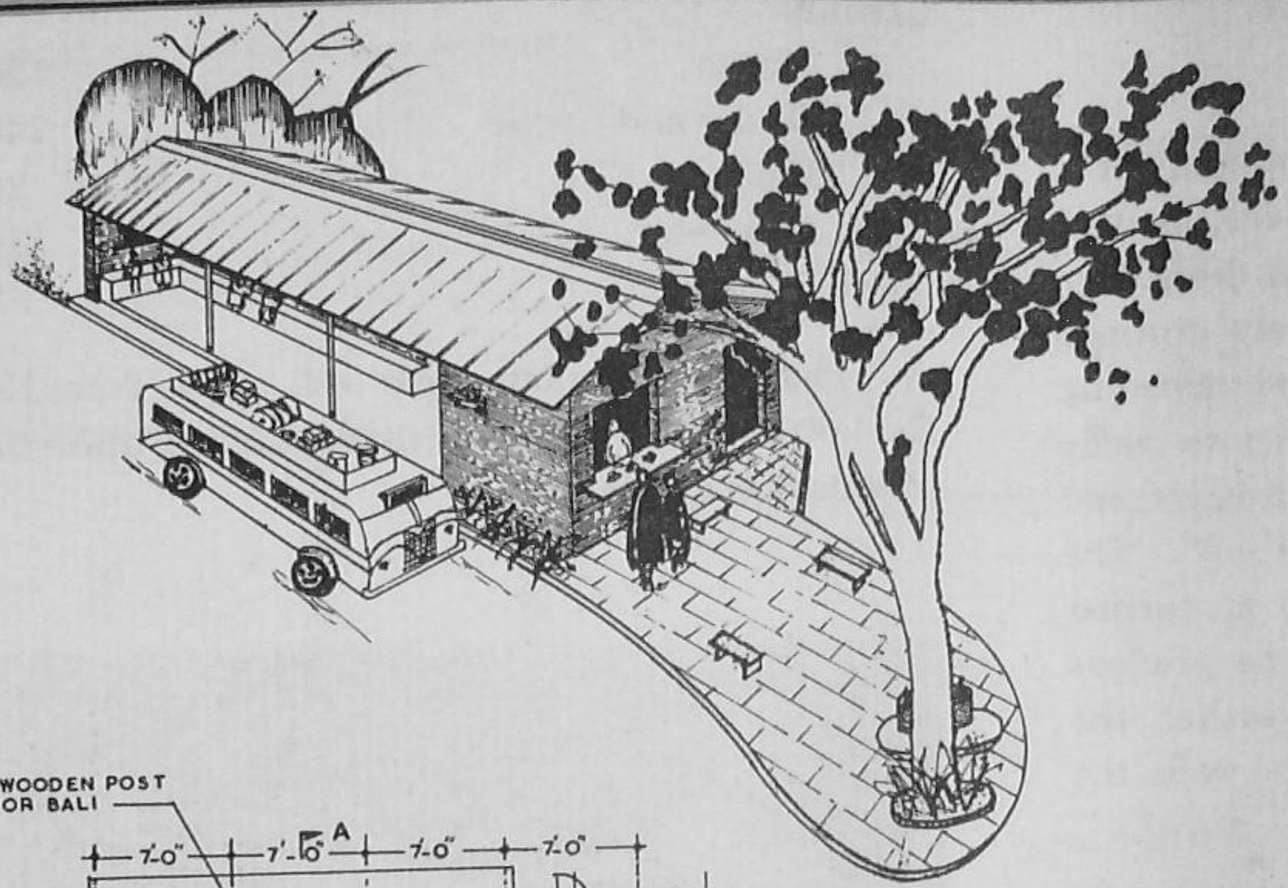
DRG.NO.32

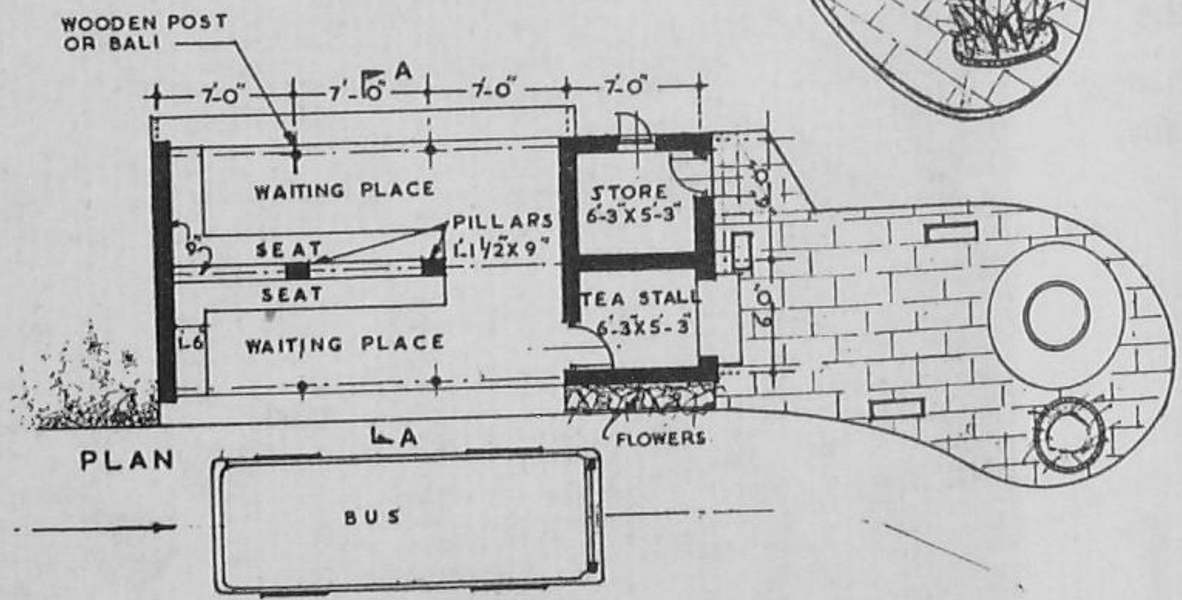
DESIGN FOR A BUS STAND AND SIGN POST

Rural areas are now being served increasingly by bus transport. The villagers converge to the nearest bus stop and await the arrival of the bus. For their convenience, bus stands of the type shown in the plan opposite may be constructed at bus stops which serve about 100 passengers daily. The building provides for the seating of about 15 passengers, and a small tea-stall for serving light refreshments to them. Another small room serves as a store or a booking office. The utility of the whole arrangement would