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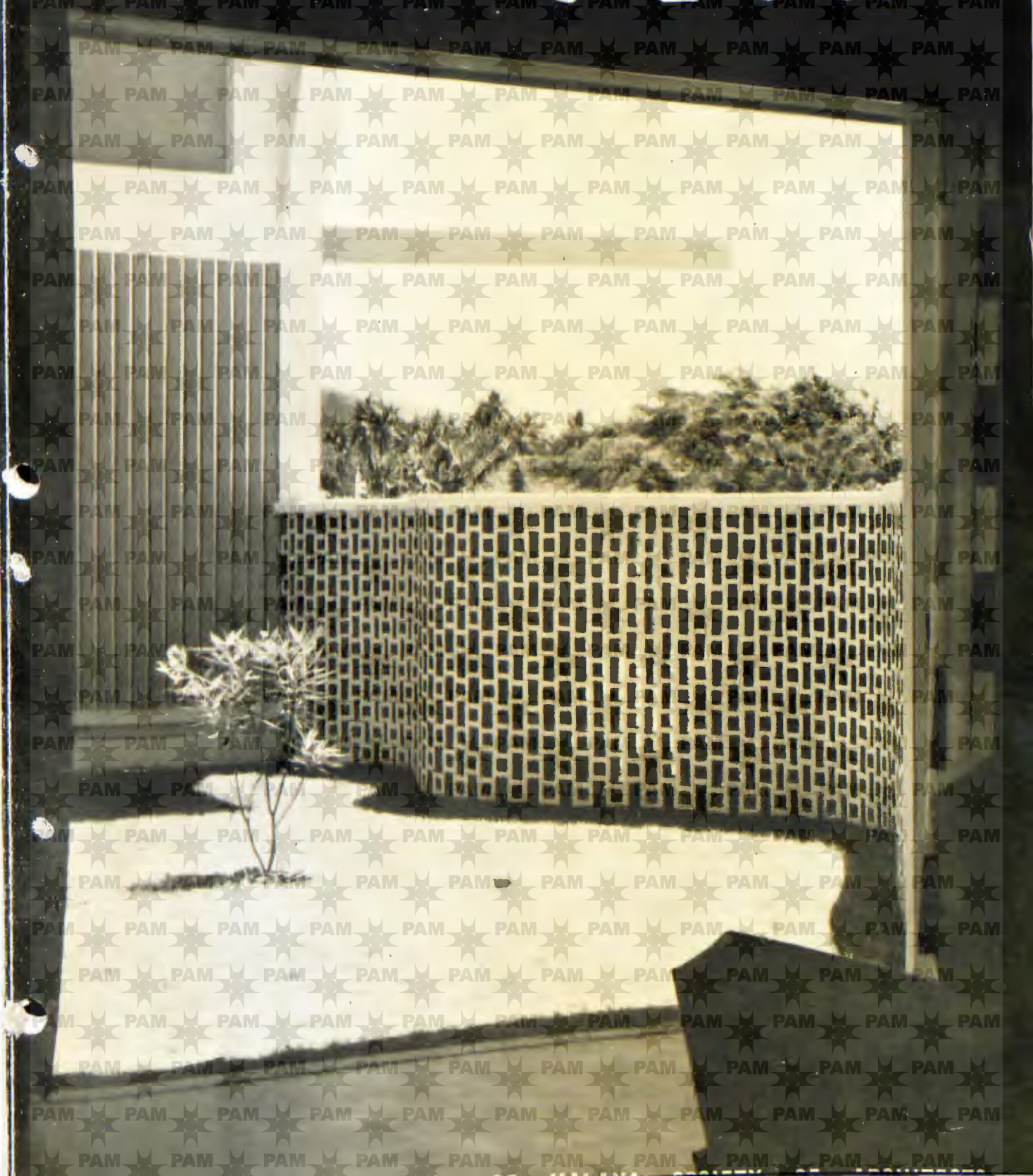

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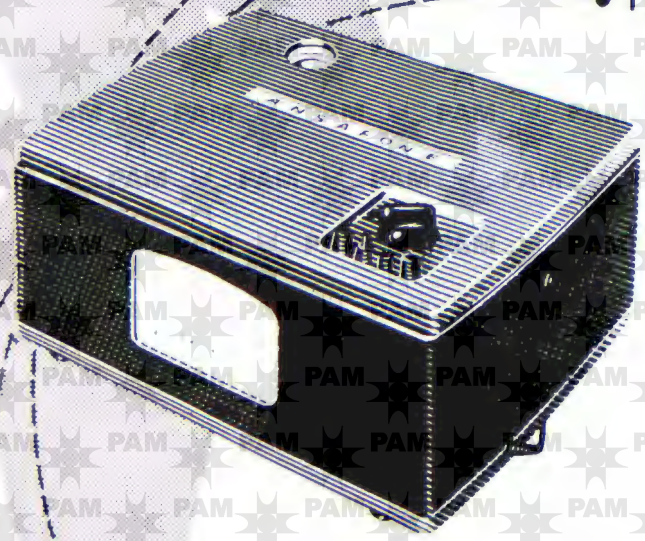

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AN ARCHITECTURE FOR MALAYA

By Raymond Honey.

Most people would agree that there is an architecture of imperialism. Many would deduce that as a corollary there should be an architecture of independence. Few would agree that it should be a conscious creation rather than a natural development.

From time to time the wish is expressed that Malaya would develop its own architecture as a part of its own culture. The wish arises not so much as an expression of independence from the former regime as from the hope that in cultural matters this new nation will develop in ways that adequately reflect the various cultures represented in its citizens. The idea of architecture as a focus for loyalty is not a new one: many new nations and new regimes have made recourse to it; although there can rarely have been the situation where the background material has been the intermingling of three long established Oriental cultures and a contemporary internationlism. One of the first to see the possibilities of a Malayan architecture in the development of national consciousness appears to have been Sir Gerald Templer, who as High Commissioner in 1952 called a meeting of architects in Kuala Lumpur to discuss it.

Jealous of his professional independence, the architect is traditionally wary of any suggestion that "style" can be created to order. Architecture, or at least good architecture, can never be conceived as a propaganda weapon. At the same time there can be fewer more accurate records of social history than those made in a country's architecture. The architect, or at least the good architect, will always betray in his designs something of the character of the society for which he is building. The architect whose designs betray only his own character and not also something of that of his society is living outside of that society. In a sense the architect is like the cartoonist of a national newspaper — through familiarity with his times and surroundings he presents an unconscious but accurate picture of them. He has a degree of independence and if this is not respected he is capable of the most scathing caricature.

"Style" to the architect of today is almost a nasty word. It has no place in contemporary architecture, he feels; yet in looking at the architectural magazines of ten years ago he must admit the reality of what can only be a change in style and the degree to which fashion enters into current architecture. To the layman "style" appears as a sort of top dressing applied afterwards to an otherwise "unstyled" structure. There is regrettably some reality in this. But there is more to style than seasonal changes in clichés and style is more than dressing deep.

It is in "style" in this sense that there lies the clue to one way of achieving a national architecture, for there is in style the suggestion of distinctiveness. Capitalise on what is distinctive in Malayan architecture and you achieve a focus for loyalty to rank with a flag and national anthem. The architect in Malaya who is alert to his times and surroundings must acknowledge that these ideas are far from frivolous.

Where the difficulties arise (and alas, the frivolities) is in the search for what is distinctive. One solution is the practice of adding "touches." One takes (or invents) a range of eye-catching features and one applies them to a design which is basically unstyled. Insofar as this practice is widespread, there is, in fact, a current Malayan architecture. But if the range of features is itself subject to fashion and may be superseded (possibly mercifully) in a decade, one has made no progress toward creating an architecture of the calibre the situation demands. It may well be that in a decade the splayed gable and the rubble wall will have taken on the stature of national symbols; while other features will have gone to the oblivion they merit.

In all this the architect must be honest. One cannot condemn "style-through-cliché" in Malaya if one follows overseas models which may be equally collections of clichés which are equally ephemeral. One cannot expect architecture in Malaya to be any freer of this element than architecture in any leading western country, and considering the

comparative rapidity of social change, one could forgive its being ten times as cliché-ridden.

The search for what is distinctive must go beyond the search for features — it is a search not for an applied decoration, but for an architecture. and the clues are not obvious. In the field of domestic architecture. there are models which can be accepted as in a genuinely regional style. Given no outside interference, most countries manage to attain a reasonable standard of domestic architecture granted that there are not factors such as overcrowding or extreme poverty. Something approaching a style develops partly through sheer repetition. The materials and techniques of building are fully understood. The function of the buildings (which is after all the way of life of the people) is fully understood and in that sense, the Eskimos' igloo, the Indians' wigwam and the traditional Malay house are all good architecture. Where the difficulty arises is in the case of the many types of buildings which have functions for which there is no traditional precedent. It is this lack of a continuous tradition in non-domestic buildings that is most acute. This is accentuated by the great differences in thought and the culture which have been brought to Malaya by the various immigrant races. There is further no common religious element which can be taken as a starting point. It might be thought that a synthesis could be obtained between the styles of the three main cultures which meet in Malaya. In a country further removed from the current international and commercial scene, this might be possible; but the culture which is evolving in Malaya possibly owes more to this factor than it does to any of the traditional cultures within the country. The possibility must always be borne in mind that the search for something distinctive will fail and that all serious attempt to create a specifically national architecture will lead to nothing substantially different from the modern architecture in other countries in this region, and of buildings in other countries of similar functions. The failure should not be blamed on the architect. It can only be an expression of the outlook of the society for which he builds. The development of an architecture or a culture is a thing which cannot be forced in a free society, nor need it be.

In his role of a recorder of social history the architect in Malaya seems now to be in the position of acknowledging the aspirations to a national culture but unable yet to recognise any clear pattern of development in it. The process is, of course, an evolving one and inevitably there must be a phase of experiment and inevitably the phase will produce some deviations. It may produce some freaks and some experiments which overstate their case. These while being legitimate and wholesome in temporary architecture (as in an exhibition) may verge on the ridiculous in serious permanent buildings. Such experiments should not be condemned harshly. In fact they continue what has almost become a tradition already and they are possibly a faithful expression of the vigour and diversity in the society which has given rise to them.

Experiment must not be frivolous. It must begin with a serious appraisal of the factors influencing architecture in Malaya today and the selection from these of the factors which give most promise for the development of something characteristic, if not distinctive.

There is first the cultural background as it exists, with all its gaps and its apparent incoherence; yet with its infinite variety, vigour and colourfulness. An architecture for this background cannot possibly develop on narrowly western lines. It is not clear how this background can directly influence the design of a building whose function owes nothing to local cultures, as for instance a large office building, but there remains a remarkably wide range of buildings whose functions are related to the background of the country. It is only the architect who takes pains to understand this background who can make use of it, and the more coherent the culture, the clearer is the influence on the architect. In this connection more is likely to be achieved ultimately through sound art education in schools and through the encouragement of local artists in the commissioning of murals and paintings, than can ever be achieved through the application of "styled" ornament to buildings.

A second factor is existing tradition in architecture. Here again there are gaps and incoherence. It is said that there are two kinds of fool; those who say "This is old, therefore it is good" and those who say "This is new, therefore it is better." If in many western countries architecture is hampered by the first kind of fool, one is

tempted to feel that in Malaya today it is hampered by the second kind of fool.

Malaya has more traditional work to be understood (not copied) than might at first be thought. In domestic work there is the example of the kampong house at its best — sensibly planned, intelligently framed and often very finely decorated. Many of the larger houses on traditional lines are cooler, better looking and better to live in than many modern houses. In commercial work there is the shophouses at its best, which produced an excellent street architecture, well proportioned, rhythmic and suited to the strong colours and advertising signs which are integral with it. (Shophouses may not be defended as a way of public housing, but when not overcrowded the traditional forms are a very sensible answer to the needs of the merchant community). Perhaps the best public architecture (excluding that done in western styles) has been in the older type of timber buildings (such as District Offices) raised on piers. And finally there are definite regional styles in different parts of the country, particularly Kelantan, Kedah and Malacca which are well worth studying.

An obvious lesson from a study of traditional work is that in general the buildings are small in scale and they give little help in the treatment of very large buildings.

Climate is an obvious influencing factor, although it is too often regarded as a restricting one rather than one of which advantage can be taken. The need for good natural ventilation does hamper compact planning but at the same time it gives opportunity for great openness and lightness. The need for heat insulation and sun control restricts freedom of orientation rigidly but it gives opportunity for the exploitation of shadows and the employment of a great variety of shading devices which can be decorative and colourful. The problems of disposal of heavy falls of rainwater quickly, of growth of algae on walls not protected by eaves or copings, of fading of paints under strong sunlight and of natural illumination without glare are all restraints on the use of features which are favoured overseas, but if even only negatively, these are factors which can contribute to a distinctive local architecture through the absence of the overseas features which do not work well here.

It should be possible to create a good Malayan architecture within the discipline imposed by the climate; but it requires a far closer study of the problems than is evidenced by much current work. One regrets to observe that the past two decades have produced, if anything, buildings generally less suited to the climate than previously.

A further factor of which advantage can be taken is the range of locally produced materials. The obvious example is timber, although much has yet to be done in the developing of a durable natural finish other than paint and of the availability of good preservation facilities throughout the country. Another example is rubble walling.

There are further the possibilities presented by craftsmanship. Good architecture can not develop without understanding between architect and craftsman. Any step which improves facilities for trade training and which raises the status of the craftsman in society will ultimately help raise the standard of architecture. Craftsmanship does not exclude the basic structural trades but the term is associated particularly with decoration. The circumstances which put decoration, or at least ornament, into disrepute in the West today may not be relevant in Malaya. There is the suggestion that ornament is almost immoral because it is out of keeping with this materialistic age, it is not suited to machine techniques, the craftsman to execute it does not exist and the client cannot afford it. In a country which can retain so much emphasis on colour and ceremony and where traditional festivals form so much of the scene, these arguments lose their strength. And it is particularly in the existence of the craftsman that some hope lies. There are, for instance, probably more skilled woodcarvers working in Malaya today than in all of the United Kingdom.

It is for the architect to avail himself of the skills that exist and to develop a decoration from the functional use of them. There are the skills of precasting in concrete, of working in wrought "iron", of woodcarving and of decorative tiling in mosaic. All these skills and possibly others can be employed in commonly used features serving a functional purpose (e.g. concrete grillework and window guards).

And finally, it is the architect who must know his own craft. His designs must in themselves be good architecture before they can be regarded as good Malayan architecture — and good architecture can never be produced with the tongue in the cheek.

ARCHITECTURE UNDER CROSSFIRE

One must be grateful to Radio Malaya that, in 1960, they have added architecture to the subjects that are being discussed in the topical programme called "Crossfire." A start has been made with a number of talks written and recorded by Julius Posener and discussed by a panel consisting of a chairman, two permanent members: Beda Lim and Kington Loo, representing the programme and architecture respectively, and one outside member who is different at each sitting. The subjects of these talks are:

Architect and Client.
Architecture and the Public.
Architectural Competitions.
Originality.
Timber as a Building Material.
Training Architects in Malaya.

The idea behind these radio discussions is to introduce that largely unknown person, the architect, to a wider public in the Federation, the people, in fact, who do listen to the radio, even, occasionally, to talks, but who would not look at a periodical of architecture. This aim is reflected in the choice of themes, their sequence and the way they are being presented.

"Architecture and Client," first: The architect, here, is shown to be something different from the beauty merchant he is still in the minds of many people, also educated people. His concern is not with beauty which, people are inclined to think, is a quality that can be added to the plan, but with planning, economy, every practical aspect and, even more with the feel of the house which should be such — to quote a remark by Adolf Loos — "that an enemy, visiting the house, would leave his hostility in the porch, with his hat."

The discussion centered round the question: Does the architect render a real, palpable service? Beda Lim wished to know why he was necessary at all seeing that so many houses, here as elsewhere, had been built, and well built, according to established traditions. He also asked why the contractor could not do the job on his own? Both questions were answered by Kington Loo who showed that the contractor's relation to his customer was different from that of the architect to his client. The established traditions were a thing of the past, a fact one may regret but yet has to accept. In this age, the architect has to intervene, be it only in order to establish a new tradition.

The next paper carried on from here. If the architect and his work were essential, why was it, Julius Posener asked, that architecture was lacking the public discussion accorded to other arts? The fault lay partly with the public, but also with the profession itself whose attitude to publicity was less free than that of, for example, a piano player or a painter. The architect's job is considered as being too responsible, and its results too large, costly and lasting to invite criticism in the same way as a concert or an art show. And yet, Posener pointed out, the public is more vitally concerned with the rooms, houses and streets in which they live than with music and painting.

Discussion was lively, Kington Loo disagreeing that any blame could be laid on the profession and its way of handling its public relations. In the end, a suggestion was made which might be taken up within the F.M.S.A.:

That a publishing archive be formed within the Society to which members contribute photos and plans of their works irrespective of any immediate publication.

The next talk still followed the same tendency. It was a plea for competitions to be opened for major buildings and also for town planning schemes. The talk stressed

the fact that many important buildings and development schemes were just now under consideration; that in fact, the shape of things to come in the Federation was being decided at this moment; but that it was decided " behind closed doors " by " appointed experts " without the people who will have to live with those " hard, definite, indelible facts " being let into the secret of their hatching until the bulldozers are actually preparing streets and sites; and then it is too late.

The plea met with a measure of agreement, but Mr. Shenkar, the non-permanent member on that evening, was afraid that it might as yet be too early to introduce such novel proceedings as architectural competitions here. The public, at any rate, was not interested. Kington Loo replied that competitions are by no means altogether new in the Federation and cited as a proof Federal House, the very building in which the discussion took place. Competitions were certainly desirable, he said, probably necessary, and they need not be run as international competitions, as some members of the panel seemed to think. Competitions were a means to stir interest in the public.

These three discussions tend to establish the architect in his rightful place in a new and self-conscious country. He was the servant of the client, his adviser on all aspects of planning and building, not a person who can add beauty to a scheme — the operative word being add. Therefore he should boldly show his work in public and invite and accept criticism. Finally, he should be invited to take a hand in shaping the major building and planning schemes in the Federation.

The following talks deal with issues more particular.

" Originality " is a frank criticism of the kind of house produced at present in the outer suburbs of Kuala Lumpur—only the capital was mentioned—where " one looks for houses, and one looks in vain. Instead, one sees designers' whims." The paper ends with a plea for " boring architecture."

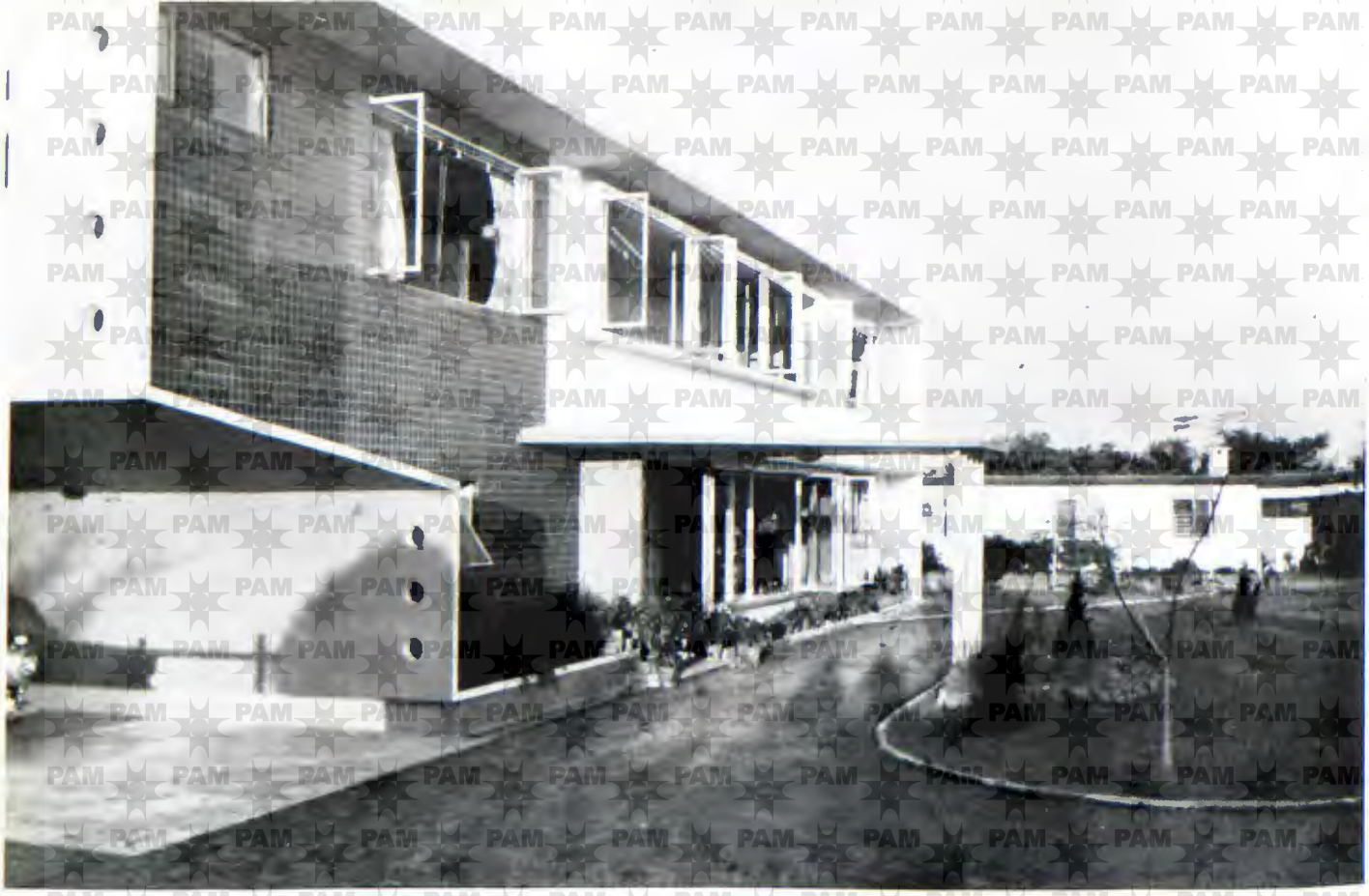
This attack sparked off a cannonade. Kington Loo, in particular, could not agree at all; but being an architect he kept to the topic while some members of the panel used the script as an opportunity for talking about function in building, suitability to climate and the topic that seems to impose itself upon every discussion these days: the non-Malayan character of present building. In fact the way the discussion went suggested the plan to deal with this subject on its own, to do it soon and to keep this particular discussion among architects.

Yet the remaining talks are, in a sense, devoted to THE SUBJECT also: To use more timber in building, Malayan timber, and to try and overcome the prejudice at present existing against this unique—and traditional—building material is one way of promoting an architecture more Malayan in character than our present buildings can be said to be. Finally, to train the future architects of Malaya here, in their country means providing the precondition without which any national architecture is likely to remain a sham.

The series of discussions has a purpose close to the professed aims of our Society and could be a valuable contribution. It must be admitted, though, that as things stand at present, the effect of these public discussions falls short of their potentialities. " Crossfire " is a programme devoted to the discussion of several items in one thirty minutes sitting, rather like " The Critics " on the B.B.C. This is probably necessary as otherwise even listeners who do tune in for talks might stay away. People do not wish to hear about architecture — yet. And it requires more than a series of discussions on " Crossfire " to make them architecture-minded.

Even with these limitations, the " Crossfire " programmes on architecture are a step in the right direction; and there are many countries—the majority, I should think—, whose broadcasting agencies have not yet considered to introduce the subject of architecture to which Radio Malaya is devoting a generous measure of broadcasting time on " Crossfire."

J. P.



Photos: Mr. A. A. Allen.

HOUSE FOR SENIOR EXECUTIVE CENTRAL ELECTRICITY BOARD

Architect: A. A. Geeraerts

This house was designed for a Senior Executive Officer of the Central Electricity Board on one of the most attractive sites at Kenny Hill with a commanding view of the vicinity.

The house has been free planned so as to obtain the maximum space possible for entertaining purposes. A covered terrace has been incorporated in the design at a similar floor level to the lounge and has been made accessible by means of sliding folding glazed doors.

By incorporating the use of a sliding folding door into the design, it has been possible to form a clear opening of 42" between the lounge and the terrace giving a view of the spacious lawn and surrounding country.

An important internal feature of the house is the free standing staircase which has been constructed with a shaped central reinforced concrete beam and cantilever polished teak treads.

The main structure is reinforced concrete with panel and load bearing brick work with light reinforced "T" beams to floor and roof.

The whole of the ceilings are finished in plaster on Heraklith secured to the underside of the "T" beams and was one of the first houses in Malaya finished in this medium.

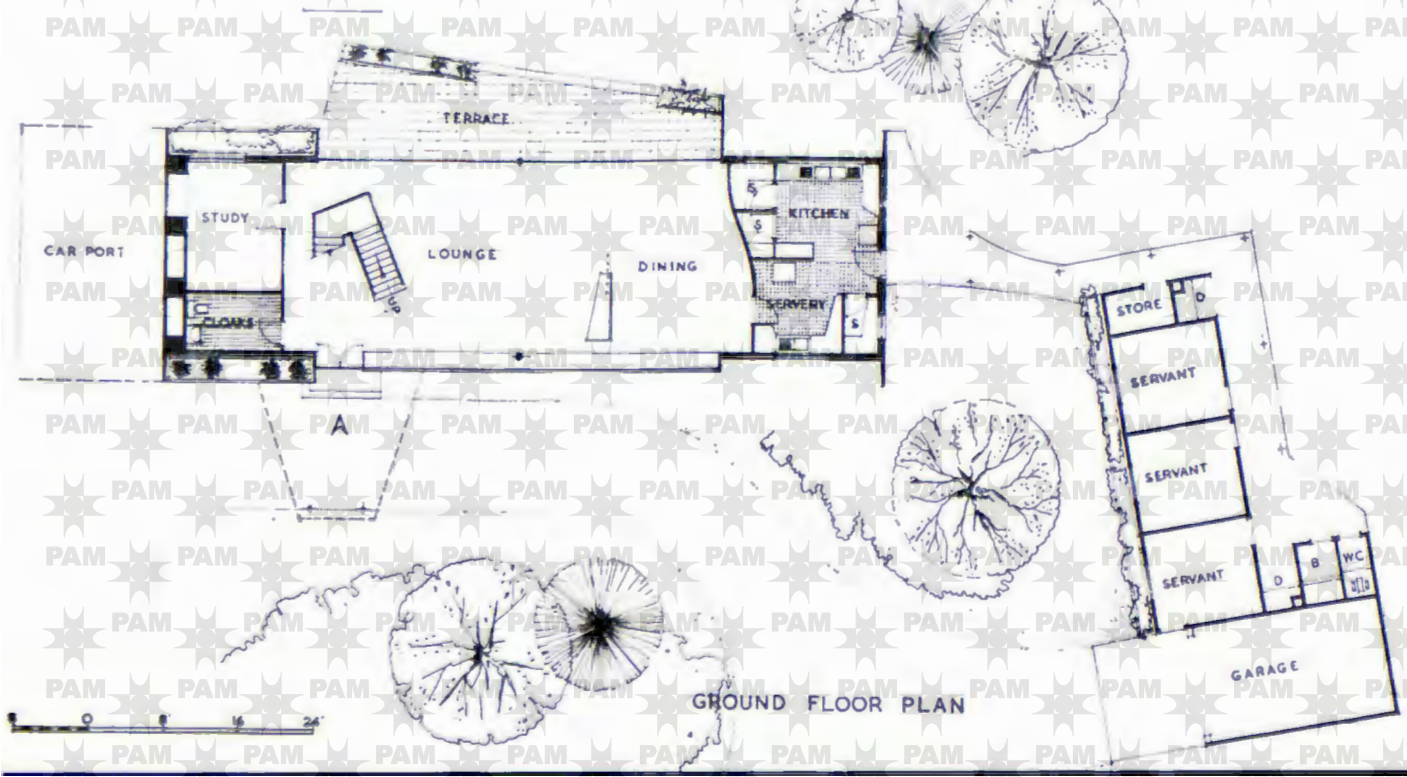
Polished teak floors have been laid to the lounge, dining room and principal bedroom with the remaining floor areas finished in mosaic tiles.

DETAIL OF STAIRCASE

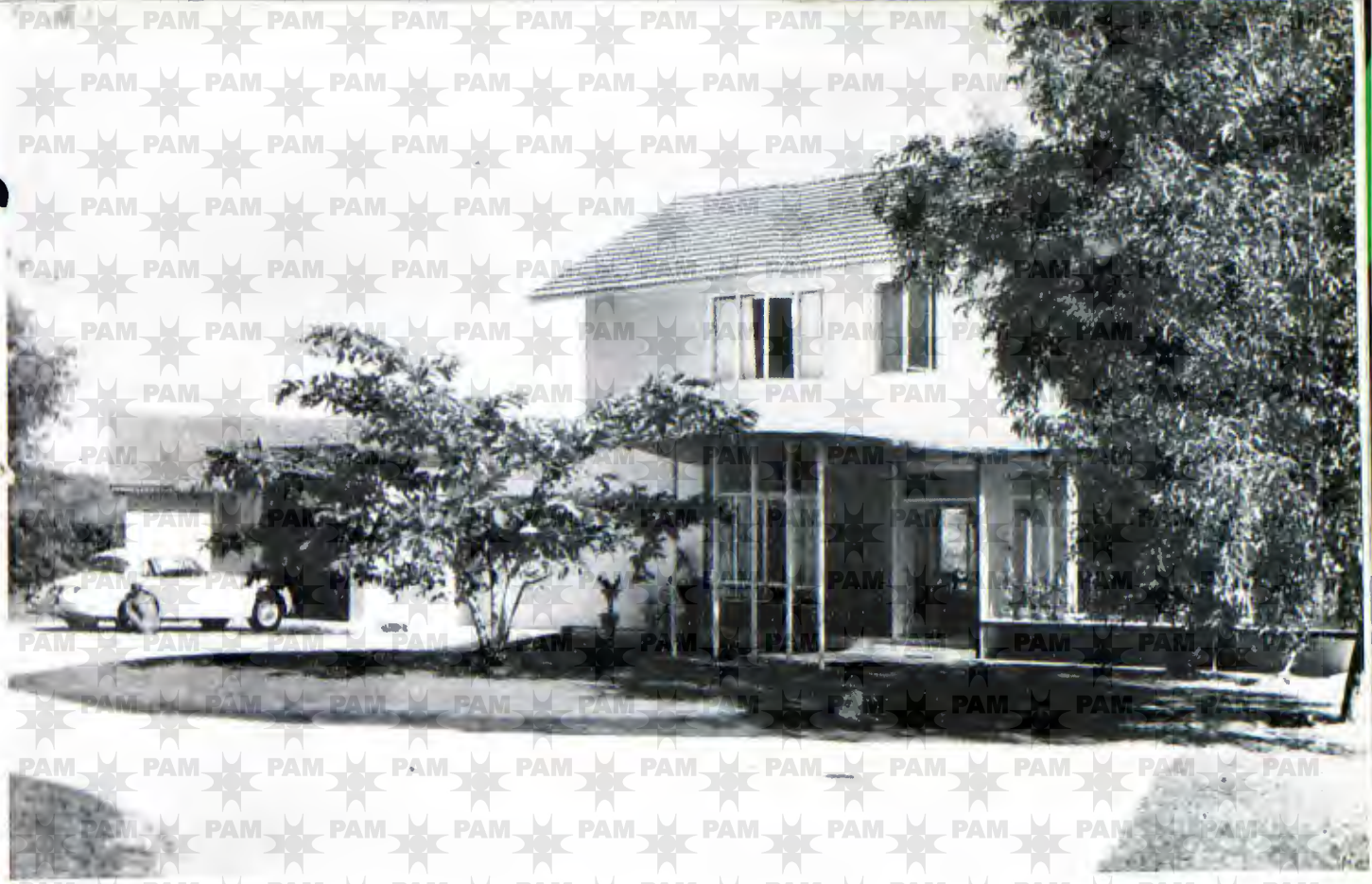
VIEW OF LOUNGE AND ENTRANCE

DETAIL OF STAIRCASE

FIRST FLOOR PLAN

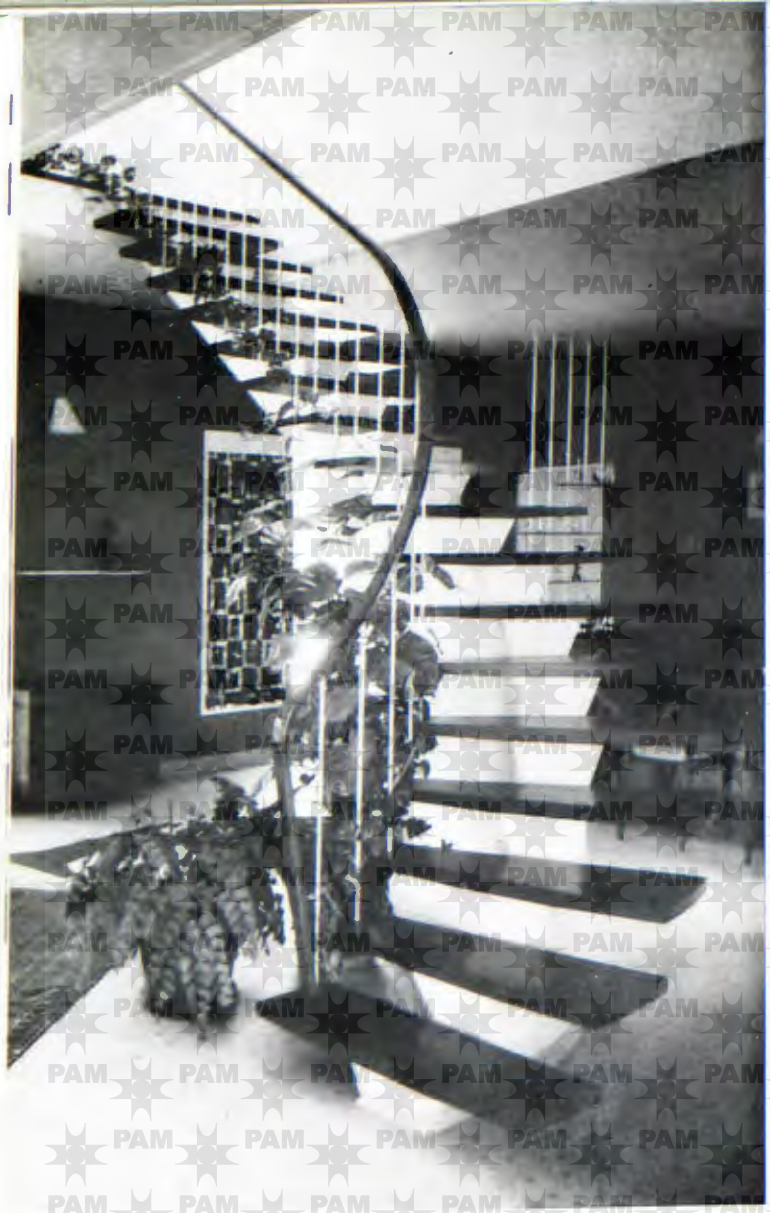


GROUND FLOOR PLAN



HOUSE AT KENNY HILL
CENTRAL ELECTRICITY BOARD

Architect: A. A. Geeraerts.



DETAIL OF STAIRCASE

This house has been constructed at Kenny Hill on approximately ¾ acre of land for the Central Electricity Board.

The construction is load bearing brick work with timber floors using R.S.Js to trim the stair well.

By incorporating the use of a free standing staircase between the dining room and living room not only provides a pleasant feature but eliminates wasted floor area.

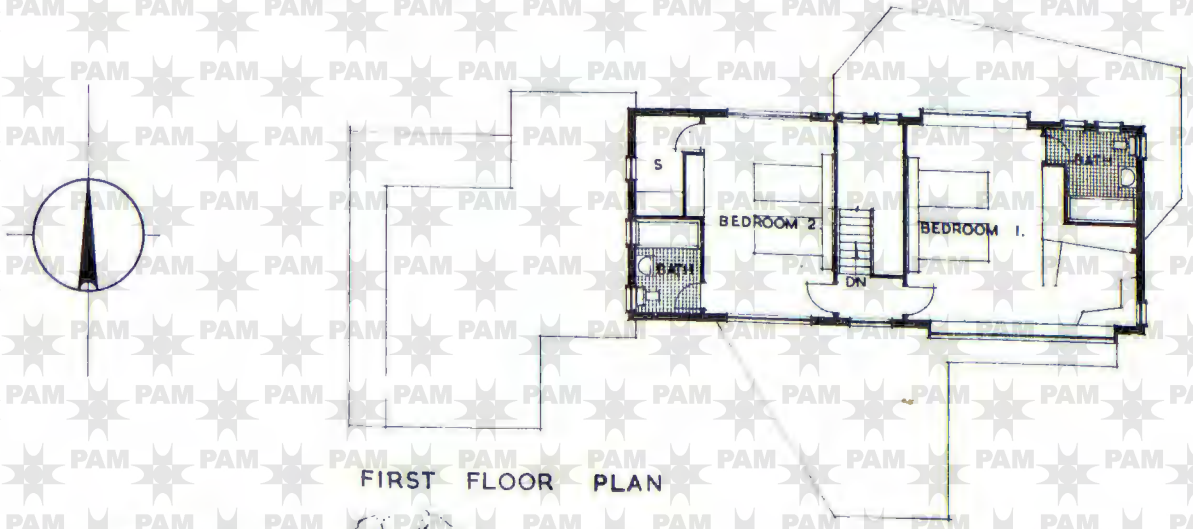
The staircase which also acts as a partial screen between the dining room and living room is constructed on a curved reinforced concrete wall with cantilever timber treads.

The house has been designed so as to provide every room with cross ventilation and by means of well placed shade trees glare has been reduced to the minimum.

By incorporating the use of Heraklith to the underside of ceilings and floor joists as an insulating material has also provided a perfect surface for the plastered ceilings.

The whole of the plastered walls to the dining room and living room have been painted in dark blue green with the staircase structure and ceilings including all timber and metal work painted in white.

VIEW OF DINING ROOM



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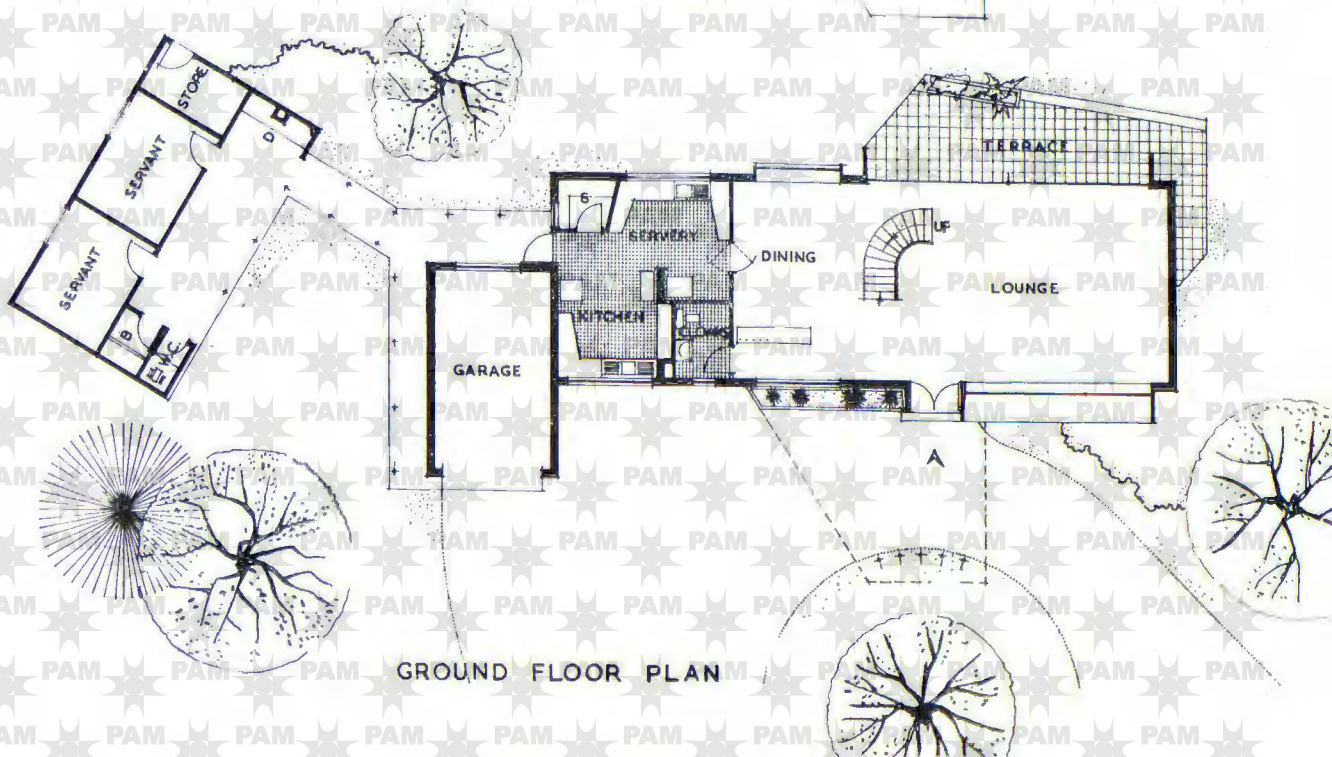

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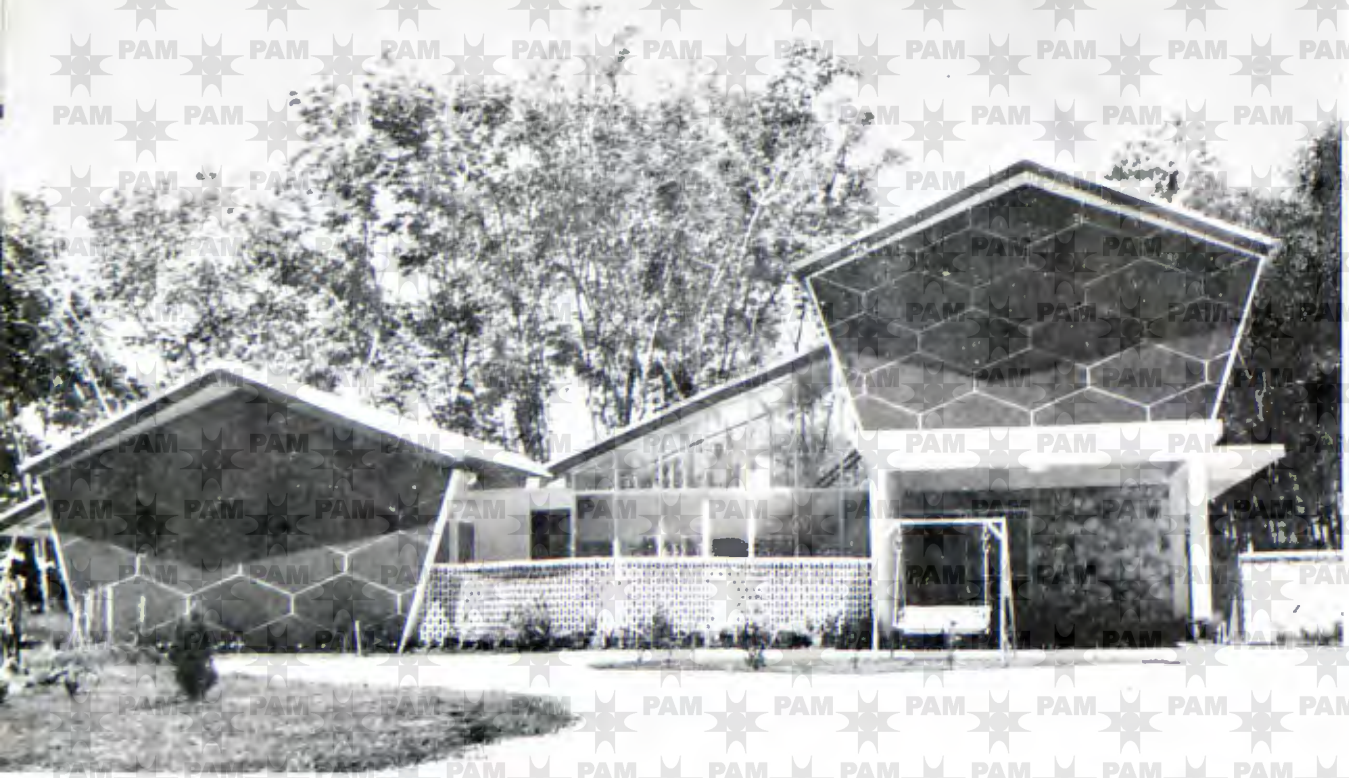


Photos: Mr. Kington Loo.

HOUSE IN FREEMAN ROAD, KUALA LUMPUR

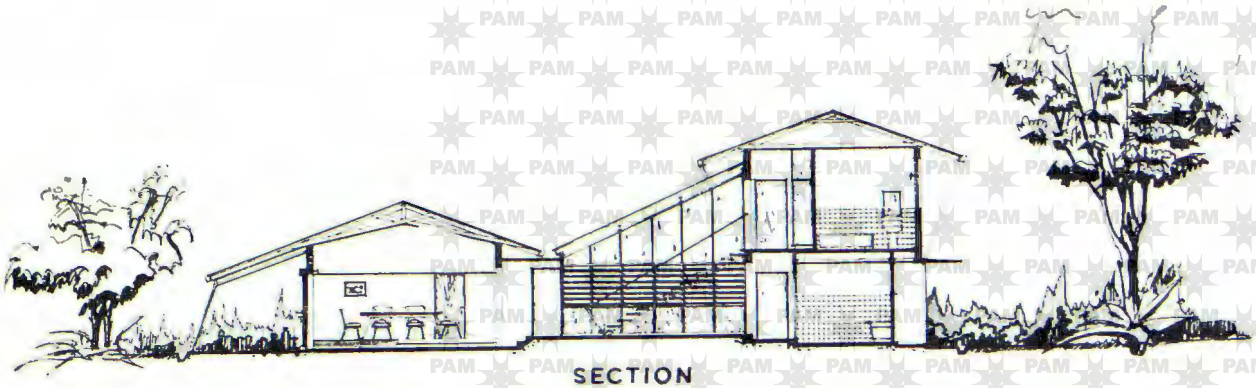
Architects: Booty, Edwards & Partners.