be considerably enhanced by providing a paved platform under a shady tree near the tea-stall. The bus stand should, as far as possible, be located on a loop, in order to keep the main road free from congestion. The cost of the structure will vary from Rs. 1,200/- to Rs. 1,600/- at different places, depending upon the local rates of materials and labour.

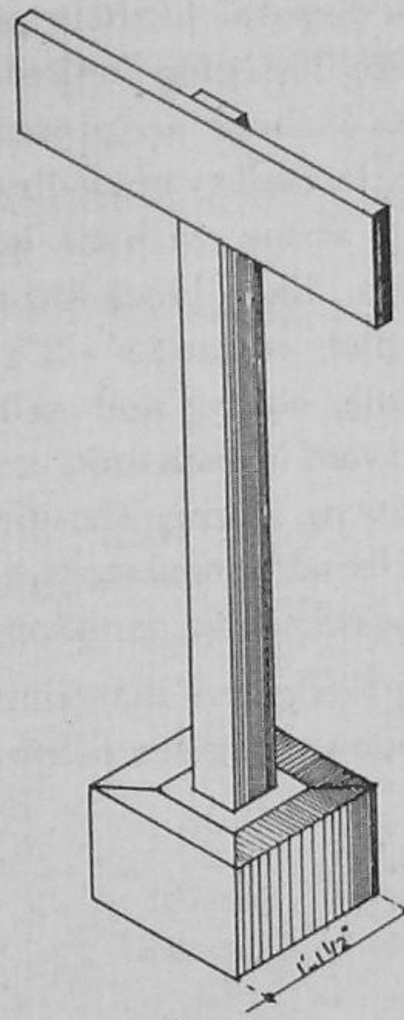
Sign posts may be required at bus stands, road junctions, etc. A simple design of a wooden sign post is indicated in the drawing. The lower portion of the post should be treated with hot creosote, before embedding it in concrete and masonry.

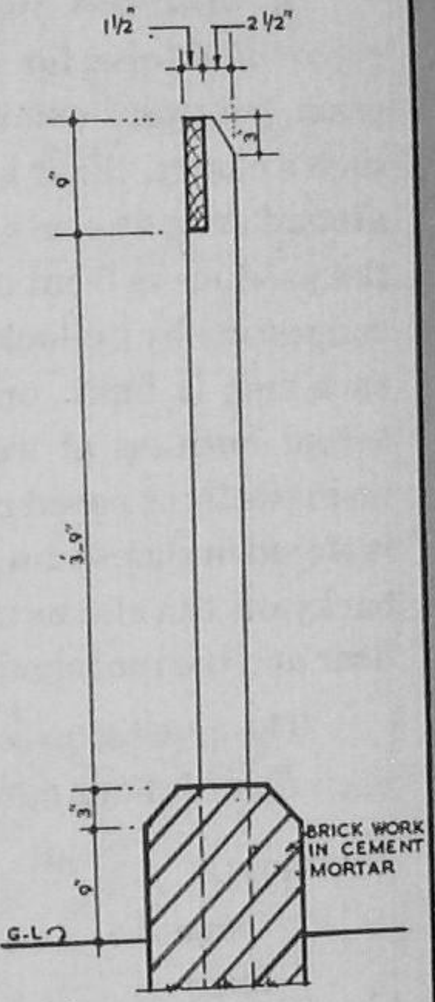




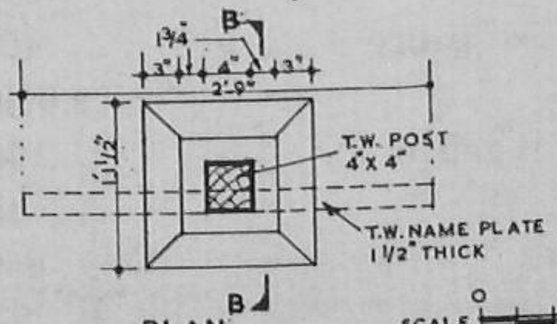


PLAN



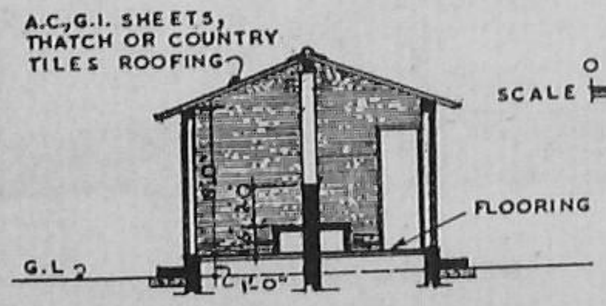


SECTION. ON B.B.



PLAN

SCALE 0 1 2 IN FEET



SECTION ON A.A.