This house was designed for Dr. and Mrs. Lee Tuck Chong who have three young children. Because of the growing part of the family a split zoned plan was decided upon as a satisfactory solution with the living dining areas located in the single-storeyed part of the house and separated from the double-storeyed block containing the three bedrooms and the study. An attempt has been made in this plan to incorporate two courtyards in the centre of the house to obtain maximum cross ventilation and also to make the separation of the two zones more complete and yet integrated with each other. The link between the two zones is the wide staircase section which is glazed on both sides.

The construction of the house consists of a combination of light reinforced concrete framing and load-bearing 9" brick walls supporting a first floor of reinforced concrete. The roofs are framed in Tanalized secondary hardwood members with a layer of aluminium foil sisalation between the rafters and the low-pitch Redland cement white roofing tiles. The staircase is very simply constructed of 2" diameter steel tubes forming the stringers and handrails with the hardwood treads supported on ¾" square steel rods.

The finishes comprise of vitreous mosaic tiles to the main circulation areas, kitchen and bathrooms and teak parquet to the remaining areas.

The total cost of the house including all built-in furniture in the kitchen and bedrooms was approximately $70,000. The consulting engineers were Steen Sehested & Partners and the contractors were Ming & Co.



SECTION

1. KITCHEN
2. DINING
3. LOUNGE
4. TERRACE
5. DRYING YARD
6. VERANDAH
7. COURT YARD 2
8. FOYER
9. COURT YARD. 1
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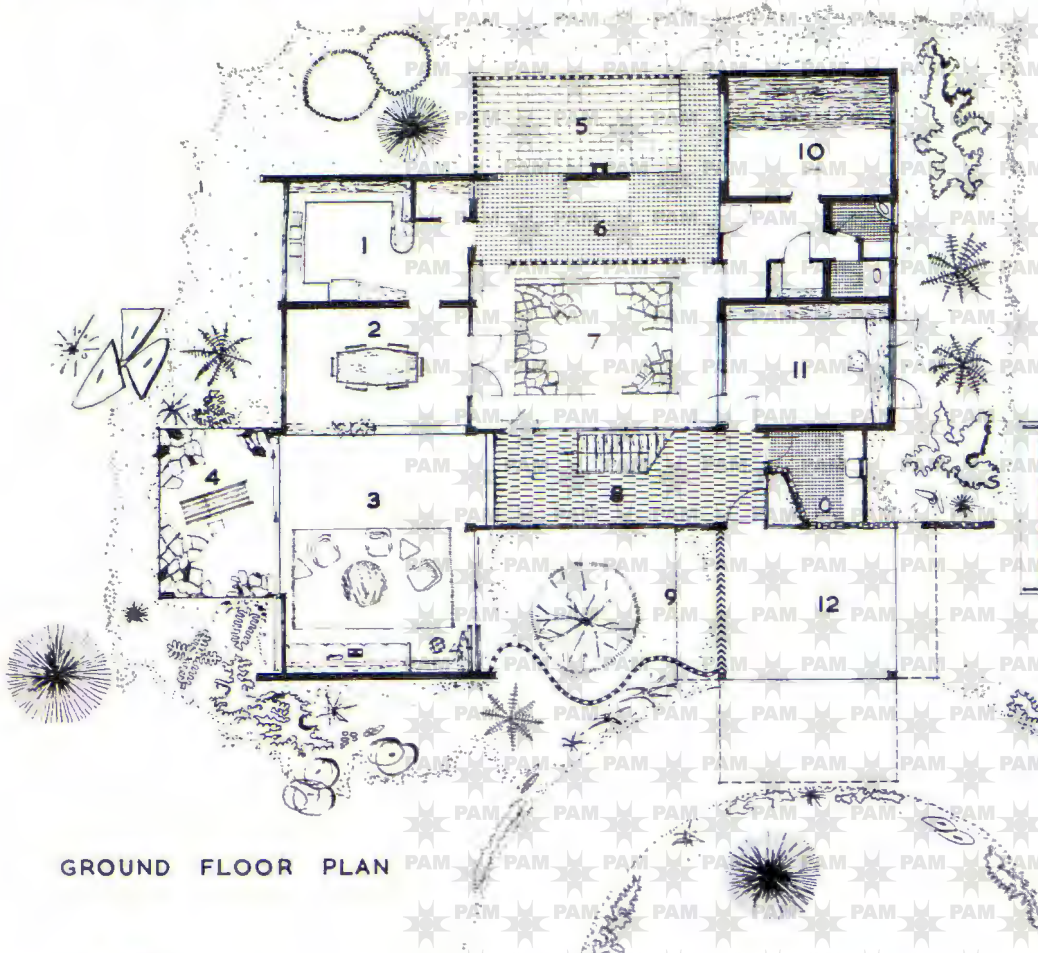
11. STUDY
12. GARAGE
13. BEDROOM NO. 2
14. BEDROOM NO. 3
15. BEDROOM NO. 1



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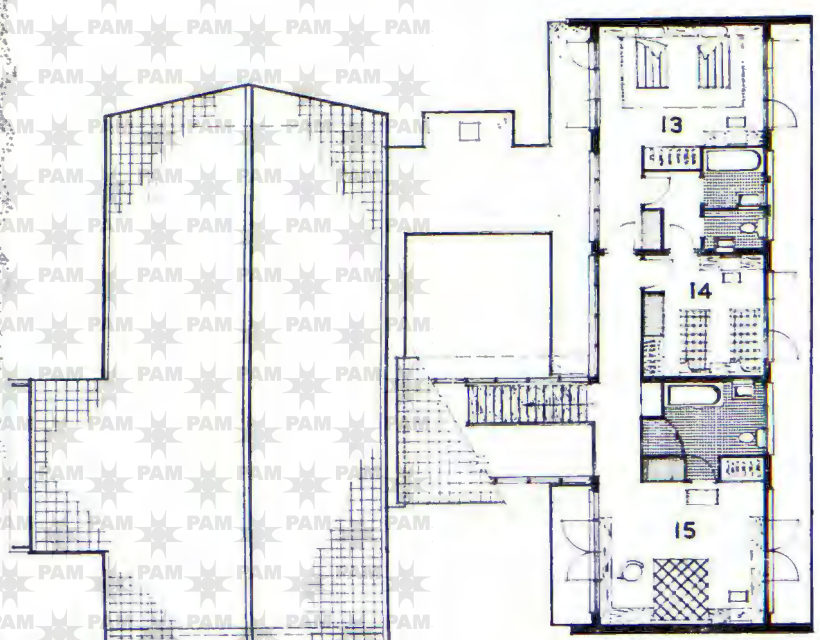


1ST. FLOOR PLAN

N.

DINING ROOM

LIVING ROOM

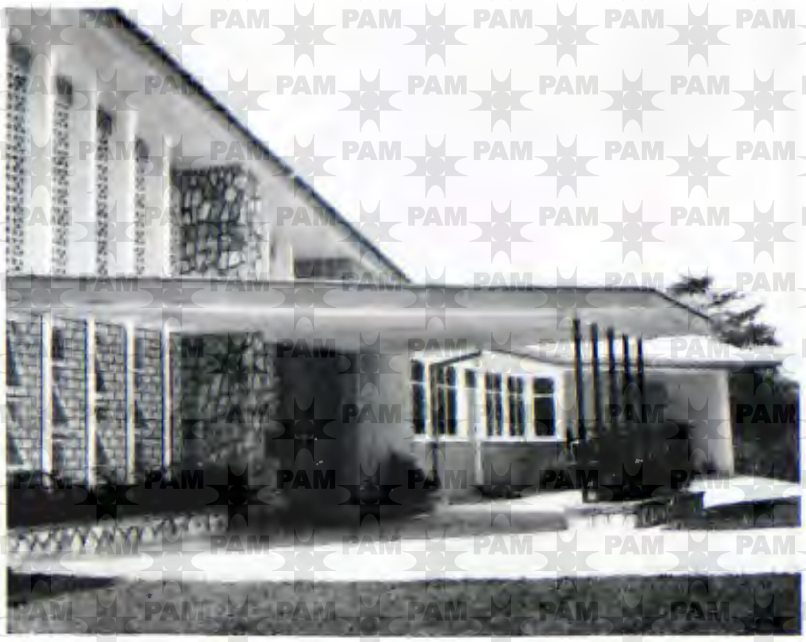
STAIRCASE

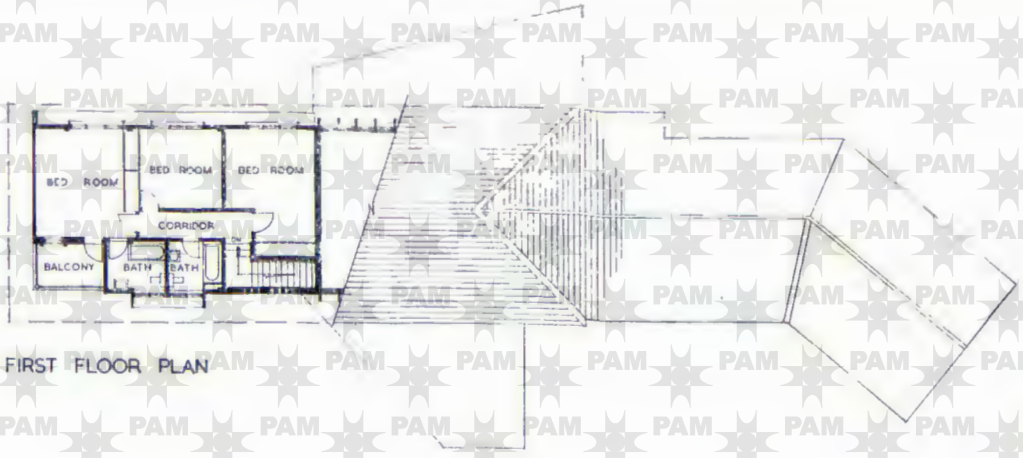
Photos: Mellow Yap.

HOUSE IN KIA PENG ROAD, KUALA LUMPUR

Architects: Palmer & Turner.

ENTRANCE DETAIL





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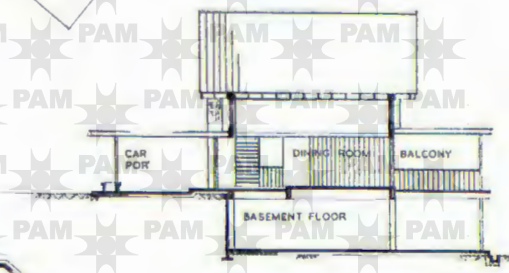
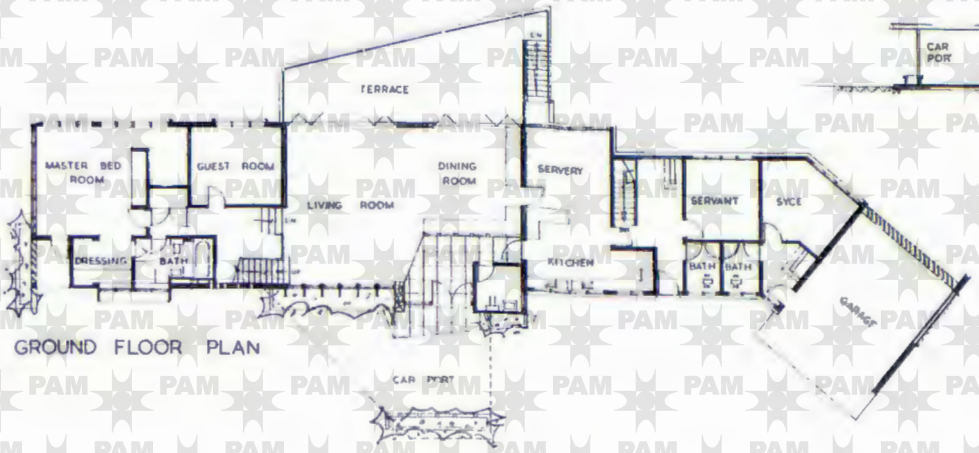


CROSS SECTION



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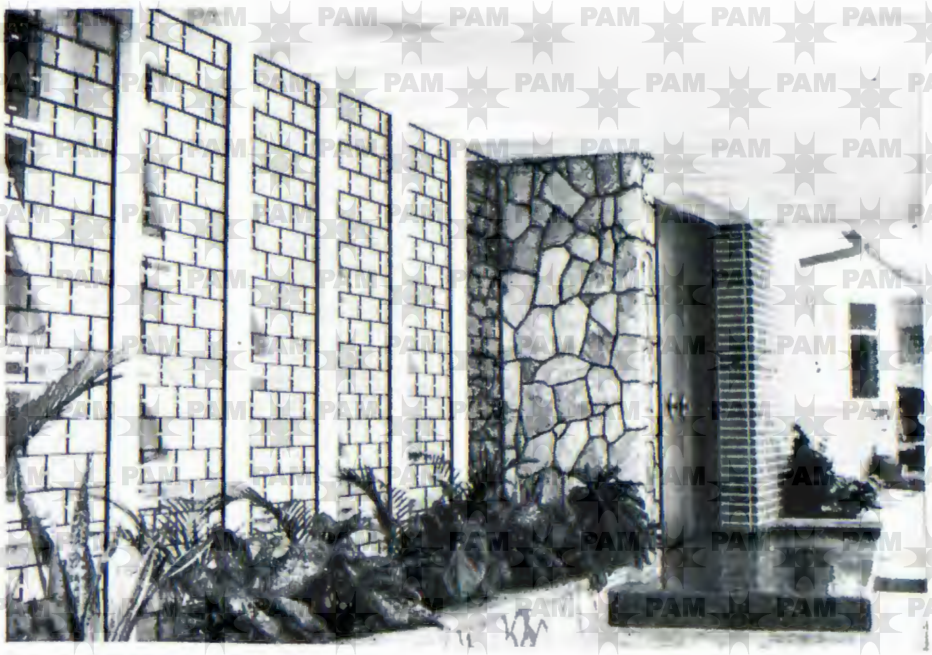


GARDEN TERRACE

STAIRCASE TO TERRACE

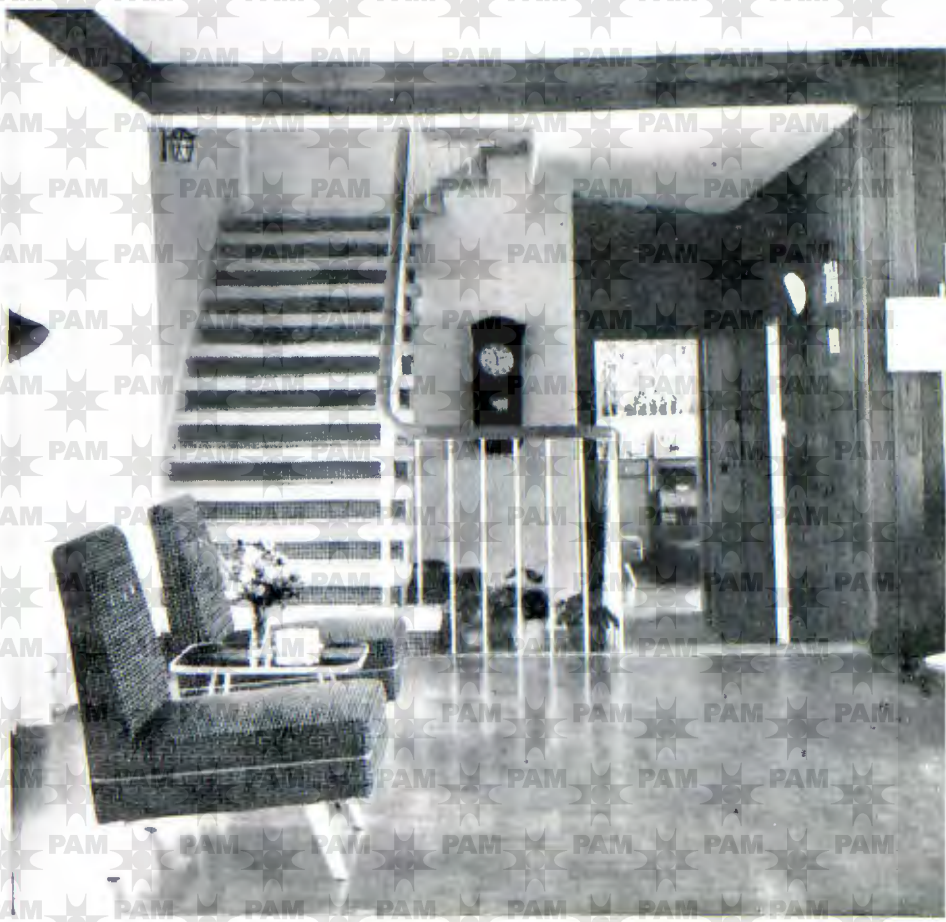
The site for this house is an elevated one and is accessible, although not visible, from Kia Peng Road. Parts of the house can be seen, however, from Stonor and Conlay Roads.

The site has a broad road frontage on Chang Kat Kia Peng and this coupled with the fact that the short axis points north-south, recessited the building, in order to take advantage of the orientation and view, being built lengthwise.

The entrance and Living/Dining Room levels are on the same level as Chang Kat Kia Peng. The utility and servants quarters are also on this level, and are situated to the right (looking at the house from Chang Kat Kia Peng). The Master suite and Study are on a separate level, a little lower than the Living Room, and the rest of the bedrooms are on an upper level. All the rooms in this house have a north-south orientation.

There is also a basement stretching throughout the entire length of the house.

MAIN STAIRCASE



Photos: Yong Studio.

HOUSE IN FREEMAN ROAD, KUALA LUMPUR

Architect: T. S. Leong.

CONSTRUCTION:

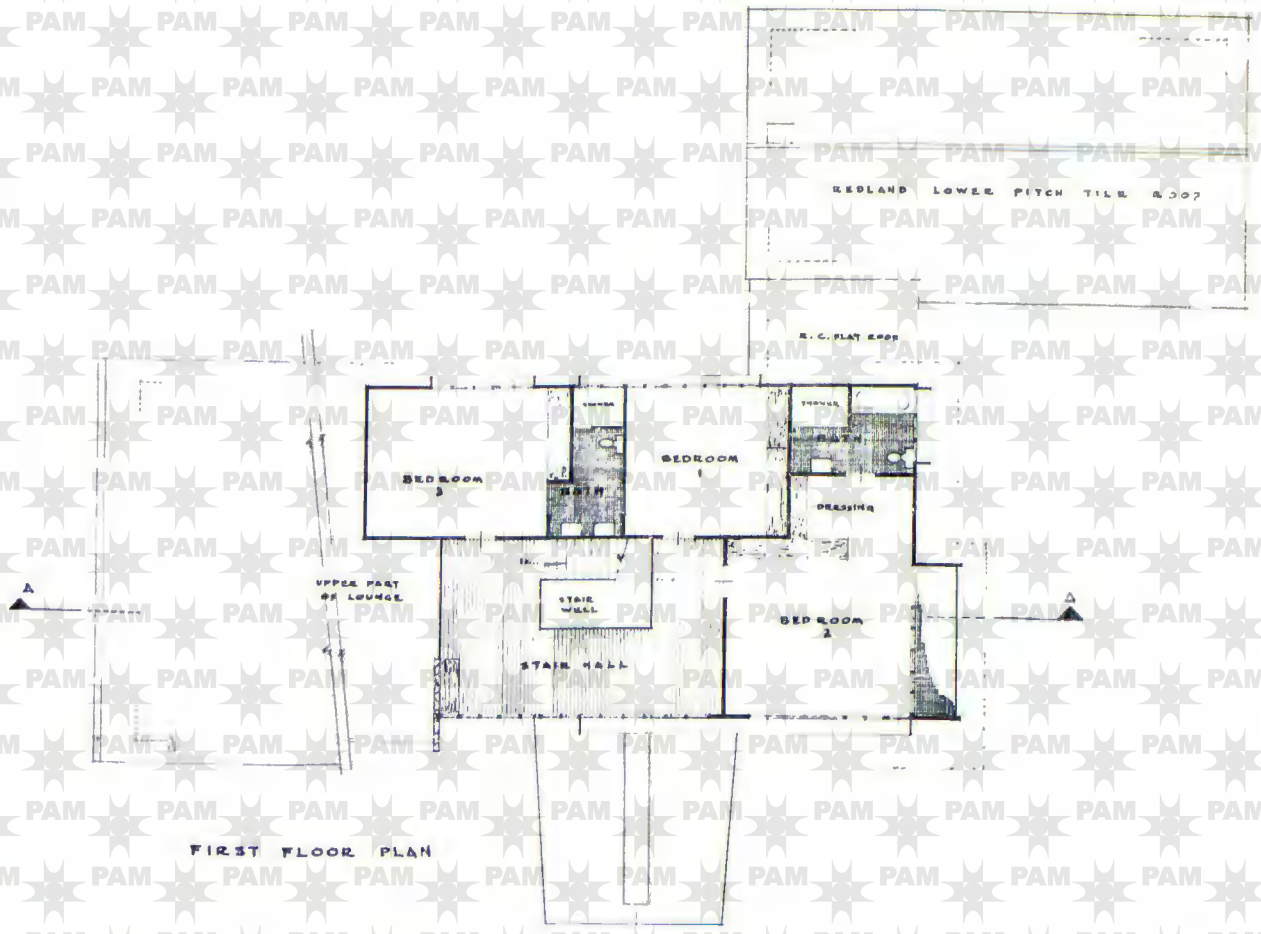
Brick infil, R.C. frame and rubble wall.
Redland tile roof.
Finish: Parquet and Mosaic floors.

FEATURES:

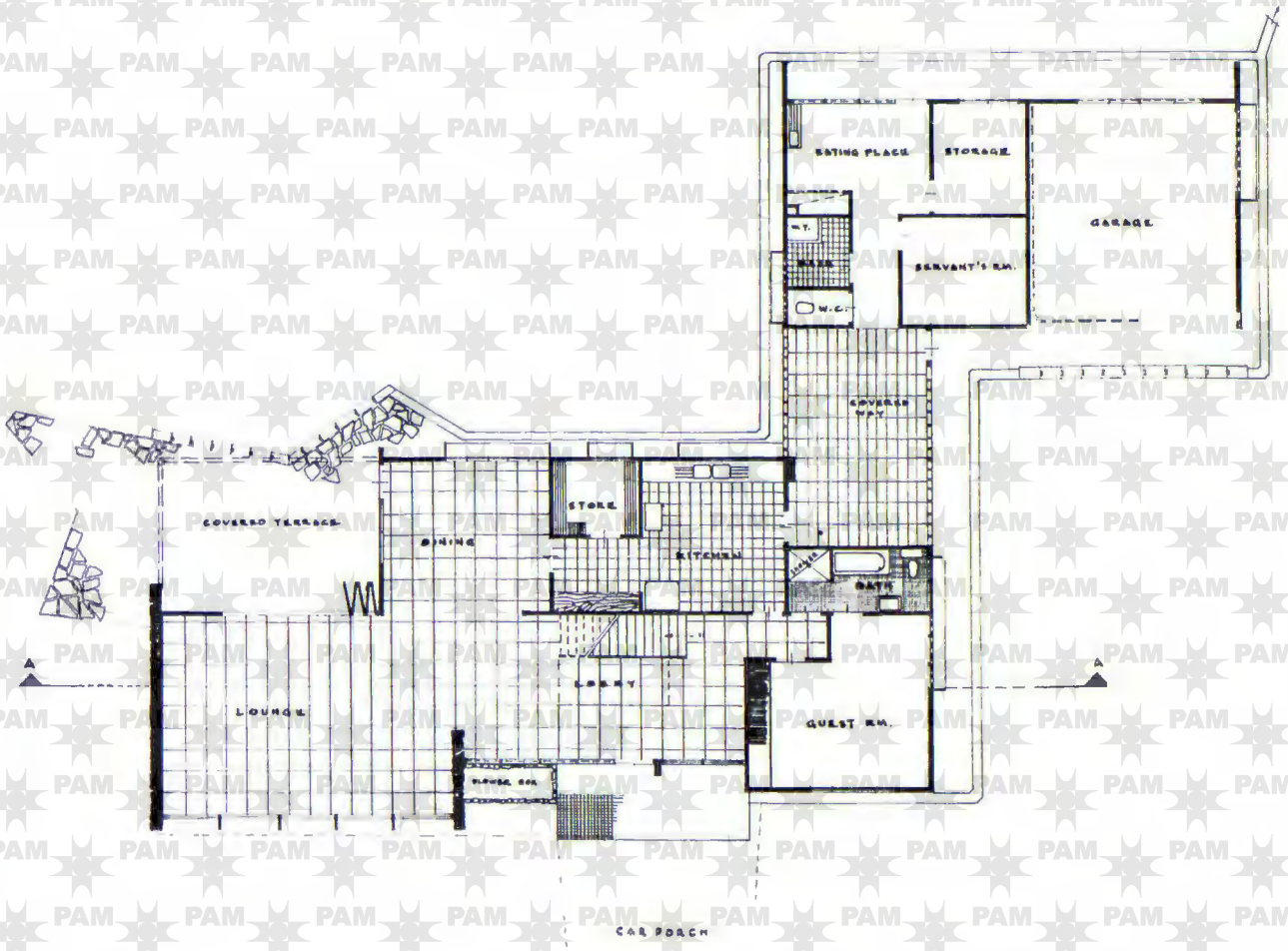
A 4-bedroom house, servants' quarters and double car garage.

Elongated gable roof; 3 bedrooms upstairs, 1 guest room ground floor, high head room for lounge. Integration of space for visual

THE HALL

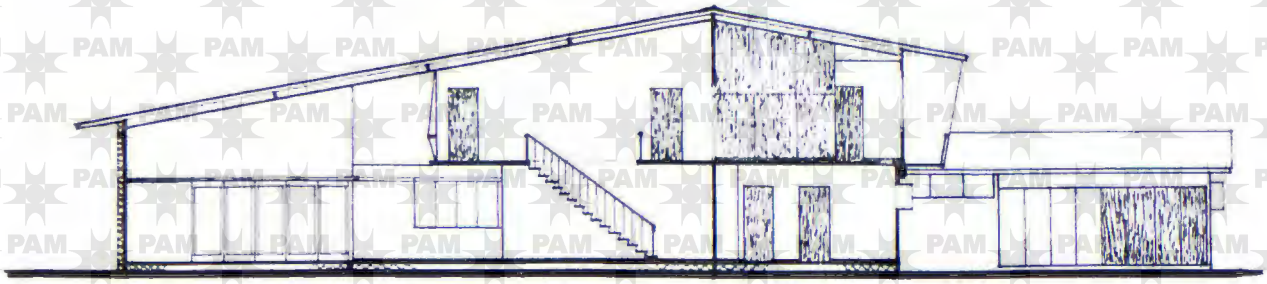


FIRST FLOOR PLAN



FROM THE ENTRANCE GATE

cohesiveness and functional co-ordination between living, dining, entrance and passage way to bedrooms. Interior space allocation allows for the play of solid masonry planes against smooth light finish to woodwork and patterned ceiling. Cross ventilation afforded by hollow grille facade wall facing entrance. The individual rooms are air-conditioned.



LONGITUDNAL SECTION A-A

VERANDAH

BELOW: PART ELEVATION OF THE TWO-STOREY SECTION.

(The window grilles are not designed by the Architects.)

HOUSE ON PENANG HILL

Architects: James Cubitt & Partners.

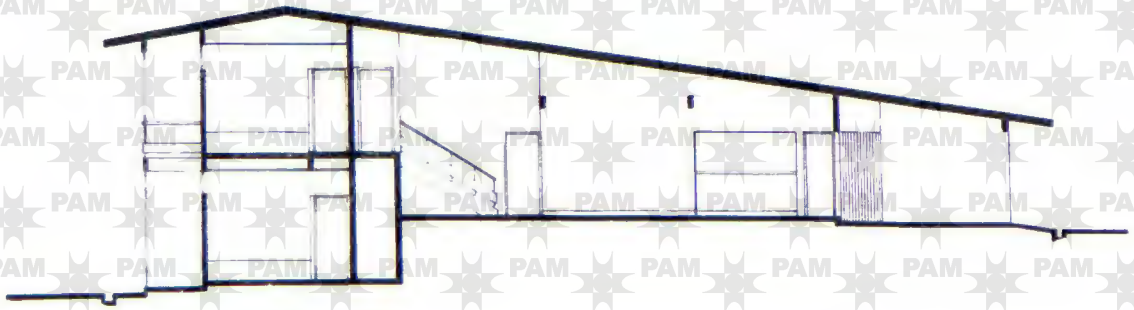
Almost on the summit of Penang Hill with the Main Terrace and Living Room taking advantage of a magnificent view over Georgetown, across the Channel to Province Wellesley and Kedah Peak.

The height approximately 2,700 feet above sea level.

The main accommodation comprises a two-storey section containing three bedrooms and one study of equal area, each pair of rooms sharing a bathroom. The combined Living/Dining Room rises through one and a half floors from which the Bedrooms are reached by a half staircase flight up or down.

The remaining rooms are Kitchen, two Servants Rooms with separate cooking and washing facilities, a small bar, lavatory, car port and terrace.

Reinforced concrete framed structure, brick and timber panel walls, timber window and door units and timber and asbestos roof.

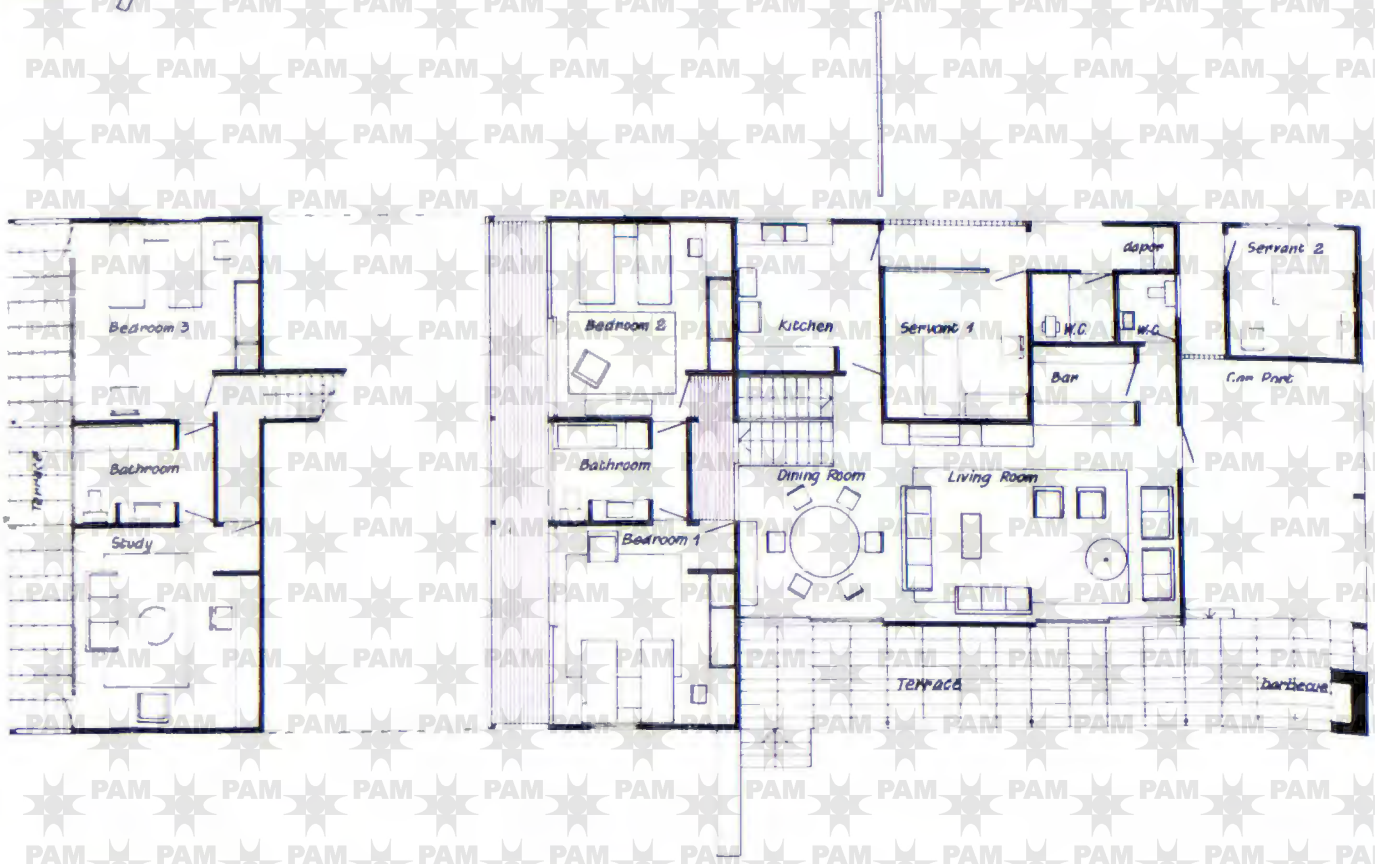


Longitudinal Section

Living/Dining Room, Terrace, Kitchen and Bathrooms are Mosaic tiled.
Bedrooms and Study, parquet floor.
All walls are plastered.

Contractor: Messrs. Lee Hai Chan of Penang.

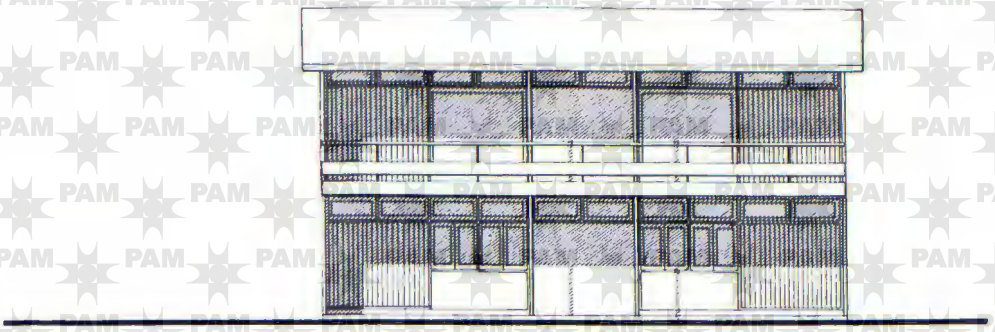
Contract Cost: $31,000.00.



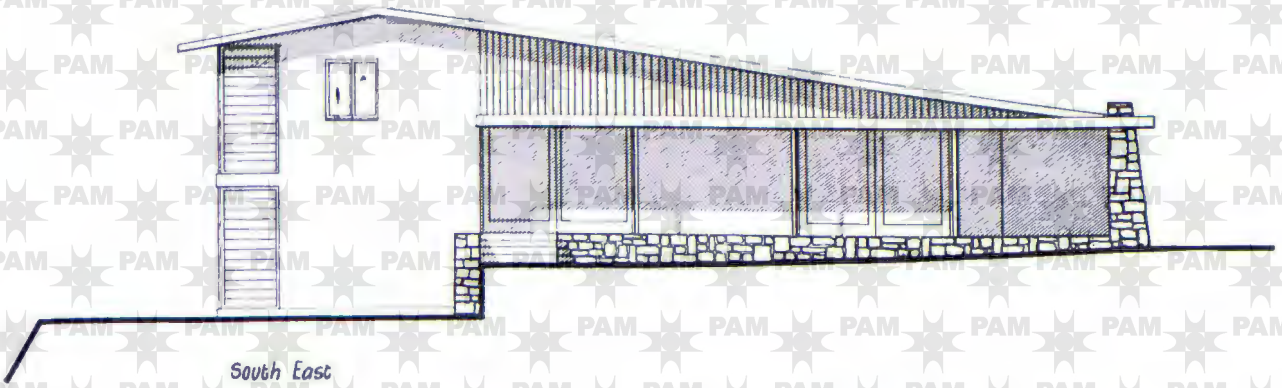
Lower Ground Floor

Ground Floor

House on the Peak, Penang



South West



South East

CORNER OF TWO STOREY PART

Photos: Ng Bros. Studio.

TWO HOUSES FOR THE RUBBER INDUSTRY REPLANTING BOARD

Architect: Lyn Thompson, D.S.C.

Consulting Engineers: A. H. Flowerdew & Co.

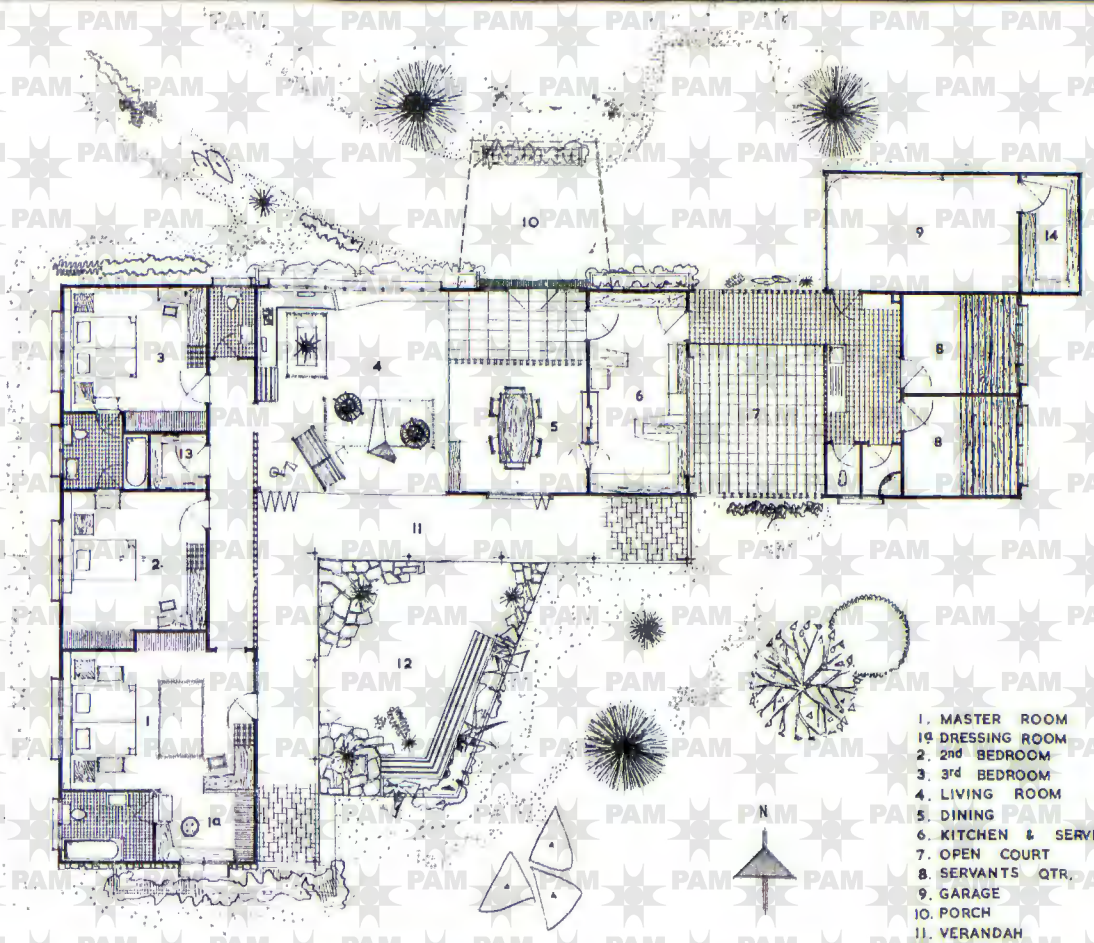
This bungalow, and the house illustrated on pages 29 and 30 have been built on adjacent sites at the end of Golf View Road with entrance from Freeman Road. The living rooms with their sliding folding doors face the Golf course across the patio and garden.

The construction is of the normal reinforced concrete frame with rendered brick infilling panels, and some structural load bearing walls of local limestone.

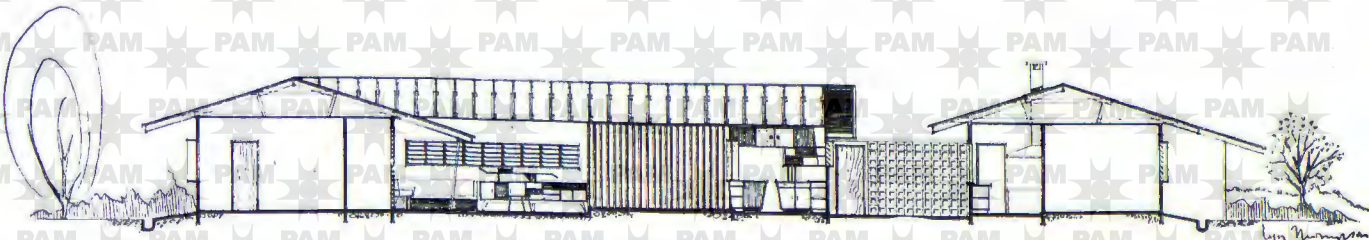
The ceiling in the single storeyed bungalow, of nine feet, is lower than is normal in this size of house in Malaya, but with the cross ventilation provided, the low pitched eight foot deep eaves projecting over the patio, and the light open concrete grille penetrating the living room from the outside, the house has proved to be cool.

The two storeyed house was designed to the specific needs of the occupier who requires on occasion a four bedroomed house, the fourth bedroom in this instance being obtained by sub dividing the master bedroom with a large polished timber sliding folding partition, which fits against the wall when not in use.

There is a light polished Chengai open treated single flight staircase between the two floors, and the structural limestone wall is left exposed on the inside.

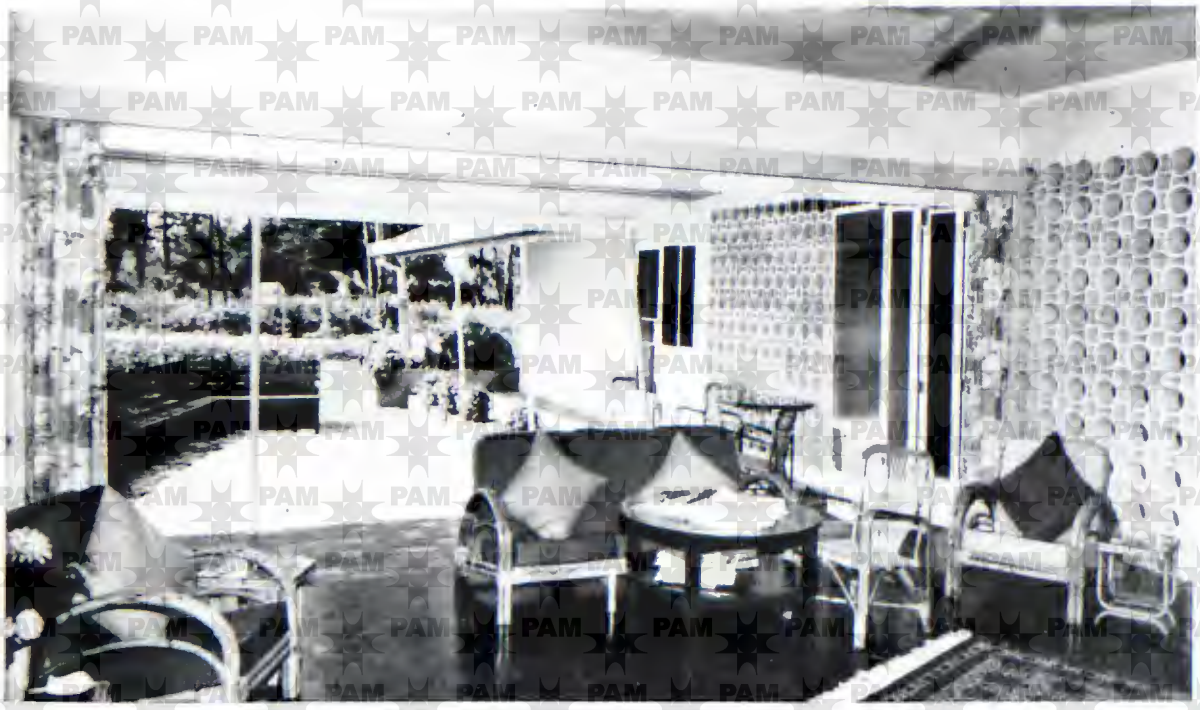


FLOOR PLAN OF BUNGALOW



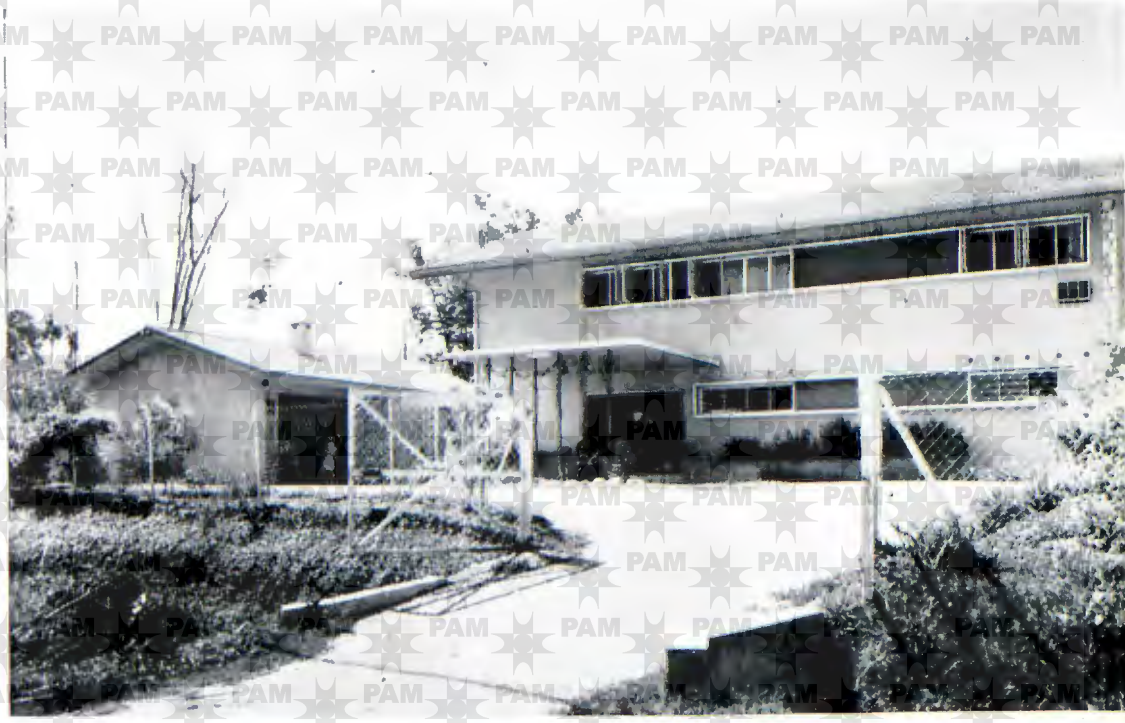
LONGITUDINAL SECTION

PATIO.