SCALE 0 2 4 6 8 12 16 IN FEET

DESIGN FOR A BUS-STAND & SIGN-POST

DRG. NO. 33

DESIGN FOR A WHOLESALE MARKET CENTRE

A wholesale market centre is generally required for a group of villages for bulk disposal of their produce, such as grain, potatoes, onions, etc. The plan indicates a design for such a centre. Four blocks of shops are protectively grouped around an open space, for the facility of loading and unloading the produce in front of the shops, without leading to traffie congestion by bullock carts. Each block has eight units, and each unit is built on a plot of size 22′–3″x 90′–0″. The actual business of weighing, buying and selling is carried on in the front paved courtyard of each unit, and the produce is stored in shops cum godowns. During the dry weather, the backyard can also be used for additional storage. The walls, the floor and the roof should be pucca and damp-proof.

The approximate requirement of materials and labour for each unit of shops cum godowns is given below:–

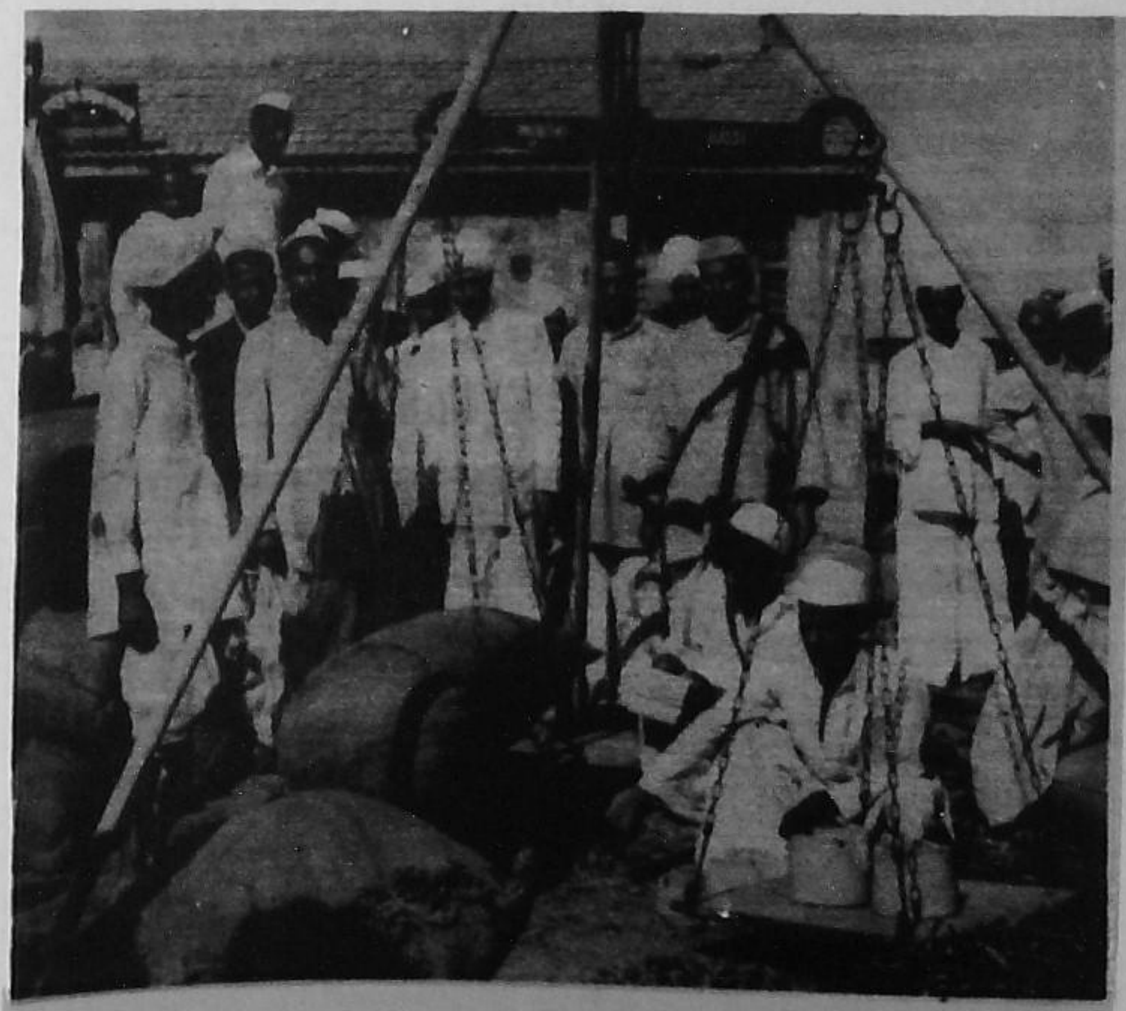
MATERIALS:

Cement	1.9 tons.
Lime	110 Cft.
Sand	450 Cft.
Brick ballast 1½″ gauge	400 Cft.
Bricks	29,000 Nos.
Stone ballast ½″gauge	100 Cft.
Soft wood	45 Cft.
Roofing sheets	850 Sft.
Ridging	23 Rft.
Solignum	3 Gallons.

LABOUR:

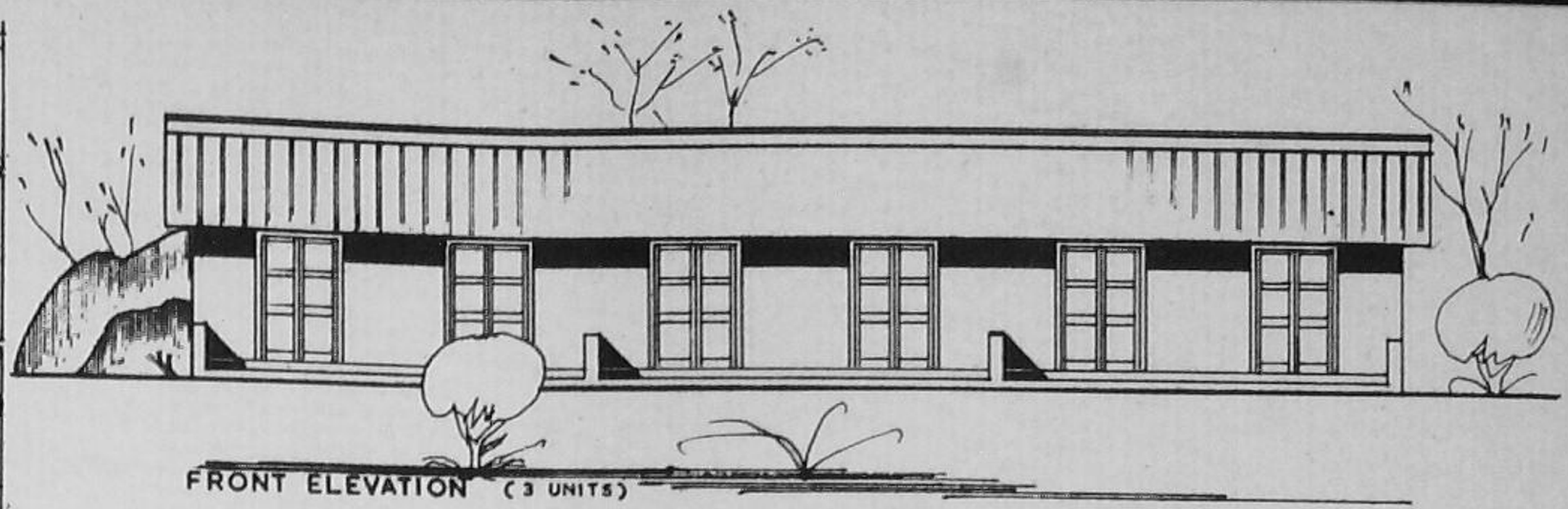
Mason	120 man-days.
Beldar and Coolie	240 man-days.
Bhisti	20 man-days.
Carpenter	40 man-days.
Painter	3 man-days.