LIVING SPACE

PATIO



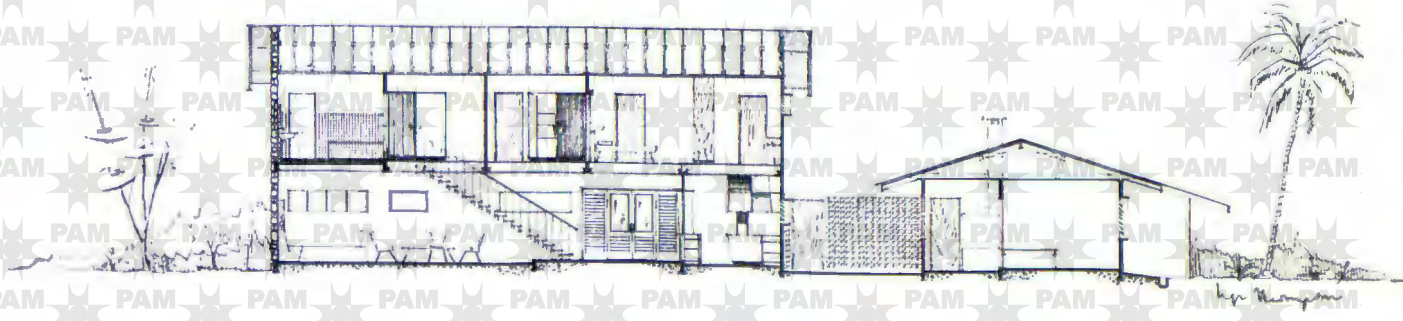
STREET ELEVATION OF TWO STOREY HOUSE.

The dining space in both houses is six inches above the general living area, and the use of Keranji B. W. Parquet (light straw in colour) for the dining space and rich mahogany red Kempas B. W. Parquet for the living area makes the change in level apparent.

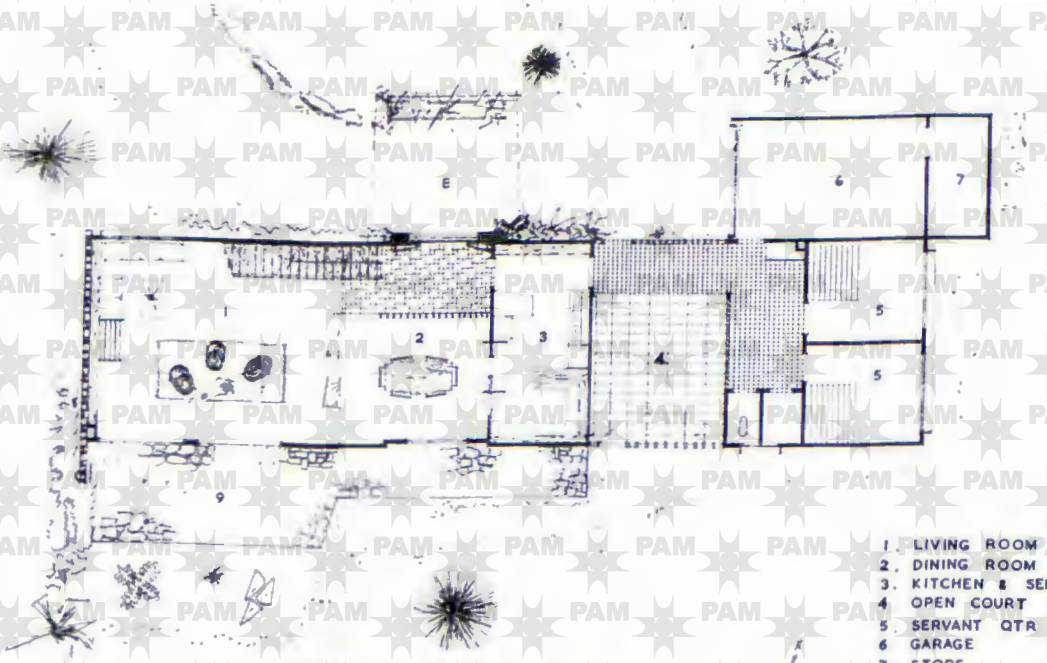
Both houses have built in "through the wall" service and sideboard units between Kitchen servery and Dining space, built in Kitchen furniture, built in dressing tables and wardrobes in bedrooms, built in linen storage and adequate box room storage.

The two houses were completed together with built in furniture for approximately, sixteen dollars per square foot.

General Building Contractor—
Kuan Yuen & Co.

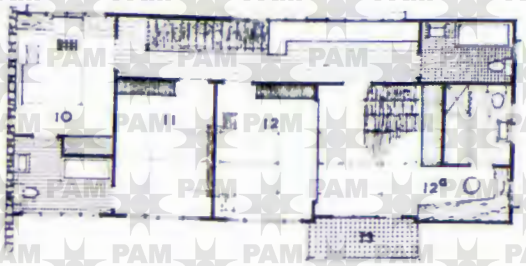


LONGITUDINAL SECTION

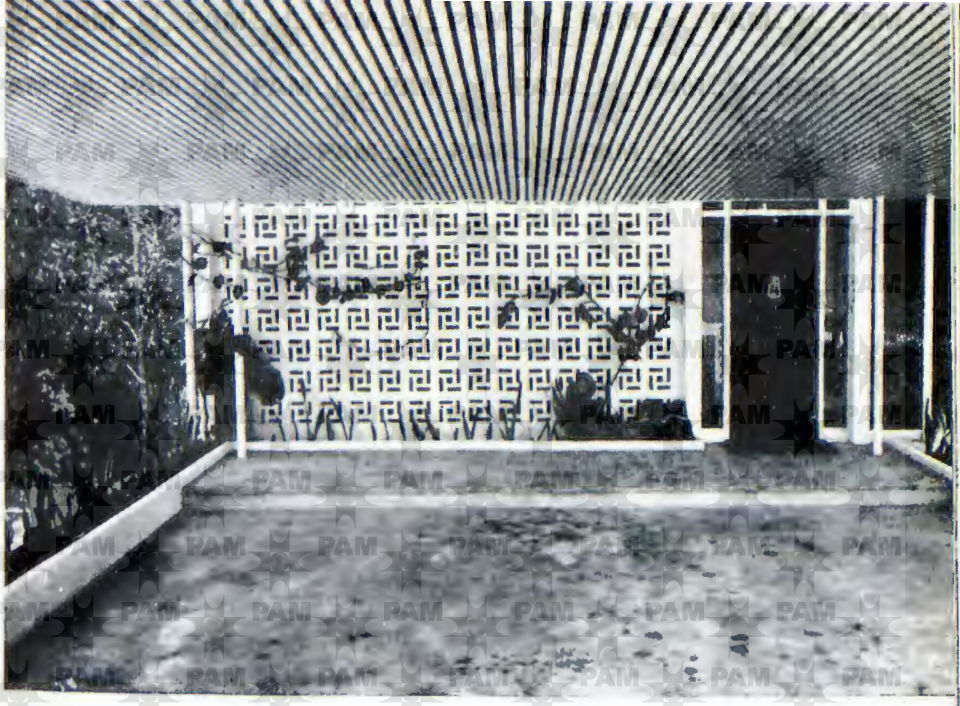


GROUND FLOOR PLAN

1. LIVING ROOM
2. DINING ROOM
3. KITCHEN & SERVERY
4. OPEN COURT
5. SERVANT QTR
6. GARAGE
7. STORE
8. PORCH
9. PATIO
10. 1st BEDROOM
11. 2nd BEDROOM
12. MASTER BEDROOM
12a. DRESSING ROOM
13. BALCONY



FIRST FLOOR PLAN

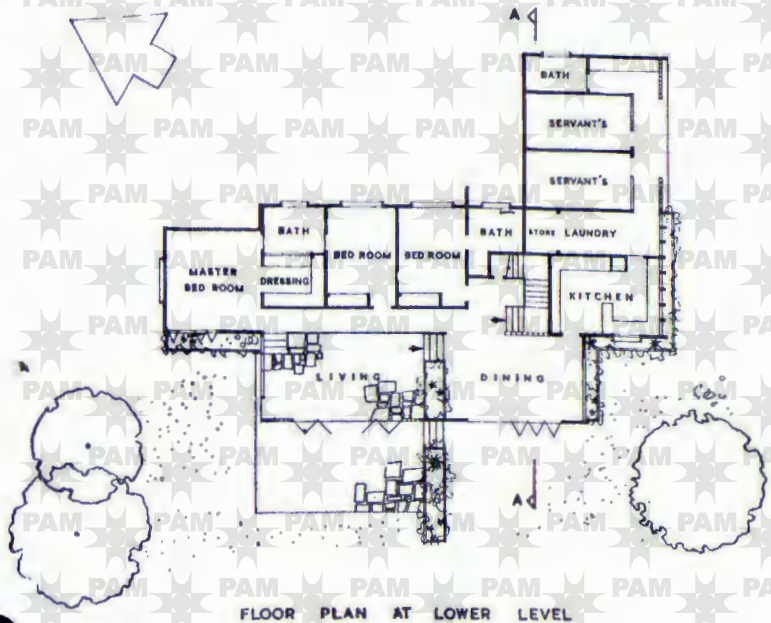


THE PORCH.

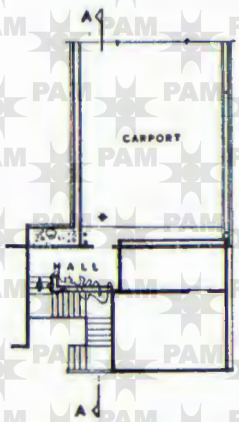
Photos: Mellow

HOUSE ON KENNY HILL, KUALA LUMPUR

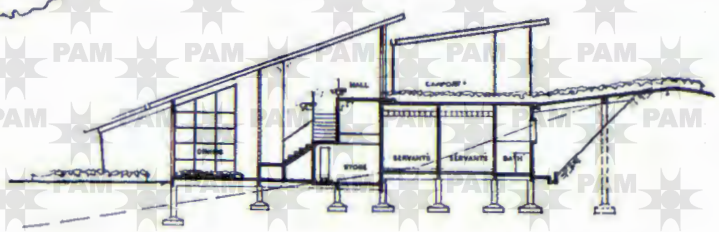
Architects: James W. Ferrie & Partners.



FLOOR PLAN AT LOWER LEVEL



PLAN AT UPPER LEVEL



SECTION A-A

R.C. framed structure with tile roof. The house required had to be small and inexpensive, and capable of being used for parties up to 20 — 25 people. Three bedrooms are air-conditioned. Tiling throughout bathrooms and kitchens in glazed and mosaic tiles. Bedroom floors wall-to-wall carpeting. Sitting/dining and entrance lobby floors concrete slab pattern paving.

LIVING ROOM

LIVING ROOM WINDOW FROM GARDEN

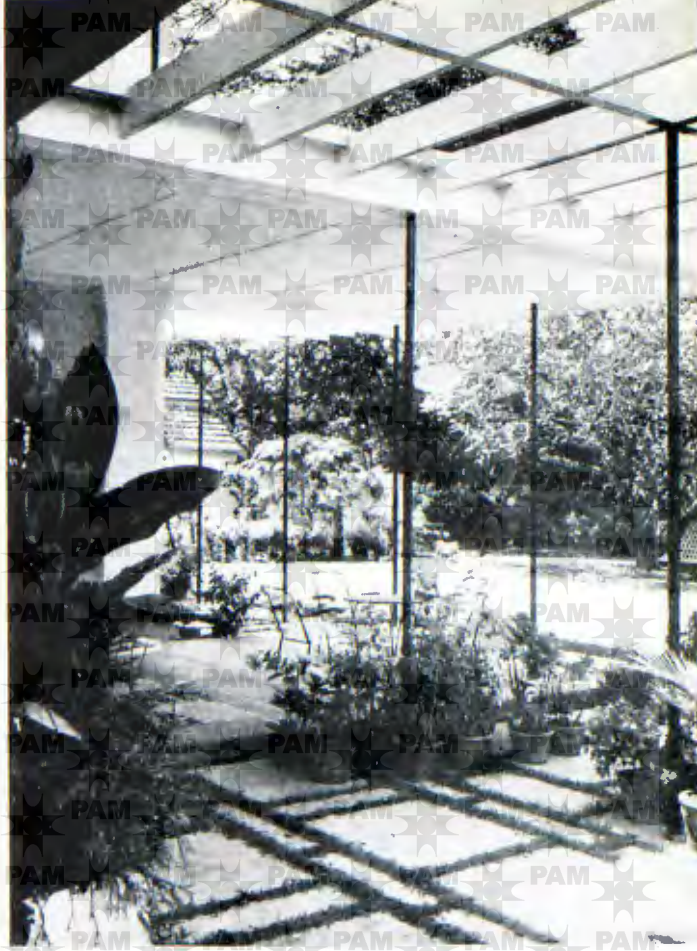
ALTERATIONS TO HOUSE IN KUALA LUMPUR FOR THE SHELL COMPANY

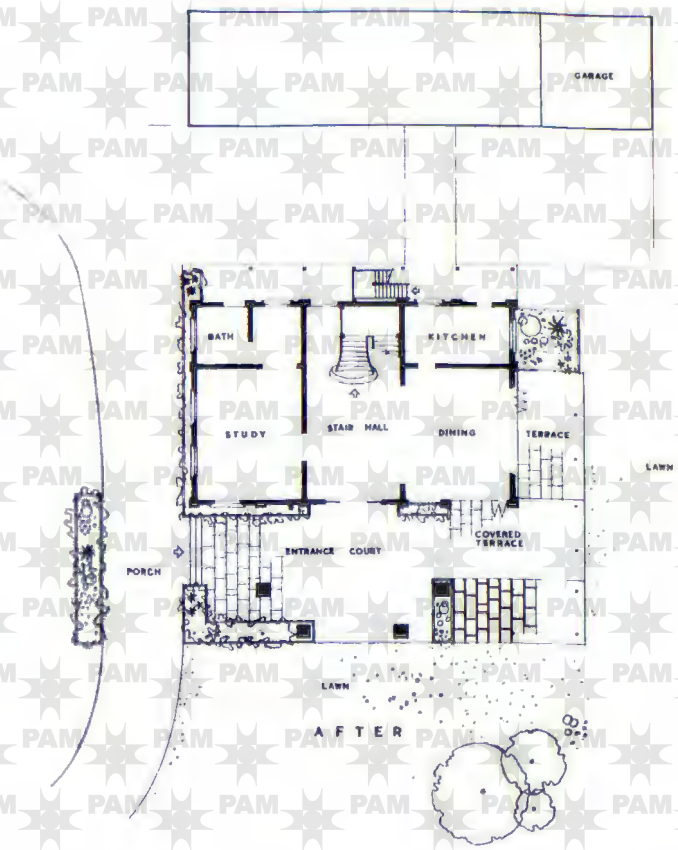
Architects: James W. Ferrie & Partners.

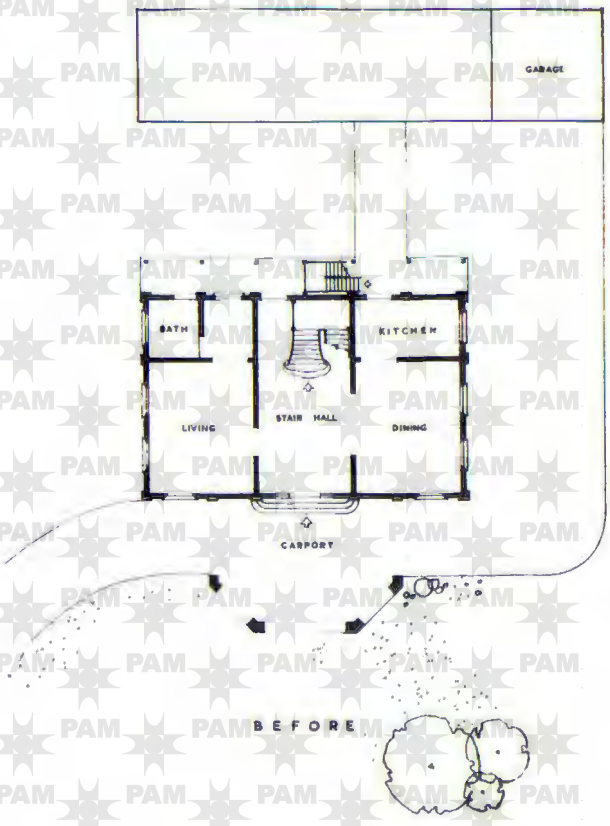
The alterations required to the house of the local manager of an internationally famous company were to permit him to hold social gatherings of the size necessary for one in his position.

This was done by re-routing the driveway and using the carport as the basis for a new porch, terrace and pergola extension to the house which, combined with redesigning the stair hall and dining room, gives adequate space for parties of 50 to 60 persons.

The new extension also opened up the garden to the house where before it had been cut-off by the moat-like driveway round the two sides of the house overlooking the major part of the garden.







Photos: Mellow Yap.

MERCANTILE BANK HOUSES, KENNY ROAD, KUALA LUMPUR

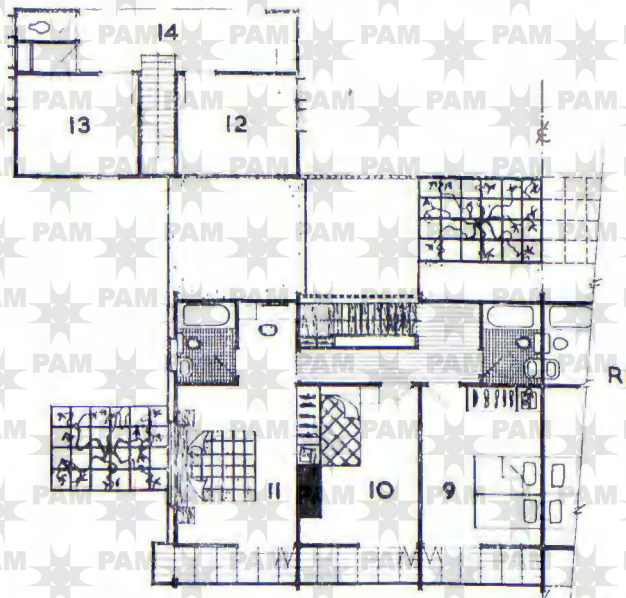
Architects: Booty, Edwards & Partners.

The problem presented by the clients was for two 3-bedroom flats for their staff on a very steep site fronting Kenny Road hemmed in on both sides by existing houses. The solution was the construction of two semi-detached houses with two double garages built into the hill side and with the living rooms on a higher level and bedrooms on the floor above. The servants quarters were then placed on a shelf at the rear at a higher level than the living room level.

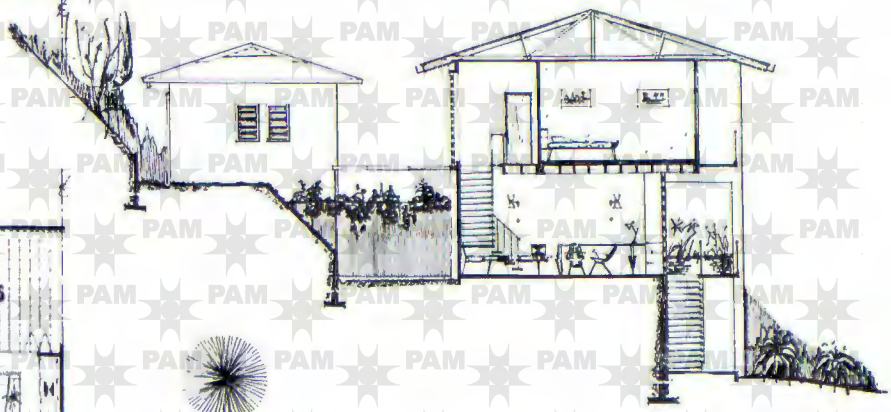
The construction consists of a reinforced concrete frame with infill panels of brick and the whole is roofed with yellow low-pitch Redland cement roofing tiles on Tanalized secondary hardwood trussed rafters. The floor over the garage is reinforced concrete and is finished with teak parquet and the bedroom floor is of Tanalized Meranti T & G strips on Tanalized Keruing joists.

Extensive use of light precast concrete grilles has been made to screen the windows of the living rooms in order to reduce the nuisance of sky glare which is a problem on such an exposed site.

1. DOUBLE GARAGE
2. LOUNGE
3. DINING
4. TERRACE NO. 1
5. TERRACE NO. 2
6. KITCHEN
7. LAUNDRY
8. UTILITY
9. BEDROOM NO 3
10 BEDROOM NO. 2
11. BEDROOM NO. 1
12. SERVANT'S RM. NO. 2
13. SERVANT'S RM. NO. 1
14. VERANDAH



UPPER FLOOR PLAN



MIDDLE FLOOR PLAN

LOWER FLOOR PLAN

KENNY ROAD

LIVING ROOM

BELOW: STAIRCASE

Japanese grass paper was used to line the common party wall giving a soft Oriental touch to the living rooms.

The total cost of the two houses complete with all earthworks, electrical wiring and fittings was approximately $125,000.

Consulting Engineers:

Steen Sehested & Partners.

Main Contractors: Lee Construction Co.

LAND DEVELOPMENT IN THE BILUT VALLEY, PAHANG

by T. A. L. Concannon, P.F.M.S.A. Commissioner of Town and County Planning.

The Federal Land Development Authority was established by the Land Development Ordinance, 1956, thus marking the implementation of major proposals of a Working Party which was set up in August, 1955:—

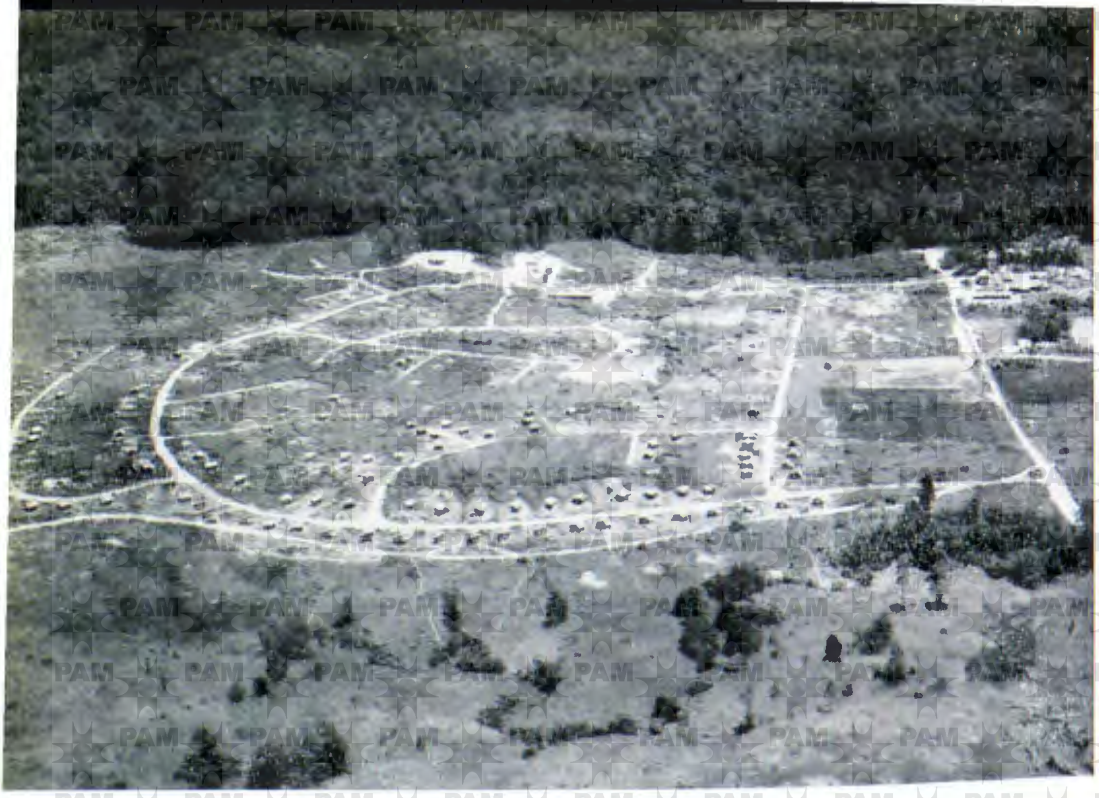
" (a) To assess the need in the various States and Settlements for assistance from the Federal Government in the development of new areas for Land Settlement, and in the light of this assessment,

(b) to make recommendations, with special reference to financial and administrative aspects, on the most suitable organization for providing such assistance."

The Land Development Ordinance, 1956 (No. 20 of 1956), as amended by the Land Development (Amendment) Ordinance, 1957 (No. 35 of 1957) and the Land Development (Amendment) Ordinance, 1958 (No. 56 of 1958) defined the duty of the Authority in promoting and assisting the investigation, formulation, and carrying out of projects for the development and settlement of land in the Federation.

BILUT VALLEY DEVELOP

Photographs: Information Services, Federation of Malaya.



Aerial view of village from the south-west (Dec. 1959).

The general intention is that the state governments should plan development projects, and establish boards or corporations charged with the execution of these development projects either independently or with federal assistance through the Federal Land Development Authority, which makes available federal resources, including finance for approved projects. The Federal Authority is not, however, precluded from carrying out development projects itself.

The Authority during the past three years has been developing new areas through state and local boards and corporations by setting-up planned farming communities. It aims at producing organised groups of prosperous land-owning farmers who appreciate the use of co-operative institutions as a means of economic and social progress.

Ayer Lanas, Kelantan

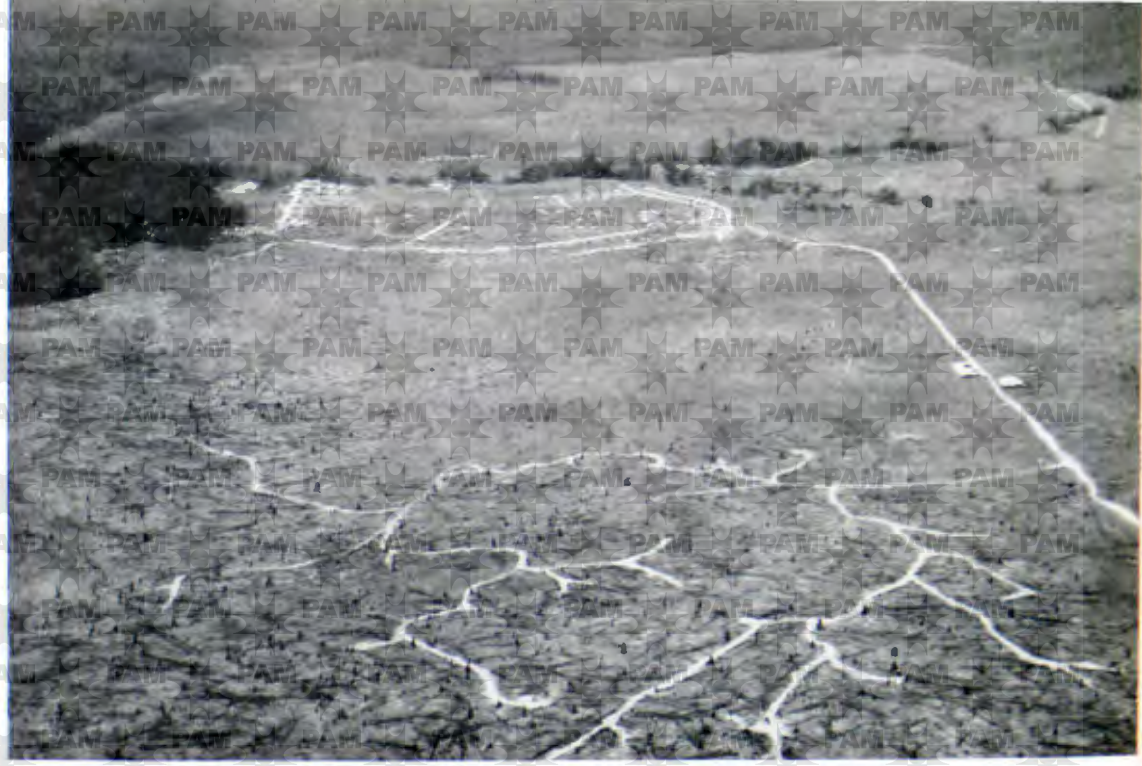
The Ayer Lanas Land Development Scheme, Kelantan was commenced in 1957, and in 1958 had emerged as a successful experiment, the lessons from which were used as a basis for planning the scheme for similar development of hitherto inaccessible jungle land along the Sungei Bilut in Pahang, the first federal scheme to be initiated on a national level.

Bilut Valley, Pahang

An area of 13,000 acres at Bilut Valley, four miles north of Bentong and ten miles into the valley to the north-east of the road to Tranum and Raub, was provided by the Pahang Government, subject to being found suitable, and preliminary work was commenced in 1957. This included examination of soils and preparation of a soil survey, investigation of problems of drainage and irrigation, and obtaining clearance from the Departments of Mines and Geological Survey regarding mineral bearing areas.

Discussions took place between the Chairman of the Authority and the Manager of the Bilut Valley Land Development Scheme with the Federal Town Planning Department (now the Federal Department of Town and Country Planning) concerning planning of the first village, intended to be a model of its kind and a guide for future similar enterprises.

In May, 1958, an aircraft of Federation Air Services was chartered by the Federal Town Planner to make a survey of the first village site, and for the second village to be built later. Passengers on this flight included the Chairman of the Authority, the Manager of the Scheme, the private surveyor



Land north-west of the village after burning and clearing for planting rubber (Dec. 1959).

who was to set-out the lot boundaries of the village on the ground, the Game Warden of Pahang, and the Federal Town Planner (now the Commissioner of Town and Country Planning).

This aerial reconnaissance afforded an invaluable 'planner's pre-view' of the site and surrounding terrain when, subsequently, the technical officers inspected the area on foot, before any actual planning was attempted on paper.

Village plan

From experience gained at Ayer Lanas it had been decided that a suitable size for the village community was about 400 families on ¼ acre lots, an economic unit for provision of a school, dispensary, water supply and other public services, each family having in addition 10 acres to work outside the village, 7 for rubber and 3 for fruit and vegetables. On a reasonable terrain, as at Bilut Valley, this ensures that no settler lives more than a mile and a half from the most distant holding. It was felt also that a competent manager could control 4,000 acres, with a field inspector for each one hundred families.

A layout plan was accordingly prepared by the Federal Town Planning Department along these lines (see photograph of model). This was set-out on the ground after an access road had been 'bulldozed' through the difficult jungle country and the village site cleared of trees and undergrowth — a strenuous undertaking calling for skill, hard work, and resource on the part of the manager and his staff.

In August, 1959 the first settlers moved in, and by the end of March, 1960 they had planted some 3,000 acres with rubber in the individual 7 acre holdings outside the village; coconuts and limau langkat (sweet oranges) from Trengganu seeds will be planted next year in the balance of the holdings. To date there are 400 families resident in the village, comprising 300 Malays, 75 Chinese, and 25 Indian family units, totalling almost 1,600 persons. Three shops have been opened for business and a school established in a temporary building.

Settlers are building their own houses to a simple type plan supplied by the management, and with timber felled on site, cut into scantlings by a sawmill in the village (operating under contract) at no cost to the settler. Water supply is to standpipes by pipeline from a source in the south-western hills, and sanitation is at present dealt with by pit-latrines.

In the complete plan for the whole area of 13,000 acres at Bilut each village will have its own shops and a small market, a community hall, religious buildings, playing fields, dispensary, and schools.

Beyond the villages lie the holdings as described, with ten acres for each family, seven devoted to high yielding rubber and the balance to padi, vegetables and fruit, for home needs as well as for income.

Pig-farming and poultry or fish rearing will form part of the plan to diversify crops, according to the personal taste of the individual.

Programme

The Federal Land Development Authority has phased a programme of stages of progress for the settlers.

After a year the settler has built his house, planted a few fruit trees, and prepared his padi land.

In three years he should be self-supporting in padi and vegetables, and beginning to harvest some of his fruit; meanwhile his rubber is growing.

In seven years, his first profits from rubber should arrive.

At the end of ten years his average income from his 10-acres should be $350 a month, which will compare with the $65 to $100 that is the return a small-holder today receives from working by 'hit and miss' methods on three or four acres.

Within 10 years the 13,000 acres at Bilut Valley should be fully developed and the mixed community be self-supporting, marketing on a co-operative basis their rubber, rice, vegetables, fruit, poultry and pigs.

Estimates of cost

The initial cost to the Federation Government, apart from that of establishing schools and social services, has been estimated at $1,000,000 for every 4,000 acres: although this figure is high the money is, however, recoverable later from the settlers as they repay their loans principally from their rubber smallholdings, in respect of which each settler is granted $400 an acre after his new rubber is established.

Subsistence loans are available to settlers during the first twelve months to enable them to plant and establish some food crops. Materials are also supplied on loan account, and it is thought that settlers will be able to repay their loans sometime between the seventh and twentieth years.

Conclusions

The experiment at Bilut Valley can have far-reaching results both economically and socially, principally because of the conditions governing the allocation of land. The settlers undertake to:—

work their holdings to conditions stipulated by the management;

create among themselves a Malayan atmosphere in which communalism will be regarded as a social offence;

look upon Bilut as their new home, and cut ties with their old kampongs;

not sell their land without permission, nor subdivide it under the laws of inheritance.

Each holding will be so legally tied that the owner-farmer cannot dispose of it without prior approval of the management, and a plot can only descend by inheritance from the single individual to another, so that each successive owner-farmer will possess an economic holding of ten acres.

The official hopes are that, in this way, a new Malayan rural community will develop with the owner-farmers sharing the pride and profits of ownership.

The Department of Town and Country Planning is actively assisting in this important work of rural development with technical advice to the Federal Land Development Authority in its pioneer schemes for opening up virgin land such as that in the Pahang jungle at Bilut Valley.

EDUCATION NEWS

Note: The views expressed in this article are not necessarily those of the Department of Education of the Government of the Federation.

The suggestion put forward in PETA 3/1 that the Diploma Examination for architects at the College and the Inter R.I.B.A. should be made one examination, has been adopted. This combined examination has been held for the first time at the College in the last week of May. There is no obligation on the part of students of the Technical College to become Probationers R.I.B.A. and sit for the Inter. They can simply sit for the Diploma Examination of the Technical College; however, it seems unlikely that any student will deprive himself of the chance of taking the Intermediate R.I.B.A. at the same time and, without further effort, and so far, no student has elected to sit for the Diploma Examination only.

There is, however, one slight difference between the Diploma Examination and the Intermediate: whereas the year's performance is being taken into account in judging the Diploma Examination, this is not done in the case of the Intermediate.

As the course at the College is now a professional training course for architects, two questions arise:

1. What will students do who have successfully completed the three years' course and passed the Intermediate R.I.B.A. ?

2. What is to be done for draughtsmen who do not necessarily wish to make architecture their career ?

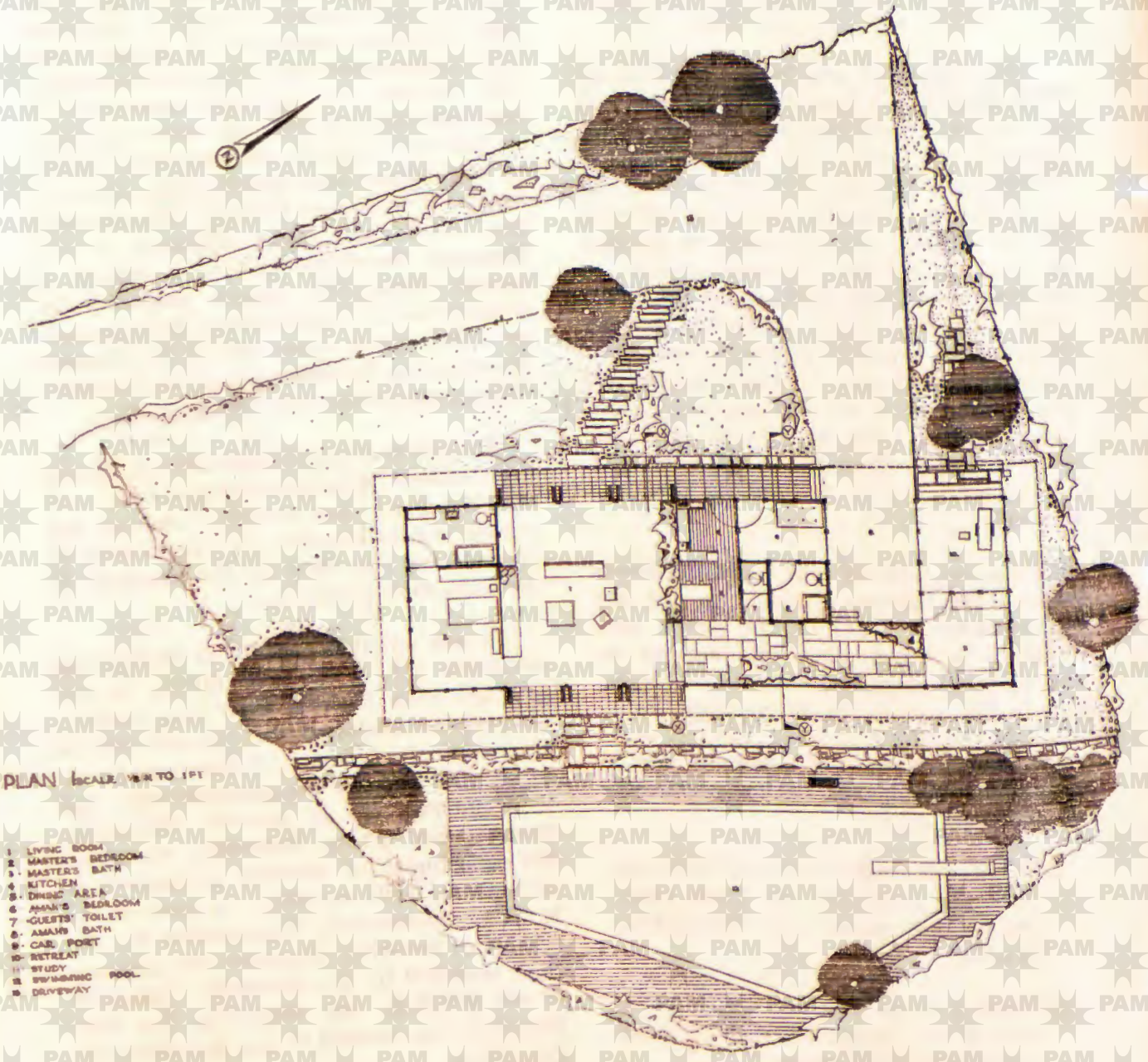
It is hoped to build up the course at the College to a full five years' course adding a fourth year in 1961.

The second question has been tackled by the scheme of training for draughtsmen worked out by our Committee of Education. The syllabus and specimen question papers have now been distributed among members; a notice has been published in the daily press; and a time table for evening classes to be held at the Technical College in 1960 and 1961 has been prepared and agreed. The first examinations are to be held in August. The Society has received more than a hundred inquiries after our notice appeared in the Press, and also an increasing number of applications from draughtsmen willing to become Probationers F.M.S.A. The Principal has stated in a letter addressed to our Honorary Secretary that, on a subject to subject basis, the papers prepared for Grades 2 and 3 of the F.M.S.A. Examinations are equivalent to those used in the Diploma Examinations for architects at the Technical College and in the Intermediate R.I.B.A.

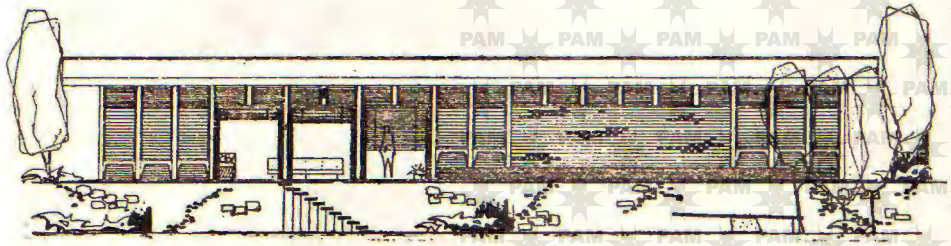
The newly formed Federation of Malaya Architectural Draughtsmen Association (F.O.M.A.D.A.) has warmly welcomed the scheme and its President, Mr. Carthigesu, is representing this body on the meetings of our Education Committee.

To sum up: It is hoped that professional architects will, in the near future, be able to study their trade in their own country. Government sponsored students will still be received at the College, and they may choose to sit the Diploma Examination only; but their number is, at present, decreasing. Draughtsmen in the Federation are given the opportunity of reaching a standard of professional skill equivalent to that of the R.I.B.A. Intermediate Examination by the scheme of part-time education and examinations prepared by the Education Committee of the F.M.S.A. Mr. Geeraerts, the Vice-President, has decided to join the Education Committee.

However, at the College itself we are still fighting an uphill battle. Mr. Carl Wilhelm Voltz, who has been here for the better part of three academic years has left the College in April, and we feel, again, an acute shortage of staff It had been Carl Voltz's arrival, under conditions similar to those of the

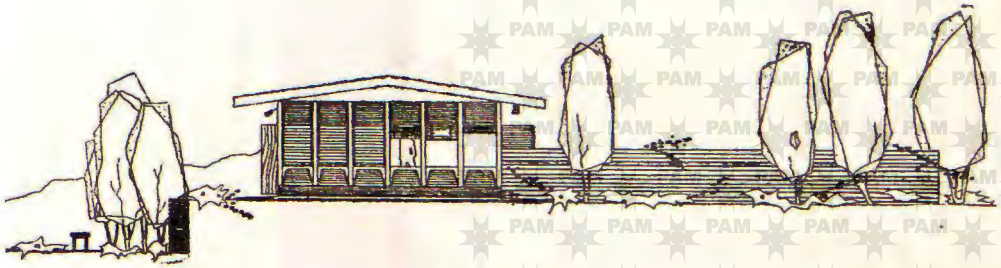


Design for an architect's bungalow by Lee Wee Kee—1st Year.

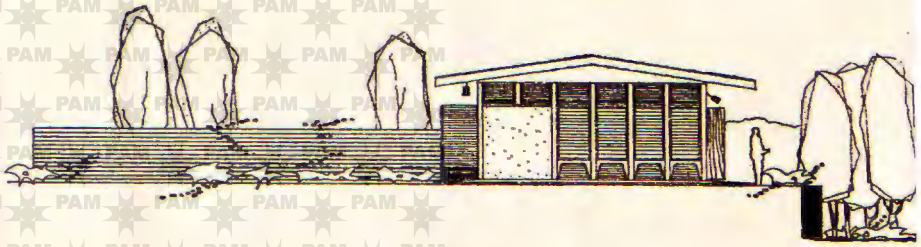


SOUTH-EAST ELEVATION | SCALE: 1/8IN TO 1FT.

NORTH-WEST ELEVATION | SCALE: 1/8IN TO 1FT.



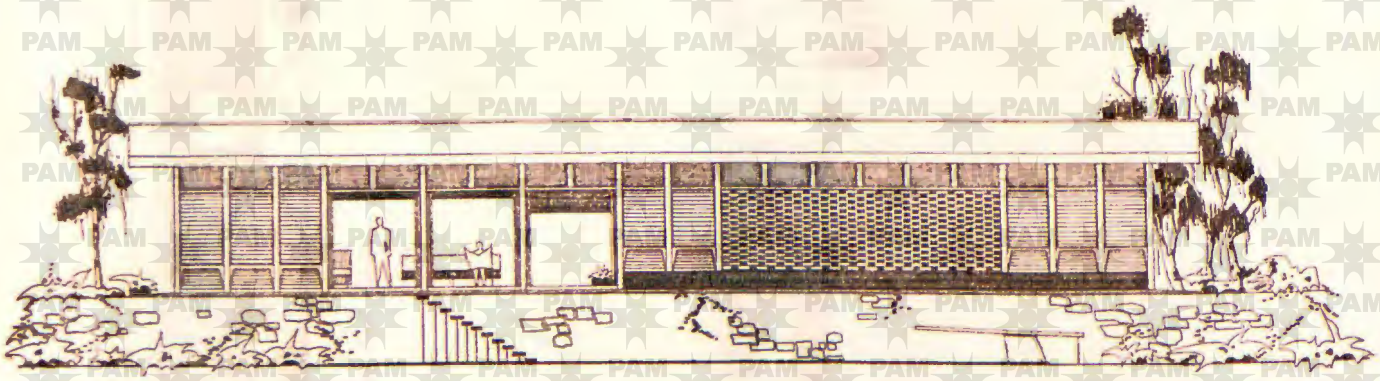
NORTH-EAST ELEVATION | SCALE: 1/8IN TO 1FT.