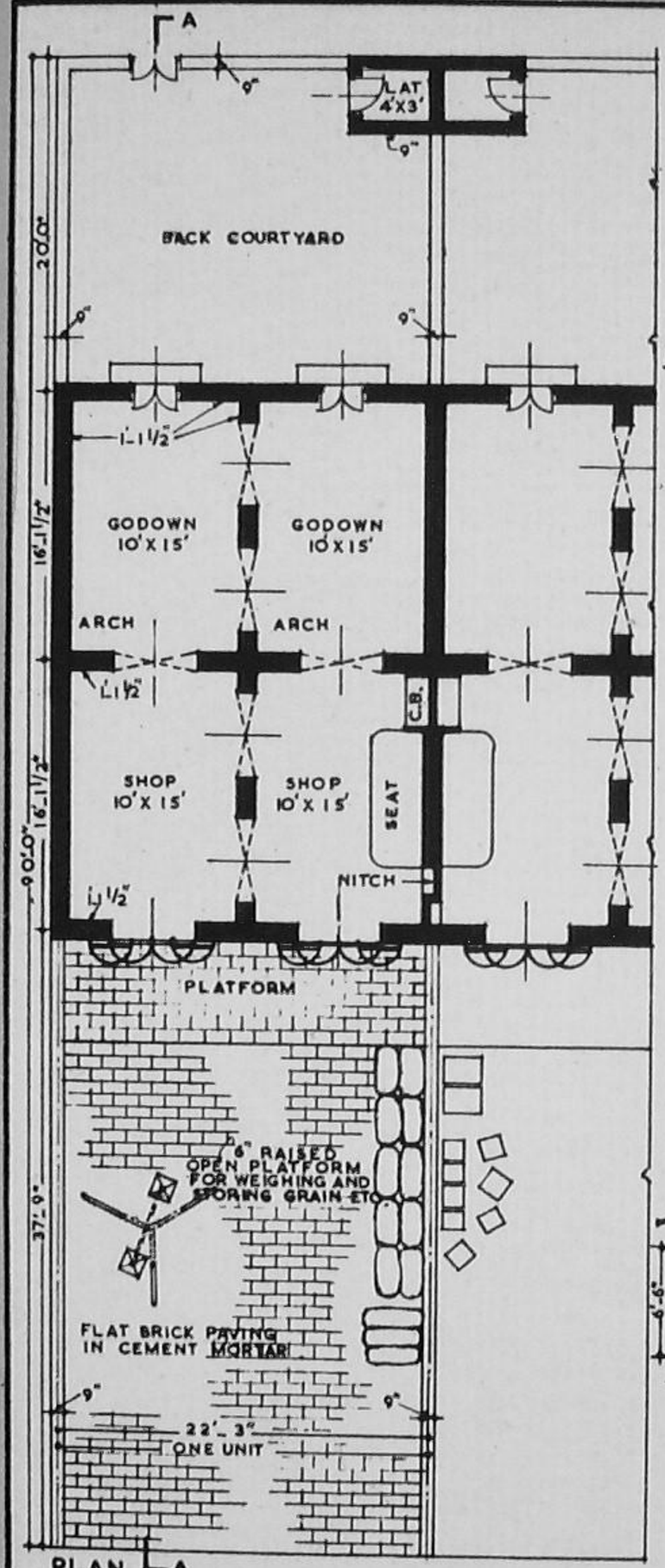
The cost for each unit will vary from Rs. 3,000/- to Rs. 4,000/- at different places, depending upon the local rates of materials and labour.