SOUTH-WEST ELEVATION | SCALE: 1/8IN TO 1FT

DESIGN SCHEME - 1

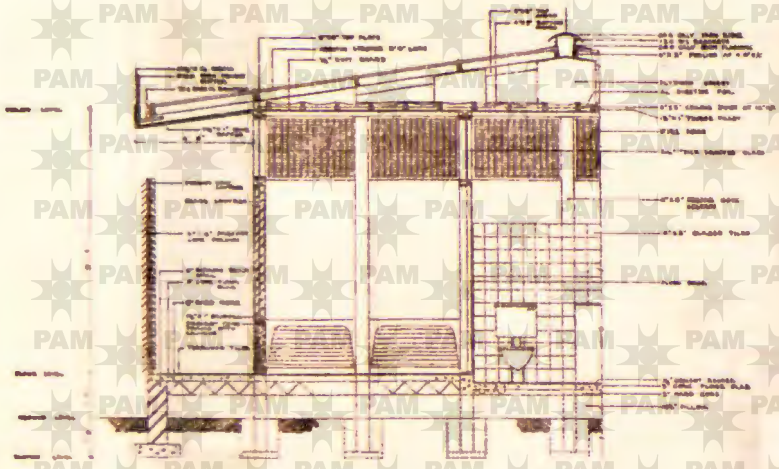
LEE WEE KEE
1ST YEAR ARCHITECTURE
1ST APRIL 1960



SOUTH EAST ELEVATION | SCALE 1/8IN TO 1FT

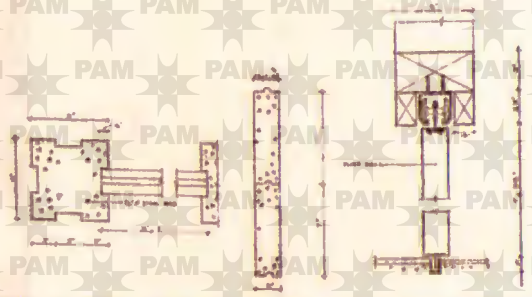
DESIGN SCHEME - 1 | [illegible] YEAR ARCHITECTURE. 1ST APRIL 1960

Colombo Plan, but sponsored by Bonn that has saved the course of architecture, which could not have been developed by the efforts of one full-time lecturer working alone. Since 1958 Carl Voltz has concentrated on laying the foundations for the study, in other words, he has taken charge of two successive first year's specimens of whose work are shown here. They bear witness to the quality of his teaching. Coming from Ulm, the "School for Design" founded by Max Bill, Carl Voltz has been particularly well-suited for the opening stages of the training. His going away at this juncture is felt as a severe loss. However, Bonn has made available the funds to send another



SECTION YY | SCALE 1/8IN TO 1FT

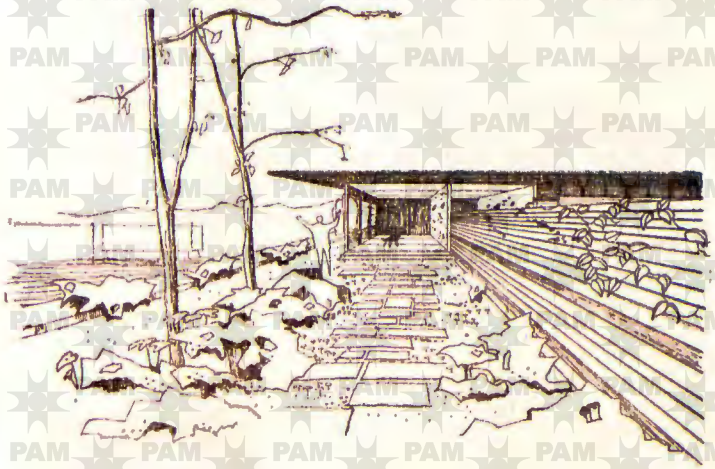
SECTION XX | [illegible]



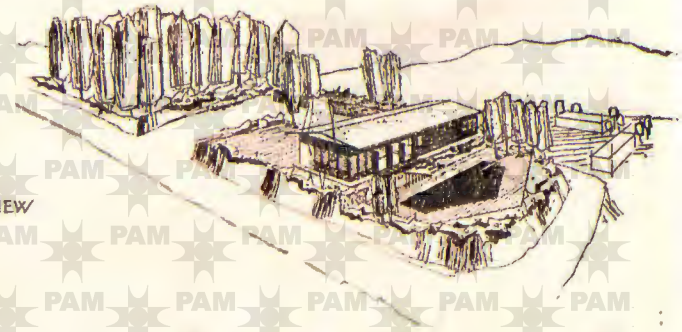
SECTIONS OF CONC COLUMN, SLABS AND SLIDING-FOLDING DOOR | SCALE 1/8IN TO 1IN

DESIGN SCHEME - 1 | [illegible] YEAR ARCHITECTURE. 1ST APRIL 1960

teacher from West Germany in his stead. The Deutsche Forschungsgemeinschaft and the Bund Deutscher Architekten, the German R.I.B.A. have advertised the vacancy, and we have received a number of applications from West Germany. This eager response from colleagues in Western Germany is certainly heartening, and gratitude is due in particular to the Bund Deutscher Architekten who has readily helped us in finding a successor for Carl Voltz.



PERSPECTIVE OF RETREAT



BIRDS EYE VIEW

DESIGN SCHEME - I

We have also advertised a vacancy of a senior lecturer in architecture here in Malaya, but only one application has been received by the Public Services Commission. This young architect wisely paid the College a visit before applying and made it a condition that he should be permitted to do private practice while teaching. It appears obvious that every applicant who is a Federal Citizen will make the same condition, and it will be necessary to approach Government with a view of reaching a compromise which would benefit the students, allow teachers of architecture to lay the foundation of their later careers as architects and, at the same time, take due account of the Conditions of Service in the Federal Government. Informal talks between a member of the Education Committee and a member of the P.S.C. have, at least, shown that such a compromise is by no means unthinkable, and Mr. Posener has prepared a report on the subject which, at present, is in the hands of the Principal.

The staff and students of the College have before now been approached to furnish designs for buildings or interiors. A timber staff quarters for an officer of the Forest Department designed by a second year of students, under the guidance of Carl Voltz, is shortly to be built at Kepong. A large weekend house for Port Dickson is ready as a sketch and may be carried out any time. Recently the Youth Hostel Association has approached us with the request to prepare a scheme for a youth hostel at Morib. The

staff at the College has never declined requests of this sort for the obvious reason that they did not wish to deprive the students of the experience of designing for life and seeing their building actually go up. So far, the financial angle has not unduly worried us. The design for the timber house is a job "farmed out" by P.W.D. and in the case of designing for the Youth Hostel Association we feel entitled to waive fees and consider our scheme as a contribution to a cause deserving support. But in the long run some compromise must be reached which would allow teachers of architecture to act as architects and to let the students participate in their jobs. Without a certain relaxation of the conditions of service for this rather special officer, the teacher of building, it will be well-nigh impossible to carry out our programme of Malayanisation at the Technical College: to hand over the training of young architects in Malaya to teachers who belong to the country.

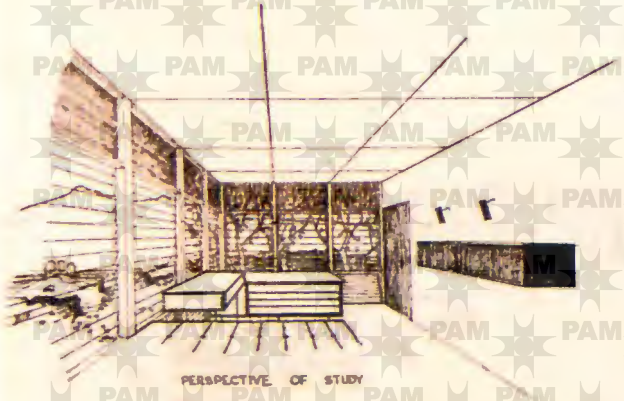
In conclusion, we wish to thank those agencies which have donated scholarships for the study of architecture at the Technical College.

The F.M.S.A. itself is sponsoring two students. The Rotary Club and the Shell Company have endowed one student each.

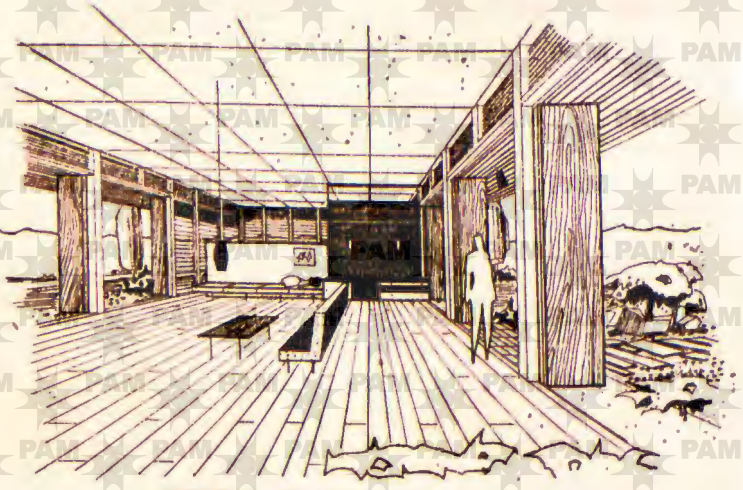
These students have now completed their first year of studies, and they have proved highly successful. Miss Evelyn LEE MONG HAR has obtained first place in the Year. LEE WEE KEE (F.M.S.A.) whose design scheme is published here is second, and our other scholarship student, NIK YUSOF CATHEE has come first in "Design," while JOSEPH LEE who is sponsored by the Shell Company has produced a remarkably fine scheme in the sessional examination.

It appears desirable that these good beginnings should be followed up. The Rotary Club has, in fact, already offered further scholarships for the study at the Technical College, and our own Society is trying to obtain the funds required to endow more scholarship students. (cf. "Society News and Views").

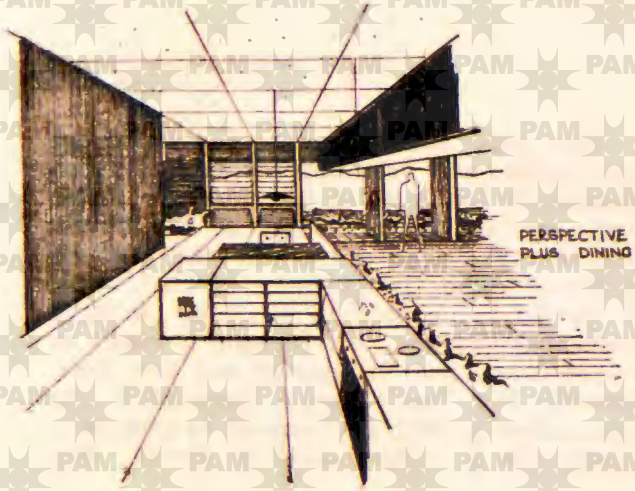
J. P.



PERSPECTIVE OF STUDY

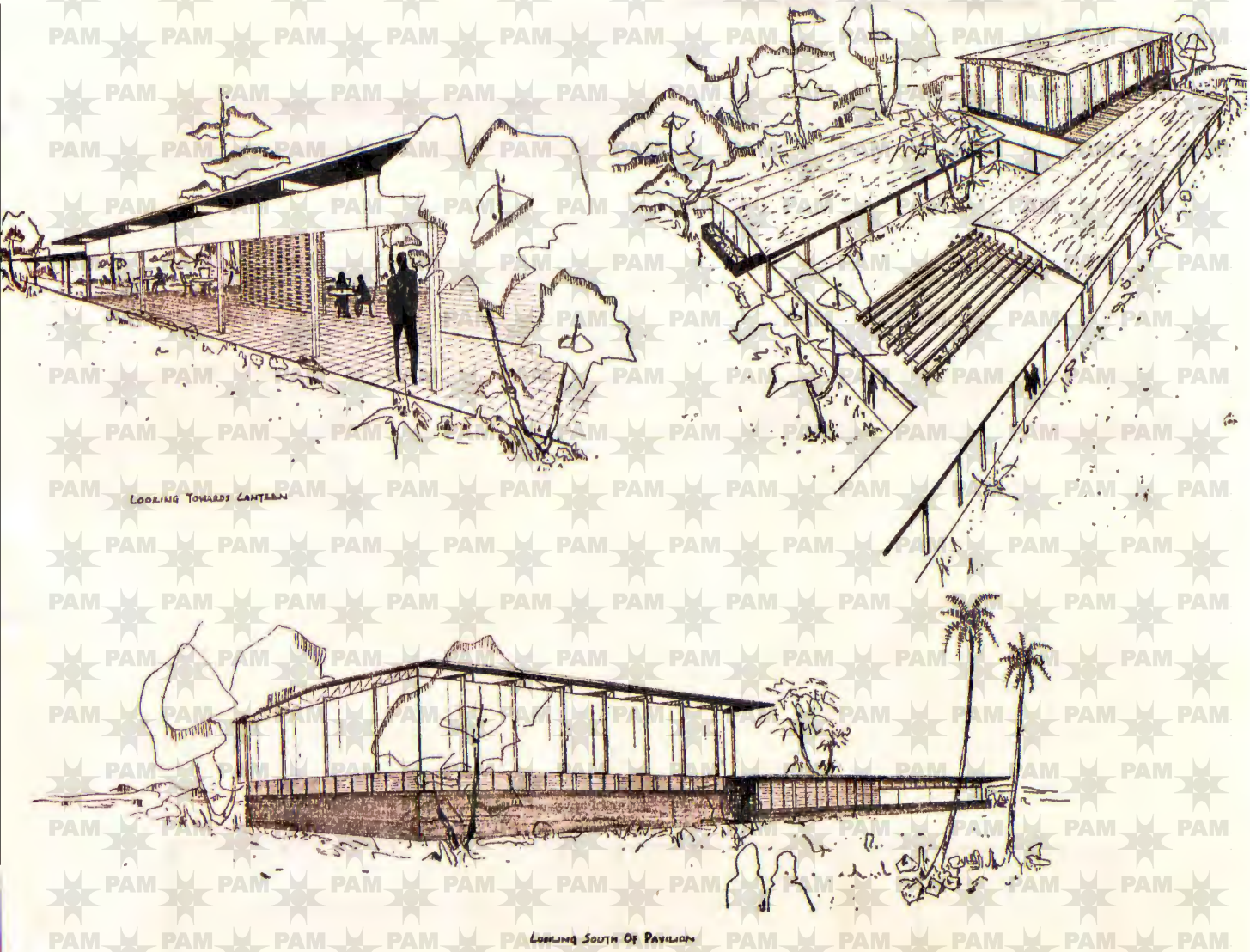


PERSPECTIVE OF LIVING AREA



PERSPECTIVE OF KITCHEN PLUS DINING AREA

DESIGN SCHEME · 1 | LEE WEE KEE 1ST YEAR ARCHITECTURE 1ST APRIL 1950

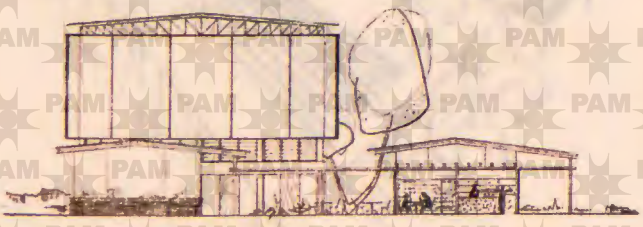


Design for a Technical College Sports Pavillion by Miss Lee Yin Yoke—2nd Year.

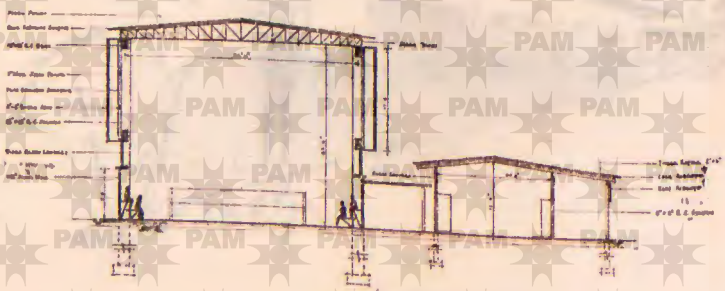
Plan and elevations page 48.

South Elevation

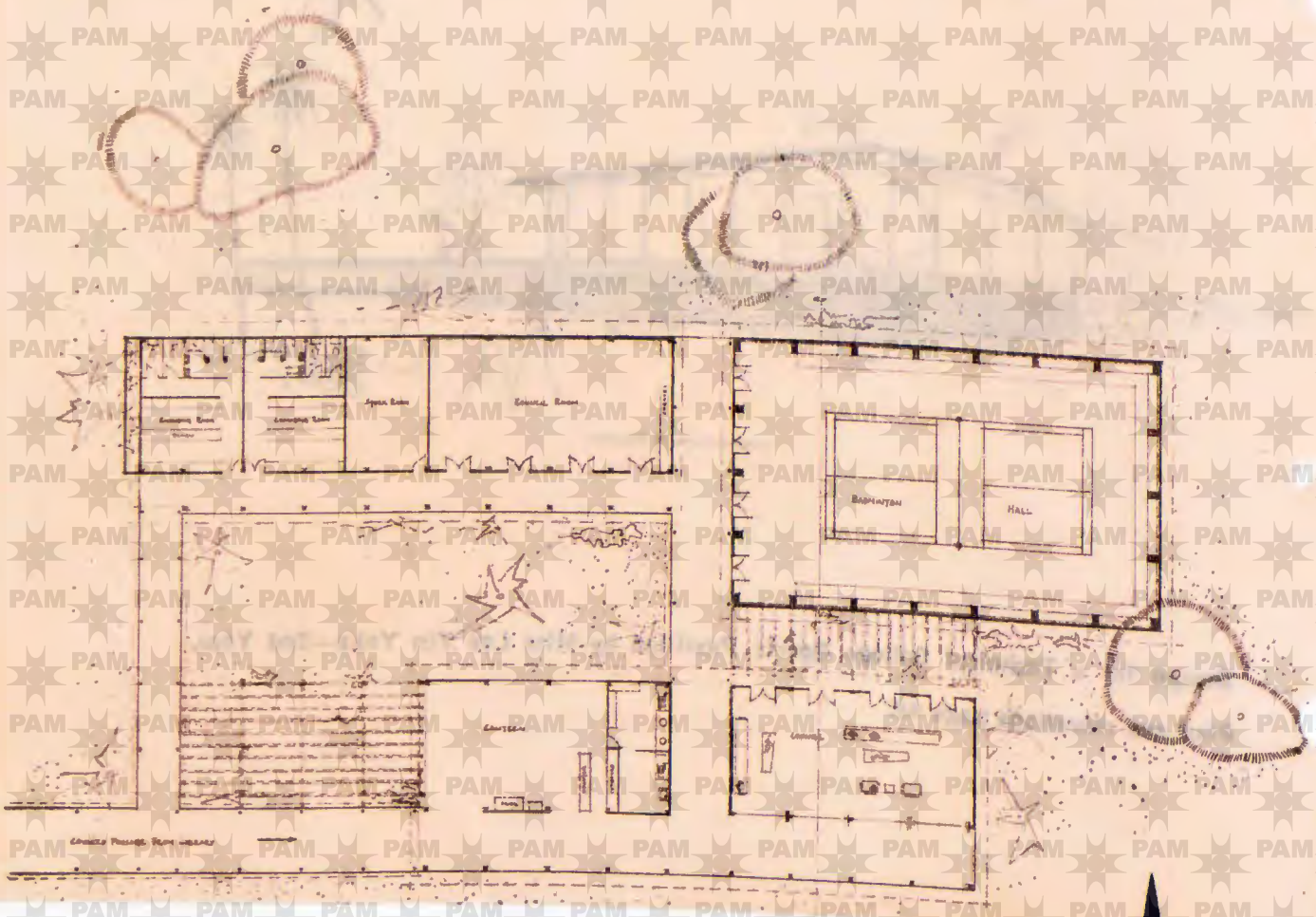
North Elevation



West Elevation



Section A-A



SOCIETY'S NEWS & VIEWS

THE ANNUAL GENERAL MEETING.

The Eleventh Annual General meeting was held at the Selangor Club at 11.00 a.m. on Sunday, June 19th, 1960.

The President presented his Annual Report which recorded another successful year of the Society's activities.

The election of Office-bearers and Council resulted as follows:—

President:	Mr. A. A. Geeraerts	(A)
Vice-President:	Mr. Kington Loo	(A)
Hon. Secretary & Treasurer:	Inche Hisham Albakri	(A)
Members of Council:	Mr. W. Chen	(A)
	Mr. C. R. Honey	(A)
	Mr. N. G. Lehey	(A)
	Mr. W. I. Shipley	(A)
	Mr. J. R. Stewart	(A)

REPRESENTATION ON COMMITTEES

Board of Architects:—

Mr. E. Taylor (F) Mr. J. R. Stewart (A)
Mr. Kington Loo (A) Mr. Yap Pow Veng (A)
Mr. C. R. Honey (A) Mr. R. A. Hewish (A)
Mr. R. G. Jones (A)

Technical College Board of Governors:—
Mr. C. R. Honey (A)

Timber Research Advisory Committee:—
Mr. N. G. Lehey (A)

Kuala Lumpur Committee on Car Parking and Connected Problems:—
Mr. A. A. Geeraerts (A)

COMMITTEES 1960 - 61

The following members were elected to the various committees at the Council Meeting on 5th July, 1960:—

Education Committee:—

Mr. N. G. Lehey	(A)
Mr. C. R. Honey	(A)
Mr. W. I. Shipley	(A)
Mr. S. P. Merer	(A)
Inche Hisham Albakri	(A)

Magazine Committee:—

Mr. Kington Loo	(A)
Mr. J. Posener	
Mr. V. R. Stewart	(A)
Mr. H. I. Ashley	(A)
Inche Hisham Albakri	(A)

'Ideal Homes' Committee:—

Mr. A. A. Geeraerts	(A)
Mr. T. A. L. Concannon	(F)
Mr. W. Chen	(A)
Mr. Kington Loo	(A)
Inche Hisham Albakri	(A)

FMSA EXHIBITION OF ARCHITECTURE 1959.

Left to Right: Deputy Prime Minister, Mr. A. A. Geeraerts, the Ambassador of the U.S.A., and Mr. T. A. L. Concannon.

CONDITIONS OF ENGAGEMENT AND SCALE OF PROFESSIONAL CHARGES.

The Society's new form of Conditions for Engagement and Scale of Professional Charges was approved for adoption at the Annual General Meeting. It will soon be printed in booklet form which will be for sale.