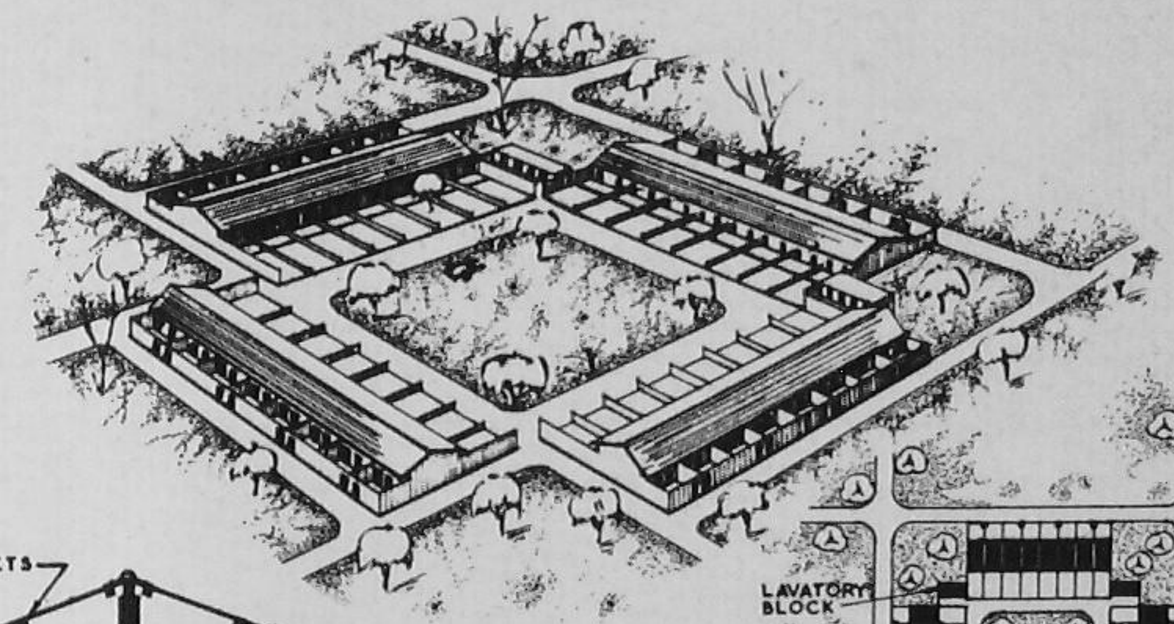


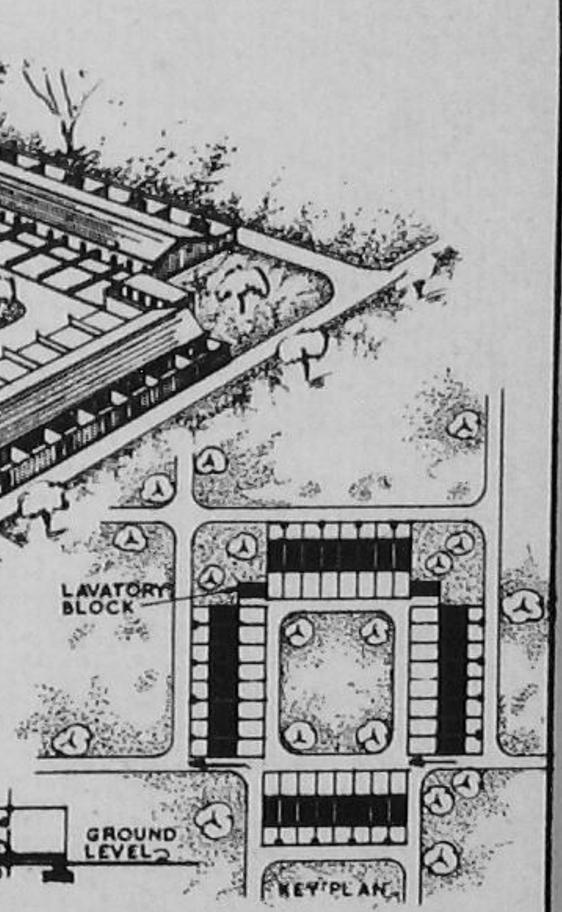
BUSINESS IS BRISK

WHOLE SALE MARKET CENTRE









SCALE 0 2 4 6 8 12 16 24 32 IN FEET.

DRG. NO. 34

WHS.36

12,500

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