'IDEAL HOMES' COMPETITION AND EXHIBITION.

About 29 Commercial Firms have agreed to be the Promoters of the "Ideal Homes" Competition and Exhibition with a view to forming a fund for furthering Architectural Education and award scholarships in the Federation of Malaya

A Committee of Promoters with Mr. Lee Kai To as Chairman has been formed.

The Competition will be organised to obtain three designs for houses costing about $23,000/- each (including land) which will be constructed on sites in Petaling Jaya.

THE ANNUAL DINNER

The Annual Dinner of the Society was held on Saturday, 18th June, 1960 in the Federal Hotel, Kuala Lumpur.

His Highness the Regent of Selangor who was accompanied by Her Highness Raja Puan Muda graced the occasion as the Guest of Honour.

Among those present were The Minister of Works, Posts and Telecommunications, Hon'ble Dato V. T. Sambanthan; the Vice-Chancellor University of Malaya, Professor A. Oppenheim; the President of Society of Malayan Architects, Mr. E. J. Seow; the President of Institute of Engineers (F. of M), Tuan Haji Yusof b. Ibrahim; Chairman of R.I.C.S. (F. of M.), Mr. R. Rhodes; Chairman of Arts Council, Mr. K. Loo; Vice Chairman Overseas Joint Group, Mr. Sharples; President, Board of Architects, Mr. E. Taylor; and Representative of I. A. M. (Singapore), Mr. P. M. D'Almeida.

Hon'ble Dato V. T. Sambanthan proposed the Toast to the R.I.B.A. and the F.M.S.A. which was replied by the President, Mr. T. A. L. Concannon. The Toast to the Guests was given by the Vice-President, Mr. A. A. Geeraerts and Professor A. Oppenheim replied on behalf of the Guests.

SOCIETY'S AREA

The R.I.B.A. Council at their meeting on 5th April gave formal approval to the transfer of Penang from the Province of the Institute of Architects of Malaya to that of the Federation of Malaya Society of Architects for allied Society purpose.

MEMBERSHIP

The following have been elected to Membership:-

Ordinary Members:—

Mr. Chan Kong Yew
Mr. Alan James
Mr. Linky Lim
Mr. Chan Fook Ming
Mr. R. Crawford
Mr. Tan Chor Eng
Mr. S. R. King
Mr. Lim Chin See
Mr. Ng Puay Kwang
Mr. H. P. G. de Siedlecki
Mr. J. G. Dowsett.

GLASS

Glass is one of the oldest of man-made materials. Its basic ingredients have always been the same, but the past century has seen manufacturing methods decisively transformed. Since the first world war, new conceptions relating to the production of flat glass for windows and motor cars particularly stand out.

Ordinary clear glass is made fundamentally from silica in the form of sand, with soda and lime. These raw materials are melted in open-hearth regenerative furnaces called tanks, which contain more than 1,000 tons of glass.

Soda-lime-silica glass melted on a large scale in such tanks is principally used for three main products; flat-drawn sheet glass, often known as window glass; varieties of rolled glass, including rough-cast, which is ground and polished into plate glass; and, finally, the many kinds of glass articles made by moulding processes — for example, blowing or pressing.

Sheet Glass

The first way of making flat drawn sheet glass was invented by a Belgian named Fourcault in 1904. By this and the Pittsburg method, which has been used since 1931, continuous sheets of flat glass, with a controlled width, are drawn vertically from a pool of molten glass and passed through an annealing chamber.

The surface of the resulting glass has the true 'fire finish' on both sides, but it is not free from distortion, not even absolutely flat. The weight of the rising glass and its clinging viscosity cause ripples and stretchings before it has cooled enough to be safely solid. It is, however, good enough for normal housing and horticultural purposes.

Plate Glass

This is the better, more expensive quality wanted in mirrors, cars and shop windows.

For a long time rough cast plate glass could be manufactured only in sections of limited length. Then in 1920 the Ford Motor Company evolved, and Pilkingtons developed, a continuous process, a method of rolling a ribbon of glass out of a furnace.

From Pilkington Brothers came two notable inventions affecting grinding and polishing.

In 1925 the Company developed a machine that ground and polished sheets of glass continuously, first on the top surface and then, after the glass had been turned over, the bottom surface. This entailed double handling.

How could these operations be eliminated ?

Pilkington Brothers got down to the problem. It took them twelve years to solve, but in 1937 they had created 'The Twin', the largest glass production unit in the world. It was a triumph of ingenuity. The ribbon of glass passes between grinding heads above and below it, so that its two sides are worked on simultaneously. More than 1,000 feet long, 100 inches wide, and a mere quarter of an inch thick, it now travels at the rate of 200 inches a minute.

The design of the Twin was an impressive stride forward, and nearly every big glass-producing country adopted it.

But the Twin was not the final answer.

It is, unavoidably, a costly method of producing the desired surface; and, furthermore, a surface not as satisfactory as that achieved by allowing the glass to cool on its own.

Perfect fire finish has been the dream of the world's glass industry for a long, long time. How to support the hot, fluid glass without strain, so that a truly flat, distortion-free sheet could emerge, of any desired length and at a commercially practicable speed — *that* was the poser, the '64,000-dollar question', so to speak.

Now Pilkingtons have found the answer. It is the Float Process.

Float Glass

Put simply, the continuous ribbon of glass passes from the furnace *to float on the surface of a molten metal* at a controlled temperature. It emerges with a brilliant lustrous finish on both sides, grinding and polishing being unnecessary.

With its natural, unspoiled surface Float Glass in appearance combines all that is excellent in sheet and plate glass.

Crown Glass

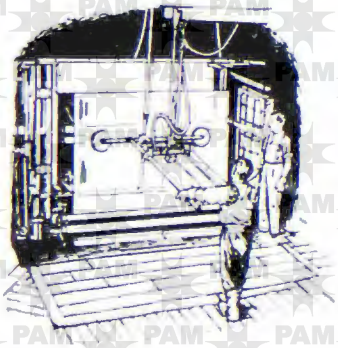
This was the first method of manufacturing sheets of glass through which clear vision could be obtained. The glass was gathered at the end of a blowpipe and blown into a pear-shaped form. An iron rod, on the end of which was a blob of hot glass, was then pressed against the thick end of the pear to which it stuck, and the neck of the pear holding the pipe broken off. The remaining portion was re-heated and by spinning it was opened out into the form of a disc about four feet in diameter, which was cut into small panes.

Sheet Glass Cylinder Blown

Another early process was Cylinder Blown in which a long glass bubble was blown and shaped into cylindrical form. The ends were opened and cut off, and the resulting cylinder split length ways. Placed in a heated chamber, it softened again and was flattened into a sheet with the aid of a wooden tool held on an iron rod. Ripples in the glass were straight and not circular as in the Crown process.

Sheet Glass Cylinder Drawn

Cylinder Blown glass gave way to Cylinder Drawn. In this process, glass was ladled from a melting tank into a double-sided crucible (or pot) contained in a kiln heated by producer gas. A pipe with a re-entrant lip was lowered into the glass which welled over the edge of the lip and solidified, forming a solid ring by which the cylinder was drawn up from the pot. Air supplied through the pipe maintained the required diameter of the cylinder. In this manner a cylinder 30 inches in diameter and 40 feet high was drawn and cut into lengths, which were then flattened.



Sheet Glass Vertically Drawn

The modern method of manufacturing sheet glass is to draw up glass sheets of controlled width from a melting tank and pass them through vertical or horizontal annealing chambers, prior to cutting. The thickness of the glass can be regulated by the speed of drawing and the skill of the operators. The glass has true fire-finished surfaces, but is not free from distortion nor perfectly flat, due to variations in viscosity of the molten glass at the point of draw.

Regenerative Furnace

A vital step in glass-making came in the middle of the 19th century with the taking over from the steel industry of Siemen's Regenerative Furnace. This made possible the building of large melting tanks, which meant that glass could be manufactured from its raw materials on a large scale instead of from small pots. The size of the sheet was no longer limited by the pot from which it had been made.

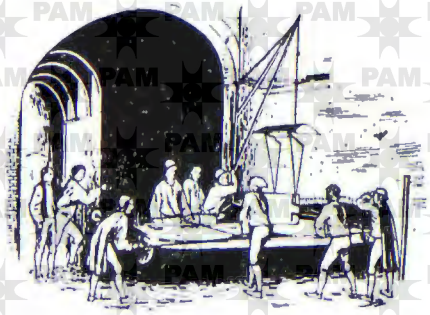


Plate Glass Table Cast

The fact that distortion in the glass produced by these early methods made it unsuitable for mirrors led to the first manufacture of plate glass by the French towards the end of the 17th century. Molten glass was poured from the melting pot on to an iron table to form a thin slab. Because of the contact with the metal it lost its fire-finished surfaces. So the slab had to be ground and polished with abrasives to get true, parallel surfaces.

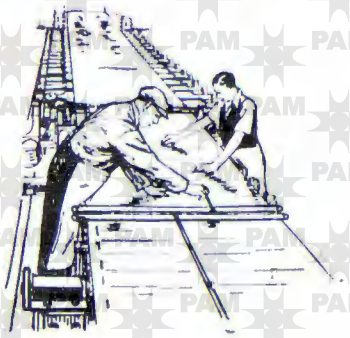


Plate Glass Flow Production

A method of rolling a continuous ribbon of glass out of the melting furnace was invented in 1920 by the Ford Motor Company, which uses large quantities of plate glass in the manufacture of cars. It formed the basis of today's high speed plate glass making, but when put into operation faced the handicap that the glass produced, with its surfaces marred by the rolling process, needed to be cut into pieces for grinding and polishing.

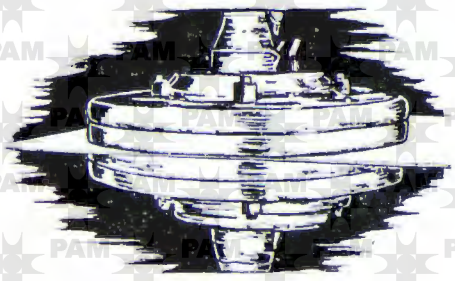
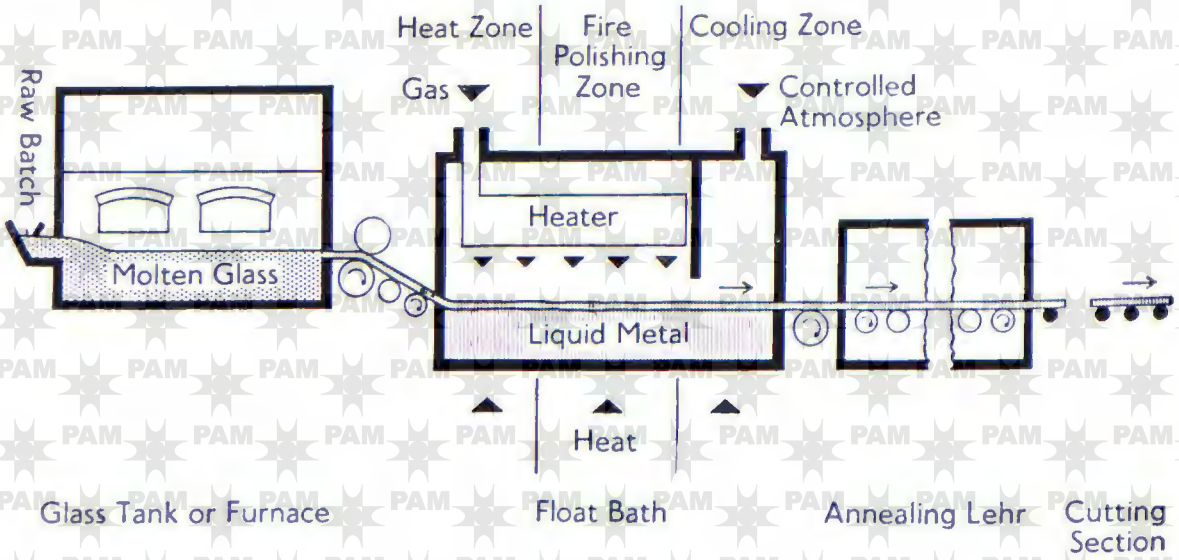


Plate Glass Twin Grinder

The most recent glass-making development before the Float process was the Twin Grinder invented by Pilkington Brothers in 1937 for the manufacture of plate glass. A continuous ribbon of glass 100 inches wide travels at 200 inches a minute between grinding heads above and below, for more than 1,000 feet. To-day, this is the standard plate glass machine in every major glass making country except Russia and Japan.



The Float Process

Being a continuous process from furnace to finished product, Float makes possible full mechanisation from the handling of raw materials to the packing of glass for dispatch. The plant needed for Float Glass occupies a far smaller area than the Twin Grinder. It cuts down power and maintenance needs, and there is much less wastage through breakage and surface damage.

Development work is still going on, and for the time being the new glass will be sold in limited quantities at Plate Glass prices. Eventually when output grows, the more economical Float process will have a favourable effect on both the price and quantity of high-quality glass.

Left:- Natural light and sound insulation are provided by "INSULIGHT" Hollow Glass Blocks round the lift shaft of the BBC Television Centre, Canteen Building, Wood Lane, London.

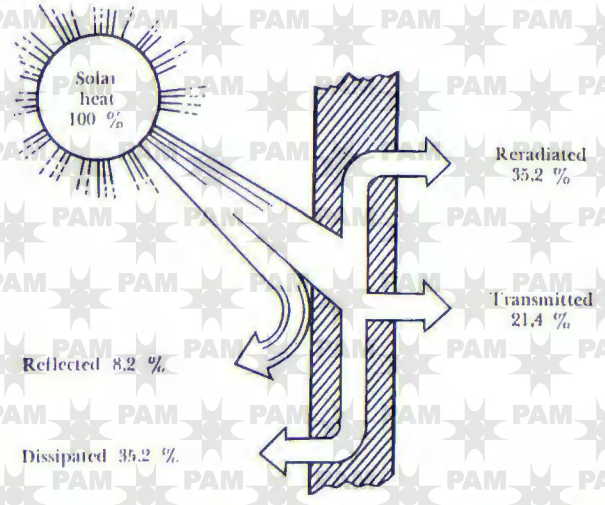
Right:- The lift shaft of Fielden House, London, S.E.1. is glazed with ¼-in. Georgian Polished Wired Glass for light and protection.

THERMOSOL HEAT-ABSORBING WINDOW GLASS

Owing to its special chemical composition, Thermosol is a heat-absorbing window glass, remarkably opaque to the infra-red rays. Hence it gives perfect protection against radiant heat, whilst its slightly greenish tint allows the transmission of a soft, natural and eye-resting light. The sketch below illustrates a test made on THERMOSOL heat-absorbing window glass of ¼" (6,3/6,7 mm). The percentage of solar heat excluded from buildings is about 44% for this thickness, and only somewhat smaller for the other thicknesses. The practical advantage of this property is that THERMOSOL contributes to a valuable extent to keep the inside temperature cooler than the outside temperature. Even in combination with air-conditioning systems, it considerably relieves air conditioning equipment and thus lowers its operating cost.

THERMOSOL is manufactured in the following thicknesses:

22oz. (2,6/2,75 mm) — 26 oz. (3,1/3,4 mm) —3/16" (4,5/5,1 mm)—7/32" (5,3/5,8 mm) —1/4" (6,3/6,7 mm).



Below is the light transmission chart of white window glass compared to heat-absorbing THERMOSOL.

Thicknesses	Entering Light	
	Ordinary glass	Thermosol
22 oz. (2,6/2,75 mm)	91%	86%
26 oz. (3,1/3,4 mm)	90,8	84,8
3/16" (4,5/5,1 mm)	90,2	81,5
7/32" (5,3/5,8 mm)	89,9	80
1/4" (6,3/6,7 mm)	89,6	78,4

Some Useful Recommendations for Glazing

As THERMOSOL glass absorbs much more solar heat than ordinary window glass, it would be wise to take certain precautions as to its setting, especially in roofs.

1. Allow a tolerable of 1/6" (4,5 mm) to 1/4" (6,5 mm) between the glass and its support members, so as to secure a certain possibility of expansion and contraction of the glass.
2. Use preferably a putty that will not dry out or harden by time.
3. Use support members of metal or fully seasoned lumber.
4. Avoid glazing in such a manner that strain would be imposed on the THERMOSOL through warping or twisting of the sheets.
5. The roof should have as much pitch as possible.

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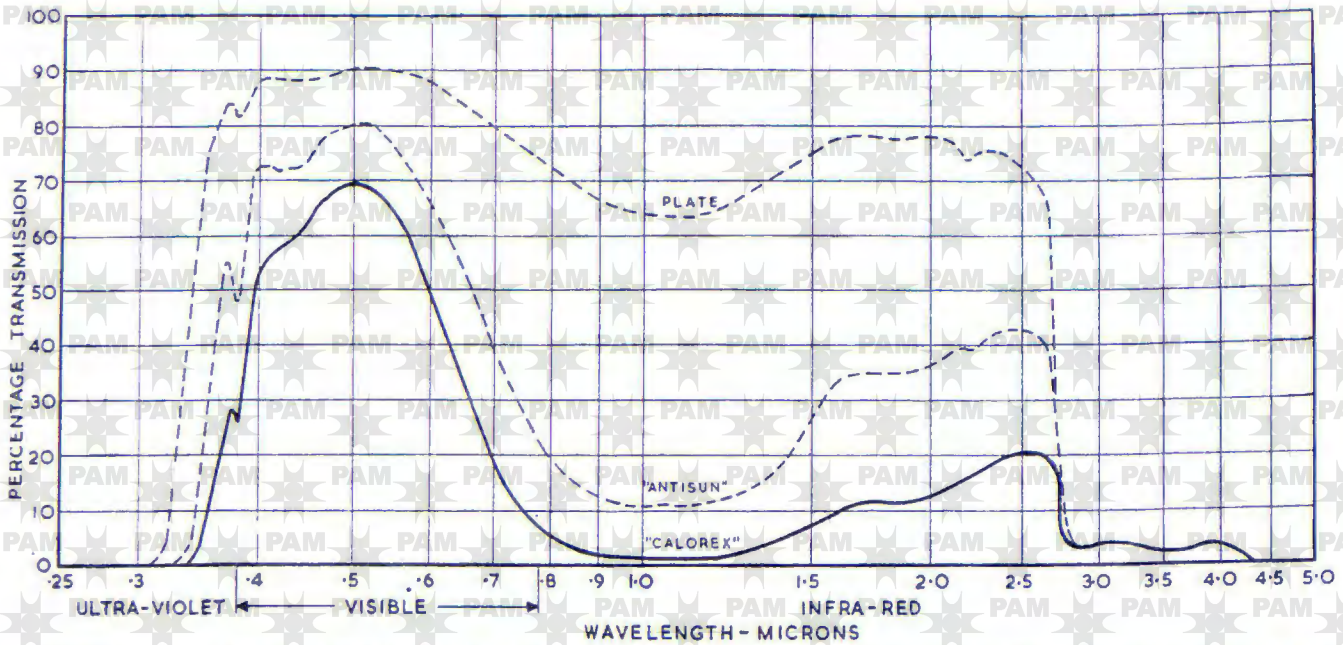
CALOREX CAST GLASS

In many buildings in tropical countries, solar radiant heat can be very troublesome. If not controlled, it places a considerable additional burden on air-conditioning plant, quite apart from making working and living conditions uncomfortable. Therefore, the majority of design problems, particularly in warm climates, require the control of sunshine to some degree, the architect being chiefly concerned with the provision of diffused and controlled sunlight for natural lighting. To combat these difficulties and to aid in these design problems, a special kind of glass is available and is known as Cast Glass "CALOREX."

Properties

Cast Glass "CALOREX" is a textured translucent glass of soft blue-green tint, specially designed for its effect on the transmission of ultra violet and infra red rays. It absorbs most of the infra red (heat) radiation in sunshine, whilst transmitting a relatively high percentage of visible light. It also reduces the intensity of the direct rays of the sun. Approximately 60% of the visible light is transmitted, but only about 22% of the solar heat energy passes through the glass. The colour imparted to the transmitted light is not unduly noticeable unless comparison is made with unfiltered light. A particular advantage to be gained from the use of Cast Glass "CALOREX" is a reduction of glare due to the diffusing properties of the textured surface and the soft tinted light transmitted.



SPECTRAL TRANSMISSION OF HEAT ABSORBING GLASSES AND OF ORDINARY PLATE GLASS — THICKNESS ¼ INCH

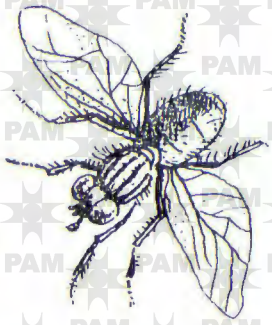
Some Facts and Figures

The effectiveness of Calorex in reducing the internal temperature of buildings can be seen from the following table.

Conditions	Floor Temp. °F.	Temp. difference between readings and shade Temp. °F.
In sun ..	135.1	49.6
Under ordinary roofing glass	124.0	38.5
Under heat-absorbing glass (Calorex) ..	98.0	12.5
In shade ..	85.5	—

The second table compares the relative heating effect of different systems of glazing using ordinary glass and Calorex.

Type of Window	Relative heating (Unglazed Window 100%	
	Ordinary Glass %	Calorex %
SINGLE GLAZING		
(a) without ventilation ..	84	45
(b) with ventilation ..	82	32
DOUBLE GLAZING		
(a) without ventilation ..	71	38
(b) with ventilation ..	69	27



Deterrent Effect on Insects

The substitution of Calorex for ordinary glazing has the effect of reducing the number of flies and other insects found in buildings. This has been most clearly demonstrated in abbatoirs and other buildings where flies are normally a pest, and has been investigated by the Department of Entomology at the Imperial College of Science and Technology.

It was found, for example, that on an average only about half as many flies visited baits (or were caught in traps) placed under Calorex glass as under ordinary glass. Counts of flies exposed to sunlight in boxes, one half of which was glazed with Calorex and the other with ordinary glass, showed on an average the same difference. In all experiments the difference was greatest about mid-day in sunny weather, but that the effect was not entirely due to temperature was shown in an experiment in which ordinary and Calorex glazing could be rapidly interchanged. The insects—bees in this case—immediately moved away from the Calorex. The deterrent effect of Calorex is due to two factors operating together: its reduction of temperature and its effect upon the light.

Glazing Precautions

Calorex itself becomes hot as it absorbs solar heat, and in fixing, the following points should be observed:—

(1) Due allowance should be made for thermal expansion, and glazing tolerance should not be less than those recommended in clause 2(e) of British Standard 973/1945 —that is 1/16th inch all around.

(2) Sharp contrasts of temperature (such as would occur in partial screening of the glass) should be avoided.

(3) The edges of panes should be free from any chipping, flaking or other irregularity from which cracks might spread. Calorex glass is cut with an ordinary glazier's diamond.

(4) Where possible (and especially in tropical countries) an air current should be induced across the pane (by louvres or some other form of ventilation) to dissipate the heat which would otherwise radiate from the glass.

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